An Empirical Investigation of the Relationship between Capital Accumulation and Economic Openness in Advanced Capitalist Economies:

Subtitle: A French Regulation School Perspective

By

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Submitted in accordance with the requirements for the degree of
Doctor of Philosophy

University of Leeds
Leeds University Business School
Economics Division

December, 2017

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Acknowledgements

My primary gratitude goes to Almighty God Jehovah, for his grace and undeserved kindness that successfully saw me through this very challenging doctorate degree programme. I glorify him with all my strength and heart.

I wish to express my special gratitude to my supervisors, Professor Gary Dymski and Professor Giuseppe Fontana for their fatherly patience, invaluable guidance and understanding as my supervisors, in the course of this doctorate degree programme.

I also wish to thank Professor Malcom Sawyer, Dr Luisa Zanchi for their guidance at the early stage of my PhD programme. I also thank Professor Bob Jessop and Professor Andrew Brown for their precious guidance. My gratitude also to Dr Kausik Choudhury and Dr Antonio Rodriguez, my colleagues Dr Mohamed Sheriff Hamid Kamara, Esere Ovie Atigari and Joseph Tucker for their moral support and encouragement. I also thank my colleagues in the PhD programme, who are too numerous to mention.

My gratitude also goes to Leeds University Business School and the University of Leeds, for the support, understanding, excellent environment and world class research facilities. I am really going to miss the University of Leeds after so many years.

And by no means the least, I express my gratitude to my darling parents Michael Otajonor (Esq) and Mrs Phoebe Otajonor and all my six siblings: Sarah, Theophilus, Lucky, Mercy, Joshua and Jubilee, for their love, support, understanding and sacrifice through the years when they had to put up with my absence and dedication to my PhD programme. God bless them all.

Abstract

One defining empirical trend across the advanced capitalist macroeconomies since 1970, is a declining rate of private non-residential fixed capital accumulation (business fixed capital accumulation). Several hypotheses have been advanced to explain this decline: higher corporate dividend and interest payments; increasing share buybacks; the rising rentier behaviour of non-financial corporations, and declining corporate profit rates. Drawing on insights from the French Regulation School Literature, this thesis explores an alternative explanation centred on changes in institutional configuration.

Scholars working within the intellectual tradition of the Regulation School have argued that a sustained period of growth in the rate of accumulation presupposes the existence of a set of enabling and mutually consistent political and economic conditions. When these enabling conditions weaken or dissolve, accumulation will be adversely affected; restoring growth when a "regime of accumulation" has fallen apart, then requires that institutional coherence be re-established. Regulation School economists have emphasized the prevailing international regime (with economic openness as a principal component) one of the key conditions; in the Post-War period, they argued that restrictions on openness – in the realms of trade and finance – helped to establish a high rate of capital accumulation.

This thesis undertakes an empirical examination of the links between economic openness and the rate of national business fixed capital accumulation in advanced capitalist economies, since the 1970s (technically after the demise of Fordism). Following Glyn *et al* (1990), capital accumulation is defined herein as the growth rate of fixed capital stock. Statistical and econometric tests for a panel of 23 OECD countries for the period 1970-2014 are undertaken. The two fundamental components of economic openness – trade and finance , are investigated independently. In each case, we explore and test the channels through which each might influence the pace of capital accumulation. This investigation undertakes structural-break and dominance analyses, and uses panel data methods. Both static and dynamic panel data methods are undertaken, and several panel estimators adopted to minimise the impact of estimator biases on inferences made.

Generally, the investigations undertaken here support the hypothesis that the accumulation rate for business fixed capital varies inversely with economic openness. This effect operates directly and indirectly; vis-à-vis the latter channel, we found that

shifts in real wage growth are a key channel through which the impact of changes in economic openness are felt. The investigations undertaken here conclude with an exploration of the problem of restoring another long wave of accumulation. A post-Fordist regime of accumulation is also identified

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Chapter 1 Introduction

1.1 Background

Business fixed capital is of great interest both within the academic and public policy-making circles (see Stockhammer, 2004). However, it has been observed that rates of business fixed capital accumulation have generally been on the decline since the end of the post-war golden age (controversially in the early 1970s), across advanced capitalist economies (Bhaskar and Glyn, 1995; Aglietta, 1998; Aglietta 2000; Boyer, 2000; Aglietta and Breton, 2001; Stockhammer, 2004; van Treeck, 2008). Throughout this extended period, the prevailing notion has been that the crucial determinant of the rate of fixed capital accumulation is business profit rate (Robinson, 1962). Arguably, for a freely operating profit-oriented capitalist firm, the rate of business accumulation depends critically upon the level of profitability associated with it. But then, statistical evidence has indicated that over the post-war decades, there has been increasing divergence between fixed capital accumulation trend and business profit rate trend across these advanced economies. While the former has been downward trending, the latter has been upward trending (van Treeck, 2008; Duménil and Lévy, 2011).

The cause of this general decline in fixed capital accumulation has taken the centre stage of a hot ongoing academic debate related to fixed capital accumulation. Three broad strands of explanation have emerged in the literature. The first is the dividend and interest payments argument: that increases in dividend and interest pay-outs have progressively denuded the amount of retained profits available for fixed capital accumulation (Aglietta and Bretton, 2001; van Treeck, 2008; Duménil and Lévy, 2011). The second argument is the financial assets acquisitions argument: that non-financial corporations have been substituting financial assets for fixed capital investments (Stockhammer, 2004). The third is the share buy-backs argument: that corporate share buybacks have increasingly reduced the funds available for businesses' fixed capital accumulation (Duménil and Lévy, 2011). Although proponents of each of these three strands of explanation have simultaneously

claimed to have found some significant supporting empirical evidence, a critical analysis suggests that these arguments have weaknesses too significant to ignore.

Regarding the increases in profit pay-outs in the form of dividends, interests and share buybacks by businesses arguments, if these explain the declining trend of capital accumulation, how then are they able to simultaneously bring about the associated upward-trending business profit rates observed in these advanced capitalist countries? A profile of profit pay-out ratios in the form of dividends for the S & P 500 group of companies in the US for each decade from the 1930s, to the 2000s, were 90.10%, 59.4%, 54.6%, 56%, 45.5%, 48.6%, 47.6%, and 32.3%, respectively. These statistics indicate that profit pay-out ratios, as ratios of dividends to business profits, in decades of unprecedented growth rates of fixed capital accumulation of the 1940s, 1950s, and 1960s, were higher than the pay-out ratios in the 1970s, 1980s, 1990s, and 2000s, which were decades of decreasing rates of fixed capital accumulation (see Glyn et al., 1992). If progressive paucity of retained earnings effectively constrained fixed capital accumulation, this should have been more severe in the 1940s, 1950s, and 1960s, than in the 1970s to the 2000s. Moreover, the statistics indicate that profit pay-out ratios, as ratios of dividends to business profits, have been on the decline rather than on the increase. The decreasing trend in profit pay-outs as indicated by the statistics is not surprising, as the most popular dividend policy with domestic firms and multinationals is the stable dividend policy, whereby amounts paid out as dividends grow slowly but surely and lagging earnings growth rates, to ensure a ratchet pattern of dividend growth.

To motivate our argument, consider the following food for thought: would business fixed capital accumulation really increase if managers were to reduce expenditure on share buybacks, dividends, and financial assets acquisitions? We have to be mindful that share buybacks have to be allowed for in the article of association and this, like dividend pay-outs, have to be approved in general corporate meetings. As argued by Aglietta and Breton (2001), the majority shareholders of corporations are more favourably disposed towards investments growth and the longevity of the firm, while the minority shareholders seek higher dividends and share buybacks. Under

the above premise, the former could be expected to straitjacket (by their votes in general meetings) the ability of companies to increase dividend and interest payments, share buybacks, and financial assets acquisitions, if these are deemed to occasion the squeezing out of fixed capital accumulation and growth. Increase in shareholder wealth usually argued to be the motivation for the higher dividend pay-outs, financial assets acquisitions, and corporate indulgence in share buybacks, could alternatively be increased by profitable real fixed capital investments. Actually, studies have shown that the highest correlate with shareholders wealth is the net present value (NPV) of underlying assets rather than simply profit pay-outs as dividends and share buybacks (Kaplan, 2016). On the fixed capital accumulation versus higher profit pay-outs decisions facing capitalist firms, corporate managers have to convince shareholders that some proposed business fixed capital accumulation will generate greater shareholder value more than immediately paying out these monies as dividends and share buybacks (Kaplan, 2016). Thus returns rates of fixed capital versus the required/desired rates of returns and shareholder value impacts may be critical issues regarding the explanadum, rather than funding straitjackets resulting from higher profit pay-outs.

The potential roles played by required rates of return have often been ignored in the related literature (see Boyer, 2000). The three broad strands of explanation are deeply rooted in the financialisation that followed the widespread financial liberalisation of the 1980s and 1990s. One immediate concern therefore, is the apparent chronological inconsistencies, for given that business fixed capital accumulation have been on the decline since circa 1970, a juxtaposition of these proposed explanatory strands with observed data on fixed capital accumulation suggests that the explanandum significantly pre-existed the explanans. These proposed corporate factors have been theoretically acknowledged in the relevant works to be applicable only to the United States. Nevertheless, business fixed capital accumulation displays a sophisticated and tenaciously downward trend, with a remarkable synchronism across advanced capitalist economies. Therefore why has business fixed capital accumulation been declining across the advanced capitalist economies since circa 1970? This question is still as relevant at this point in time, as ever before and signals the need for further research. A common assumption in

the analyses across virtually all of the empirical and theoretical contributions to this heated debate is that of a closed economy. But some of these contributors have expressed concerns over the robustness of these proposed explanations under the context of an open economy, as well as the knowledge deficit of how increased international economic openness has contributed to the observed trend of business fixed capital accumulation across advanced capitalist economies. Does economic openness bring about a decline in rates of business fixed capital accumulation under the context of advanced capitalist economies?

1.2 Research Questions; Objectives; and Justification of the Study

In spite of the extensive international economic openness that emerged in the macroeconomic scene circa 1970, the potential contributions of economic openness to the observed decline in business fixed capital accumulation in advanced capitalist economies have not been empirically investigated. A principal objective of this research is to fill this knowledge gap of the role played by the increases in economic openness in the observed downward trending of corporate fixed capital accumulation in advanced capitalist economies, by subjecting these two broad macroeconomic variables to rigorous empirical tests. The two principal components of (international) economic openness are trade openness and (international) financial openness. The central questions for this thesis therefore are: do increases in trade openness bring about decreases in rates of business fixed capital accumulation in advanced capitalist economies? Do increases in financial openness cause decreases in rates of business fixed capital accumulation in advanced capitalist economies? This research investigates the independent causative effects of both the trade openness, as well as that of financial openness on the observed dynamics of private non-residential fixed capital accumulation in advanced capitalist economies. The objectives of this thesis include the determination of the primary mechanisms through which economic openness causes inverse changes in fixed capital accumulation, in these countries.

This study is justified by the author's desire to contribute to the debate on the cause

of the observed declining capital accumulation in advanced capitalist economies, given the significance of business fixed capital in these economies as an upstream and downstream determinant of economic growth. The intensity of the discussion on the cause of the decline of fixed capital accumulation in the midst of the severe knowledge gap existing in this literature is also a motivation for this thesis. Although related, this study is distinguished from the study of growth of business fixed capital investments, for the volume of work already done in the investment growth literature is unlimited. Furthermore, the study of the determinants of fixed capital formation has limited informational values, as it focuses merely on the increase from one period to the other, of real investments. Business fixed capital accumulation is instead a relative growth index and may therefore, be decreasing, to indicate the presence of a problem, even though fixed capital formation or investment is shown to be growing.

The findings of this research have potential policy implications. Commercial policies are one part of these public policy implications. The limitations of the currently proposed determinants of accumulation together with the role played by international economic relations, suggest that potentially misleading understanding has guided public policies on international economic openness. Therefore the findings of these research may facilitate the identification of the weaknesses of current public policies and ways to take corrective actions. The underdeveloped countries are transiting to the state currently enjoyed by developed nations. Thus the pattern of accumulation of these emerging economies may follow the same trend blazed by those of the industrialized economies, unless greater insights facilitate the development of pre-emptive policies to prevent the decline of capital accumulation characterising advanced economies.

1.3 Proposed Hypotheses

Two central theses regarding advanced capitalist economies in the post-Fordist period are advanced: (1) “-that increases in trade openness cause decreases in rates of business fixed capital accumulation-”; (2) “-that increases in financial openness

cause decline in rates of business fixed capital accumulation-". The above theses are rooted in the French Regulation School literature and some recent theoretical propositions in the post-Keynesian literature. The intellectual reference points lead us to focus special attention on the underlying conflictual relationships and power structures in capitalist production relations, on the role of historical forces and dominant institutional changes in the workings of economic relationships (in contrast to the predictions of orthodox economic theory)

1.4 The Research Programme/Methodology

The method of inquiry adopted by this research is the quantitative method. The data are secondary data readily available in databases. The focus is on advanced capitalist economies. The justifications for the advanced capitalist economies as the focus of this research, include the spatial limit set by the debate in the relevant literature. The spatial breadth of the observed dynamic of business fixed capital accumulation in the literature is limited to advanced capitalist economies. Expectedly, the debate in the literature is focused on seeking explanation for the extensive decline in private non-residential fixed capital accumulation in the advanced capitalist economies as observed. This spatial limit in the relevant literature therefore set the limit for the spatial focus of this research on the advanced capitalist economies.

These economies are expected to be among the OECD countries. They are alike in many respects, including similar institutional structures. The goal, therefore, is to include as many of the OECD countries for which data are available, as possible, in the sample. Furthermore, regarding the temporal dimension of the focus of this research, the most extended sample period possible is adopted, because this makes it easier to bring to the fore, the explanatory factors that have been most active over the long term, thereby reducing the possibility that short term factors might be given undue weights and produce misleading inferences due to a small sample size. This is more so, as the causal relationship between the explained variable and the explanatory variable proposed in this thesis is expected to be valid across time.

Therefore the ability of the hypothesized relationship to hold across longer time period that stretches across different phases of capitalism within a country and different types of capitalism across capitalist countries would underpin the robustness of the causal relationship being argued in this thesis.

The intended method of estimation is the panel data method. Panel data involves the data sets in which the values of the respective variables are repeatedly measured for the same set of (panel) units, over time. The panel data method enhances the efficiency of estimation compared to individual time series method for each of the sample countries. By the provision of different intercepts but the same slope coefficient for the units set in a model estimate, panel data method is able to extract the potentially biasing influence of individual unit's idiosyncrasies on the relationship of interest. A more unbiased or consistent relationship estimate is thus facilitated. Moreover, we advocate the use of multiple panel data estimators where possible, to minimize inferential biases caused by the weaknesses of an estimator.

1.5 The Structure of the Research

This thesis is structured as follows: Chapter 2 presents some stylised fact on profit investment nexus and highlight strategy changes in corporate profit rate generation. Chapter 3 presents a review of relevant Regulation School theories and post-Keynesian theories. Chapter 4 presents a review and analysis of trade policy, particularly the processes of emergence of trade policy. Chapter 5 reviews and analyses capital account liberalisation policy and its potential processes of emergence. Chapter 6 presents an empirical investigation of the relationship between trade openness and fixed capital accumulation, and the contribution of the former to the observed dynamics of the latter, as observed in the advanced capitalist economies. Chapter 7 presents an empirical investigation of the relationship between financial openness and fixed capital accumulation in advanced capitalist economies and the impact of the changes in the former on the observed dynamics of the latter. In chapter 8, the question of a post-Fordist regime of development is investigated. Chapter 9 is the concluding chapter of this thesis.

Chapter 2 Profit Rate, Business Fixed capital Accumulation, Statistical Facts and Corporate Profit Rate Strategy Change: Evidence of a New Era of Capital Efficiency.

2.1 Introduction

Statistics suggest that while rates of business fixed capital accumulation had been rather upward trending in the decades from the end of the Second World War to the late 1960s (Golden years of Fordism) in advanced capitalist economies, these rates have been generally downward trending since the outset of the post-Fordist decades. The orthodoxy is that there is a close causative positive relationship between the rate of profit and the rate of business fixed capital accumulation (Robinson, 1962). While the statistics suggest that a strong positive correlation might have existed between these two variables in advanced capitalist economies during the golden years of Fordism, same could hardly be said for the post-Fordist decades. These latter decades have witnessed increasing divergence between the trends of profit rates and rates of business fixed capital accumulation. While rates of fixed capital accumulation have been downward trending in advanced capitalist economies, profit rates, in contrast, have been trending upward, in these economies. Some of the scholars who were foremost in drawing attention to this emerging divergence from the orthodoxy include Bhaskar and Glyn (1995).

But why have the rates of fixed capital accumulation been declining in advanced capitalist economies since the outset of the post-Fordist years? How is it possible, that upward trending profit rates are coexisting with declining rates of business fixed capital accumulation? While the answers to these questions are not easy to find, a hot academic debate has ensued with the intent to find credible explanations for this state of affairs, with the focus obviously biased towards the observed decline in rates of fixed capital accumulation. Some of the explanations put forward in the literature, while they are seemingly intuitive in explaining the declining rates of business fixed capital accumulation at the micro-level, have taken the rising rates of business profits for granted. They thus, fail to indicate an adequately strong

connection between the rising profit rates and the declining rates of business fixed capital accumulation. We argue that there have been major profit rate strategy changes by capitalists' agents, between Fordism and post-Fordism. The main objectives of this chapter include to highlight the orthodox relationship between the two rates, and the increasing disconnection; suggesting the potential way(s) declining fixed capital accumulation rates could be coexistent with increasing profit rates, highlighting some relevant statistical trends and thus, pave the way for the direction of this research. The structure of the chapter is as follows: Section 2.2 reviews the importance of fixed capital accumulation. Session 2.3 presents some stylized facts. Section 2.4 re-examines the orthodox theorized relationship between profit rates and the dynamics of business fixed capital accumulation. Section 2.5 presents potential reconciliation of the divergence in trends between these two rates, through an analysis of the composition of the rate of profit. Section 2.6 presents the summary to the chapter.

2.2 The Relevance of Fixed Capital Accumulation

Is the rate of fixed capital accumulation important? Rowthorn (1995) has argued that the rapid rise in unemployment in Europe has declining rates of business fixed capital accumulation as one of the explanatory factors. Across different schools of economic thought that include the Neoclassicals, Marxists and Keynesians, the relevance of the rate of business fixed capital accumulation for long-term economic growth could hardly be overemphasized. Comparing the advanced capitalist economies to the developing economies, it is arguable that differences in levels of fixed capital stocks have played significant roles in the differentials between the aggregate outputs of these two national classes (De Long and Summers, 1991). These differences in levels of private non-residential fixed capital, are arguably the results of past differences in rates of business fixed capital accumulation.

Observations would further suggest that globally hegemonic states that have emerged over the years, first enjoyed greater rates of fixed capital accumulation over their rivals to such international hegemony. A survey of international relations would suggest that differences in levels of fixed capital still matter for the amount of international political influence and power wielded among the nations. Moreover,

the level of fixed capital stock may have been crucial in the classification of nations into advanced and underdeveloped nations. Welfare differentials between advanced economies and developing economies are closely related to differences in business fixed capital stocks between these classes of nations. The influence of levels of business fixed capital may yet extend far into the sphere of productivity. To the extent that the elasticity of the average output of labour with respect to fixed capital is superior to that of capital with respect to labour, then the advanced economies, with greater stocks of fixed capital, are expected to enjoy higher labour productivity than poorer economies (Romer, 1987). Stockhammer (2004) has highlighted a potentially close relationship between skills accumulation and the rates of fixed capital accumulation, by arguing that the accumulation of fixed capital may well be a necessary condition that underpins "knowledge-based growth".

Perhaps the more readily digestible importance of the rate of fixed capital accumulation to the generality of the public, is its significance to the dynamics of GDP (see Fontana and Sawyer, 2013). An econometric test (Persyn and Westerlund, 2008) indicates a strong positive long-run relationship between the rate of fixed capital accumulation and the rate of growth of GDP, so that they move together in positive tight proximity. This is in spite of the contributions of the growth rates of four other elements (household consumptions, exports, imports and government expenditures) to the rate of growth of GDP. Table 2.1 presents the result of the cointegration test.

Table 2.1: Cointegration of Capital Accumulation and GDP Growth

Statistics	Value	Z-value	P-value
G_t	-3.99	-9.74	0.000
G_a	-22.42	-7.58	0.000
P_t	-14.90	-5.55	0.000
P_a	-14.05	-4.088	0.000

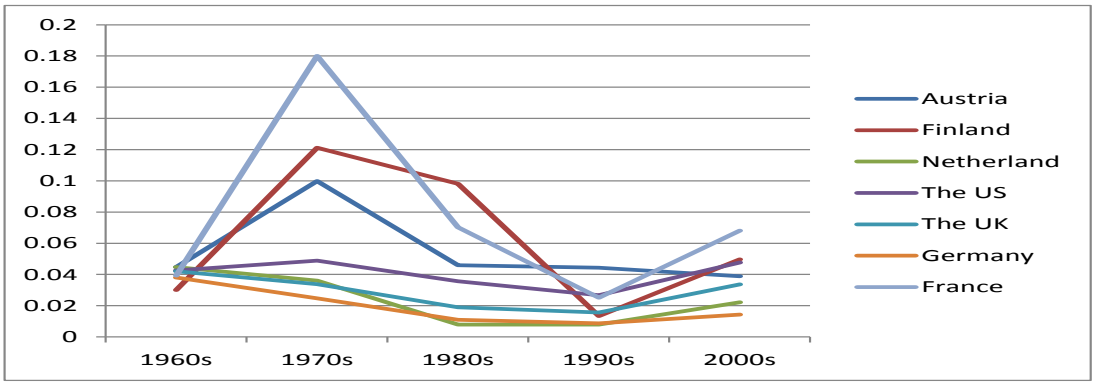
Note: H0: No Cointegration

The test is executed for 23 countries of the OECD, for which data are readily available. The G statistics test whether cointegration exists between the rate of fixed capital accumulation and the growth rate of GDP in each country, individually. The P statistics test whether cointegration exists between the aforementioned two variables if these 23 countries are seen as forming one group or panel. The subscripts of a and t only distinguish differences in types of standard deviation used in the test. In every case, there is cointegration between capital accumulation rate and GDP growth rate, even at the 0.1% significant level. Therefore if advanced capitalist economies reduce their rates of fixed capital accumulation, there would be commensurate falls in the growth rates of their GDP, to maintain the long-run relationship between the two variables. The inference therefore is that higher rates of fixed capital accumulation are crucial for higher rates of growth of GDP, in advanced capitalist economies.

2.3 Stylized Facts for Fixed Capital Accumulation and Profit Rates

Figure 2.1 presents smoothed series of rates of fixed capital accumulation for seven of the sample countries, that further enhance the vividness of the declining trends of capital growth rates since circa 1970. Business fixed capital here is represented by national stocks of net private non-residential fixed capital.

Figure 2.1: Smoothed series (capital growth rate)

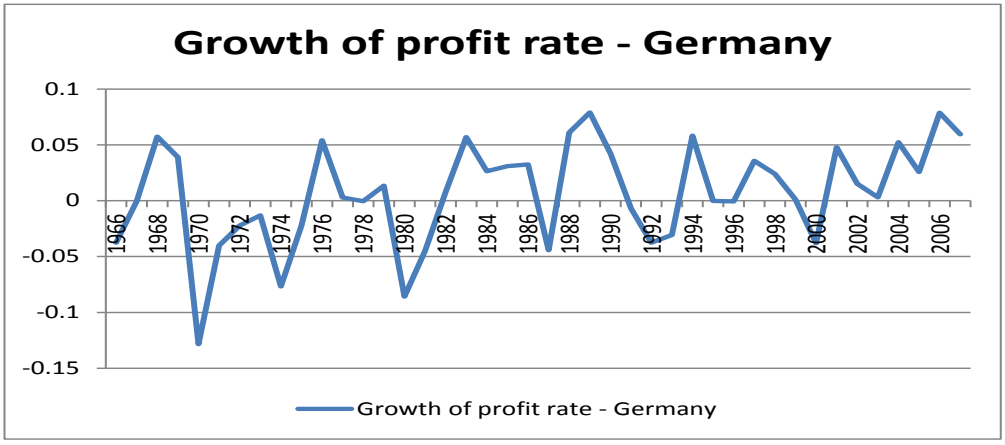


(Source: Authors computation from AMECO Database).

Capital growth rate could be measured as the ratio of real private non-residential investment to non-residential capital stock (Gordon et al, 1988; Bowles et al, 1989; Bashker and Glyn, 1995; Bowles and Boyer, 1995; Aglietta, 1998; Stockhammer

2004; van Treeck, 2008; Duménil and Lévy, 2011). Alternatively, the fixed capital growth/accumulation rate could be indexed as the percenatge change from one period to the other, of the stock of private non-residential fixed capital (Aglietta and Breton, 2001). Both series are very similar and the first measure is adopted in this research. Figure 2.1 shows clearly, the declining trends in capital accumulation and their synchronism across the 7 sampled very advanced capitalist economies. The decline and the synchronism are particularly true for the 1970s, and the 1980s. Although the late 1990s project some semblance of increases in capital accumulation in Figure 2.1, the unsmoothed series for the decades across the full sample put the seeming growth into proper perspective. In contrast to Figure 2.1, Figure 2.2 below, indicates a generally rising trend of the rate of profit in Germany (this typifies the trends for other advanced capitalist economies, although not shown here). Consistent with the literature, profit rate is here indexed as the ratio of net operating surplus to net capital stock. Following dips in rates in the early 1970s, profit rates show clear upward trends from the early/mid-1970s, albeit with fluctuations, as visible in the exemplifying Figure 2.2.

Figure 2.2: Trend in Profit Rate in Germany



(Source: Author's Computation from AMECO Database)

2.4 Orthodox Explanations for Fixed Capital Accumulation

2.4.1 Profit Rate and Capital Accumulation: Some Post-Keynesian Views

The determinant of profit rate is generally known as the rate of business fixed capital accumulation, in the economic literature (Robinson, 1962). But what determines the

rate of fixed capital accumulation? As at about 1960, there was no answer to this question, in the literature, argued Robinson (1962). She however argued that there exist a two sided relationship between profit rate and the rate of fixed capital accumulation. On the one hand, the rate of fixed capital accumulation determines the rate of profit. On the other hand, the expected rate of profit determines the rate of fixed capital accumulation. But the best estimation of expected profit rate, is the current profit rate. Therefore in the Cambridge model, the rate of capital accumulation determines the rate of profit while the current profit rate, through expected profit rate, in turn determines the rate of capital accumulation. Profit rate, while being expressed as a positive function of the rate of fixed capital accumulation, is inversely related to the rate of consumption by capitalists (See Kaldor, 1956, 1957, 1961; Robinson, 1956, 1962; Pasinetti, 1974).

If current rates of capital accumulation are too high in terms of the actual profit rates they are generating (relative to their expected profit rates), firms decrease their rates of capital accumulation, in the near future. On the other hand if rates of fixed capital accumulation are too low, in terms of the actual profit rates that they are generating, (relative to their expected profit rates), firms increase the rates of fixed capital accumulation. Robinson (1962, p.49) summarized that the rate of fixed capital accumulation depends on how profitable fixed capital accumulation appears to be. Therefore as values of the ratio of profit to capital stocks (profit rates) derivable from fixed capital accumulation decline relative to their past values or relative to alternative source(s) of profit rates, firms reduce future fixed capital accumulation. But as values of the ratio of profit to fixed capital stock increase relative to their previous values, capitalist firms increase the rates of fixed capital accumulation. The process defines an exclusive cointegrated relationship between profit rates or profitability and the rates of fixed capital accumulation, in that they both move together in tight proximity, in the same direction. In the Kaleckian model, under the assumptions of negligible expenditures and taxes by the government and with the economy closed, gross profit is the sum of gross investment and consumption by capitalists. Because investment and capitalist consumption fall under the purview of the capitalists' decision making while profit earned is not, Kalecki argues that causation runs from fixed capital investment rates to profit rates (Kalecki, 1954, p. 45).

2.4.2 Profit Rates and Capital Accumulation: Alternative Views.

A strong relationship between the rate of profit and fixed capital accumulation rate is also suggested in alternative forms by other schools of thought. In mainstream economics, it is argued that a firm invests, if there is a sufficient gap between the cost of an investment and the present value of expected cash inflows from the investment (Fisher, 1906). Therefore as the gaps progressively narrow, so would the rates of business fixed capital accumulation progressively fall. In the Keynesian literature, there is also the proposition that investments are a function of the differential between the profit from investment and the cost of the investment. Therefore from these two perspectives, as long as the differential warrants it, a capitalist/firm would undertake fixed capital accumulation, to earn the profit arising from the receipts – costs differentials. The Keynesian perspective continues that firms would accumulate fixed capital, until the cost of accumulation equate the profit from accumulation. The greater is the receipt-cost differential, the higher would be the rate of fixed capital accumulation. As the differential reduces, the rate of capital accumulation declines, even if still positive. Thus these perspectives also serve to reinforce the post-Keynesian perspective of the strong positive relationship between the rate of profit and the rate of fixed capital accumulation.

During the golden years of about 1945 to about the late 1960s or a bit later (The period of Fordism), profit rates of firms moved in close positive proximity to fixed capital accumulation rates. But do the observed progressive temporal divergences between corporate profit rates and corporate fixed capital accumulation rates across advanced capitalist economies in the years proceeding Fordism undermine the thrust of the cambridge model; Kaleckian model or the alternative explantions aforenmentioned? The anwer is an emphatic no, for these theories have highlighted that the rates of fixed capital accumulation are a function of the rates of profit these fixed capitals are able to generate, not necessarily the profit rates of the firms (or corporate profit rates).

An important implication therefore is that if exploitable alternative sources of profits become available to capitalist firms, that are superior to profits arising from fixed capital, then expectedly, the rates of fixed capital accumulation are expected to

decline, in favour of increases in profit accumulation from these alternative sources of corporate profits. Where an alternative source of higher profits other than fixed capital investment is not available, as in Fordism, corporate profit rates move in tandem with (rates of) fixed capital accumulation, in the same direction. Where an alternative profit source exists, then a firm's profit rate increases while its rate of fixed capital accumulation decreases and thus the divergence in trends of these two series, after Fordism. Therefore corporate fixed capital accumulation rates depend on the levels of profits they can generate according to the cambridge model; but also dependent on the profit levels from sources competitive with business fixed capitals. The foregoing theoretical argument therefore suggests the exitence of alternative source(s) of corporate profit rates other than fixed capital accumulation, in post-Fordism. This view point is further expantiated in section 2.5 below.

2.5 How Could High Profit Rates Coexist with Declining Rates of Business Fixed Capital Accumulation?

This question has constituted a significant challenge to traditional explanations (van Treeck, 2008). But we argue that the possibility of this unlikely coexistence could be found in the apparent changes in profit rates strategies across advanced capitalist economies, between the post war years of Fordism and the years proceeding Fordism. Profit rate could be decomposed as follows (Lavoie, 2014):

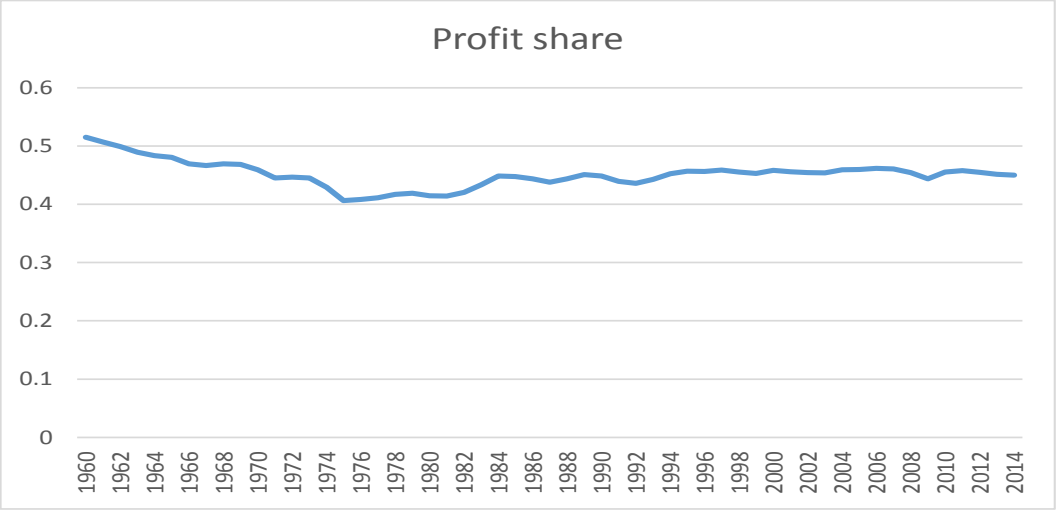
$$\pi/K = (\pi/Y)(Y/Y^*)(Y^*/K) \quad \text{.....2.1}$$

Where (π/Y) defines the ratio profit level to aggregate output (profit share); (Y/Y^*) is the ratio of aggregate output to potential output (capacity utilisation) and (Y^*/K) is the ratio of potential output to fixed capital stock (capital efficiency) (see Glyn et al, 1992), representing an underlying productive capital efficiency. A credible assumption is that (profit-oriented) capitalist firms strive for periodic (e.g. annual) profit rates to increase progressively. But as capital stocks increase, the levels of profits required to increase the rates of profit also increase. This make increasing profit rates over time rather difficult. As explained by Keynes, as fixed capital

stocks grow, the costs of further fixed capital acquisitions increase, while the increases in outputs from increasing stocks of fixed capital cause the prices of such outputs to fall, consequently reducing profit margins progressively (See Lipietz, 1986; Baddeley, 2003).

In the post war years until about 1970 (period of Fordism), the ratio of potential output to capital stock as well as profit shares (and wage shares by implication) were more or less constant, even as capital accumulation proceeded at an unprecedentedly high rates. Increases in profit rates were facilitated through higher labour productivity and increases in capacity utilization (see Glyn et al., 1992). In the post-Fordist years, capitalist firms generated increases in profit rates through increases in profit shares (decreases in wage share), cutting down on capacity utilisation, increasing the ratio of potential output to fixed capital stock by cutting down on the rate of growth of capital stocks. This changes in strategy are evidenced by Figures 2.3, 2.4 and 2.5. Figure 2.3 presents the series of profit share, averaged across the 23 advanced capitalist economies in the sample.

Figure 2.3: Profit Share Series



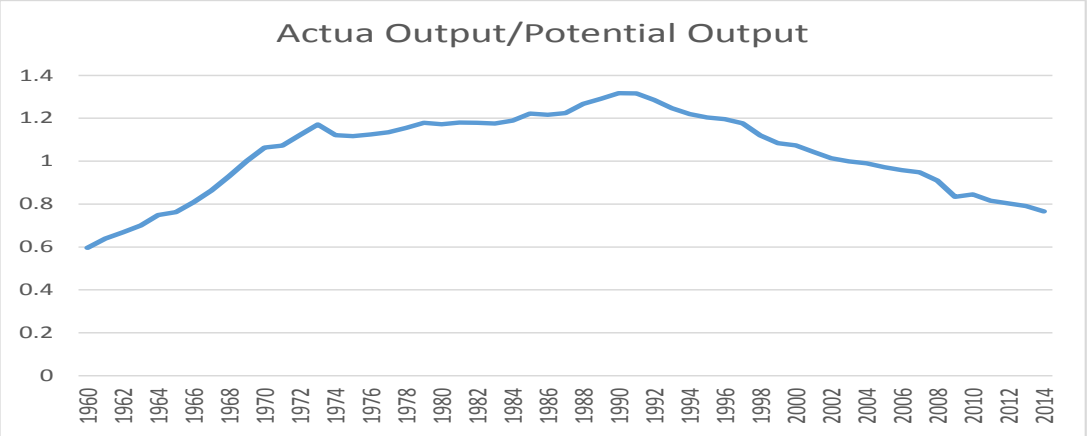
(Source: Author's computation from AMECO Database)

The series computed from data available from AMECO database, covers the period 1960 to 2014. The 1960s is considered the last decade of Fordism. The average series indicates that over the 1960s, profit shares decrease slightly from year to year

from 1960 till about 1967 and more rapidly from then until about 1973, indicative of the popular profit squeeze in the literature (See Glyn et al., 1992; Marglin and Bhaduri, 1992). From about 1974 till the end point of the series in 2014, profit share assumed an upward trend, on average, across advanced capitalist economies. This implies about four decades of continuous growth in profit shares (and by implication squeeze in real wages shares.) across advanced capitalist economies.

Figure 2.4 presents the average series of capacity utilisation through time, averaged across the same 23 advanced capitalist economies. Capacity utilisation is indexed as the ratio of actual output to potential output, computed from data available on the AMECO database.

Figure 2.4: Capacity Utilisation Series

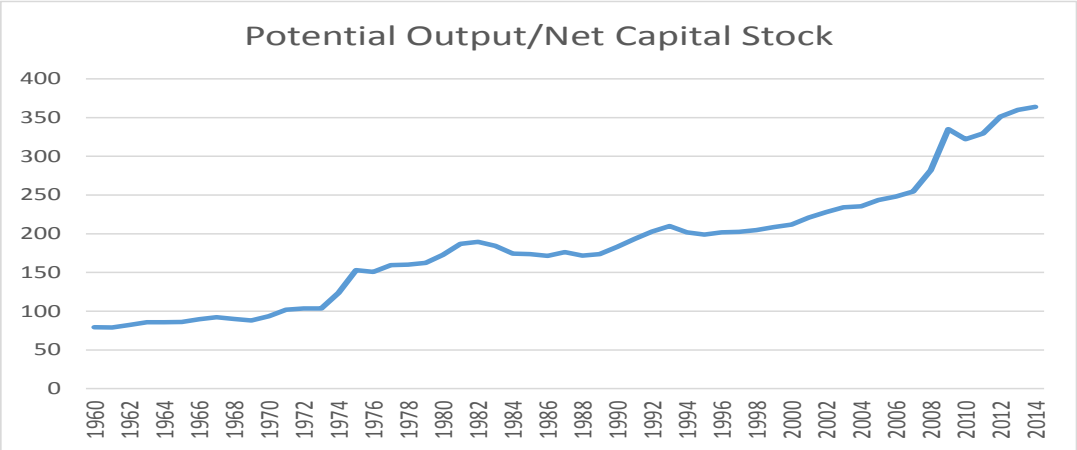


(Source: Author's computation from AMECO Database)

The average series displays three clear regimes. From the 1960 till about 1973, capacity utilisation proceeded at a very steep rate, from 60% to nearly 120%. This is consistent with the expressed view that in the post war period until the early 1970s, the labour market was tight, with unemployment very low, as both underemployed and unemployed labour reserves were rapidly exhausted (Glyn et al, 1992). As mass consumption gave rise to increasing effective demand during this era, firms met the needed increases in outputs, partly by ruthlessly exploiting installed capacities. Between 1973 and 1990, capacity utilisation increased, but at decreasing rates, relative to the 1960s. On the average, this hovered around 120%.

After about 1990, capacity utilisation commenced a progressive decline in advanced capitalist economies, as is apparent from Figure 2.4. From a peak of about 130% in 1990 or thereabout, capacity utilisation plunged progressively through the years to under 80% in 2014. This is an average rate of decline of 2.5% per annum. Thus over nearly 2.5 decades, businesses' spare capacities increased at alarming rates, suggesting less willingness (less relative profitability) for capitalist firms to fully exploit their productive capacities. Equation 2.1 indicates that falling rates of capacity utilisation implies falling profit rates. Moreover, visual inspection of Figures 2.3 and 2.4 suggests that capacity utilisation changed at faster rates than profit shares. Therefore growing profit rate according to equation 2.1 necessitates that the ratio of potential outputs to fixed capital stocks be upward trending at rather steeper rates

Figure 2.5: Potential Output to Business Net Fixed Capital Stock



(Source: Author's computation from AMECO Database)

Figure 2.5 expresses potential output as a proportion of capital stock and averaged across the 23 countries in the sample. It was also computed from the corresponding data available in the AMECO database. This average series suggests that the pattern of the ratio of potential output to fixed capital stock in the sampled economies have closely followed the inverse of that of capacity utilisation. In the 1960s, this ratio remained more or less the same, with sligth increases during this decade. Starting from the early 1970s there were massive increases in the ratio of potential output to the stock of business fixed capital, suggesting a structural break in the series of potential output to fixed capital stock ratio, in these economies. The ratio continued

its rapid increase until about 2007, when there was apparently further increase in steepness of the upward trend of this ratio, suggesting another regime break.

An important interpretation of the ratio of potential output to business fixed capital stock, is the contribution of capital stocks to corresponding levels of potential output. To the extent that the 1960s is representative of the Fordist period, potential ouput is nearly conceptual with fixed capital stock (with tight labour market). In an apparent regime break, potential output rose from being one to one with fixed capital stocks in the 1960s, to 1.5 of capital stock by 1975. Following a persistent rise, by 2007, potential output was 250% of capital stock. In the 7 years from 2007 to 2014, potential output rose from 250% of capital stock to just below 400% of capital stock.

Because potential output is a fucntion of capital stock, labour and the prevailing technology, a declining ratio of potential output to fixed capital stock may suggest any of the following three secnarios. Advances in technology increasing the output capacities per unit of capital stocks. But the data series on the marginal efficiency of capital from the AMECO database indicate that this is unlikely the case. Marginal efficiency of capital is the change in real GDP due to a unit increase in fixed capital stock. While the marginal efficiency of capital series declined slightly in the 1960s, they have remained more or less the same since the early 1970s, till about 2007. Given the average constancy of marginal efficiency of fixed capital, the second scenario is increasing rates of fixed capital stocks but increasing at lower rates than labour. The third scenario is decreasing rates of fixed capital accumulation, with labour increasing at a greater rate. The third scenario suggests increasing labour to fixed capital ratio.

The falling rates of fixed capital accumulation across the sampled countries would suggest that the third scenario is the most likely case. Since higher ratios of potential output to business fixed capital stocks, all other variables being the same, suggest higher profit rates, which is the desire of capitalist firms, the rising ratio as indicated by Figure 2.5 suggests that firms effectively increased profit rates by cutting down rates of fixed capital accumulation and biasing actual and potential economic activities away from reliance on capital stocks. Firms became more dependent on

increasing exploitation of labour, to achieve their objective of higher profit rates. Thus through the configuration of higher profit shares, lower capacity utilization and higher ratios potential output to capital stock, capitalist firms apparently were able to regenerate a sustained increase in rates of corporate profits. Businesses were thus able to increase profits for the same level of capital expenditures, or achieve the same levels of profits with lower fixed capital expenditures. Yet there may be more to this than meet the eyes. It is noteworthy that the above Equation (2.1) could be decomposed further thus:

$$\pi/_K = (\pi/_Y)(^{(C+I+G+E-M)}/_{Y^*})(Y^*/_K) \ldots\ldots\ldots 2.2$$

Where C is aggregate household consumption, I is total real fixed capital formation, G is aggregate government expenditure, E is total export and M is total Import. C and G are not the decision variables of capital accumulating firms. The alternatives opened to firms would be to increase profit shares by redistributing income from wages to profits (decreasing wages shares), decreasing the growth rates of K by reducing the growth rates of I. Decreases in I growth rates increase the ratios of potential outputs to capital stocks and profit rates over time, but by such decreases reducing Y growth rates, also reduce rates of capacity utilisation and profit rates. There would, however, be compensating increases in profit shares, so that on a net basis, reducing the growth rates of investment increases profit rates, provided there is loose labour market. Respective changes in C or E cause compensating changes in profit shares and capacity utilisation and leave profit rates unchanged. By simply increasing other components of potential output such as technology or labour bring compensating changes in capacity utilisation and the ratio of potential outputs to fixed capital stocks and leave profit rate unchanged. But decreases in investment rates also reduce the ability to meet increases in *C* by households, G by the states and E by firms. Firms could meet increases in C, G and E through increases in aggregate import (M).

Because M reduces Y, increases in imports reduce rates of capacity utilization with compensating decreases in the denominator of profit shares and no net impact on

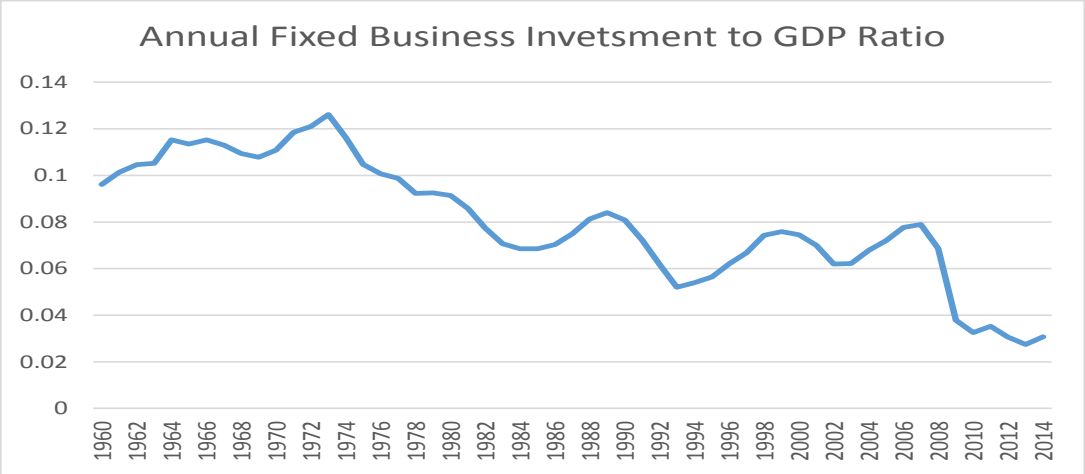
profit rates. Thus capitalists/firms grew profit rates by increasing the rates of capacity utilisation and capital accumulation, while keeping the ratios of potential output to fixed capital stock and profit share rather constant during Fordism. But they changed to growing profit rates during the post-Fordist years, by compensating increases in profit shares and decreases in capacity utilisation through reduction in fixed capital accumulation, but with consequent increases in the ratios of potential output to fixed capital stock that imply net increases in profit rates. Underpinning this strategic process, are increases exports and imports relative to GDP.

To provide further evidence that the foregoing analysed changes regarding changes in profit rate generation strategies are the case, we make further appeal to the data. The data indicate that wage shares and unit real wages have been on the decrease over the post-Fordist years. In advanced capitalist economies, data from the AMECO database suggest that real wages have persistently maintained downward trends, so that at no point in the post-Fordist years was the least unit real wage or real unit labour cost of the 1960s attained, on the average, across the advanced capitalist economies (see Ellis and Smith, 2007; Atkinson, 2009; Ryner, 2012). The ratio of fixed capital formation (i.e. is fixed investment) to total output across advanced capitalist economies, while they exhibited upward trends in the 1960s, have assumed decreasing trends in the post-Fordist decades, as a survey of databases would readily reveal. Figure 2.6 below presents a quick index of this ratio, averaged across the 23 advanced capitalist countries in the sample. While the values of this ratio increased visibly through the 1960s to a peak of 13%, they continue to trend downward thenceforth to a universal trough of just 2.7% in 2013.

Because the series for each country in the sample is a ratio and not absolute values, the issues of a small country or big country is irrelevant in this case. But a clear pattern as displayed by figure 2.6 even after averaging across heterogeneous countries, suggests that this observed pattern is indeed robust and typical of the advanced capitalist economies. The decreases in the values of the ratio of fixed investment to GDP imply increases in the ratio of at least one of the other components of GDP, to GDP. This may be house hold consumption, government expenditure or export. Assuming firms exclusively supply the outputs that meet

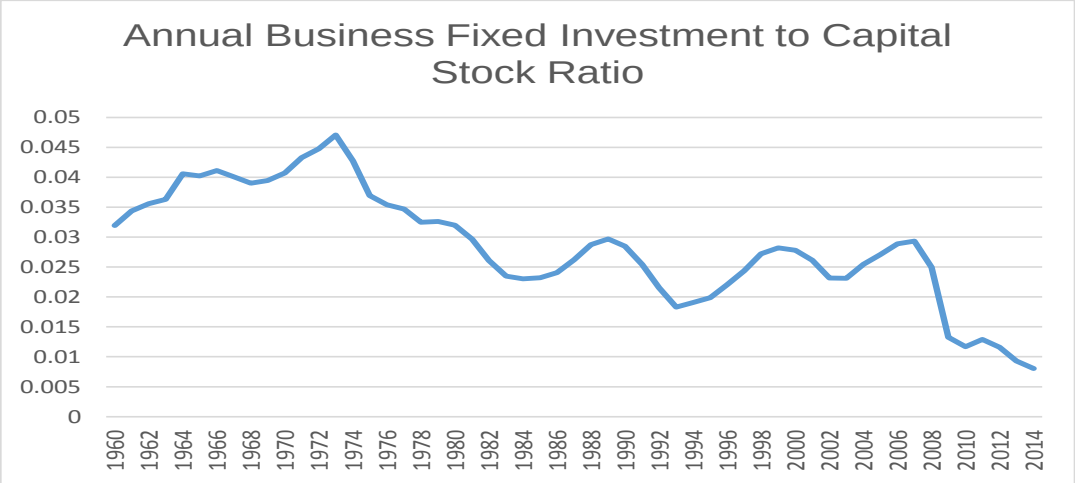
these increased expenditure, then decreases in investment growth and capacity utilization have to be met by commensurate increases in importation. More importantly, the progressive decline in the values of the ratio of investments to GDP suggests the increasing inferiority of fixed investments in terms of the generation of firms desired return to capital employed. To show that this declining relative profitability of fixed capital stock explains the declining rates of fixed capital accumulation, values of the ratio of investment to GDP are compared to rates of fixed capital accumulation. Compare Figures 2.6 and 2.7.

Figure 2.6: Annual Investment- GDP Ratio



(Source: Author's computation from AMECO Database)

Figure 2.7: Annual Investment-Capital Stock Ratio

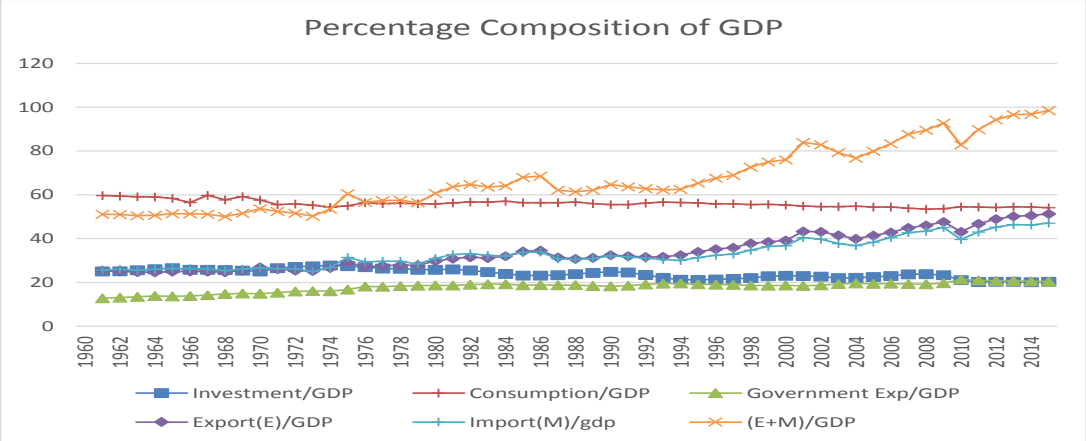


(Source: Author's computation from AMECO Database)

Figure 2.7 presents the values of the ratio of fixed investment to the stock of capital, averaged across the 23 advance capitalist economies. Figure 2.6 and Figure 2.7 are juxtaposed, to highlight the near identity of these two series. The correlation coefficient between the two series is 0.994! This suggests that the decline in rates of fixed capital accumulation is likely associated with the declining ratio of fixed capital formations to total outputs, over the post Fordist decades. From a percentage decomposition of GDP across the sample countries, we may have a further clue regarding what components of GDP as percentages of GDP have increased as investment to GDP decreases. This may reduce the paradox of the coexistence of increasing profit rates and the declining capital accumulation rates.

Data readily available at the World Bank database, indicate that government expenditures (G) as percentages of GDP have been rising all along, for the industrial economies. Household consumption expenditures (C) as percentages of GDP rose rapidly until the 1980s, when these values started a rather slow decline. The values of trades as a percentage of GDP that were rather constant in the 1960s till about 1972, rose at alarming rates through the rest of the sample period. For the OECD countries as a group, this was about 23% in the 1960s but have progressively risen to about 60% as at 2014. This pattern is in contrast to Fordism, when investments as percentages of GDP were rising and trades as proportions of GDP were relatively negligible and more or less constant, indicating a dramatic tergiversation in the activities that generate profits for capitalist firms.

Figure 2.8: Average Percentage Composition of GDP



(Source: Author's computation from AMECO Database and world bank development indicators)

Figure 2.8 presents the percentage decomposition of GDP. Consumption to GDP ratio, through the stretch of the sample period, is averagely the same. Although government expenditure rose more rapidly from the 1960s to early 1970s, after mid-1970, the rate of increase reduced. Looking at the series one could objectively assume that through the years, it has been more or less the same. At any rate, household consumptions (C) and government expenditures (G) are not the decision variables of the firm, but investments, exports and imports are. From Figure 2.8, it is apparent that investment to GDP was higher than either export to GDP or import to GDP ratio until 1970 when these three series completely overlapped. Beyond that point, the divergences between exports or imports to GDP on the one hand and investments to GDP on the other hand have been increasing progressively through time and more particularly so after the mid-1980s, the period of greater capital account liberalisation. This may suggest that profit-oriented capitalist firms have come to see exports and imports as superior alternatives to fixed capital accumulation for domestic production, as sources of generating higher corporate profit rates.

Table 2.2: Correlation Matrix: Average Percentage Composition of GDP

	I	C	G	X	M
I	1				
C	0.485131	1			
G	-0.71405	-0.76817	1		
X	-0.82494	-0.78898	0.771024	1	
M	-0.76496	-0.7917	0.772114	0.990687	1

(Source: Author's computation)

Table 2.2 presents the correlation among the percentage components of GDP. The correlation coefficients between either exports to GDP (X) or imports to GDP (M) and investments to GDP (I) are both negative and alarmingly high, suggesting highly systematic inverse movements between investments on the one hand, and exports and imports on the other hand. Firms decide on greater exports and imports relative to GDP and underpinning these phenomena is the desire by capitalist firms to increase profit rates. The strong relationship between profit rates, ratios of the sum of exports and imports to output, and ratios of business fixed capital formations

to capital stocks are further highlighted by the following table of correlation coefficients in table 2.3.

Table 2.3: Correlation Trade Openness, Profit Rate and Capital Accumulation

Correlation Coefficients			
Country	Trade integration and profit rate	Profit rate and rate of capital accumulation	Rate of capital accumulation and international trade integration
The US	0.773758	-0.48014	-0.86494
The UK	0.063151	-0.37919	-0.83651
Germany	0.806138	-0.57937	-0.84733
France	0.358853	-0.48115	-0.86075
The netherlands	0.674835	-0.34359	-0.792689
Austria	0.483321	-0.42689	-0.828511
Finland	0.767595	-0.37375	-0.67819

(Source: Author computed)

The high positive correlations between profit rates and ratios of the sum of exports and imports to GDP across the six sample countries speak volume once again, about exports and imports as sources of corporate profits, compared to fixed capital accumulation as revealed by the inverse correlation coefficients between profit rates and capital accumulation over the same period. The absolute values of the negative correlation coefficients between fixed capital accumulation and trade openness are even higher than those between trade openness and corporate profit rates.

Table 2.4: Correlation: Financial Openness and Capital Accumulation

Correlation Coefficients		
Country	Financial integration and profit rate	Rate of capital accumulation and international financial integration
The US	0.927479	-0.42526
The UK	0.84163	-0.20585
Germany	0.953193	-0.68251
France	0.728056	-0.37888
The Netherlands	0.84163	-0.2692
Austria	0.770499	-0.60751
Finland	0.960976	-0.45331

(Source: author computed from AMECO and World Bank databases)

The correlation are smoothened by taking five year moving average to present the semblance of the long-run relationship as much as possible. The table indicate very strong positive correlation between profit rates and trade openness, strong negative correlation between trade integration and business fixed capital accumulation, and strong negative correlation between profit rates and fixed capital accumulation. The persistent rise in international integration through trade from circa 1970 was augmented by significant increase in the mid-1980s, of international financial integration, further to the extensive capital account liberalisation across the advanced capitalist economies. Table 2.3 features the correlation coefficients between ratios of the sum of aggregate financial outflows and inflows to GDP (financial openness) and profit rates and this is also significantly positive. The correlation coefficients are however negative between financial openness and capital accumulation.

Because international trade openness as well as international financial openness cumulatively constitute international economic openness, the foregoing analyses suggest a strong positive correlation between international economic openness and the rate of profit, a strong negative correlation between international economic openness and business fixed capital accumulation and, a moderately strong negative correlation between the rate of profit and the rate of business fixed capital accumulation. Moreover, the presentation in this chapter regarding the strategies for profit rates recovery after Fordism goes beyond or extend the argument presented in Duménil and Lévy (2004). They have argued on page 36 to 37 that capitalist firms in advanced capitalist economies exclusively turn around falling profit rates by depressing wages rates and wages shares. The analyses in this chapter also indicate at this very early stage that the explanations for the decline of fixed capital accumulation in the advanced capitalist economies after Fordism, may be far deeper than the observations of higher profit pay-outs and financial assets acquisitions.

2.6 Summary

In this section, we juxtapose stylized facts that indicate that over a period when business fixed capital accumulation suffers persistent decline across advanced

capitalist economies, profit rates exhibit increasing trends, by contrast. The orthodoxy, however, suggests that both variables move strongly together in the same direction. According to the Cambridge model and other theoretical propositions, the rate of fixed capital accumulation is a positive function of the rate of returns expected to be generated by these fixed capital. Therefore if business profit rate rises as business fixed capital accumulation falls, then profit oriented firms apparently have alternative source(s) of profit, compared to fixed capital accumulation. We derive analytically, potential strategies by which the trends in rates of fixed capital accumulation and profit rates could become divergent. These include increasing profit shares (reducing wages shares) of total output, increasing efficiency (ratio of potential output to capital stock), and reducing the rates of fixed capital accumulation while simultaneously increasing export and import. These theories and the analyses presented here reveal that at the heart of the observed decline in fixed capital accumulation is profit rate. If as the analyses suggest economic openness is a new and superior source of higher profit rates relative to fixed capital, could we therefore argue that changes in economic openness inversely cause changes in the rate of fixed capital accumulation? The quest for the answer to this question underpins the essence of this research and is pursued subsequently, in this study. The next chapter considers theoretical arguments that propose or imply causative relationship between economic openness and the rates of fixed capital accumulation in advance capitalist economies.

Chapter 3 A Review of Key Theories and Ideas

3.1 Introduction

This chapter reviews the principal theories underpinning the major arguments developed in this research, as well as the empirical investigations. A political economy approach is adopted and this chapter draws mainly from some key propositions in the French Regulation School and in the post-Keynesian literature. The first part of this chapter is dedicated to a review of the Regulation School literature, while the second part reviews the relevant propositions in the post-Keynesian literature. This chapter is structured as follows: Section 3.2 deals with the views of the French Regulation School on capital accumulation and the implied relationship with economic openness. Section 3.3 reviews the relevant post-Keynesian theories relating to production relations and capital accumulation. Section 3.4 considers some a-institutional post-Keynesian theories on capital accumulation. Section 3.5 deals with some alternative views on capital accumulation, based on more mainstream ideas. Section 3.6 re-presents the key research questions. Section 3.7 presents a summary of the chapter and reaffirms the central theses that underpin this research.

3.2. The French Regulation School and Capital Accumulation

3.2.1 Introduction to the French Regulation School

The French Regulation School is deeply rooted in Marxism (Aglietta, 1979; Lipietz, 1993) and in Keynesian as well as Kaleckian economics (Jessop, 1990a, p.26; Brenner and Glick, 1991). The growth in those subscribing to the theses of the Regulation School has resulted in the emergence of several approaches or sub-schools in the Regulation School, across various countries. At the time of this research, the current seven approaches in the Regulation School are: the West German School, the Grenoblois, the Parisian, the PCF-CME, the Amsterdam School, the Nordic Approach, and the Social Structure of Accumulation (Jessop,

1990a). Although the Regulation School is a research programme, the scholars tend to refer to its postulates as theories (Petit, 1999) and this research adopts this tendency.

There is a disapproval of the a-historic, a-institutional causal relationship, or economic determinism, championed in conventional economic theories (Boyer, 2013). An economic relation is not divorced from the socio-political environment, and there is, therefore, no pure economy. The sustenance of production and capital accumulation under capitalism essentially involves economic as well as extra-economic conditions (Jessop, 1990b, p.6, 1992a, p.233-4, 1992b, 1992c; Lipietz, 1993; Benko and Lipietz, 1994; Aglietta, 1998, p.49; Boyer and Sailland, 2002). The validity of a causal relationship between two economic variables (e.g., between real interest rates and inflation) is a function of the overriding institutional settings (Aglietta 1974, 1998; Boyer, 2013).

A cardinal proposition of the Regulation School in all approaches or sub-schools, is that a significant causal relationship exists between the prevailing institutional configuration and capital accumulation. Production relations in a capitalist economy are power configurations that are characterized by conflicts, class struggles, and various contradictions, which would ordinarily prevent the repetition of accumulation/production (Boyer, 2007). However, there exist five core institutions or social structures, whose configuration mediates the conflicts, reconciles the contradictions and, thus, enables an extended period of capital accumulation. Such extended period of accumulation is a regime of accumulation. The prevailing institutional configuration or social structure that mediates the contradictions and conflicts to enable a regime of accumulation, is a mode of regulation.

The aforementioned five core institutions (social structures) whose configuration sustains, regularizes, regulates or mediates the conflicts, contradictions and thus makes possible, the repetition of capital accumulation and production have been identified as: the wage relations (encompasses industrial relations based on collective bargaining, labour process as well as social security (Aglietta, 1974); wage bargaining effort), the state form (the form of state intervention, compromise

between capital and labour), the form of competition (ties among enterprises, the source of profit); the money form (its dominant form, the banking and credit system), and the international regime (the trade, investment, monetary settlements and political arrangements that link national economies and the world system) (Aglietta, 1974, 1976, 1978, 1979; Benassy et al, 1977, vol 1:5; Lipietz, 1977, 1979, 1986; Lipietz and Vale 1988; Boyer, 1987, 1990, 2005, 2008, 2013; Jessop, 1990a, 1997; Petit, 1999; Guttmann, 2012/2015). The theory of a regime of accumulation in the Regulation School, is a theory of long wave of accumulation. The five core institutions that mediate/regulate accumulation, assume a configuration where one of the institutions is hegemonic or conditions all the other institutions, during any regime of accumulation (Lipietz and Vale, 1988; Jessop, 1990a, p.21; Petit, 1999, p.220- 221; Boyer and Saillard, 2002; Boyer, 2013).

The Regulation School studies capitalist production and accumulation under the concepts of an accumulation regime, a mode of regulation, a mode of development, and the crisis of a regime of accumulation or a mode of regulation (Aglietta, 1979, p. 68; Lipietz, 1987; Jessop, 1990a; Brenner and Glick, 1991). An accumulation regime refers to the system of production, consumption, and distribution, which expands wealth in such a way that an economy is stabilised over time. A mode of regulation means the specific institutional configuration which sustains capital accumulation or growth in capitalist production relations. A mode of development is the combination of a mode of regulation and its related regime of accumulation.

A regularising configuration of the social institutions emerges through struggles, through trial and error (Boyer, 2013) or in the fashion of a Gramscian inspiration (Boyer, 2013). At a point, the mode of regulation becomes exhausted (institutional exhaustion) and the regime of accumulation that is being regulated, collapses (in a structural crisis). The specific schema of the regulation process is institutional configuration → power configuration in production setting → capital accumulation/growth → crisis (see Hay, 1995; Tickell and Peck, 1995). The specific institutional configuration determines the characteristics of a regime of accumulation. These characteristics include whether or not profit-seeking businesses would accumulate fixed capital intensively, and therefore, the rates of fixed capital

accumulation (see Petit, 1999, p.228). The differences in the institutional configurations, including the hegemonic institutions within a country, create different stages of capitalism in a country and variances of capitalism across countries (Amable et al., 1997; Petit, 1999; Palombarini, 2001; Amable, 2003; Amable and Palombarini, 2005; Amable et al., 2012).

Recall that the characteristics of an accumulation regime, which include the pattern of investment and growth of fixed capital stock (see department I & II in Lipietz, and Vale, 1988), are functions of the regulating ensemble of institutions (Petit, 1999, p.228). On this basis, we go down the lane of history, in order to compare some characteristics of observed regimes of capital accumulation and the regulating institutional frameworks.

Three stages of modern capitalism, over the years of capitalism in the advanced capitalist economies, have been identified (Lipietz and Vale, 1988, p.26-27). The first stage follows the crisis of the fundamentally agro-based *ancien régime*, in France between 1845 and 1848. Various extents of extensive accumulation characterised these first-stage regimes of accumulation across the advanced capitalist economies. An extensive accumulation describes a sort of horizontal expansion of the capitalist sector, and during this stage of capitalism, accumulation occurred predominantly in the heavy industries in the metal sector, as well as in the textile and construction sectors. The conditions of production stayed constant during these extensive accumulation: for example, the ratios of fixed capital to labour and labour productivity across these economies were low and rather constant (ibid). Extensive accumulation dominated unevenly, until about 1914.

The regulating institutional forms in the first stage of modern capitalism included wage relations where wages adjusted according to the costs of living, and competitive labour markets where labour sales vary on a daily basis depending on changes in labour demands. The state forms were rather non-intervening, only stepping in to enforce regards for the legal structure of private (capitalist) properties. Firms tending to concentrate in a single sector, defined the forms of competition. The money forms were more or less in commodity forms (e.g., gold) and credits.

The goods and services markets were rather international, between imperial states and their protectorates. These extensive accumulations suffered a crisis from limits to outlets and low productivities, in the 1890s (Mazier et al., 1999;).

The second stage was characterised by intensive accumulation across these advanced capitalist economies, where in-depth analyses of labour processes involved in production, were undertaken, and then increasingly mechanised, consequently increasing the ratios of capital to labour, across these economies. The period of intensive accumulation was a period of rapid growth in investments and fixed capital accumulation. Labour productivity, on the average, increased from 2% in the previous extensive accumulation regimes, to about 6%. However, purchasing power from stagnant real wages stayed the same. The gap in labour productivity and labour remuneration in each of the countries, brought about the crises of these intensive accumulation in these economies. These intensive regimes were consequently rather brief, lasting from the 1920s and ending in the collective or general crisis of the 1930s (Lipietz and Vale, 1988). The regulating ensembles of institutions were rather competitive as in the extensive regimes. According to Boyer (1982), there were suggestions by Henry Ford and John Maynard Keynes that real wages be increased, to match labour productivities in these countries. These recommendations were, however, resisted by the capitalists, whose priorities were the maintenance of the then ex ante profit rates, by keeping real wage rates low. Before long, These admixtures of intensive accumulation and competitive regulation, ran into crises of overproduction, culminating in the pervasive structural crisis of the 1930s (Boyer 1982).

Lessons were learned, and institutional changes targeted explicitly at preventing the re-emergence of structural crises, like those of the overproduction crises of the second stage of modern capitalism, evolved in these economies. The resultant regimes of accumulation across the advanced capitalist economies, constituted the third stage of modern capitalism, popularly styled as the regimes of Fordism. The new institutional configurations were combinations of intensive accumulation with monopolistic regulation (labour markets were no longer competitively regulated, but there emerged collective bargaining ensuring higher minimum real wages to wage-

labour, in that wages were indexed to the respective labour productivity and inflation; and labour employment contracts were multi-year employment contracts).

There were more active state forms, with states actively involved in wage relations to foster increases in real wages, and welfare transfer payments, in order to facilitate full employment. The levels of international integration across the advanced capitalist economies were rather low, and as a matter of fact, they (via trade openness) reached historically low points in the mid-1960s (part-period of Fordism) (Lipietz and Vale, 1988; Glyn et al., 1992; Aglietta, 1998). The levels of international financial integration (financial openness) were low and regulated by the Bretton Woods system. The results were the virtuous economic cycles that typified the golden era of Fordism from the Second World War, to the late 1960s or early 1970s, in the advanced capitalist economies. Characterising Fordism, was mass production matched by mass consumption. Labour productivities tripled, along with rates of fixed capital accumulation (Lipietz and Vale, 1988).

However, the problem of declining profit rates eventually ensued. Following effective pressure on states by capitalists seeking higher profit rates, states increased trade liberalisation, which in turn facilitated rapid international trades and dramatic increases in trade openness, across the advanced capitalist economies (Glyn et al, 1992; Duménil and Lévy, 2011). But changes in trade and openness thereof, necessarily imply changes in trade and thus international regimes, across the advanced capitalist economies, contrasting the prevailing institutional configurations in Fordism (Boyer, 2013, p.5). The high rates of fixed capital accumulation ineluctably engendered by the institutional configurations of Fordism consequently went into crisis. Whatever controversial regimes of accumulation that ensued did not reverse declining trends in rates of fixed capital accumulation, as observed by Duménil and Lévy (2004) and supported by statistics. Relentless upward trends in *de facto* Trade openness existed in ruthless parallel with extensive declining rates in business fixed capital accumulation in the ensuing post-Fordist years, across the advanced capitalist economies.

Some characteristic observations seem to stand out from these historical stages of capitalism. Accumulation regimes have their characteristics, which include rates of fixed capital accumulation and the distribution of income between capitalists and wage labour (or wage labourers). Such characteristics of these regimes of accumulation as highlighted earlier and as argued in Petit (1999) and Lipietz and Vale (1988), are determined by the peculiar institutional configurations that define and sustain these accumulation regimes. Historically, in the periods of extensive accumulation when fixed capital accumulation was low, the modes of regulation were rather competitive, with low growth in real wages. Secondly, there existed pervasive increases in economic openness as the consequence of higher levels of foreign trade. During the regimes of intensive accumulation that followed, increases in real wages were weak if at all, just as there existed pervasive economic openness and these intensive accumulation regimes were consequently unsustainable and short-lived.

During the prolonged intensive rapid capital accumulation regime of Fordism, real wages grew rapidly in line with labour productivity, just as economic openness existed at historically low levels. Regrettably, in the French Regulation School literature, much emphasis has been given almost exclusively to the role played by higher real wages, in the sustenance of such intensive regimes. It has also been highlighted in the Regulation School literature that the low rates of fixed capital accumulation subsequent to the demise of Fordism, were associated with declining real wage growth rates. However, the periods of extensive accumulation regimes, the short-lived regimes of intensive accumulation before Fordism and post-Fordism were also periods of higher economic openness. The golden age of Fordism was, however, a period of historically low economic openness and historically high real wage growth rates.

Historical analysis thus suggests that when real wage rates increased, and trade openness decreased, fixed capital accumulation rates increased and vice versa. Therefore if *ipso facto* post-Fordist decreases in fixed capital is blamed on falling real wage growth, such decreases in fixed capital accumulation by analogy, could also be blamed on coextensive increases in economic openness. This analytical

connection between higher trade openness and decline in rates of fixed capital accumulation is one of the cardinal arguments pursued in this thesis. Furthermore, the movements in real wages and economic openness may not be unconnected for, as argued by Boyer (2013), economic openness was an instrument for keeping real wages growth down after the demise of Fordism. Another important observation is that there seems to be an alternation of extensive and intensive regimes of accumulation.

As argued by Aglietta (1998, p.64) and Petit (1999, p.228), the institutions that regulated capital accumulation during Fordism could not adapt to the contradictions imposed by the emergent changes in international trade integration. It is argued that the increases in international trade relative to GDP, formed the initial strike that weakened the institutional configurations of Fordism, which were further worsened by increases in international financial openness (Boyer, 2013). International integration/openness, through dramatic changes in international trade, played a significant role in the demise of the golden era of Fordism by introducing contradictions in the prevailing institutional configurations that led to the crisis of accumulation in the late 1960s or early 1970s (See Jessop, 1990a, p.29). Stylised facts suggest that the immediate effect of higher international trade integration was the commencement of general decline in rates of fixed capital accumulation. Thus international integration destroyed institutional configurations in the advanced capitalist economies, that fostered higher fixed capital growth rates, therein. Moreover, the apparent alternation of extensive and intensive regimes may indicate that the post-Fordist period is expectedly, an extensive regime of accumulation (after intensive accumulation regime of Fordism), generally characterised by low rates of (fixed) capital accumulation, courtesy of institutional changes.

3.2.2 A French Regulationist View: Firm and Fixed Capita Accumulation

The assumption in Robinson (1962) that business fixed capital accumulation is undertaken by a firm is made. The firm is then characterised according to some arguments in the Regulation School literature. Production relations in the firm are fundamentally power relations among agents with conflicting interests. Three identified agents in the production relations are: wage earners, managers, and

capitalists (including shareholders). Wage-labourers/earners prefer higher real wages and employment securities (consistent with a higher rate of growth). Managers prefer higher rates of growth, while capitalists (including shareholders) are concerned more with higher profit rates (higher wealth accumulation rates) and less with rates of growth of fixed capital accumulation by the firm. Depending on the institutional configuration, wage-labour class or capitalists/shareholders class may be the dominant/hegemonic class in the production power relations. Managers are assumed to form an alliance with the dominant/hegemonic class (Boyer, 2005). This class hegemony subdues the effects of conflicts and contradictions (by the mediation of conflicting relationships among agents in capitalism) and fosters a prolonged and coherent period of capitalist wealth accumulation, otherwise called a regime of accumulation (Aglietta, 1998). Therefore while the preferences of wage-labour/labourers are consistent with higher growth rates of fixed capital, those of the capitalists (including shareholders) are not necessarily so. An inference, therefore, is that the temporal dynamics of fixed capital accumulation may vary with the prevailing hegemonic class, which is itself a function of the prevailing hegemonic institution in the institutional configuration.

In the golden era of Fordism, wage relations formed the hegemonic institution, which consequently empowered wage-labour/labourers as the dominant class in the power relations of Fordist production, with managers forming an alliance with wage-labour. Managers thus saw themselves as wage-earners, with wages indexed to labour productivity and inflation. Over the Fordist period, international regimes across the advanced capitalist economies were of low economic openness, with trade and financial openness reaching historically low levels, in the mid-1960s (Aglietta, 1998), so that wage earners/labourers were as a result, nearly identical with consumers. Increasing wages generated mass consumption and corporations, in confident anticipation of higher demand, invested to increase their stocks of fixed capital at growing rates. A combination of low economic openness and higher/ increasing real wage rates may suggest increasing/higher labour power, higher demand, and greater domestic corporate expansion through higher business fixed capital accumulation rates. Consequently, the prevailing institutional configuration via the inherent power relations, influences the way firms undertake fixed capital

accumulation and the observed dynamics of fixed capital accumulation at a macro level.

Institutional configurations involving higher international openness, more competitive markets, competitive wage relations, non-interventionist and non-regulating state forms (free market bias state forms) would weaken the bargaining power of wage-labour/labourers and tend to bring about the hegemony of capitalists (and shareholders) and *ex hypothesi*, higher profit rates, but not necessarily higher corporate growth through higher fixed capital expansion. Below are different historical-cum-theoretical scenarios of configurations and the resulting patterns of capital accumulation (Boyer 2013).

Scenario I

Firms were in the three decades after WWII, in the advanced capitalist economies. Wage determination in production relations was by collective bargaining. States highly regulated financial markets. States intervened, in a Keynesian fashion, to ensure full or near full employment. Inter-firm competition was low, so that firms were mainly big oligopolistic firms. Capital markets were patient, subordinated to industrial productions and international openness was low. Under this configuration, wage-earners formed the hegemonic/dominant class, and managers saw themselves as wage earners. Managers in alliance with wage-earning labour formed the dominant bloc. Because wage earners were virtually identical with consumers, the higher their wages, the more they had to spend, and the more fixed capital accumulation firms had to undertake, in order to meet the growing demand. There existed consequently, virtuous relationships among higher real wages, mass consumption, mass production and higher rates of fixed capital accumulation. Profit rates were relatively satisfactory, as profits were marked-up on labour costs. This configuration created the healthy wage-investment nexus prevailing in the advanced capitalist economies, during (the golden era of) Fordism and the ideal social structures or institutional configuration (Petit, 1999, p.228)

Scenario II

Internationalisation through increases in trade openness with the rest of the world broke the near identity of wage earners as the customers. Wages labourers increasingly competed with labour in other countries, so that real wages were set internationally (no longer through collective bargaining). Wage labour thus lost its bargaining power in the production-power relations, while the capitalists class became more powerful. Managers affiliated themselves with the capitalists class and saw themselves as profit earners; revising down wages and employment, under a new argument of the need to achieve competitive prices for exports. Cheaper importations increased under the justification of achieving lower commodity prices and higher levels of satisfaction for domestic consumers. However, these would by implication slow down domestic production and fixed capital accumulation in the import-competing industries. Trade integration in the late 1960s (or early 1970s) was the primary cause of the demise of the golden era of Fordism, the era of mass consumption and mass production, in the advanced capitalist economies (Glen et al., 1992; Boyer, 2013).

Scenario III

Financial liberalisation (domestic and international) increased shareholders power and ability to allocate resources in pursuit of higher profits and wealth. Consequently, they could more easily deploy capital abroad, or set financial targets informed by some international standards. These set targets could and have been met largely by trimming down wages; labour and fixed-capital. This scenario is the configuration furthest from the ideal of scenario I. Because a hegemony of the capitalists class may cause declining rates of fixed capital accumulation if fixed capital is becoming less profitable, institutional configurations including greater trade and financial openness that tend to empower capitalists (including shareholders), may tend to generate declining trends in fixed capital accumulation.

It must be emphasised at this juncture, that the French Regulation School is not the only variant of the Regulation approach/theory that is interested in non-residential fixed capital accumulation, for as a generality, the determination of accumulation and profit rates are apparently the *raison d etre* of the Regulation theory (Brenner and Glick, 1991). In the Social Structure of Accumulation (an approach of the

Regulation school, see Jessop, 1990a) some scholars have endeavoured to explain the determinants of fixed capital accumulation as early as the 1980s (Bowles et al., 1989). In the French Regulation School, the post-Keynesian, the Marxist literature and related empirical or theoretical works, the terms "rate of capital accumulation" and "capital accumulation" are occasionally used to refer to the concept described here respectively as (fixed) capital accumulation or growth of non-residential fixed capital. In the aforementioned literature, capital accumulation is popularly indexed as the ratio of (net) real investments to (net) capital stock.

The theoretical postulates of the SSA, however, is *ex hypothesi*, restricted to the United States of America. The mainstay of the SSA argument is that the institutional configuration in alliance with the state of the economy, determines capitalist power and profit rates. Profit rates and the state of the economy, in turn, determine the rates of fixed capital accumulation. Bowles et al (1989, p. 129) have styled this as the power → profitability → capital accumulation nexus (see Kotz, 2009, 2011). The social structure of accumulation (SSA) whose configuration determines the power relations in capitalist productions, are the capitalist-labour accord, Pax Americana, the capital-citizen accord, and the moderation of inter-capitalist rivalry (Weisskopf et al., 1983; Bowles et al., 1986, 1989; Schor, 1987; Schor and Bowles, 1987; Gordon et al., 1988;). In these published works, Pax Americana and the moderation of inter-capitalist rivalry, respectively capture some of the elements of international regime and form of competition, in the French Regulation School approach.

In some econometric estimates by Bowles et al (1989, p.117), indices of international integration (captured in import penetration and trade power) of the US, outperformed capacity utilisation (demand growth) as determinants of profit rates. In their econometric estimates of the rates of accumulation of fixed capital, their closest proxy to international integration was profit rate. According to their estimates, profit rates, capacity utilization and others have a joint explanatory power of 91%, in the determination of rates of fixed capital accumulation. In their argument, as the US international influence deteriorated, capitalists power in the US deteriorated and in turn caused profit rates to deteriorate, which in turn, explained the downward trend in the US fixed capital accumulation of the 1970s. This is

consistent with the argument of Glyn et al (1992) that the decline in rates of accumulation in the US was caused by profit squeeze. The data in these research works, overlapped considerably with the Fordist period, when trends in profit rates positively correlated with the trends in rates of fixed capital accumulation. In the new dispensation, there have been increasing divergences between the two rates, across advanced capitalist economies, highlighting significant limitations in the arguments of these aforementioned works.

3.2.3 Potential Channels: From Economic Openness to Capital Growth

Integration into the international economy by a country is primarily defined in terms of international trade flows and international capital flows (Jessop, 1990a; Aglietta, 1998; Boyer, 2013) or as the extent to which a country is not living in autarky (Petit, 1999). Although it has proposed that the rate of fixed capital accumulation depends on the prevailing institutional configuration, the French Regulation literature hardly contains explicit postulations of a causal relationship between trade openness and the rates of fixed capital accumulation between the end of Fordism and financial liberalisation in the advanced capitalist economies. The focus, apparently, has been on the adverse impacts of higher trade openness on labour bargaining power, real wages and demand.

The impacts of economic openness in the form of trade openness on fixed capital accumulation could thus be inferred from the wage-demand-capital accumulation nexus. Following the extensive financial liberalisation of the mid-1980s, there have been some ambitious attempts at connecting financial liberalisation to the decline in businesses' fixed capital accumulation, particularly in the works of some scholars such as Aglietta and Boyer. But despite the almost simultaneous increases in capital accounts liberalisation and thus the possible complicity thereof in the decline of fixed capital accumulation, these works have refused to buck the trend of ignoring capital account liberalisation. However, by virtue of capital account liberalisation being part of an international regime, the former should by implication be significant. This subsection identifies inferred relationships between economic openness and the declining capital accumulation, and implied channels of impacts, in the Regulation School literature.

3.2.3.1 Institutional Re-configuration and Rates of Capital Growth.

The period of managerial capitalism (Fordism) in advanced capitalist economies represented by the scenario I above, was characterised by powerless shareholders, who were widely scattered and unable to press for higher rates of profit (Aglietta, 2000; van Treeck, 2008). Managers were therefore free to pursue growth; and usually embarked on diversifications that produced large conglomerates having rather little synergies with their main competences (Boyer, 2005). However, changes in international regimes (such as trade and later financial openness) introduced amendments in the institutional configurations, and consequently power configurations, different to the previous configurations that promoted rapid fixed capital accumulation in the advanced capitalists economies. With financial liberalisation and the resultant financial openness, emerged informed institutional investors, able to enforce the pursuit of shareholders' preferences. A new principle, shareholder value based corporate governance, governed production relations. Shareholders introduced extensive restructuring that brought about the trimming down of real wage growth rates, labour and fixed capital accumulation, thereby entrenching real wage, labour and fixed capital austerity thenceforth. In the US, such restructuring restored higher profit rates via increasing capital productivity (higher potential output to fixed capital stock ratio), while in Europe, notably Germany and France, profit rates were enhanced through increasing profit shares (Aglietta, 2000).

3.2.3.2 Higher Dividend and Interest Pay-outs

Shareholder value maximisation is a function of the market value of shareholders' equities, which in turn is a function of the periodic cash distributions to equities such as dividends (e.g., Gordon growth model). The value of a corporate debt depends on the present value of cash interest payments. Shareholders in alliance with managers have over the years, been distributing more profits to themselves as dividends and interest, and the consequences have included limited internal funds for fixed capital accumulation (Aglietta and Breton, 2001). To the extent that greater financial openness through capital account liberalisation facilitated this process, we could infer that financial openness contributed to investments fund constraints.

A potential criticism of the higher profit pay-outs argument, is that capital accumulation could also be financed with corporate debts. As a matter of fact, corporate debts attained unprecedented levels, during the period over which the rates of fixed capital accumulation were observed to be declining in the advanced capitalist economies. Stockhammer (2004) has argued that higher profit pay-outs never constrained fixed capital accumulation. Stockhammer (2004) also failed to find that higher dividends and interests pay-outs robustly explained the observed cross-country declining growth rates of fixed capital. Growth and profits are positively related to some significant extent, so profit-minded shareholders would, therefore, be mindful of growth to such extent. Therefore over a period that spans nearly four decades, sustained increases in profit pay-outs to shareholders with fixed capital accumulation constraining effects, would have undermined the growth and profits of corporations, to point of seriously jeopardising the going concern status of the relevant corporations. Aglietta and Breton (2001) have argued that minority shareholders as against majority shareholders, tend to press for higher dividends to the point of constraining fixed capital accumulation. To the extent that increases in capital account liberalisation, swell the ranks of the minority shareholdings in corporations, greater financial openness arising from capital account liberalisation is implied to cause decreases in fixed capital accumulation.

3.2.3.3 Share Buybacks and Rates of Fixed Capital Accumulation

Share buybacks describe acquisitions by corporations, of their own shares. More among non-financial corporations in the US, share buybacks have been taking root in other capitalist countries. Corporations may buy back their shares to boost share prices under the corporate governance principle of shareholder value maximisation, or to reduce the threats of hostile take-overs (Aglietta and Breton, 2001). Whatever the reason, it is argued that share buybacks tend to reduce the funds available for fixed capital accumulation. However, is this argument able to robustly explain the general decline in the rates of fixed capital accumulation observed in advanced capitalist economies since about 1970? Statistics indicate that share buybacks have been rather recent in the Euro area, compared with the US. Statistics have also indicated that share buybacks in the Euro area constitute insignificant proportions of

the profit pay-outs, relative to dividends, when the Euro area is compared with the US. However, capital accumulation rates have been trending downward for many advanced capitalist European economies, in virtual synchronism with the US, since circa 1970. With this potential spatial weakness in the share buybacks argument, a potentially valid alternative argument may be that rather than serving as constraints to internal financing of real investments, share buybacks may be symptomatic of too few adequately profitable investment opportunities. It is argued that shareholders are able to enforce share buy backs through markets for corporate control, made possible through higher market liquidity (Aglietta and Brenton, 2001). To the extent that increases in financial openness from higher capital account liberalisation contribute to market liquidity and therefore the market for corporate control, financial openness, through increases in share buybacks and higher market liquidity, is implied to reduce rates of fixed capital accumulation.

3.2.3.4 CEO Remunerations and Rates of Fixed Capital Accumulation

CEO remunerations have soared over the years since the demise of the golden era of Fordism (Boyer, 2005). The underlying reason is that having allied themselves with shareholders (the dominant group in contemporary power relations in capitalist production), they are incentivised, by the prospect of higher pay, to cut down on fixed capital accumulation and wages growth. These cuts are intended to facilitate the deliverance of set targets for corporate profit rates and market prices of shareholders' equities. Managers (including CEOs) have consequently exploited these incentives even when performance could not justify them (Boyer, 2005, 2010). Stock options are often used as performance incentives for managers.

Liquidating stock options that are in the money involves the firms paying the difference between the exercise prices and the prevailing market prices, to the managers. The foregoing is similar to profit pay-outs to shareholders, but in this case, managers are the recipients and these payments could, therefore, starve firms of internal funds for fixed capital accumulation (Boyer, 2005). This channel might have been reinforced by capital account liberalisation (through greater financial openness), if increases in financial openness enhanced managers' performance incentives. The ranks of shareholders incentivising managers through higher

remunerations could be argued to have been increased by the influx of foreign shareholders, over the course of progressive increases in financial openness since the capital accounts liberalisation of the 1980s. In the literature, however, the higher managers' remunerations argument has been limited to the US and therefore it may not robustly explain observed declining rates of fixed capital accumulation across advanced capitalist countries.

3.2.3.5 Distribution and the Rate of Fixed Capital Growth.

A strand of argument in the French Regulation School literature, which also seeks to explain the declining rate of fixed capital accumulation, is the argument on the distribution of value-added. Value-added may be distributed more in favour of wage earners or shareholders/capitalists. How it is distributed matters, if the economic growth is wage-led (Bowles and Boyer, 1995). It is argued that the pillars of growth across the occidental world during Fordism, were the equitable functional distribution of income/wealth, high levels of investments, stable structures, and high levels of employment (Glyn et al., 1992; Aglietta 1998). Although costs of production, higher wages also tend to increase demand. In a closed economy, exogenous increases in wages tend to increase demand, employment, and growth and eventually increase the rates of fixed capital growth via demand for goods and services, as seen in the golden era of Fordism (see also Bowles and Boyer, 1988, 1989). During Fordism, wages indexed to productivity and inflation, supported high investment and productivity growth via long-term growth in consumer demand (Aglietta, 1998, p.58). The high rates of return on a macroeconomic scale, offset falls in the marginal returns on investments caused by increases in productive capital stocks, thus preventing profit rates from falling.

Although mainstream economists have argued that higher wages may increase costs and reduce current and expected future profits and consequently fixed capital growth rates, empirical estimates exist to suggest that the US, the UK, France, Japan and Germany are wage-led as closed economies, with the marginal propensity to save by the capitalist class significantly higher than for the lower wage-earning class (Bowles and Boyer, 1995). Bowles and Boyer (1995) have found that for these five countries, the ability of profits to explain rates of growth in investment is rather

low, while expected future demand significantly explains rates of fixed capital accumulation (see also Bhaskar and Glyn, 1995; Gordon, 1995).

However, the stable wage structures and equitable income distribution that underpinned the high actual and expected demand during Fordism, were attenuated initially by greater trade openness and later by increases in international financial openness (Boyer, 2013). Increases in trade and financial openness weakened labour bargaining power, consequently enhancing sustained production relations characterised by extensive redistribution of value-added away from wage-labour and towards capitalists/shareholders. Shareholder value mode of corporate governance in the wake of greater financial and capital account liberalisation of the 1980s and thereafter, often caused wages growth to be reviewed downwards, in order to facilitate the realisation of higher shareholder value. This suppression of real wage growth adversely affected demand, and consequently rates of capital accumulation. The pervasive inequalities in income distribution have been further aggravated by higher incentive remunerations for managers (Boyer, 2005).

The previous argument breaks down in the context of international integration via trade, as then, the distribution of value added in favour of wage-earners may be spent on cheaper imports, as appointed by Bowles and Boyer (1995). Of the five advanced capitalist economies that were wage-led in aggregate demand, employment and growth in Bowles and Boyer (1995), 60% ceased to be wage-led and became profit-led in aggregate demand and growth, under the context of significant international integration. Therefore, in these countries, redistribution of income in favour of wages would fail to support the argument that lower wages from the pursuit of higher shareholder value, contributed to the observed decline in post-Fordist fixed capital growth rates, in the advanced capitalist countries.

3.2.3.6 Importation and the rate of Capital Growth

International trade integration offers the opportunity to increase profits through the importation of cheaper alternatives to costlier domestic production. As a sequel to the dramatic increases in trade integration in the late 1960s and early 1970s,

corporations in advanced capitalist countries jumped on the import bandwagon, using the guise that cheaper imports made cheaper goods and services available to consumers, who could then consume more with given income and increase their welfare (Boyer 2005, 2013). A consequence has been the progressive contraction over time, of import-competing industries with the attendant decline in rates of fixed capital accumulation and employment in such import-competing industries. We emphasise that the potentially adverse impacts of increases in imports on the rates of fixed capital accumulation, highlight the weakness in the argument excessively fixated on higher wages-higher fixed capital accumulation nexus through higher demand. One reason is that as employment (and disposable income) increases, so too would the demand for imported goods and services (Bowles and Boyer, 1995) and by implication the decline of fixed capital accumulation both in import-competing industries and at aggregate levels. Therefore increases in real wages with simultaneous economic openness would not necessarily generate higher fixed capital accumulation, emphasizing the positive contributions of the historically low economic openness in the unprecedented fixed capital accumulation rates, during the golden years of Fordism.

3.2.3.7 Exportation and Rates of Fixed Capital Accumulation

Exports may contribute to declining rates of capital accumulation, compared with similar levels of production in autarkic economies. High correlations between aggregate export and aggregate import series (an average of about 0.98 across the advanced capitalist economies) suggest the norm where exports generate imports, as components of exports are often imported, thus generating lower capital accumulation than if these components were domestically produced. Furthermore, exports present higher profit opportunities for capitalists/shareholders, but expose domestic wage earners to higher international labour competition. Price competitiveness is a dominant competitive strategy, where foreign competition is significant. The wage cost per unit of product has been a cardinal measure of international competitiveness. As wage-labour in advanced capitalist countries faced lower cost wage-labour abroad following the increases in trade liberalisation, their bargaining powers were weakened, and they were forced to compromise by accepting lower wages imposed by firms, to facilitate price competitiveness (Lipietz and Vale, 1988). Profit-oriented firms could then economise more on capital than on

labour by increasing their labour to capital ratios or reducing their capital to labour ratios in production. Data in support of the foregoing changes in factors ratios can be found in the AMECO database. This fixed capital economy is exacerbated by increases in the supply of labour caused by redundancies in import-competing industries. The foregoing was documented for the US, where empirical analyses revealed US exports to be apparently more labour-intensive (Södersten and Reed, 1994).

The very high positive correlation coefficients between increases in trade openness and increases in labour to capital ratios (Table 3.1) indicate that as international trade openness increases, labour is more increasingly used in place of fixed capital or capital is less increasingly used in the place of labour, for any given level of output. For the seven advanced capitalist economies in Table 3.1, the average correlation coefficient between changes in trade openness and changes in labour to capital ratio over the decades following the end of Fordism is about 0.85. While consistent with the general synchronism in the decline in capital accumulation and increasing international openness, Figures A1 and A2 (Appendix A) show convergence in factor ratios, for 23 sample advanced capitalist countries. The synchronism in the series and the convergences suggest a common factor driving the declining rates of fixed capital accumulation for the sample countries and the high correlation coefficients in Tables 3.1 tend to lend credence to international integration as the possible driving factor.

Table 3.1: Correlation: Trade Openness and Factor Substitution

Correlation Coefficients		
Country	Trade integration and Labour-capital substitution	Trade integration and Capital-labour substitution
The US	0.93218	-0.94499
The UK	0.786662	-0.80455
Germany	0.767256	-0.68047
France	0.931631	-0.91828
Netherlands	0.798792	-0.74415
Austria	0.93278	-0.8845
Finland	0.806222	-0.77024

(Source: Author computed from database; factors substitution here means change in factors ratios)

3.2.3.8. International Competition and Fixed Capital Growth Rate

Increases in trade and financial openness have introduced stiff international competition among firms, relative to the years of Fordism. Industries including communications, public transport, television networks, information systems, financial services and energy distribution previously sheltered during Fordism, have been subjected to stiff international competition (Aglietta, 1998) (see also Petit, 1999). Aglietta (1998) emphasise is on the impact of international competition on domestic wage structure and implies indirect impact on fixed capital accumulation through demand. However, there exist apparently, some direct impacts of higher international competition on rates of growth of non-residential fixed capital: higher competition (international competition by implication) discourages investments because of the attendant increases in business risk, contrary to mainstream views (Brenner and Glick, 1991). Rising international competition may induce domestic corporate slimming down over time, as domestic corporations have their global market share eroded.

International competition is often from newly industrialised economies with lower labour costs, where the emergence of new and expanding consumer markets has motivated the siting of industries similar to those in the advanced capitalist economies. Such competition has motivated corporations in the advanced economies to set up production plants in these new markets, in order to remain competitive (Aglietta, 1998). Such globalisation of production is, by implication, at the expense of increases in rates of accumulation of home non-residential fixed capital. Thus, economic openness indexed by foreign stocks of assets/liabilities build-up could potentially be associated with declining fixed capital growth rates. The continuous spike in trade and financial flows relative to national GDP following the liberalisation of trade and capital accounts in the late 1960s and mid-1980s respectively across the advanced capitalist economies have increased international competition, and expectedly adversely affected the rates of capital accumulation in these countries.

3.2.3.9 De-industrialisation and Rates of Fixed Capital Accumulation

International integration has triggered de-industrialisation in advanced capitalist

economies (Boyer, 2013). De-industrialisation is a structural change that cuts down on industrial capacity, particularly in heavy industries and manufacturing industries, while encouraging tertiary production (services and financial institutions) in their stead. Greater economic openness has facilitated more intense international division of labour. This division fostered increasing concentration on high skills tertiary production (such as information and communication, financial consultancy, design, and technical know-how) at the expense of growth in the production of capital goods, manufacturing, and processing industries (Aglietta 1998, p.63).

In contrast, some developing economies have intensified their production of capital goods and their processing industries. There are even claims in the literature that the free-trade agreements with the third-world economies of the 1980s and 1990s triggered a de-industrialisation crisis, that involved the massive relocation of production facilities to less developed economies. Whether these relocations and the intensification of capital goods production in third-world economies adequately compensated for the decline in fixed capital accumulation in the advanced capitalist economies to make it a zero-sum game is not the subject of the arguments of this chapter or this research. The primary sources of non-residential fixed capital accumulation during the golden age of Fordism were the big oligopolistic industrial firms, particularly in the manufacturing industries (Schumpeter, 1976; Chandler, 1990; Crotty, 2005). But these primary sources of fixed capital accumulation have been the casualties of de-industrialisation. Statistics available in the World Bank Development Indicators database suggest that for the advanced capitalist economies, the values of service-sector output as a percentage of GDP have been increasing over the years, while those of industries and of manufacturing have been decreasing. But increasing amount of products of these declining industries and manufacturing would still be in demand from consumers, in the de-industrialising countries and therefore have to be supplied through importation. This suggests that de-industrialisation could only be conceived in the context of higher trade openness, since the goods not locally produced could then be imported.

The deindustrialisation processes in the US and the UK were very dramatic in the late 1970s and early 1980s, under President Ronald Reagan (US) and Margaret

Thatcher (UK). As opined by Petit (1999), since the 1970s, increases in international integration by the OECD countries have generated greater financial outflows including greater outward foreign direct investments, and exports of intangibles, while higher inflows of manufactured goods from non-OECD countries, have been experienced. Imports of manufactured goods and outflows of FDI would encourage less domestic fixed capital accumulation, and so is the concentration on the production and export of less capital intensive intangibles, by an advanced capitalist economies.

3.2.3.10 Capital Account Openness and Business Fixed Capital Growth

Post-Bretton Wood International financial regime is relatively recent vis-à-vis trade integration. Among the countries in the sample, financial integration significantly took off in the late 1980s (except in Austria, where it occur slightly later). Nevertheless, a high profit motive and potentially adverse correlation with rates of capital accumulation are suggested by the correlation coefficients mutatis mutandis in Table 2.3 (Chapter 2). Financial openness caused advanced capitalist nations to haemorrhage real investment funds, as foreign direct investments, portfolio investments, and 'other investments' outward, flowed massively out of the advanced capitalist economies, to countries where the risk-adjusted rates of returns were relatively higher. Although the advanced capitalist economies have also experienced massive capital inflows, these are not necessarily fixed capital accumulation friendly. Consequently, productive assets (fixed capital) that could have been accumulated at home have been accumulating abroad as FDI on a net basis.

Using the US as an example, the net foreign asset positions from 1988 to 2014, were consistently negative, implying that US assets abroad were consistently less than the assets of foreigners located in the US over this period. However, the percentage composition projected a different picture. Statistics available on the BEA database, show that US net foreign direct investments abroad were consistently positive, except in 2001 and 2002 when they were negative. To the extent that more fixed capital is associated with direct investments, the preceding statistics imply that the US accumulated more productive capital abroad, on the basis of net outward FDI. These net outward foreign direct investments would likely have had some adverse

impacts on rates of domestic fixed capital accumulation in the US. Net portfolio assets and assets representing other components of capital flows abroad were however negative from 1976 until the 2007 global financial crisis, and for the rest of the sample period, they fluctuated between positive and negative values, although they mostly had negative values. These suggest possible deleterious effects of international financial openness on rates of fixed capital accumulation, via both cross-border financial flows, and accumulation of fixed capital stocks or financial assets abroad. These flows and stocks have worsened since the privatisation of pensions, in the 1990s (Aglietta, 1998, p. 63)

International financial integration gave unusual power to international financiers (Boyer, 2013). It exacerbated the problem of high financial targets set for domestic corporations that motivated corporations to economise on labour and capital, in order to foster the realisation of these set financial targets. With little attachment to these corporations, the international financiers were keen on harvesting profits as dividends and interests (Boyer and Saillard, 2002). The increased portfolio flows drove up financial asset prices and returns that generated the incentive for non-financial firms to accumulate financial assets and reduce the rates of accumulation of fixed capital, over the period of observation (This is expanded in Chapter 7).

The foregoing review highlights the propositions of the Regulation School that accumulation takes place in a long wave of accumulation described as a regime of accumulation, and that this regime of accumulation and its characteristics, including the dynamics of fixed capital accumulation observed at the macroeconomic level, are determined by the configuration of five key institutions, that included an international regime. The review proceeded to a more microeconomic foundation level, where the Regulation School literature argues that the capitalist firm or production relations, which is the seat of fixed capital accumulation, is some social or power relations among the main classes of capitalism. These classes have contradictory or conflicting interests and objectives. The prevailing institutional configuration in which one of the institution is hegemonic, facilitates the emergence of a hegemonic class in the power relations that in turn determines the rates of fixed capital accumulation, due to differences, conflicts, and contradictions in classes'

objectives. Thus the dynamics of fixed capital accumulation become the product of power struggles, moderated by the overriding ensemble of the five institutions or social structures.

3.3 The Post-Keynesian and Financialisation Framework

Some key ideas and theories connected with the rate of fixed capital accumulation, from the perspective of power relations in capitalist firms, have also been presented by some post-Keynesian scholars. Corporations are assumed to have no inherent objectives, but to be made up of a number of social classes or groups, with distinct class interests. The two capitalist agents in the power relations are the managers and shareholders (capitalist/rentiers), with their distinct and conflicting class interests. Managers are interested in higher growth rates while shareholders are interested in higher profit rates (Lavoie, 2014). The owners (shareholders) are different from the managers (who control the firm). When shareholders are in power, they influence corporate strategy towards the pursuit of higher profit rates and potentially away from higher rates of fixed capital accumulation. When the manager class is the hegemonic class, corporate strategy is biased towards higher fixed capital growth, with profitability playing second fiddle to fixed capital expansion. The interest pursued by the firm thus become dominated by the interest of the dominant class. This situation may imply the possibility of a 'growth-profit trade-off.'

It is argued that before the 1980s, shareholders were widely dispersed households and consequently were not able to press managers to pursue their interests (Lavoie 1992; Galbraith, 1969). Managers, therefore, had the liberty to pursue higher rates of fixed capital accumulation and growth, while shareholders were content with satisficing profit rates. However some institutional changes brought on by financialisation in the 1980s, handed corporate power to shareholders. Shareholders, thence, became able to influence the orientation of corporate strategies, and to press for shareholder interest to be pursued by managers (Stockhammer, 2004; van Treeck, 2008; Dallery, 2009). Shareholders get managers to pursue shareholder value enhancement, either by incentivising managers (carrot) or by forcing the hands of managers by means of 'the market for corporate control' (stick).

A post-Keynesian assumption, is that firms are wont to finance fixed capital accumulation using retained earnings. However, shareholder value maximisation, which entails higher profits rates, may also involve higher profit pay-outs via dividends and interests. Therefore the increases in shareholder power due to financialisation, generated the tendency of higher corporate profit rates, but also of higher corporate interest and dividend pay-outs, that reduced retained earnings and the funding for capital accumulation (Cordonnier, 2006; van Treeck, 2007; 2008; Dallery, 2009). Shareholder value maximisation thus, became a channel through which shareholders increased their lots, but consequently a cause of decline in the rates of capital accumulation.

Augmenting a Kaleckian profit model with financialisation variables (dividend and profit payments), van Treeck (2008) found significant inverse relationship between interest or dividend payments on the one hand, and the rates of fixed capital accumulation on the other hand, in the US. The sample period used by van Treeck (2008) were mostly post-Fordist years. Hein and van Treeck (2010) have argued that increases in shareholder power may negatively impact rates of growth, through the preference channel (invariably negative impact) or the finance channel (this may be negative or positive depending on the propensity to save by rentiers, and the elasticity of investment to distributed profit and capacity utilisation). The preference channel is the reduction in the willingness to invest by firms, even in the absence of higher profit pay-outs, while the financial channel is a constraint on investment funding generated by higher profit pay-outs (see also Hein and van Treeck, 2007).

Stockhammer (2004) has argued that under the pressure of shareholder value maximisation, corporations have increasingly substituted financial assets for fixed investments, thus slowing the growth rates of corporate fixed capital. Using interest and dividend receipts as indices of financialisation and an ARDL model, Stockhammer (2004) found some evidence for his argument, in the case of the US, UK, Germany and France(see also Orhangazi, 2008). Because the findings were model-dependent, it could be argued that financial asset acquisitions as indexed by incomes therefrom, have not robustly accounted for the observed declining rates of capital accumulation in the respective capitalist countries (see also Dallery 2009 for

a similar argument). However, Cordonnier (2006) is of the view that interest and dividend payments to shareholders are actually the sources of corporate profits, but that dividend and interest payments could not sufficiently explain declining rates of non-residential fixed capital growth observed in France and the US, in post-Fordism.

The pursuit of shareholder value maximisation by corporations (involving increasing profit rate and share market value) has resulted in lower distribution of income to wage-labour, and potentially decreased aggregate demand and consequently reduced the rates of fixed capital growth (Lavoie 2009). Lavoie (2009) has argued that the effects of redistributing income away from wage-labour and in favour of shareholders and managers are contingent upon the state of an economy or on capacity utilisation. When there is stagnation (and rates of utilisation are lower than the standard rate), increasing managers income under a prevailing corporate pricing strategy of total cost and target return pricing, would increase prices. However, higher demand from managers would more than compensate for the fall in demand by wage-labour, so that profit rates, capacity utilisation and rates of fixed capital growth would increase. Under an economic boom (when rates of capacity utilisation are higher than the standard rate), a similar redistribution of income from wage-labour leads to lower aggregate demand, lower profit rates, and declining capital growth rates. However, if the firms pay out more profits and there is a higher propensity to consume out of capital income, then profit rates and capacity utilisation would increase, even though fixed capital growth rates would decrease, as observed since the 1990s (see also Bhaduri and Marglin, 1990).

One highlight of these post-Keynesian perspectives is the recognition that corporate fixed capital accumulation rates are the results of corporate power configuration, which is, in turn, a function of broader, prevailing institutional changes. In the case of the post-Fordist years, these institutional changes are collectively described as financialisation (Stockhammer, 2005-6). But what is financialisation? As at the time of writing, the concept of financialisation remains controversial and unclear. Krippner (2005) defines financialisation as:

"Pattern of accumulation in which profit-making occurs increasingly through

Financial channels rather than through trade and commodity production."

Epstein (2005) defines financialisation as:

"The increasing role of financial motives, financial markets, financial actors and financial Institutions in the operation of the domestic and international economies."

Financialisation may be seen as either part of a dual concept: first, it can be seen as the expansion of the financial sector, in which case, it could be argued that financialisation has always been around albeit in different forms. The second conceptualisation views financialisation as being epochal changes in the annals of capitalism in the advanced capitalist countries (Sawyer, 2014). On the epochal conceptualisation of financialisation, Sawyer (2014) has estimated the turning point as circa 1980; although about 1975 would be suggested by Epstein (2005) and over this period, there was shift in corporate attitude from "originate and retain" to "originate and distribute" (Sawyer, 2014), highlighting the tendency of corporations to increase distributions out of corporate profits to shareholders or rentiers. There has also been a marked deregulation during the 1980s, in association with financialisation (Fine, 2012). While the clear identities of these institutional changes remain yet unclear, a consensus regarding financialisation is that it is associated with the extensive financial liberalisations of the mid-1980s and afterwards. However, invoking financialisation or the associated deregulations of the mid-1980s and early 1990s as the source of shareholder power and the cause of declining rates of fixed capital accumulation would ironically imply that the explanandum pre-dates the respective explanans.

Duménil and Lévy (2005) have contributed to the financialisation literature, but from a Marxist perspective. They have posited that the lofty institutional configurations that regulated capital accumulation (including non-residential fixed capital accumulation) in advanced capitalist countries culminated and disappeared in the 1960s, well before the deregulations of the 1980s. Although the capitalists were highly regulated in the golden era of Fordism, they were persistently antagonising the social democratic (Keynesian) compromise. Capitalists clamoured for the restoration of their hegemony, particularly their international activities and consequently, the 1960s saw the emergence of a new international finance, the

Euromarkets, that facilitated the circumvention of regulations. International finance was then augmented by international production (Duménil and Lévy, 2005, p.24). This was further reinforced by the rise of interest rates (during the reign of monetarism) under Margaret Thatcher and Ronald Reagan, in 1979, followed by more extensive deregulation and direct attacks on labour movements/unions, that fostered the emergence of shareholder value maximisation as the new principle of corporate governance. Thus the profit appropriation via corporate interest payment that had been prevalent in the 1980s, was superseded by dividends from the late 1980s into the 1990s (see Duménil and Lévy, 2005, p.25).

Crotty (2000, 2002,) argued that during the golden era of capitalism, big oligopolistic non-financial corporations accounted chiefly for the accumulation of fixed capital. However, later developments, such as: the globalisation of products and financial markets in 1970 and thence that facilitated declining global aggregate demand growth; and the emergence of impatient financial markets (dominant shareholders/creditors) that pressured firms into paying out more of their profits as interests and dividends, came on the scene. The combination of falling demand growth and higher profit pay-outs adversely affected the performance of these non-financial corporations (ibid). Crotty (2000) also asserted that increased opening of national borders led to fierce competition, which induced the surviving firms in advanced markets to increase investments within the borders of emerging markets with higher expected future growth rates, implying reduction in rates of investments, in advanced capitalist countries (see Crotty, 1993; Aglietta, 1998). It would, therefore, be more consistent to cite the extensive deregulation (e.g., neoliberalism) as the relevant institutional change associated with financialisation, and possibly as the source of financialisation (Kotz 2008a, p.2, 2008b) and shareholders' power, which legitimised the pursuit of shareholder value maximisation. This new liberalism intended to restore the hegemony of the capitalists, is a summary term that embodies a paradigm shift from the status quo which established the hegemon of wage labour during Fordism. Starting in about the late 1960s/early 1970s, this shift initially dominant in the form of extensive trade liberalisations and later assumed a complementary form, capital account liberalisation.

From the foregoing review of the Regulation School and post-Keynesian literatures, a robust inference is that capitalist dominance in corporate power relations tends to decrease fixed capital accumulation and tend to increase profit rates. However, capitalist hegemony depends on the institutional configuration of wage relation, competition form, money form, state form, and the international regime. A more liberal international regime tends to facilitates capitalists/shareholders hegemony. Since circa 1970, the emerged institutional configurations in the advanced capitalist economies have been dominated by the international regimes, first in the form of trade openness and later augmented by financial openness. Given the foregoing premises, a valid inference, therefore, is that the extensive economic openness that started about 1970 in the advanced capitalist economies significantly explains the decline in growth rates of business fixed capital observed in these countries in these years. This inference underpins the central thesis of this research. This dating is more consistent with the statistics, which clearly show that the declining trend of fixed capital accumulation or growth rates, which is the explanandum started circa 1970 (even in the late-1960s, for some sample countries: See stylized facts in Gordon et al, 1987, p.43; Bowles et al, 1989, p.110; Stockhammer, 2004, p.730; van Treeck, 2008, p.374; Duménil and Lévy, 2011, p.152).

The foregoing notwithstanding, the thesis of Duménil and Lévy (2004, 2005 and 2011) as well as those of Lazonick and O' Sullivan (2000) (also of Marxist bias); Aglietta (2000) Aglietta and Breton (2001); Boyer (2005); van Treeck (2008) is that higher distributions of profits to shareholders and rentiers (interest and dividend payments) explain the declining trends of fixed capital growth rates as observed. Assuming that all goods and services needed would be locally produced in autarky, then a reduction in output growth rates due to supply constraint occasioned by higher profit appropriations or financial assets acquisitions would generate higher prices of outputs from a sellers' market and thus economic rents from fixed capital accumulation. These rents would entice new entrants and even the existing profit appropriating firms to increase the aggregate rates of fixed capital accumulation, as *ex hypothesi*, capital accumulation is positively related to the profit rates expected from such fixed capital (Cambridge model and other theories in chapter 2). Thus on the aggregate, capital accumulation rates would at least be maintained in the absence of international integration. Because profit rates would to a greater extent be

dependent on capital accumulation, it beggars belief that rational shareholders could afford to cause declining trends in fixed capital growth rates for nearly four decades, without this being counterproductive, in the absence of greater economic openness.

A variant of the Regulation School (the Social Structure of Accumulation) that have looked into economic to some extent, was in connection with the investigation of the determination of profit rates. Existing literature is still miles away from rigorously investigating the causal relationship between international economic openness and the observed declining rates of fixed capital growth in advanced capitalist economies, and most particularly, from the institutional-power configuration approach of the French Regulation School. Institutional changes in the 1980s and 1990 ushered in financialisation, resulting in existing empirical studies which are based on these financialisation and power relations in the firm but assumed closed economies in their investigations. These studies simply augmented fixed capital accumulation model with subjective financialisation variables, depending on the author's conceptualisation of financialisation, as found in the above review.

3.4 Non-Institutional Based Arguments for Capital Accumulation

The earlier set of studies were based on the augmentation of the Kaleckian and Cambridge models with monetary variables, such as interest rates. Lavoie (1995a) augments five variants of post-Keynesian models of capital accumulation with interest rates, yielding a number of theoretical results. Augmenting the Kaleckian model, he found that increases in interest rates generated decline in rates of fixed capital accumulation, while increasing the rates of interest generated lower profit rates, and lower rates of capital accumulation in the Eichnerian and Cambridge models. The Neo-Ricardian model generated higher accumulation rates for higher interest rates as well as higher profit rates, while the Minsky-Steindl model suggested that higher interest rates may generate higher or lower rates of capital accumulation. Hein (2006), also augmented the Kaleckian profit model with a monetary variable (interest rate) as well as a leverage variable (debt-capital ratio) and found that interest rates have no unique effect on rates of capital accumulation. As in Lavoie (1995a), there were normal cases when higher interest rates acted as

constraints and generated declining rates of accumulation, and puzzling cases when higher interest rates generated higher accumulation rates (see also Hein, 2007). These models are a-historic and a-institutional with multiple possible outcomes and indicating, *ab initio*, the multiple possibilities associated with interest rate changes.

3.5 Other Views of Fixed Capital Growth

There are other views on the determination of fixed capital growth rates. These include: the relative cost argument (the ratio of interest and depreciation rates to wage rates in Jorgenson model); expected future profitability proxied by the growth rates of previous outputs argument (of accelerator models); Fisher's internal rates of return model; and Keynes' marginal efficiency of capital model. While these are a-historic and a-institutional, we intend to provide for these as control variables in our empirical models. For further details on these alternative views and some empirical estimations, see Baddeley (2003).

3.6 Research Questions

The principal theories have been reviewed. The central issue is what caused the observed decline in rates of fixed capital accumulation by firms in the advanced capitalist economies after Fordism. The critical point across the theories of the Regulation School, the post-Keynesian School, and the Marxist contributors, is that capitalist accumulation exists in the context of power configuration among capitalist classes with conflicting interests. Fixed capital accumulation depends on which class is dominant in the corporate power configuration. However, which class is dominant depends on the external institutional configuration. The French Regulation school theory has concisely posited the institutional configuration as the configuration of the state form, the money form, the form of competition, the wage relations, and the international regime, with one of these being dominant. The institutional configuration with dominant wage relations and the resultant power configuration that empowered labour and brought about unprecedented fixed capital accumulation in the golden post-war years till nearly 1970 have changed, together with a paradigm shift from the Keynesian consensus (or social democratic compromise) to

neoliberalist deregulations. The new institutional configurations in the advanced capitalist countries following the end of the golden post-war years are arguably dominated by their international regimes (in the form of higher economic openness), that have projected capitalist/shareholder hegemony, thus suggesting economic openness as the real cause of the decline in rates of business fixed capital accumulation observed in advanced capitalist economies.

However, under a-historic and a-institutional perspectives of mainstream theories, greater economic openness should bring about a higher rate of business fixed capital accumulation in advanced capitalist economies or at worst be neutral (Bonfiglioli, 2008; Gehringer, 2013). Furthermore, we have the preponderance of contributing scholars of institutional and historical perspectives, arguing that increases in profit pay-outs (as interest and dividends or as share buybacks), or increases in financial assets acquisition by non-financial firms created funding constraints that squeezed out business fixed capital accumulation. The central questions, therefore, are:

Does institution matter in business fixed capital accumulation?

Does greater economic openness bring about a decline in business fixed capital accumulation?

Did the observed decline take place in the context of a post-Fordist regime of accumulation?

This research seeks to answer these central questions. Moreover, if institutions matter and economic openness matters, this research also seeks to find through what channels they exert their inverse impacts on fixed capital accumulation. To the best of our knowledge, there does not exist any empirical investigation that seeks to answer the above research questions, thus indicating the originality of this proposed research. To the best of our knowledge, no other work has formally analysed or subjected to rigorous empirical investigation, the role of economic openness on the declining rates of capital accumulation, in the Regulation School literature. This is, therefore, a gap in the Regulation School approach, that this research seeks to fill.

3.7 Summary and Statements of Hypotheses

Fligstein (2001) has argued that the pressures of labour unions and increases in international competition forced non-financial corporations into withdrawing from funding fixed assets accumulation, and towards financial assets acquisition. Assuming the political economy perspective, it is reviewed that capitalist production relations are social relations characterised by power configurations among agents with conflicting interests and contradictions. The realisation or maximisation of the interest of one class will significantly curtail the achievement of the interest of one or more class(es) of capitalism. Herein lies the conflict of interests in production relations. With each class actively desirous of maximising the realisation of its interest there arise inherent struggles and power relations, with a consequent dominant class emerging in the relationship. Corporate policies and strategies are consequently biased in pursuit of the interest of the dominant class. Each class of capitalist production relations pursues the emergence of institutions, exploits existing institutions, or is constrained by existing institutions in the active desire to be dominant and to realise to a greater extent, its interest. According to some post-Keynesian scholars, the objective of the firm becomes the objective of the dominant class in the power relations in the firm. These scholars have argued that the workers interests are achieved with attendant increases in growth and fixed capital accumulation by firms, because these facilitate greater employment and the security thereof, as well as higher real wages. But the capitalist/rentier class wants progressive increases in the returns to their capital expenditures and thus their wealth, and this is efficiency of the invested capital outlay, however it may be achieved.

Given this conflictual relationship, the repetition of production becomes apparently impossible. Some form of compromise is therefore of the essence, to make repetition and long wave of production possible. The pursuits of empowering institutions by the classes and the constraints imposed by existing institutions on these classes, result in the emergence of a configuration of institutions that forces a compromise between these conflictual relata, where there emerges a dominant class, and thus facilitates the long wave of production with its characteristic pattern of distributions, called an accumulation regime. The configuration of institutions also has a

hegemonic/dominant institution. This configuration that forces the compromise is the mode of régulation. The mode of régulation and regime of accumulation form the mode of development. Eventually the mode of régulation is exhausted and the result is the a structural crisis of the regime of accumulation. The five main institutions whose configuration, studies in the French Regulation School literature have revealed to régulate accumulation regimes include: a money form, a wage relation (or wage form), a state form, a form of competition, and an international regime.

The characteristics of the regime of accumulation and the relationship between two economic variables depend on the institutional configuration and eventually on the hegemonic institution. These characteristics include rates of fixed capital accumulation. Some scholars have concurred that after Fordism, trade and later financial openness through extensive deregulation assumed dominance over an extended period characterised by decline in rates of fixed capital accumulation in advanced capitalist economies. The history of the phases of capitalism indicates that regimes of accumulation with higher rates of fixed capital accumulation are associated with conditions of low trade and financial openness, while regimes characterised by long period of low rates of capital accumulation or short-lived rapid capital accumulation tend to be associated with greater trade and financial openness. Based on the foregoing premises of mode of régulation, regime of accumulation, and historical experience, three theses emerged:

“Higher trade openness of the post-Fordist period explains the lower rates of business fixed capital accumulation observed in the advanced capitalist economies”

“Higher financial openness contributed to the observed decline in the rates of fixed capital accumulation in advanced capitalist economies”.

“The observed extended decline is a characteristic of post-Fordist regimes of accumulation where the mode of régulation is dominated by economic openness”.

Economic openness, analysable into trade openness and financial openness, is the primary form of international regime.

Symbolically:

$$\delta\, RFCA/_{\delta\, II} < 0\ ; \quad \delta RFCA/_{\delta\left(\frac{Trade\ flows}{GDP}\right)} < 0;\ \delta RFCA/_{\delta\left(\frac{Financial\ flows}{GDP}\right)} < 0$$

Where II represents integration into the international economy; and RFCA are the rates of fixed capital accumulation. The ratios of trade flows to GDP and financial flows to GDP are the respective indices of trade and financial openness. The power struggles between the classes of capitalism in the determination of trade policy and trade openness are considered. The next two chapters assess the political processes in the emergence of the institutions of greater trade and financial openness.

Chapter 4 :International Trade Policy: The Political Economy of its Emergence and Some Consequences

4.1 Introduction

Over time, national states alter their commercial or trade policies, allegedly to achieve some macroeconomic objectives. An examination of the advanced capitalist economies readily suggests a common pattern of commercial policies. Looking more intently at the 20th and 21st centuries, we can arguably classify the decades after 1970, as decades of significant liberal commercial policies and greater international trade openness for these economies. In contrast, from the end of the Second World War until the mid-1960s, trade policies were rather protectionist and economic openness in both *de jure* and *de facto* forms was at historically low levels, across advanced capitalist economies. As argued in the literature and reflected in the data, these Fordist decades of protectionist trade policies and low trade openness were associated with the realisation of lofty macroeconomic objectives of near full employment, high and rapid growth in productivity, output and capital accumulation, as well as periods of lower inequality in income distribution. Why, and how, then did the capitalist states switch to the incredibly liberal commercial policies that opened the floodgate to increases in trade and caused trade openness of epic proportions, over virtually four decades? This chapter reviews some trade policy theories. The objective is to identify the process that underpin the emergence of the extremely liberal post-Fordist trade policies and trade openness across the advanced capitalist economies. The structure of the chapter is as follows: Section 4.2 considers international trade policies before the Fordist decades. Section 4.3 looks at trade policies in the period of Fordism, while Section 4.4 presents trade policies after Fordism. Section 4.5 presents some impacts of trade policy changes. Section 4.6 is a summary of the chapter.

4.2 Trade Policies before the Golden Years of Fordism

If the trade theories of mainstream economics, whose thrust is that free international

trade leads to maximum national benefits, were consistently the sole or even the critical guide of trade policies, then free trade policies would be prevalent across the advanced capitalist countries and across time. However, this has not been the case, as over the years, national trade policies have oscillated between protectionism and greater liberalism. As argued by Södersten and Reeds (1994), the drivers of trade policies or levels of protectionism include responses to political pressures, and the desire to reduce imports because of balance-of-payments problems. It has been demonstrated that free trade brings about the redistribution of benefits and outputs away from consumers and in favour of producers and capitalists in the case of exports. It has also be shown that increases in imports reduce the benefits to domestic producers in import-competing industries, through lower prices and atrophy of import competing industries, but bring net gains to consumers (Södersten and Reeds, 1994, p.193). If, therefore, protectionism or free trade increases the benefits for some people and reduces the benefits of others, then at any point in time, the prevailing trade policies would have both their antagonists and their protagonists

However, if a state increases protectionism, then local production would increase, and imports would be reduced (Södersten and Reed, 1994). If increases in imports make local production in import-competing industries less profitable, then local producers would stop or at least curtail local production and increase their profits by substituting importation for local production. The relative profitability of importation could potentially generate a massive wave of importation by erstwhile local producers, under the excuse of increasing the gains to consumers from lower prices (Boyer, 2013), just as the workers in these industries are made redundant. Thus in the long-run, the effective harm of increases in imports is to local production and employment of labour, as the local producers in an import-competing sector could potentially maintain their profits or increase them, through switching to local importers.

It has also been argued that increases in exports may reduce growth in real wages (Boyer, 2013), as increases in international competition may cause competitiveness on labour cost of exports. Regarding the classes of capitalism, we could therefore,

infer that free trade, either through exports or imports, has a higher likelihood of increasing the gains to capitalists at the expense of workers or wage-labour. If the trade policies of a state tend to be responses to political pressures as posited by Södersten and Reeds (1994), then the political clamour against free trade would be louder among the wage-labour class than the capitalist class, and the political clamour in favour of free trade would be louder among the capitalist class than the wage-labour class (cf Marglin and Bhaduri, 1992; Duménil and Lévy, 2005, p.24, 2011).

A status quo of free trade (and international openness) that increases the wealth of capitalist class at the expense of wage-labour class, brings about greater re-distribution of real income in favour of capitalists. Such redistribution generates class consciousness and dissatisfaction among exploited wage-labour class, who may increase political activism to change the status quo to one of greater protectionism. Such protectionism reduces the ability of the capitalist class to redistribute income in their favour, and eventually facilitate the redistribution of income in favour of wage-labour. The consequence is political activism by the capitalists to change the status quo, and if they succeed, the result is a new trade liberalism. The prevailing trade policy becomes the result of a dialectical process defined by a net balance of political power of the classes of capitalism, and facilitates the redistribution of income or exploitation of one capitalist class by the other.

Before the rise of modern capitalism, the tendency was for the state to institute greater protectionism for the agricultural sector, and this included the institution of the Corn Laws in England. But as capitalism became more established, capitalists increased political activism against land-owners that culminated in the 1846 abolition of the Corn Laws that had been very helpful to English agriculture. Consequently, until the onset of the First World War, England was practically a "free-trading nation" (Södersten and Reeds, 1994, p.189). The waves of trade liberalism in this period saw the institution of the Siamese-American Treaty of 1833, the Opium War of circa 1840 and, the Cobden-Chevalier Treaty of 1860 between the United Kingdom and France. Further waves of trade liberalism spread across

European capitalist economies, as these economies, including Germany, followed in the footsteps of the UK and entered into successive free trade agreements between themselves (IMF, 1997). In Japan, the Meiji Restoration of 1868 facilitated trade liberalism. The results were dramatic increases in world trade. There was, however, a retreat from free trade in the ultimate quarter of the 19th Century. This was the period of the long depression, which was most severe among the advanced capitalist economies. Relative to the European states, the United States stood as a rather protectionist state, from 1816 to the Second World War (Södersten and Reed, 1994; Lind, 2003).

A strong argument exists in the literature that the period between the First World War and the Second World War, especially the 1930s, experienced a remarkable level of deteriorating international economic relations (Södersten and Reed, 1994). Protectionism reached a head in the US, with the passing of the "Smoot-Hawley Act (1930), which ushered in dramatic increases in tariffs. Following the retaliation by other advanced capitalist economies, by 1933, the advanced capitalist economies where already firmly in the tentacles of severe trade, as well as currency conflicts (See Monroe, 1975; Eichengreen and Irwin, 2010). Protectionism attained a critical point during the great depression in the 1930s. It was against this background that the world entered the Second World War. Thus apart from trade or commercial policies being the results of dialectical processes, there appears to be the tendency of contagion of trade policies, across the advanced capitalist economies.

Frieden and Lake (2000, p.69-71) have argued that across the advanced capitalist economies in general, the first three decades of the 20th century were ones of *de facto* protectionism. This assertion is however inconsistent with the observation that until the beginning of the First World War, the prevailing trade policy was one of free trade. What therefore do the data say? Data available on trade and trade openness indicate that on average following the repeal of the Corn Laws in 1846, not just trade, but also the ratio of the sum of exports and imports to GDP, grew very rapidly from 1847 to 1880 across the advanced European economies. This series of the ratio of trade to GDP declined briefly from circa 1880 until early 1890 and picked up again, understandably, until the beginning of the First World War. The

series declined over the period of the First World War. However trade and trade openness started their upward trends from about 1919 until about 1929, declining after that until about 1939 (the period of the great depression). In most advanced European capitalist economies, the series continued their decline from 1939 until the end of the Second World War, except for a couple of countries, the UK and Sweden, where the series rose briefly from about 1933 till 1939. Across most of these advanced European capitalist economies, the increases in the ratio of the sum of exports and imports to GDP from the 1840s to 1913 were astronomical. Some spectacular cases included the Netherland, where the series rose from just 26% in 1830 to 180% in 1913, just before the First World War, and Belgium, where it rose from just 19% in 1840 to 101% in 1913 (see Broadberry and O'Rourke, 2010; Ortiz-Ospina and Roser, 2017).

The data thus indicate that during the rise of modern capitalism after the crisis of the agro-based *ancien régime* circa 1840, there existed significant upward trends in free trade and trade openness until virtually the beginning of the first world war. It should be recalled that this is co-extensive with the first (extensive) regime of accumulation presented in Lipietz and Vale (1988), and recounted in Section 3.2 of Chapter 3 of this thesis. The period of falls in trade and trade openness was not only the period of the war but also that of the structural crisis of the first regime of accumulation. Following the end of the First World War and the crisis, trade and trade openness assumed upward trends once again, as indicated by the data, from circa 1920 until the late 1920s. These trends were also coextensive with the brief period of the intensive regimes of accumulation when there existed the unsustainable institution of intensive or rapid fixed capital accumulation in the context of increasing trade and trade openness (ibid). This ended in the structural crisis of the 1930s, which was also the period of the great depression, and the retreat to protectionism.

4.3 International Trade Policies in the Fordist Decades

Controversies over the nature of trade liberalisation and openness after the Second World War also exist in the literature. Some have argued in the Regulation School

literature, that trade openness reached historically low points in the 1960s (see Aglietta, 1998). Some, however, have argued that from the post-war period, trade policies have been very liberal. Some have also posited that formal and extensive trade liberalisation started after the 1960s. A study of the history of liberalisation suggests some deliberate trade liberalisation drives particularly by the US, even before the end of the Second World War. The urge for free trade policy was motivated by the objective of avoiding the commercial policies of protectionism (a commercial policy that is intended to strait-jacket free trade) of the Second World War. Under the leadership of the United States, the objective was the establishment of the International Trade Organisation (ITO) to regulate international trade, as a parallel to the World Bank and the IMF on international finance. The ITO was to midwife a liberal system that governs trade and brings about free trade in the long run. ITO, however, never materialised, as no country including the US, agreed to ratify the charter. Instead, a less ambitious General Agreement on Tariff and Trade (GATT) became the instituted framework guiding trading relations.

GATT has, as its central guiding principle, the “most favoured nation” clause. This concept means that the most favourable tariff concessions granted by a country to another should be extended to all signatories of GATT. Some have argued that GATT has been successful in meeting two of its three objectives: successfully constituting a framework for the conduct of international trade and, constituting a framework for, and promoting, the gradual elimination of trade barriers. It has, however, failed in its third task of providing a set of rules to prevent countries taking unilateral action. Others, however, have levelled several criticisms at GATT. Some of these critical views include the charge that GATT reflects the mercantilist principle that exports are good; imports are bad and equal changes in exports and imports are good (Krugman, 1992). Moreover, GATT has too many exceptions, on various grounds. Although it prohibits the use of direct control of trade, such as quantitative restriction, it allows this, under the excuse of a balance-of-payments problem. A few grounds do exist for claiming exemptions from the tariff reduction requirements of GATT. Free trade areas and customs unions offer significant exceptions from the provisions of GATT.

The Geneva Round (1947) involving 23 countries achieved some concessions on tariffs, in that the US took the lead in cutting tariff on European exports, but refused to press for the removal of the prevalent quantitative restrictions on imports by European countries. Therefore, these restrictions more or less prevailed. The next four rounds: Annecy (1949), Torquay (1951), Geneva (1956), and Dillon (1960-1961) were rather unsuccessful and thus trade liberalisation remained constrained. The primary reason for the failure of these rounds to promote liberalisation rested on the protectionist tendencies of the advanced capitalist economies. For example, the US Congress was reluctant to grant the US administration the necessary power to pursue liberalisation; Britain and the Commonwealth of nations were exploiting the exceptions clauses of GATT and, therefore, unwilling to reduce the long list of preferences. In 1947, the general tariff was 22%, and two decades later, in 1967, it had barely been reduced to just 15%. However, by the Uruguay Round in 1986, the general tariff was already below 5%.

It is noteworthy that the period covered by these earlier four rounds of GATT, as considered above was from 1947 to 1961, and this overlapped considerably with the period of Fordism. Since the advanced economies were in reality still stuck on protectionism despite the liberalisation crusades and GATT, we can argue that the period of Fordism was mainly that of *de jure* and *de facto* protectionism. The protectionist stance of the Great Depression and the Second World War continued into the golden era of Fordism. It took several decades after the Second World War for protectionism to begin to thaw (see Warnecke, 1978; Lind, 2003; Irwin, 2012). Some have argued that the success of the trade liberalisation efforts have triggered an increase in international trade by more than 290% (Terborgh, 2003). If we use the ratio of aggregate global export to global GDP as an index, then we see that in 1913, this ratio was 8% and about 5% during Fordism. The ratio, however, jumped to 11% just after 1973; and was 17% in 1998 (see World Trade Organization, 2013). We assume that the foregoing pattern of *de jure* and *de facto* trade liberalisation ran concurrently among the advanced capitalist economies. If Fordism was *de jure* and *de facto* protectionism, then why and how was there a rapid trade liberalisation post- Fordism?

4.4 International Trade Policies in Post-Fordist Decades

The motivation for the rapid trade liberalisation of the post-Fordist period remains a matter of debate. The process, however, smacks of self-interest. It started with the Kennedy Round which lasted until 1967. The objective was to reduce tariffs by as much as 50% on goods that mattered to the advanced capitalist economies only (primarily manufactured goods and their relevant raw materials). It has been argued that the initiative taken by the US to bring about a massive cut in trade barriers, was the fear and the potential protectionist impact of the rapidly emerging customs union in the then European Economic Community, and the possible enlargement thereof.

The results were the Trade Expansion Act and the dominant-supplier authority, by the administration of Kennedy. The former empowers the administration to reduce tariff by up to 50% on all goods. The latter indicates a 100% tariff cut on goods (80% of which trade, the US and the then EEC are accountable for). The most substantial tariff cut would primarily affect manufactured goods, and the estimated cut in tariffs agreed during the Kennedy Round on these, was about 40%, affecting about 75% of global trade. The remarkable trade flow facilitated by the Kennedy Round was bolstered by the Tokyo Round, in which industrial products enjoyed another 33% reduction in tariffs. During this round, the raw materials for these industrial outputs enjoyed a 52% reduction in tariffs, semi-manufactured goods received 30% tariff reduction, and finished manufactured goods, a 33% cut in tariffs (see Södersten and Reed, 1994).

To complement the above reduction in trade barriers, the EEC's customs union was formed in the late 1960s. This union saw the removal of trade barriers between members and identical external tariffs for non-members. The European Free Trade Area (EFTA) served as an alternative trade bloc for Iceland, Norway, Switzerland, and Liechtenstein, and later for Austria, the United Kingdom, Denmark, Portugal, and Sweden. By the late 1960s (1967), free trade untypical of the Fordist period among the advanced capitalist economies had started to increase, as EFTA facilitated an increase in trade among its members, from just US$3.5bn to US$8.2bn

(Wikipedia). Australia and New Zealand were not left out as they signed a Closer Economic Relations (CER) deal in the early 1980s, which triggered significant increases in international trade of these nations.

Thus, from the *de jure* and *de facto* trade protectionism of the Fordist period, when politicians where biased towards industrial protection and the consequent low levels of international trade, the advanced capitalist economies (under pressure from capitalist firms) became impatient to jump on the bandwagon of free trade, either within free trade blocs, or outside such blocs, consequently triggering the proliferation of free trade areas in the late 1960s. A crucial question is why this change of heart took place. Duménil and Lévy (2011) provide an answer in the following phrase: "…because capitalist firms are in the quest for higher profit rates." Despite the mainstream arguments of the potential benefits associated with free trade, the prevailing commercial policies of a state reflect the power struggles between the chief capitalist agents, of wage-labour and capitalists/shareholders. The prevailing commercial policy is a reflection of the interest of the more politically powerful class, who can influence public policies, in favour of this interest (Anderson and Baldwin, 1987).

Empirical studies, with the US as the focus, found that the major labour trade unions who were in favour of protectionism (trade closeness) did make significant monetary contributions to the campaign funds of members of Congress fighting against trade liberalism, signalling the willingness and capacity of organised labour to secure protectionism (Baldwin, 1976). More studies found that Republicans (generally assumed to be sympathetic towards the capitalist class) tended to vote in favour of higher trade openness concerning the US Trade Bill of 1973. The Democrats, in contrast, tended to vote for protectionism concerning the same bill. These studies also found that organised labour unions who were against trade openness primarily made monetary contributions to members of Congress who voted against the bill (Baldwin, 1986). Caves (1976), in the case of Canada, found that the national interest argument could not significantly explain the level of protectionism (and by implication, that of trade openness) and neither could the adding machine argument (the benefits of the highest number of voters possible argument). He found that the interest group argument explained more than 50% of

the variations in protectionism (For further details on the political market for protection, see Olson, 1965; Cheh, 1974; Stigler, 1974; Pincus, 1975; Baldwin, 1976, 1986; Caves, 1976; Finger, 1981; Ray, 1981; Frey, 1985; Södersten and Reed, 1994, p.304)

The foregoing paragraphs suggest, therefore, that the position of the advanced capitalist economies, being rather protectionists and then liberalists in spirit during Fordism and post-Fordism respectively, were the results of political struggles in which capitalist classes' conflicts of interests and political activism made significant contributions. For wage labour, protectionism facilitates the security of real wages and employment (see Boyer, 2013). For the capitalist, trade liberalism tends to enhance the returns per unit of capital invested (capital efficiency) by capitalists/shareholders (see Duménil and Lévy, 2011).These conflicting positions stand in contrast to the elaborate logical national and a-institutional economic gains from trade arguments, found in neoclassical economics. Expectedly, the historic lows of trade openness, high real wage growth, and near full employment of labour in the golden age of Fordism indicate a period of labour power. The decades following Fordism with real wages at best growing very slowly, unemployment very high and upward trending profit rates across the advanced capitalist economies is indicative of decades of capitalists' power. What impacts then, do these changes in international trade policies have on both international trade and international trade openness?

4.5 The Impact of Trade Policy Changes

In light of the changes in international trade policies, this section considers some of the impacts of these policy changes.

4.5.1 The Impact of Trade Policy Changes on International Trade

Consistent with the tendency for exports to beget commensurate levels of imports, there have been very high correlations between export and import of goods and services. Table 4.1 below, displays the very high positive correlation coefficients

between export and import of goods and services, for 23 advanced capitalist countries in the OECD.

Table 4.1: Export-Import Correlation Coefficients

Country	Australia	Austria	Belgium	Canada	Denmark	Finland	France	Germany
Coefficient	*0.9974*	*0.9991*	*0.9993*	*0.9944*	*0.9983*	*0.9898*	*0.9963*	*0.9981*

Country	Greece	Ireland	Iceland	Italy	Japan	Luxembourg	Netherlands	New Zealand
Coefficient	*0.9855*	*0.9988*	*0.9818*	*0.9953*	*0.9794*	*0.9998*	*0.9998*	*0.9979*

Country	Norway	Portugal	Spain	Sweden	Switzerland	United Kingdom	United States
Coefficient	*0.9911*	*0.9878*	*0.9900*	*0.9989*	*0.9977*	*0.9989*	*0.9919*

(Source: author computed from data available in databases)

These extraordinarily close correlation coefficients between export and import of goods and services make exports and imports almost identical concepts. Statistics indicate that over the period of Fordism, the values of exports and imports were rather negligible and more or less the same year in year out. However, the increase in trade liberalisation of circa 1970 increased these values in later years.

Figure 4.1: Average Export and Imports of Goods and Services

(Source: Author's computation from data in World Bank database. Values on vertical axis in current local currency units)

A rapid rise in *de jure* trade liberalisation, followed the Kennedy round. Figure 4.1 displays line graphs for the series of total export and import of goods and services averaged across 23 advanced capitalist economies for which data are available, and for the period 1960 to 2013. The two series show the close movements between exports and imports. However, more importantly, Figure 4.1 indicates the breaks in the movement of these series. The period 1960 to about 1970 could arguably be classified as the last decade of Fordism, when the commercial policies of the advanced capitalist economies were *de facto* protectionist. The period beyond 1972 can be classified as Post Fordist period. Figure 4.1 indicates the relative insignificance and stability of international trade across advanced capitalist economies in the 1960s. Although data are not available for the 1950s, it would be logical, from the shape of the series, to infer that these were still relatively negligible, as in the 1960s. However, the first sign of an increase came in about 1970. From visual inspection, while these increases were very significant until about 1980, they were rather modest compared with the spike in exports and imports after 1980, as can be seen in the massive spike in both series in Figure 4.1. The closeness between the patterns of movements and the changes in attitude towards commercial policies of advanced capitalist economies should be noted, indicating that the movements of these series are the function of the commercial policies and therefore should be strictly exogenous in a causal economic relationship.

The changes that accompanied the massive trade liberalisation from the late 1960s onward were not restricted to higher imports and exports. They have also been accompanied by structural changes in exports and imports. In Australia and Japan after the 1960s as liberalisation gained momentum, the proportion of services exported compared with total exports skyrocketed, while over the same period, the proportion of services imported compared with total imports declined. The proportion of goods, particularly industrial goods, compared with total imports decreased during the 1960s, but trended upward after the 1960s. The proportion of goods exports compared with total exports took an extended plunge, from the early 1970s.

For some countries, however, the proportions of services imports compared with total imports trended upward, while the ratio of services exports to total exports declined after the 1960s. For these, the proportion of goods imports compared with aggregate imports fell, while the ratio of goods exports to total exports rose. An example of such countries is Austria. For other countries such as Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, and the Netherlands, the proportion of services imports compared with total imports and the ratio of services exports to total exports declined and then rose simultaneously. In these countries, the ratio of goods imports to total imports and the ratio of goods exports to total exports rose initially and then declined afterwards. Norway saw increases in the ratio of services exports to total exports, while the ratio of goods imports to total imports fell. For Norway, services imports as a percentage of total imports increased markedly, while the reverse was the case for services exports, as the ratio of services exports to total exports declined progressively, over the sample period. Goods exports as a percentage of GDP increased, just as goods exports as a percentage of total exports increased significantly after the late 1960s, while goods imports, as a percentage of GDP declined.

Portugal experienced progressive falls in services imports as a percentage of total imports and services exports as a percentage of total exports. But goods exports and goods imports, as percentages of total exports and total imports respectively, experienced upward trends. Regarding Norway, both goods imports and goods exports as respective percentages of GDP enjoyed upward trends, with these two series closely mirroring one another (correlation coefficient of 0.89). However, goods imports as percentages of GDP were far higher than goods exports as percentages of GDP. These observations for Norway could suggest that imports of goods, rather than domestic production, acted as the source of goods exports. The balance of goods imports over exports accounted for increases in household consumption. In Switzerland, services exports as a percentage of total exports were more or less the same, while the ratio of services imports to total imports trended upward, to converge with the former. Expectedly, the ratio of goods exports to total exports remained virtually the same, while the ratio of goods imports to total imports trended downward, to converge with the former. Services exports and imports as

well as goods exports and imports as respective percentages of GDP trended upward after trade liberalisation.

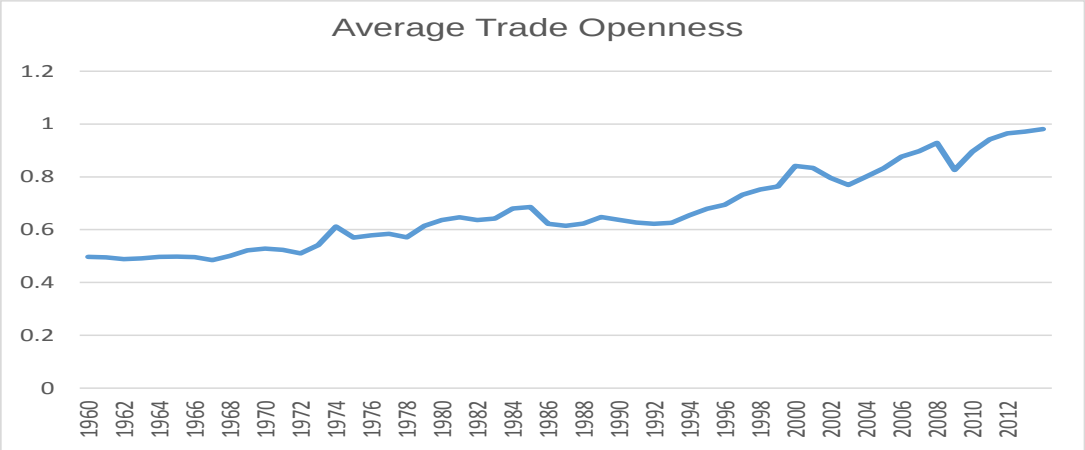
In the UK, export and import of services as percentages of total exports and total imports increased over time, while the export and import of goods as percentages of total exports and total imports declined progressively, over the same period. Unlike the rest of the sampled countries, the series indicated that for the UK, goods exports as percentages of GDP trended downward after an initial spike in the very early 1970s, while the ratio of goods imports to GDP, after an initial upward spike, continued on an upward trend. This contrast in movements created an increasing divergence between these two series, suggesting that imported goods were increasingly the source for exported goods, but more so for consumption goods. For the US, services exports and imports, as percentages of total exports and total imports, trended massively upward and downward respectively after liberalisation. Expectedly, the ratio of goods imports to total imports trended upward, while the ratio of goods exports to total exports trended downward, after liberalisation took effect. Yet all services and goods imports and exports as percentages of GDP, trended upward rapidly after liberalisation.

For virtually all the countries, the percentage of real goods imported compared with GDP, as well as the ratio of goods exports to GDP, rose extensively, after the 1960s, except for Luxembourg where both fell; and Norway where the ratio of goods exports to GDP rose, and the ratio of goods imports to GDP fell. Trade openness for Luxembourg remained virtually unchanged until the mid-1990s, while for Norway, it was rather slightly downward sloping. Thus we can see that similar policy changes and directions trigger different structural changes in production and trade patterns, with the majority of the advanced capitalist economies increasing the percentage of goods exports as a ratio of total exports and decreasing the ratio of imported goods to total imports. The data analysed in this section are available on UK data services and on the AMECO database.

4.5.2 Trade Policy Changes and their Impact on Trade Openness

Next, we observe the impact of commercial policies on trade openness. We recollect that trade openness is defined in the relevant literature, as the ratio of the sum of aggregate export and import of goods and services to GDP. Figure 4.2 below presents the series for trade openness, averaged across the 23 advanced capitalist economies, for which data are available. The series is from 1960 to 2014. Visual inspection once again reveals a striking synchronism in the movement of the series with that of aggregate trade presented in Figure 4.1 The horizontal phase of the trade openness series runs from 1960 to about 1968, after which a minor rise is indicated, because of increases in exports, as can be seen in Figure 4.2.

Figure 4.2: Trade Openness Series: Averaged Across Countries



(Source: Author's computation from database. Vertical axis in ratios)

These minor increases in trade openness continued until about 1973 after which trade openness spiked, before increasing at higher rates until the mid-1980s. After the mid-1980s, rates of increase in trade openness in the advanced capitalist economies attained even greater heights. In the period of Fordism, trade openness was just above 40% of GDP on the average, across the advanced capitalist economies. More precisely, for 15 out of the 23 countries, it was 40% or less, with the US having 20% or less. By the mid-1980s, average trade openness across advanced capitalist economies was between 60% and 70%. By the second decade of the 21st century, trade openness had risen astronomically to intimidating proportions, approaching nearly 100%. It is therefore clear that the post-Fordist era represents a different economic phase or pattern to the period of Fordism, as external relations

through exports and imports, played more significant roles in the generation of GDP. The emphasis being made is on the role played by commercial policies, in these observed dynamics, as we find that the pattern of trade openness is entirely a function of commercial policies. Reconciling the trade statistics with the political market for protection argument, the period following the rapid increases in trade and trade openness suggest a period of growth in fulfilment of the interest of a pressure/interest group that canvassed for it politically. Exports and imports are virtually all undertaken by firms that have the motive to earn a surplus. Firms also have the option to abstain from external trades if it is more profitable to do so. The rapid increases in exports and imports as well as in trade openness following trade liberalisation, constitute evidence that such astronomical rises in exports and imports generated higher profits than did the status quo before trade liberalisation. This, therefore, accords further credence to the logical reasoning in Chapter 2, that firms, in their drive to boost profit rates, may choose to increase the proportion of Y (total output) constituted by exports and imports.

4.6 Summary

In this chapter, we consider commercial policies in the advanced capitalist economies and their changes over time. During the period of Fordism, commercial policies were protectionist. This was despite the efforts made to install a free trade system. The protectionist inclinations of that time, resulted from the absence of political will in Congress and in the parliaments across the advanced capitalist economies, that were the loci of ultimate political power. However, when the political will for trade liberalisation took root, under pressure from capitalist firms desirous of higher profit rates, many free trade areas, and organisations to facilitate international trade and trade openness emerged. Executives were, in this case, granted authority to negotiate extensive reductions in trade barriers and protectionism.

The resultant extensive trade liberalisation that started in the late 1960s was ruthlessly exploited by capitalist firms, as it accorded them opportunities to increase their profit rates. Consequently, exports and imports increased rapidly across the

decades of post-Fordism in advanced capitalist nations. Such historical increases in exports and imports by capitalist firms suggested that such ventures had greater potentials for increasing profit rates, as they had the choice of scaling down such external trade relations, were they found to be less profitable than autarkic production. The consequence of the increases in trade arising from the liberal commercial policy, was expansive increases in trade openness, defined as the ratio of the sum of exports and imports to GDP, as exports and imports began to play more significant roles in the generation of national GDP.

Before this era of liberalisation, external trade and consequently trade openness, were rather low and constant, as commercial policies were protectionist. These historically low points in external trade and trade openness, reflected the will of interest groups representing wage-labour. The inference is that power struggles among interest groups representing classes of capitalism influence the nature of commercial or trade policies, which in turn determine trends in trade and in trade openness. This explains why commercial policies may oscillate between protectionism and liberalism. Were commercial policies determined by the mainstream theories of trade, then free trade policies would prevail all the time.

Trade openness is a function of the prevailing commercial policies and is expected to be a robust exogenous variable, in an economic relationship. Rather than taking at face value the claim in the Regulation School literature that the emergence of the mode of regulation which include the international regime (and openness) is a dialectical process, we review the pattern of trade policies and the process of their emergence across the advanced capitalist economies. The review found, particularly under the perspective of the political market for protection, that an emergent policy is more likely, the result of conflict of interests and power struggles, consistent with the claim of a dialectical process. In the next chapter, similar consideration is given to the determination of capital account liberalisation policy

Chapter 5 *Dejure* and *De facto* Financial Openness: Political Economy and Historical Analyses

5.1 Introduction

There seems to be some historical parallelism between the dynamics of international trade relations and those of international financial relations since the post-war years. Following the end of the Second World War, under Anglo-American leadership, the comity of nations pursued the establishment of not only the International Trade Organisation, but also, the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (IBRD). The IMF was saddled with the task of facilitating short-term international liquidity and assisting member countries with their balance-of-payments difficulties. The IBRD was to assist with channelling long-term investments along the desired lines (Södersten and Reeds, 1994). In 1945, the Bretton wood article of agreement that instituted the Bretton Woods system came into effect. However, this system collapsed in 1971. With the demise of Bretton Wood, international finance became less co-ordinated but more subject to the decisions and actions of national states and private individuals.

Orthodox economic theories have come up with some elaborate benefits optimisation that can potentially result from increased capital account liberalisation; such as that liberalisation would facilitate more efficient allocation of financial resources. Events have strongly suggested that capital account policies may actually result from power struggles and power configurations. In this chapter, we compare the temporal changes in the tide of international financial policies, with changes in actual financial flows and *de facto* financial openness. In line with the literature and in parallel with trade openness, we adopt the definition of international openness as the ratio of the sum of total financial inflows and outflows to GDP per period. Section 5.2 presents international financial policies during Fordism and Section 5.3 presents same, after Fordism. Section 5.4 presents the impacts of capital account liberalisation. 5.5 presents some inferences. Section 5.6 presents the chapter summary.

5.2 International Financial Policies during Fordism

Preceding the First World War, confidence and faith in the international financial system facilitated by the then existing international gold standard, encouraged rather high international flows of funds and trade. This system was dismantled during the First World War. Given the foregoing, and the inability of Britain to launch a new international financial system similar to the gold standard, chaos ensued as multiple exchange rates and competitive devaluations by states intent on stimulating demand in their countries, gathered momentum. This chaos severely curtailed international flows of both trade and finance. It was the desire to restore faith in the international financial system that motivated the IMF and the Bretton Woods system that lasted from 1945-1973. Remarkably, this period significantly overlapped with the period of Fordism. Cross-country capital account controls, prevented any significant flow of private capital, including foreign direct investments, but more particularly speculative private capital flows, such as portfolio flows, as well as bank borrowings, across national boundaries. Such private flows were highly regulated and often needed to pass through central banks. Various reasons were advanced to justify this curtailment of capital account flows.

First, it serves to prevent crises associated with capital flows volatility. Second under the fixed exchange rate regime embodied in the Bretton Woods system, maintenance of capital account restrictions was of the essence, as uncontrolled capital account flows would have made it particularly challenging to maintain a fixed exchange rate system, and this particularly explains why the advanced capitalist economies maintained relatively closed capital accounts, under the Bretton Woods system (and under Fordism by implication) (Kose and Prasad, 2012). Kose and Prasad (2012) have advanced a few alternative reasons for capital account control: to prevent external haemorrhaging of domestic household savings in a country with a fragile banking system; to guide flows into desired lines (e.g. inward FDI); to discriminate between long-term and short-term flows, according to priority. Whatever reason was operational then, is still controversial.

However it is apparent from these advanced reasons, that Fordism was a period of capital account control, which saw private capital flows and consequently financial

openness attain historically low levels (see also Södersten and Reeds, 1994:554). The reasons for control, were consistent with internal growth in employment, productivity and real capital investments, which would have significantly appealed to organised labour unions, who could potentially wield political power. After all, the Bretton Woods system emerged from the blueprints of John Maynard Keynes and Harry Dexter White, with the respective objectives of economic growth and price stability. But higher employment tends towards tighter labour markets and higher bargaining powers for wage labour, to the great displeasure of capitalists (firms). Organised wage-labour would therefore, wish that the status quo of capital account control be maintained.

In real-world investment appraisal, a profit-motivated capitalist firm evaluates the profitability of an investment, by assessing the present values of all future net free cash flows relative to current cash outlays, so that potential profits from the investment are already taken into account, at the inception of the project. For higher profits and growth in shareholder wealth, capitalist firms therefore need to generate new fixed capital projects or increase net cash inflows through greater efficiency. Under the context of strict capital account controls, a capitalist firm seeking to make more profits or to enjoy greater wealth is therefore constrained to invest in the home country, thus limiting capitalists' choices. Theoretical inferences based on observations of business real investments and profit rates during periods of capital account control such as Fordism, would readily project a robust positive economic determinism between fixed capital accumulation and business profit rates. By no stretch of the imagination would capitalists who could also potentially wield political powers, particularly cherish constraints in profit-making abilities implied by a capital account control, compared with a more liberalised capital account.

Capital account control is thus associated with some features potentially disliked by profit-making capitalist firms, such as tighter labour market and constraints on profit-making opportunities. Thus as capital account control or financial non-liberalisation got underway as in Fordism, the stage was set for further struggles between organised wage labour wishing for the status quo, on the one hand and capitalists/shareholders who potentially disliked the status quo of capital account

control during Fordism, on the other hand. Political struggles to determine the nature of capital account policies and thus financial openness, therefore, ensued between the wage labour class and the capitalist class. Capital account liberalisation is a policy decision made by politician whose policy decisions tend to take into account, the locus of net balance of political power between wage labour and their representatives on the one hand, and capitalists and their representatives on the other hand. The prevailing capital account policy therefore becomes the result of a dialectical process (see also the social conflict theory).

5.3 International Financial Policy Post-Fordism

The breakdown of the Bretton Woods system removed the need for industrial economies to maintain capital accounts control. With pressure for higher profit rates mounting, the pressure for greater capital account liberalisation also increased. In conjunction with the theoretical argument that free capital account flows increase the efficiencies of capital allocations, such political pressure successfully influenced extensive financial liberalisation from about the mid-1980s (For details of how the quests for higher profit rates by capitalists/rentiers successfully pushed for a prolonged financial and capital account liberalisation in the years since the fall of Bretton Woods, see Wallerstein, 2007; Duménil and Lévy, 2011; Orhangazi, 2014). How have the changes in international financial policies by the advanced capitalist economies played out in terms of actual capital account flows and financial openness?

5.4 Capital Account Liberalisation: Impact on Financial Flows

The elements of capital accounts are quite numerous and include inward foreign direct investment flows, outward foreign direct investment flows, inward portfolio flows, outward portfolio flows, ‘other investment’ flows (both outward and inward) and reserve flows. Before the capital accounts liberalisation of the mid-1980s, these flows had been rather low and constant. The sequel to the extensive financial liberalisation, were dramatic changes in the volumes and directions of flows. For example, inward FDIs and outward FDIs which on average, were rather negligible

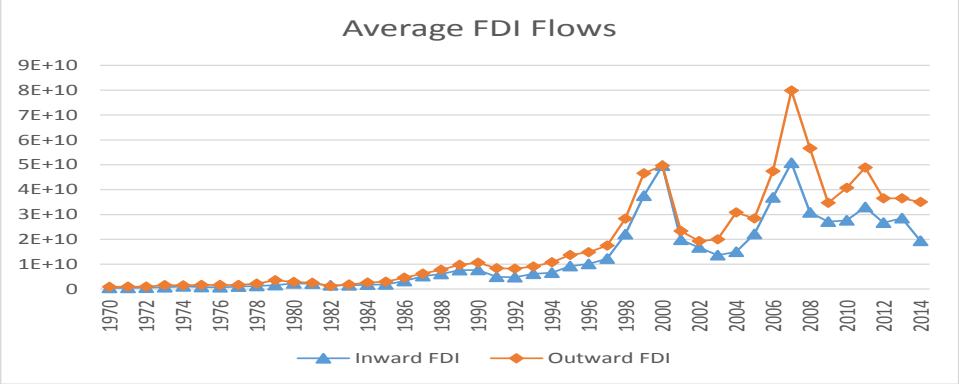
and constant until about 1980, underwent dramatic increases until about 1990. These increases in the 1980s were however very modest by the standards of the 1990s. The upward spikes following the beginning of the 1990s were unprecedented and wound up in a crash between 2005 and 2007 before spiking up again.

The flows of FDI have experienced some diversities across the advanced capitalist economies. For Australia, inward FDIs trended upward throughout the sample period, while outward FDIs declined continuously, after 2008. Furthermore, in Australia, inward FDI flows were consistently higher than outward FDI flows. For the other countries in the sample, FDI flows from the 1970s until the early 1990s were similar to Australia's in that, after dramatic spikes post-1990, there were no downward trends until 2008. In Austria, outward FDI flows overtook inward FDI flows after 2000. In Canada, the rising series of outward FDI flows was higher than that of inward FDI flows. In summary, the statistics indicate that for all the advanced capitalist economies for which data are available, inward and outward FDI flows spiked after capital account liberalisation. For the following group of countries, Denmark, Finland, France, Germany, Ireland, Iceland, Italy, Japan, Luxembourg, the Netherland, Norway, Spain, Sweden, Switzerland, the UK and the US, although both saw dramatic increases after capital account liberalisation, outward FDI flows trended higher than inward FDI flows.

In Luxembourg, both inward and outward FDIs were virtually non-existent, until about 2000. In Switzerland, outward and inward FDIs were virtually nil, until 1982. In Iceland, Ireland and Greece, outward FDI flows were virtually nil, until 1983, 1985, and 1986 respectively. In Belgium, Greece, New Zealand and Portugal, inward FDI flows were both upward trending and higher than outward FDI flows. Out of the 23 industrialised capitalist economies for which data are available, the foregoing statistics indicate that 19 (83%) have outward FDIs higher both in trends and values than inward FDI flows. Because capital flows could enhance firms' profit rates, the spikes in outward FDI flows suggest the high conviction of capitalist firms that undertaking such outward flows of direct investments as enabled by liberalisation, would increase their profit rates or their returns on capital employed.

Figure 5.1 presents the FDI flows in values, averaged across the 23 advanced economies in the sample. It is apparent that from 1970 until about 1984, the flows were rather insignificant. The average across the sample countries, of inward FDI flows was $US448 million in 1970 and $US1.7 billion in 1984. After 1985, the average values of inward FDI flows increased rapidly, peaking at $US50.8 billion in 2007 before crashing during the global financial crisis. Similarly, outward FDI flows were rather insignificant from 1970 till 1984. The average values were $US881million in 1970 and $US2.6 billion in 1984. However, the average values of outward FDI flows, increased rapidly from $US3billion in 1985 to a peak of $US80 billion in 2007 and crashed after then, due to the global financial crisis. Throughout the sample period, average values of outward FDI flows were distinctly higher than average values of inward FDI flows, just as the former was lagged by the latter.

Figure 5.1: FDI Flows – Averaged Across Countries

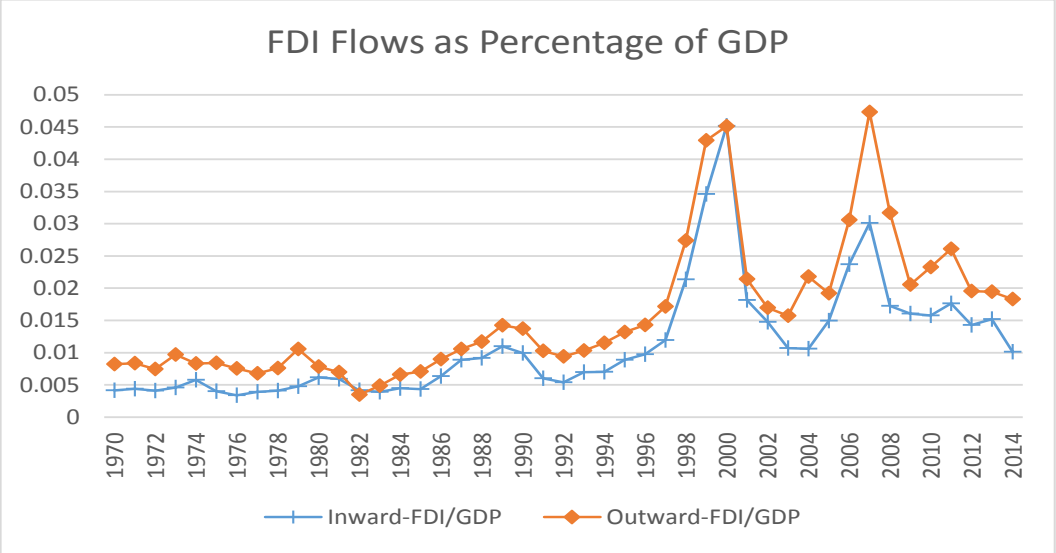


(Source: author computed from data in databases. Vertical axis is in US at current prices)

Figure 5.2 presents FDI flows but in comparison to GDP. Once again, the average values across the advanced capitalist countries were not only relatively insignificant but were more or less the same until about 1984, particularly for inward FDI flows as percentages of GDP, with average values of 0.4% in 1970 and 0.45% in 1984. Average values of inward FDIs as a proportion of GDP increased significantly only from about 1986 from 0.6%, to a peak of 4.5% in 2000 and fell in consecutive years to 1.1% in 2003. These averaged inward FDIs, increased after 2003 to 3% in 2007 and declined continuously for the rest of the sample period, until 2014. Average values of outward FDI flows as proportions of GDP, declined slightly from 0.8% in 1970 to 0.3% in 1982. They increased from then to 4.5% in 2000, and fell

continuously to 1.6% in 2003, before rising to a peak of 4.7% in 2007 and declined over the subsequent years, until 2014.

Figure 5.2: Ratio of FDI Flows to GDP – Averaged Across Countries



(Source: author computed from data in databases)

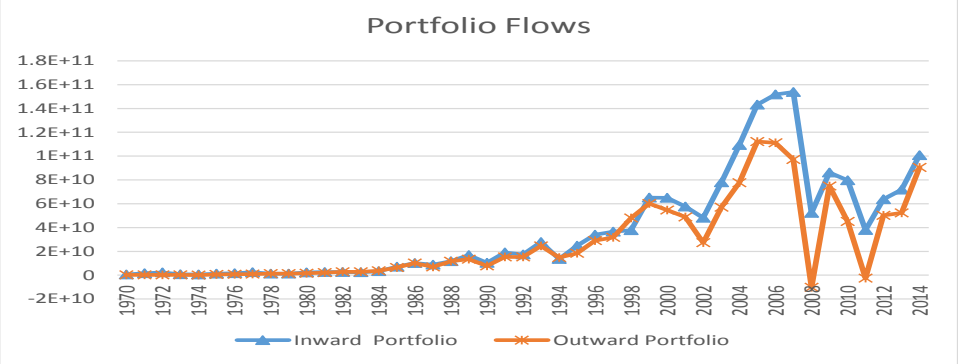
By comparison, average outward FDI flows both in value and as a proportion of GDP, were largely higher than inward FDI flows in corresponding measures.

Portfolio flows considerably dominated FDI flows. A tendency with portfolio flows is for inflows to the industrialised nations to dominate portfolio outflows. In the case of Australia, by the mid-1980s, portfolio inflows were already spiking and trending higher than portfolio outflows. Portfolio flows into Austria also dominated portfolio outflows, and as in Australia, both inflows and outflows peaked at about 2007 and then crashed dramatically. A visual inspection of the series of inward and outward portfolio flows in all the sample countries, reveals some standard features. First, they all commenced dramatic upward trends from the mid-1980s (about 1985/86) (except for Canada, where inflows started upward trend in the late 1970s). Second, before the mid-1980s, these flows were negligible and constant. Third, these series declined steeply in around 2007. For some countries, these series resumed dramatic upward trends shortly after 2007, while in some other, the series' upward trend post-2007 was more gradual.

The synchronism in the timing of the upward spiking of the series suggests synchronism in the removal of the restrictions on the capital accounts of these economies. It also suggests similarity in the motives of the owners of these funds. While virtually all the countries witnessed spikes in portfolio inflows, which dominated outflows, there are some exceptions. The countries where inward portfolio flows dominated outward portfolio flows, include: Canada, France, Germany, Iceland, Italy, Luxembourg, New Zealand, Portugal, Spain, the UK, and the US. On the other hand, countries that had portfolio outflows dominating portfolio inflows include Belgium, Denmark, Finland, Greece, Ireland, Japan, Netherlands, Norway, Sweden and, Switzerland.

To facilitate a better projection of the flows of portfolios, Figure 5.3 below presents the values of portfolio flows, averaged across the 23 advanced capitalist economies in the sample. From 1970 to 1984, the figure suggests that portfolios inward were relatively insignificant. The average range was from $US541million in 1970 to $US3.3 billion in 1984. Following liberalisation in the mid-1980s, the series rose from its average 1984 value gradually at first, and then more rapidly in the early 1990s to an average peak of $US154 billion in 2007 before crashing in the global financial crisis. The pattern of outward portfolio flows was identical to that of incoming portfolio flows, except that in terms of value, inward portfolio flows surpassed outward portfolio flows, while outward flows led inward flows. The average outward flows ranged from just $US272 million in 1970 to $US3.6 billion in 1984, then rose gradually at first, and then more rapidly in the early 1990s, to an average peak of $US122 billion in 2005, before crashing.

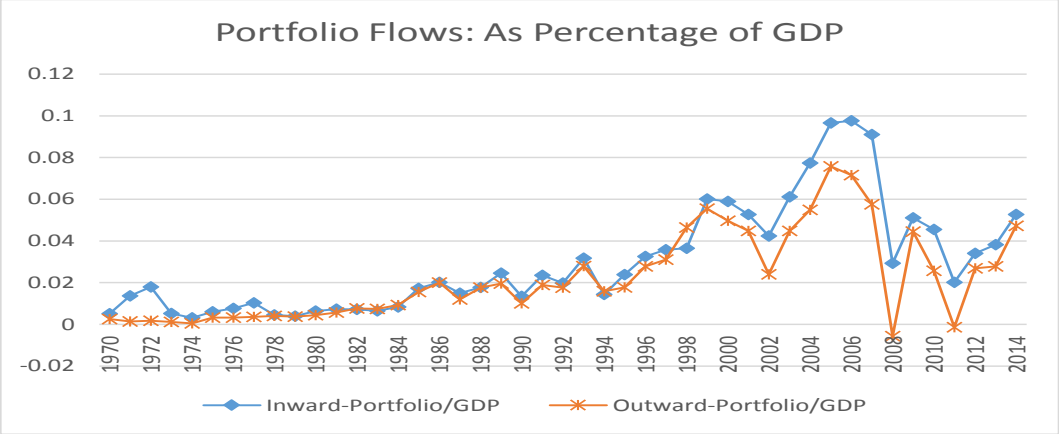
Figure 5.3: Average Portfolio Flows



(Source: author computed from data in databases. Vertical axis in US Dollars)

Figure 5.4 presents average values of portfolio flows relative to nominal GDP. From a modest 0.3% of GDP in 1974, average inward portfolio flows as proportions of GDP rose very gradually to 0.8% in 1984. The average series rose more rapidly to a peak of 9.1% in 2007, before crashing during the financial crisis, to 2.9% the following year. Once again, the values of the ratio of inward portfolio flows to GDP surpassed those of outward portfolio flows in the corresponding measure, but with the latter leading the former.

Figure 5.4: Average Portfolio Flows to GDP Ratio



(Source: author computed)

In Figure 5.4, the average outward portfolio flows as a percentage of GDP, rose slowly from 0.05% in 1974 to 0.9% in 1984. The average series continued its ascent more rapidly to a peak of 7.5% in 2005, and then crashed even before the onset of the global financial crisis, to a negative 0.5% in 2008. In terms of values, foreign direct investment flows were lower than portfolio flows. Similarly, the ratios of the sum of portfolio inflows and portfolio outflows to GDP dominated the ratios of the sum of inward foreign direct investments and outward foreign direct investments to GDP, averaged across the advanced capitalist economies in the sample period.

The liberalisations of the 1980s also brought dramatic changes in the flows of other investments, both into and out of the industrialised capitalist nations. From 1970 to 1979, both outflows and inflows were virtually negligible, according to a visual inspection of these series. There were, however, dramatic increases in inflows just after 1980, while outflows rose more gradually. In about 2005, there were unusual

upward spikes in both series, with inflows rising from average values of US$14.8bn to US$62bn in 2008 and outflows from average values of US$5.8bn to US$57bn over the same period. By 2010, inflows had crashed to a negative average value of US$30bn and outflows to an average positive value of US$10bn. Both series spiked again, with outflows dominating inflows. Australia had about the same values of outflows and inflows until 1982, when there were slight increases in both series, with the series then remaining horizontal until 1998. Inflows increased from US$1.4bn in 1998 to US$51bn in 2006 and immediately crashed to a negative value of US$36bn in 2009.

Over the same period, Australian outflows of other investments rose from US$6.9b to US$68bn, and then to a negative US$37bn. Both spiked again to US$20bn for inflows and US$33bn for outflows, before another dramatic crash. Over the period of the series, outflows dominated inflows, while there were dramatic falls on three occasions (2000, 2006, 2011). The flows suggest that whatever were the benefits motivating these flows, Australia must have accommodated more of such benefits than did Austria. Canada was an apparent exception, as there were signs of significant increases in outflows and inflows as early as the late 1970s, with inflows of other investments reaching US$24bn in 1982 before, on average, descending gradually to US$6.7bn in 1993. Inflows rose after 1993 to a peak of US$60.3bn in 2007, then fell and peaked again at nearly US$60bn in 2012 before undergoing another dramatic fall. Although outflows of other investments in Canada had a markedly similar pattern to the inflows, the latter peaked higher than the former, while the former apparently led the latter. Overall, inflows dominated outflows in terms of share size.

For ease of analysis, we classify the rest of the 23 countries into two categories of net aggregate flows. Countries with apparent net total outflows from visual inspection of the series are: Belgium(2008-US$407bn, 2009-(-US$200bn)); Germany (2007-USD$453bn, 2013-(-US$246bn)); Japan (2007 – US$49bn, 1999-(-US$270bn)); Luxembourg (2012–US$394bn, 2009–(-US$70bn)); Netherlands (2007 –US$275bn, 2009–(-US$140bn)). Countries with net total inflows include: Denmark (2008-US$57bn, 2009-(-US$21bn)); Finland (2011-US$118bn, 2013-(-

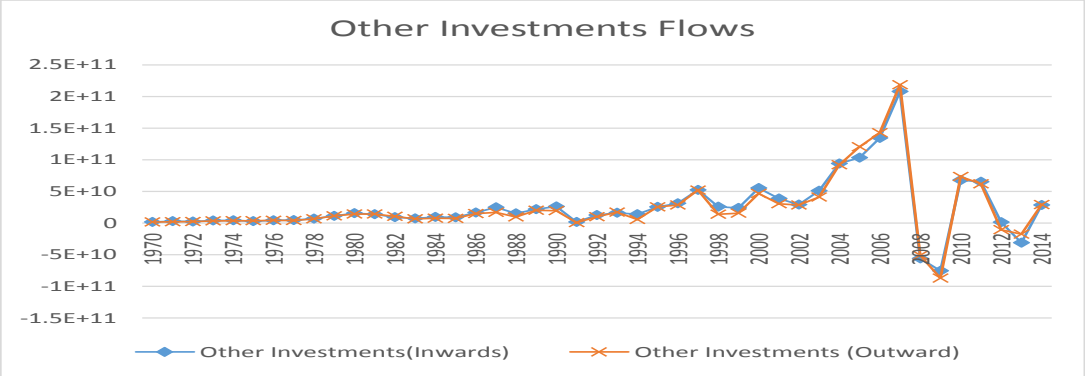
US$36bn)); France (2007-US$483bn, 2009-(-US$222bn)); Greece (2012-US$109bn, 2013-(-US$26.1bn)); Ireland (2007-US$236bn, 2009–(-US$110bn)); Iceland (2007- US$34bn, 2012–(-US$3.7bn)); Italy (2011-US$117bn, 2013-(-US$62bn)); New Zealand (2006 - US$10.8bn, 2012–(-US$6.6bn)); Norway (2006 – US$79bn, 2009 –(-US$97.2bn)); Portugal (2010–US$34bn, 2013–(-US$19.2bn)); Spain (2008 – US$186bn, 2013–(-US$186bn)); Sweden (2008–US$41.2bn, 2009–(-US$54bn)); Switzerland (2007–US$295bn, 2009–(-US$37bn)); the UK (2007–US$1.44tn, 2009–(-US$1.4tn)); and the US (2007 – US$700bn, 2013–(-US$363bn)).

For the countries with net outflows, figures in parenthesis indicate the years and values of global peaks, as well as years and values of global troughs of outflows in that order. For countries with net inflows, the figures relate to inflows correspondingly. Finland and the UK have been shown to be two of the least volatile countries in other investments flows. From the foregoing statistics, Australia and 14 other countries, representing 65% of the sample countries, have net inflows of other investments during the sample period. Austria, Belgium, Canada and five other countries, representing 35% of the sample countries, have net outflows of other investments. Taking into cognisance that the majority of the countries in the sample are EEA countries, with identical levels of de jure capital accounts liberalisation, it could be inferred that a similar extent of de jure capital account liberalisation, led to divergent patterns of capital account flows. Once polices have been enacted, corporate objectives influence the patterns of flows at national levels.

To facilitate a clearer overall picture of the flows of other investments across the advanced capitalist economies, the values of other investments flows, averaged across these countries, are presented as a series, in Figure 5.5. It can be seen from the figure that both inflows and outflows were relatively insignificant from the 1970s until the early 1990s. The average values of other investment inflows were about US$1.5bn in 1970 and US$1.6 bn in 1991. Average inflows rose gradually to US$52bn in 1998, and thereafter, rose very rapidly to a peak of US$208bn in 2007 before crashing to a negative US$60bn in 2008, and a negative US$76bn in 2009, following the global financial crisis. The average values of other investments

outflows were US$1.7billion in 1970 and US$562 million in 1991, rising gradually to US$52billion in 1998. The average values of other investments outflows continued more rapidly to a peak of US$219billion in 2007 and crashed to a negative US$51billion in 2008 and a negative US$87billion in 2009. Both variables were virtually the same in values, that the net values for each period would be approximately negligible.

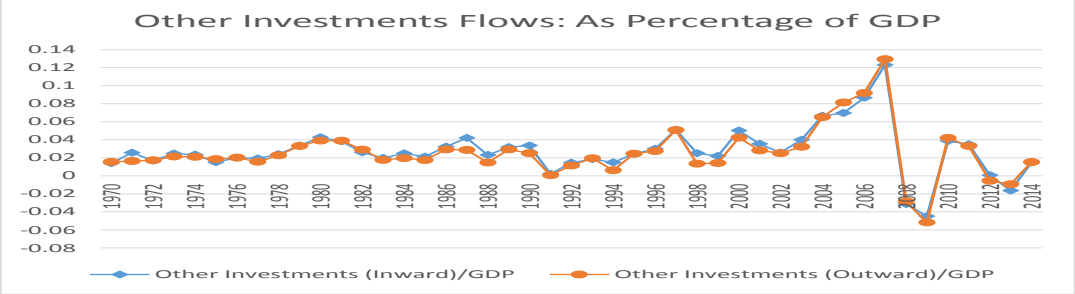
Figure 5.5:Average Flows of Other Investments



(Source: author computed)

Figure 5.6 presents the values of other investments as proportions of GDP, averaged across the sample countries. From 1970 to 1991, the average values were 2.5% for inward flows and 2.2% for outward flows. From 1991, inflows rose to an average peak of 12.3% in 2007, before falling to negative average values in 2008 and 2009. Outward other investments flows as proportions of GDP, on the other hand, rose from 1991 to an average peak of 12.9% in 2007 before assuming negative average values in 2008 and 2009.

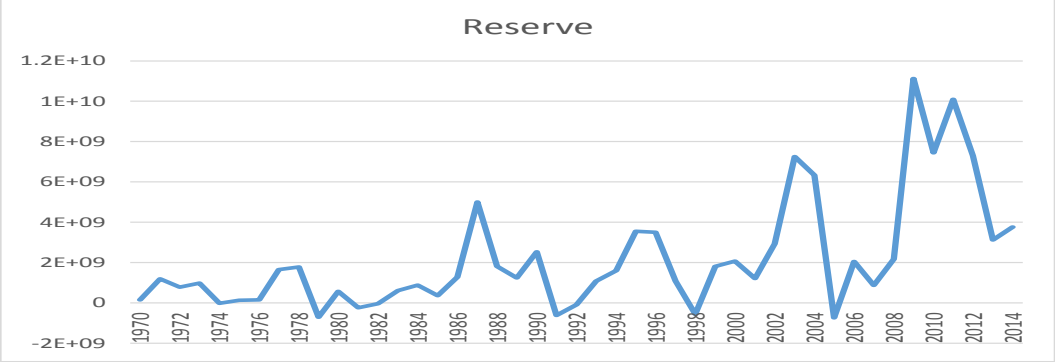
Figure 5.6: Average Ratio of Other Investments to GDP



(Source: author computed)

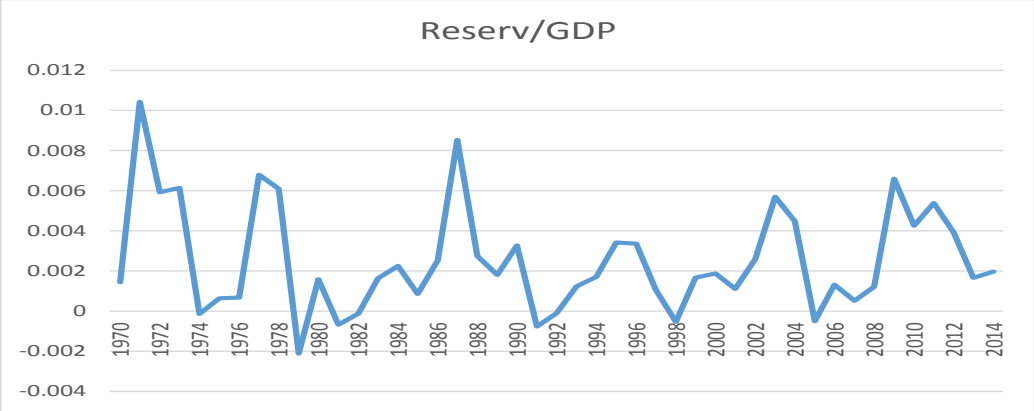
Reserve flows represent inflows of funds from foreign central banks usually from emerging economies, in the acquisition of foreign exchanges and short-term financial assets in the advanced capitalist economies. In similar analyses, the average values across the advanced capitalist economies are presented in Figure 5.7 below. The figure indicates that the average value of reserves across the advanced economies remained more or less the same from 1970 till the early 1980s. The average series commenced its apparent upward trend in about 1981 with plenty of fluctuations, peaking at $US11.1bn in 2010. Figure 5.8 presents the average ratios of reserves to nominal GDP of the advanced economies. This series, averaged across the sample of 23 countries, was declining in the 1970s and trending upward in the subsequent years till 2010.

Figure 5.7 Average Reserves



(Source: author computed)

Figure 5.8: Reserve to GDP Ratio



(Source: author computed)

The foregoing notwithstanding, there have been some structural changes regarding the ratios of the components of inflows/outflows to aggregate inflows/outflows. In Australia, portfolios inward, as proportions of total inflows, increased on the average over the length of the series after liberalisation. Australian inward FDI flows and other investments inflows as proportions of total inflows, trended downward, with other investments trending downward at higher rates than inward FDIs. However, for total outflows, outward FDIs as percentages of total outflows trended upward, while outward portfolios as percentages of total outflows trended downward, with the proportions of other investments outflows, and reserves to total outflows being more or less constant.

In Austria, inward FDIs as proportions of total inflows, experienced progressive decreases after the mid-1980s when capital account liberalisation started to take root. Portfolios inward as proportions of total inflows increased continuously at very high rates after the liberalisation of capital accounts. The ratios of inward other investments to total inward flows decreased progressively after liberalisation. In terms of value, inward FDIs, as percentages of total inward flows, were the least compared to the corresponding values of inward portfolios and inward other investment. Other investments inflows as proportions of total inflows were much higher than the corresponding measure with regards to portfolio inwards before the liberalisation, but the trend reversed after liberalisation. Outward FDIs as proportions of total outflows increased after liberalisation, as did outward portfolios as proportions of total outflows. Other investments flows as ratios of total outflows declined significantly after capital account liberalisation.

In Canada, in terms of values, inward portfolios as percentages of total inflows, had the highest values. The percentage compositions of these constituents of inflows to total inflows have been more or less constant over the sample period. Regarding outflows, the values of outward FDIs were the largest among the components of outflows. Furthermore, outward FDIs and outward portfolios, as respective proportions of total outflows, witnessed dramatic increases after financial liberalisation. The ratios of outward ‘other investments’ to total outward flows, however, experienced a dramatic downward trend after liberalisation. The ratios of

reserves to total outflows remained more or less constant. In terms of size, outward FDIs and outward 'other investments' as percentages of total outward flows were the largest. Once again, more or less the same *de jure* financial liberalisation induced complex divergence, in the structures of total outflows and total inflows of advanced capitalist economies.

5.5 Inferences from the Dramatic Increases in International Financial Flows

What potential information could be gleaned from the statistics presented in this chapter? A review of the figures broadly suggests two sections to each figure: a section where flows were more or less relatively insignificant and constant; and a section of rising/falling trends and more fluctuations. For all the figures, the first part was typical of the 1970s and early 1980s, while the second part was associated with subsequent years. With *de jure* capital account liberalisation, profit-oriented capitalist firms had choices that ranged from not undertaking international capital flows, to undertaking the maximum flows, depending on the expected profitability. Therefore under the axiom of revealed preference, the increases in such flows are prima facie evidence that lower flows or no flows were associated with less expected profits. Thus where firms are unconstrained, the international flows of funds of profit-seeking firms should be increasing, decreasing, or fluctuating over time, with expected profits from such flows. Therefore the 1970s with their rather unfluctuating flows are consisted with the years of policy constraints on international financial flows of private firms, while the later years of rapid rises, falls, or fluctuations, suggest fluctuations according to the expected profitability of such flows, in the mist of *de jure* financial openness.

On average across the advanced capitalist economies in our sample, the most substantial cumulative flows, were portfolio flows, with inward flows higher than outward flows, which at their peaks were more than twice the highest peaks of FDI flows. Although other investments flows on the average reached a peak as high as 12% of GDP, the years of the rapid rise were rather brief relative to portfolio flows, thus suggesting according to the principles of revealed preference that the purchases

of portfolio assets were more profitable than FDIs and other investments, with such tremendous amount of funds acquiring financial assets across international boundaries. Among the components of capital account, portfolio flows are most associated with speculative flows and speculative price changes. The dominance of portfolio flows into advanced capitalist economies after capital account liberalisation, therefore, underscores the significance of speculative asset price changes in these advanced economies, in the post liberalisation period. Firms were able to increase their profits and profit rates substantially by undertaking such astronomical flows of FDIs, portfolios and 'other investments' flows.

Given the combinations of inward portfolio flows, inward other investments flows, were higher than the sums of outward portfolios and other investments flows, these combined with a net outward FDI flows and the observation that business real fixed capital formation as a proportion of GDP had been declining as highlighted in Chapter 2, indicate a scenario where increasing net liquidity inflows were chasing increasingly fewer assets. The consequences include increasing capital gains on existing assets and the potential of increasing wealth by (speculative) holding of more domestic financial assets. These prospects of speculative wealth accumulation were prospects that capitalists and their firms would apparently refused to pass up. Increasing wealth/profits by capital gains however, made the acquisitions of wealth and profits less dependent on labour, probably increasing unemployment and undermining the bargaining power of labour. This was a situation that organised labour would most probably fight against.

Capital account liberalisation tremendously increased financial markets liquidity and financial openness in advanced capitalist economies. Greater financial openness produced higher numbers of shareholders of foreign origin. These were rather detached from the real business projects or firms associated with these fund flows, making the objective of (risk-adjusted) profits the major, if not the sole, aim underpinning such flows. Capital account liberalisation also increased the proportions of shareholders, who expected the prices and returns of their financial assets to maintain some fixed relationship with the financial market (informed investors), so that as assets prices in general rose with increased liquidity in the

financial markets, they expected the firms' equities and thus their wealth to rise in tandem with the market, according to the ratio of asset risk to total market risk (see literature on assets pricing models and CAPM). Higher liquidity from liberalisation in turn, increased the market for corporate control that enhanced the ability of rentiers/shareholders to more easily force managers to pursue these market determined equities prices and returns. The overall result was the advent of an era, when managers were under significant pressure to and constrained to pursue market-determined prices and returns (see Boyer, 2000).

5.6 Summary

In this chapter, we reviewed the history of capital account liberalisation in advanced capitalist economies, together with some theoretical propositions. Throughout Fordism, the orthodoxy represented *de jure – de facto* restrictions on capital account flows and therefore on financial openness. The theories put forward by proponents of capital account liberalisation border on increasing efficiencies in resource allocation, with more focus on flows to developing economies, were fixed capital investments are supposed to have higher returns, because of the low initial fixed capital stocks. Furthermore, the restrictions on fixed capital growth by the high costs of investments faced by developing economies would be alleviated, thus increasing the rates of investment growth in these emerging economies, just as it increases the rates of returns to owners of financial capital.

Capital account liberalisation from the mid-1980s triggered spikes in the flows of FDIs, portfolios, other investments, and reserves, across national boundaries, with complex divergences among nations. While the theoretical basis underpinning liberalisation sounds plausible, there has been significant divergence between the results of capital account openness, and predictions of the efficiency of resources allocation theories. The massive spikes in the flows of elements of national capital account, constitute credible evidence that the benefits/profits expectations of these theories have been realised. However, the nature and net direction of the flows suggest that the validity of these efficiency (mainstream) theories underpinning liberalisation has been at least weakened. Massive increases in, and the

preponderance of flows pursuing financial markets assets, particularly in advanced capitalist economies, ensured that the net flows of financial capital went to the advanced capitalist economies rather than pursuing fixed capital accumulation in underdeveloped economies (Lucas Paradox). This paradox highlights the need for alternative explanations for capital account flows.

Some of the results of capital account liberalisation were: the increases in asset prices; market determined return targets for managers; managers facing pressure to pursue such market-determined prices and return targets from capitalists who were more willing to seek recourse to the market for corporate control. Because of such easy wealth associated with capital account liberalisation, the latter is desirable to capitalists, and they would pull political strings to maintain it or to introduce capital account liberalisation in the absence thereof. On the other hand, the conflictual nature of the interests of capitalists and wage-labour implies that capital account liberalisation could be detrimental to the benefits of wage labour, as it reduces labour's bargaining power. Therefore wage-labour would organise, to strive for greater capital account restrictions, or maintaining a status quo of capital account restrictions. Under these premises, capital accounts policies would be the results of dialectical processes.

The operationality of the capital allocation efficiencies in actual capital account policies would imply constant and maximum *de jure* capital account liberalisation. On the other hand, the operationality of a dialectal process such as that espoused in the conflict theory would tend to result in fluctuations in capital account policies and the consequent financial openness. The actual trends of capital account policies and the consequent *de jure* and *de facto* financial openness, suggest that greater credence lies with the dialectical process argument, with underpinning in theories such as the Regulation School theory, the political market for protection and, Conflict theory. The actual fluctuations in de jure capital account policies have given rise to fluctuations in *de facto* capital account flows and financial openness, with other potential consequences. The next two chapters study some of these consequences, by undertake empirical investigations of the relationship between trade and financial openness and business fixed capital accumulation, in advanced capitalist economies.

Chapter 6 : An Empirical Investigation of Trade Openness and Non-Residential Fixed Capital Accumulation

6.1 Introduction

This chapter argues that the dramatic increases in trade openness following the trade liberalisation of circa 1970 explain the sustained decline in rates of fixed capital accumulation across advanced capitalist economies since the early 1970s. But do increases in trade openness bring about decreases in business fixed capital accumulation in advanced capitalist economies? There does not exist in the literature, any explicit theoretical proposition that increases in trade openness cause decline in rates of business fixed capital accumulation in advanced capitalist economies. Two broadly antithetic positions are, however, implied in the existing literature regarding this relationship. On the one hand, we have the suggestion by contributions of some French Regulation School scholars that the relationship is a negative causality or an inverse relationship. On the other hand, the current neoclassical orthodoxy on the relationship between international trade and economic growth suggests a positive (causal) relationship between the two variables, in advanced capitalist economies. It is the primary objective of this chapter to answer this question, by rigorously investigating the relationship between business fixed capital accumulation and trade openness in advanced capitalist economies. The chapter then extends the study to the investigation of how this causal relationship played-out in the decline in rates of business fixed capital accumulation, observed across advanced capitalist economies.

This chapter is structured as follows: Section 6.2 presents a review of some fundamental mainstream trade theories and their implications for capital accumulation in advanced capitalist economies. Section 6.3 examines the political economy based Régulation School implied perspective on the relationship between trade and fixed capital accumulation. Section 6.4 presents the theoretical analysis. Section 6.5 derives the model of interest. Section 6.6 discusses the variables as well as the sample countries and data. Section 6.7 presents some empirical evidence,

including the methodology employed and estimates. Section 6.8 presents the empirical analysis of the estimates. Section 6.9 presents comparison of findings with the literature. Section 6.10 summarises the chapter.

6.2 Mainstream Theories of Trade and Fixed Capital Accumulation

The thrust of mainstream trade theories is that greater international economic openness increases the rate of growth of output at the national level. These theories also imply that greater trade openness would increase the rate of fixed capital accumulation, in advanced capitalist countries. The Smithian absolute advantage and Ricardian comparative advantage theories of trade assume that labour is the only factor of production. These theories predict the flows of capital-intensive goods from capital-rich advanced capitalist economies to capital-poor less advanced economies, if trade takes place. This direction of trade flows would happen because capital rich countries would specialise in the production and exportation of capital-intensive goods. The abundance of labour skilled in the production of capital goods in advanced capitalist countries, enhance their abilities to produce fixed capital goods that aid in the production of capital-intensive goods, which are then traded with countries deficient in labour skilled in capital goods production. From the foregoing theories, therefore, increases in trade should trigger higher rates of business fixed capital accumulation in advanced capitalists economies. A positive relationship between trade or trade openness and business fixed capital accumulation in advanced capitalist economies is thus implied.

In the Heckscher-Ohlin model, two factors of production labour and capital as well as two sectors are assumed, with both factors mobile between the two sectors. Trade among countries is caused by differences in relative factor endowments. The model postulates that countries which are rich in fixed capital would have comparative advantages in capital-intensive goods, while countries that are labour-rich would have comparative advantages in labour-intensive goods, with these comparative advantages determining the direction of flows of trade. Therefore the advanced capitalist economies with large stocks of fixed capital relative to labour would export capital-intensive goods. Assuming a fixed technical-output coefficient, increases in trade openness as witnessed following the extensive liberalisation of

trade in the early 1970s would bring about higher rates of fixed capital accumulation, as the theorised specialisation of advanced capitalist economies in capital-intensive goods increases the production of such outputs and their flows to less developed economies.

According to the Specific factor Model of trade, there are three factors of production and two sectors. Two of the factors (with at least one being capital) are each exclusively specific to a sector and therefore immobile. Labour is, however, mobile between the sectors. The technical assumptions are that there are constant returns to scale and diminishing marginal productivity of a factor. For a country with a higher fixed capital stock, trade would bias production in favour of the sector to which that capital is specific. The assumption of constant returns to scale implies that if the volume of export causes output to double, the scale of production would double and so will be fixed capital stock. Even more significant for rates of fixed capital accumulation is the assumption of diminishing marginal productivity. If factory sizes expand at rates lower than a multiple of their respective scales of production, then diminishing marginal productivity of fixed capital sets in. The diminishing returns imply that as trade and output increase, the ratio of fixed capital to output increases because of fixed capital inefficiency. The increasing ratio, therefore, implies that the rate of fixed capital accumulation would tend to be higher than the rate of growth of output, as trade increases. Either way, the theory predicts a positive (causal) relationship between trade openness and the rate of fixed capital accumulation.

Another trade theory that has similar implications for trade openness and capital accumulation relationship, is the “imitation-gap theory of trade”. Under this argument, trade develops because of some lags in imitation and demand (see Posner, 1961). When a novel technology for a new or existing good is introduced in a country, A, a time lag arises before an adoption of the same technology in another country B (the imitation lag). Similarly, a time lag exists between the development of a new good in a country, A, and the demand for it in another country, B (the demand lag). Under this argument, even situations that would not typically induce trade in the absolute and comparative advantages models, nor even in the

Heckscher-Olin model such as countries of similar tastes and factor endowment, would do so under the imitation-gap theory. Trade is a function of the net effect of these gaps. When the demand gap outlives the imitation gap, producers in country B master the new technology, but the domestic demand lag implies that local imitation is unjustified. When the demand gap elapses, local producers would implement the new technology in production and satisfy the new demand. When the imitation lag outlives the demand lag, trade would take place, as foreign producers in country A would rise to fulfil the new foreign demand. This technological gap is a continuous process that underpins continuous trade and the pattern thereof. When trade takes place, the increase in output is expected to increase the rate of fixed capital accumulation in the country that originates the new technology/product, to facilitate the production of output to satisfy both the domestic demand and foreign demand. Once again, a positive causality from trade and trade openness to fixed capital accumulation is predicted.

The Neo-Heckscher-Ohlin Model argues that intra-industry trade is explained by product differentiations associated with different factor endowments across countries, such that countries which are rich in capital, export varieties/brands that embody a higher amount of their respective capital endowments, while countries less rich in capital produce and export varieties/brands that embody a lower amount of capital (see Falvey, 1981; Falvey and Kierzkowski, 1987). Once again, the prediction is that advanced capitalist economies, ordinarily very rich in fixed capital, would export varieties of capital-intensive outputs and by implication, accumulate fixed capital at higher rates as trade increases, to facilitate the higher production needed to meet increases in exports. An alternative rendition is that increases in trade in capital-rich advanced capitalist economies imply ex hypothesi, the export of outputs embodying greater amounts of capital and therefore have higher rates of fixed capital accumulation.

Models of intra-industry trade that fall under Neo-Chamberlinian Models, maintain the prediction that capital-intensive countries will specialise in capital-intensive varieties, and then trade these varieties with other nations. Therefore, as trade increases, so should the rate of fixed capital accumulation in these capital-rich

economies (see Krugman, 1979, 1992; Venables, 1984; Lawrence and Spiller, 1986). Furthermore, variants of models grouped under broad Neo-Hotelling models, theoretically imply that trade would increase the output of capital-intensive goods, particularly manufacturing, and by implication fixed capital accumulation in capital-rich advanced capitalist economies (see Lancaster, 1980).

Rybczynski theorem postulates that under the condition of full employment, an increase in factor endowments in a country, would increase the output of goods that are intensive in that factor, but cause a reduction in the output of goods that are not intensive in that factor (see Rybczynski, 1955). Increases in factor endowments become the push factors that generate trade, while increases in trade imply increases in factor endowments. In the context of fixed capital-rich advanced capitalist economies, increases in trade, therefore, imply increases in the underlying fixed capital endowments, or higher fixed capital accumulation. Thus we see that for virtually all mainstream trade theories, an implication is that increases in trade openness will cause increases in rates of fixed capital accumulation in advanced capitalist economies. Therefore, rapid increases in foreign trade following trade liberalisation after circa 1970 should bring about commensurate rapid fixed capital accumulation in advanced capitalist economies. But the observed trends have been the co-extensiveness of progressive increases in trade openness and declining rates of fixed capital accumulation in normally capital-rich advanced capitalist economies.

At least three lines of empirical evidence highlight some weaknesses in the understanding that increased trade openness will increase the rate of business fixed capital accumulation. The first is the observation that the years of Fordism were years when trade openness attained historically low levels, while business fixed capital attained unprecedented growth rates. The second is the observation that during the years after Fordism, when trade levels and relative to GDP assumed dramatic upward trends, business fixed capital accumulation trended downward in advanced capitalist economies. The third is the Leontief paradox (although the focus was on the USA). The Leontief paradox effectively suggests that the prediction of a positive causal relationship between trade openness and fixed capital accumulation

in advanced capitalist economies by classical/neoclassical trade theories is potentially incorrect. Leontief compared the factor intensity of US imports and exports, with the expectation that for the most abundantly endowed country in the world in terms of fixed capital, exports would be more capital intensive (as implied by mainstream trade theories). While Leontief was unable to determine conclusively whether imports to the US were labour intensive or capital intensive, he however determined the consequences for labour and capital used, of increasing import substitutes by $1million and compensatively decreasing exports by the same amount. Leontief found that both more capital and labour were needed to increase import-competing goods by $1million than to increase exports by $1million or that decreasing exports by $1million released less capital than required to produce the equivalent value of import-competing goods (Södersten and Reed, 1994, p.104).

The implication of the Leontief paradox should be obvious. Production for home consumption when there is no trade employs more capital than labour, while production for exports when there is trade decreases the rate of use of capital relative to either itself or the use of labour (i.e. the tendency of trade towards labour into capital substitution and the tendency of closeness towards capital into labour substitution). This observation is the opposite of mainstream expectation and hence the paradox. If this Leontief paradox is generalised, then the reality becomes that increases in trade openness is associated with decreases in rates of fixed capital accumulation, but increases in the ratio of labour to fixed capital in production.

6.3 The Political Economy Approach: Insights from Changes in Institutions and History

In contrast to the mainstream approach is the institutional and historical based argument of the political economy approach, which identifies the underlying processes of capitalist production and capital accumulation as power configurations and struggles among the classes of capitalism, with fundamentally conflicting class interests. There exist fundamental conflicts between the aspirations of wage-labour and the imperatives of profit generation for the capitalist class. The perceptions of the capitalists class include the primacy of profits, the necessity of the subjugation of

labour as well as the subordination of the aspirations of labour, for the imperative of higher profitability of capital. For more effective control of labour to the end of higher profit rates, capitalists tend to establish facilitating social reorganisation of labour. A social reorganisation (through decomposition and reconstitution) of the labour process that tends to reduce labour to a cog in the wheel of industrial production and facilitate a less hindered redistribution of value added or income to capitalists as higher profits.

However, if the reorganisation and capitalists efforts in general are perceived by wage-earning labourers to be threat to the realisation of their aspirations, they display intransigent tendencies to capitalists' demands and this state of affairs generate fundamentally permanent labour-capitalists struggles. The aspirations of wage labour include rising real wages, employment security, some desirable health, welfare and social security standards. But the realisation of these aspirations may reduce rates of returns to capitalists. The resistance of capitalists by labour in pursuit of labour's aspirations may be on an individual basis, or collectively through trade unionism. But the struggles may spill out of the production scene into broader political activism, with the emergence of class affiliated/sympathetic political parties (Clarke, 1990).

Where labour could potentially wield enough power to press for the enhancement of its aspirations and economic benefits, either because of the scarcity of labour or the possession of vital skills that consequently increase costs and inconvenience to the extent of threatening profitability, capitalists seek to break this power. Capitalists do this by trivialising the roles of individual labour through deskilling, making the contributions and relevance of individual labourer or group of labourers dependent on the contributions and relevance of every other individual or group of individuals, a process in which increased mechanisation of production has played enormous roles (Clarke, 1990). Capitalists may decompose skilful tasks into constituents and develop machines so that production could be less dependent on skills possession. Moreover, (Romer, 1987, p.166) has argued that as the cost/inconvenience of labour increases, there is the tendency to substitute capital for labour and vice versa. However, where it is cheaper to buy rather than produce, capitalists may opt to buy

wherever possible, including by importation (Boyer, 2013). Another contradiction in capitalist production is that the penetration of capital into production and commodification of labour (because of the transition from production by peasant and artisanal production), requires the availability of adequate market/demand for its outputs (Clarke, 1990).

Such market/demand depends on wages. If wages are suppressed, demand may be adversely affected. However, if free trade exists, capitalists/firms will have access to external markets and rely less on labour buying power. Capitalists could consequently dictate lower growth rates of wages. Furthermore, capitalists/firms could earn more profit from imports rather than domestic production or could source exports by importing, if it is cheaper than production, all of which put the capitalists class in a dominant position over labour. The lack of bargaining power means wage labour has less power to influence corporate policies and strategies or to constrain capitalists in the ways that capitalists could generate profits. Therefore free trade may engender falling growth rates of wages and thus falling wage-costs, but may engender higher profits rates.

The dominance of capitalists over wage-labour facilitated by increases in trade openness has implications for the rate of accumulation of business fixed capital, as such increases offer new ways to increase profits, that are less dependent on fixed capital accumulation. The possibilities of higher imports instead of domestic production imply less need for greater fixed capital accumulation. Increases in imports cause the atrophy of import-competing industries, together with capital accumulation in those industries, in ways not adequately compensated for by the expansion of exports industries. The increasing reliance on exportation introduces stiff international competition that increases the business risk associated with higher fixed capital accumulation. As argued by Clarke (1990), increases in competition may induce capitalist firms to reconfigure production runs and methods away from higher fixed capital accumulation.

Greater competition from trade openness triggers competitiveness on prices and costs of production. The weak position of wage-labour implies that capitalists could

offer internationally competitive prices by revising down real wages or suppressing the growth rate of real wages. The increase in risk associated with greater capital accumulation because of higher competition, the relative cheapness of labour and the flexibility of real wages increase the cost of fixed capital relative to the real unit cost of labour or real wage. Under these conditions, profit-oriented capitalists or capitalist firms may increase profits by adopting methods of production that have higher biases towards labour intensity (see Koutsoyiannis, 1979), if local productions rather than importations are to be undertaken. The foregoing is consistent with the argument that trade openness reduces growth rates of real wages and aggregate demand, which in turn reduce both growth rates of production and the need for greater fixed capital accumulation.

Empirical evidence exists to support the argument that increases in real wages cause increases not only in productivity, but also economic growth and rates of fixed capital accumulation, while decline in growth rates of real wages has been associated with decline in rates of fixed capital accumulation. The "Five Dollar Day" covert profit sharing in the form of higher wages by Henry Ford in 1914 effectively reduced workers' absenteeism, increased capital accumulation and productivity so significantly that despite a twofold increase in wages and a fall in working hours, production costs actually fell (Clarke, 1990). There were also decades of Fordism, when rapid growth in real wages coexisted with rapid rates of capital accumulation.

Empirical evidence also abounds in support of the claim that when the real cost of labour or inconvenience caused by wage-labour falls relative to the cost of capital, profit-oriented capitalist firms, increase the ratio of wage labour to fixed capital (substitute wage-labour for fixed capital), given a volume of output. When the costs of labour or inconvenience of wage-labour increases (as labours bargaining power increases) relative to capital cost, profit-oriented capitalist firms increase the ratio of fixed capital to wage labour (substitute capital for labour). However, greater trade openness reduces wage-labour bargaining power and growth rates of real wages or real unit costs of labour relative to the real cost of fixed capital (Boyer, 2013). Therefore, increases in trade and trade openness among other channels tend to

reduce the ratio of fixed capital to wage labour (greater substitution of labour for capital) because of falling real wage growth rates or labour cost, relative to fixed capital cost. This changes in factor ratio from changes in relative factor costs caused by changes in trade and trade openness are consistent with or potentially explain the Leontief paradox that for advanced capital-rich economies, the ratio of labour to capital content of their export products are higher than those of domestic outputs for domestic consumption.

Available data indicate that during the period of Fordism, the tendency was rather, increases in capital to labour ratios, while after Fordism, there have been upward trends in the substitution of labour for capital (greater labour to capital ratio) across the advanced capitalist nations. The series of factors substitution through the years for the advanced capitalist economies are easily obtainable on the AMECO database. There is a high positive correlation between higher labour to capital ratio and greater trade openness (see Table 3.1 of Chapter 3). The foregoing analyses indicate that from the perspective of mainstream trade theories, increases in trade openness should by implication increase the rates of fixed capital accumulation in advanced capitalist economies. However, under the institutional and historical perspectives of the Regulation School theory with capitalist productions taking place within the framework of power struggles, increases in trade openness should by logic and past experience decrease the rates of fixed capital accumulation.

6.4 The Theoretical Analysis

The theoretical implications of the two sets of antithetical theories regarding trade openness and fixed capital accumulation have been seen in the previous section to be fundamentally antithetical. A principal channel as implied in the French Regulation theory, through which trade openness adversely impact rates of fixed capital accumulation is the resultant redistribution of income away from labour and consequent decline in both mass demand and consumption. The redistributive effect of greater trade openness arose fundamentally from the loss of bargaining power by wage-labour, deriving from exposures to international labour competition. In the import-competing industries, labour is constrained to accept wages cut that enables

prices of its outputs to compete with foreign substitutes; otherwise, the capitalist producers could import rather than produce. If firms switch to importation, a possible consequence is labour redundancy that cause a loose (flexible) domestic labour market. In the export sector, domestic labour has to concede to compromised real wage growth rates, for the price of its output to be competitive in foreign markets, otherwise, exporters would source exports via cheaper imports. Thus even when the export sector faces stiff international competition, exporting firms/capitalists could maintain profit by competing on labour cost, as the grim prospects of loss of jobs and source of livelihood may make it easier for wage-labour to accept lower real wage growth. With the resulting looseness/flexibility of the domestic labour market, all firms may, potentially, have access to cheaper labour, whether directly connected with the foreign market or not.

Wage-labour thus ultimately bears the brunt of greater labour-labour as well as greater capital-capital competitions arising from increases in trade openness. Because of the need to survive and consume, labour accepts lower wages, and the conflictual relationship between capital and wage-labour is resolved or mediated by an ensemble of institutions in which greater trade openness is the hegemonic institution. With the cost of labour now lower than the cost of capital, a profit optimising firm will tend to increase profit by adopting a method of production with higher ratio of labour to fixed capital (see Arrow et el., 1961; Hicks 1963; Romer, 1987; Duarte and Restuccia, 2010). This is the cost-optimising channel. Even though greater foreign competition and greater importation could directly reduce the rates of fixed capital accumulation by respectively causing firms to shy away from or reduce the need for accumulation of fixed capital, they together with increases in exports reduce fixed capital accumulation indirectly through profitable factors substitution. Since virtually all other channels have the indirect effect through the reduction in growth rates of real wages, and lower real wage growth is relevant whether, from the demand side perspective or supply-side perspective of cost optimisation, the impacts of trade openness on fixed capital accumulation could be modelled through the cost optimisation channel. This approach is adopted in the subsection 6.4.1

6.4.1 The cost Optimisation channel

The division of production activities into those of department I and department II (See Lipietz and Vale, 1988) is adopted. Department I is involved with the production of fixed capital goods that are employed in department II. Department II is involved with the production of consumer goods. Assuming no power relations, we look at the firm as an economic institution that seeks to maximise profit. Given a particular cost constraint, the firm maximises profit by maximising output. Alternatively, given a particular output constraint, the firm maximises profits by minimising cost. There are two tools of analysis: an isoquant and an isocost. A profit oriented firm produces by combining labour and capital produced in departments I in department II. An isoquant (curve) is the locus (all sets) of possible combinations of capital and labour (production methods) that can efficiently produce a given output. An isocost is the locus (all sets) of labour and capital combinations that a capitalist firm can procure with a given cost constraint or budget. The objective is to maximise the revenue – cost differentials. We then analyse the decision process of the firm, when it is institutionally constrained in its ability to reduce the growth of real wage or reduce labour employment in a tight labour market such as in Fordism.

The objective equation is: $maximise\ \pi = Total\ Revenue - Total\ Cost\ (C)$.

Or: *maximise Profit* $(\pi) = Price_x X - Total\ Cost\ (C)$

The isocost line is given as: $C = rK + wL$

And the slope of the isoquant and isocost are given respectively as:

(Isoquant) $-\frac{\delta K}{\delta L} = MRS_{L,K} = \frac{MP_L}{MP_K} = \frac{\delta X/_{\delta L}}{\delta X/_{\delta K}}$;

(Isocost) $\frac{w}{r}$

Where r is the cost of capital, w is the real wage, $MRS_{L,K}$ is the marginal rate of substitution of labour for capital, K is the amount of fixed capital employed, and L the amount of labour employed. MP_L is the marginal product of labour, MP_K is the marginal product of capital, X is total units of output. The rule of optimisation dictates in this case, that at the point of maximisation, the isocost would be tangential to the isoquant, so that the two slopes are equal:

$$-\frac{\delta K}{\delta L} = MRS_{L,K} = \frac{MP_L}{MP_K} = \frac{\delta X/_{\delta L}}{\delta X/_{\delta K}} = \frac{w}{r}$$

Under the context of a cost constraint, we have a given isocost line. The profit maximisation point is the point at which the given isocost line is just tangential to the highest isoquant possible, in a family of isoquants (output maximisation). Similarly, given an isoquant, a profit optimising firm maximises profit at the point of tangent between the given isoquant and the lowest possible isocost, in a family of isocost lines (cost minimisation). Alternatively, the condition of equilibrium or objective optimization states that the rate of substitution of labour for capital is equal to the ratio of real wage to the cost of capital (see Koutsoyiannis, 1979)

$$-\frac{\delta K}{\delta L} = \frac{MP_L}{MP_K} = \frac{w}{r}$$

The above condition is that the rate of substitution of labour for fixed capital is equal to the ratio of the marginal product of labour to the marginal product of fixed capital and equal to the ratio of real wage to the cost of capital. When real wage (cost of labour) increases, the ratio of real wage to the cost of capital increases. This suggests that labour is paid a value larger than its marginal product and breaches the equality of the ratio of marginal products and the ratio of factors costs. The firm's reaction is to prevent a fall in profit by reducing the level of labour employment relative to capital (i.e. increases the ratio of capital to labour), thus increasing the marginal output of labour and increasing the ratio of the marginal product of labour to that of capital to maintain the equilibrium condition. When real wage falls relative to the cost of capital, to maintain equality of the ratio of real wage to the cost of capital with that of the marginal products, more labour is employed relative to capital, which reduces the marginal output of labour relative to that of capital. Thus as the real wage (cost of labour) decreases relative to the cost of capital, profit maximising firms increase the ratio of labour to fixed capital employed. Similarly, as the real wage (cost of labour) increases relative to the cost of capital, profit maximising firms reduce the ratio of labour to capital employed.

Where capitalists and wage labour are in a power relation, either K, L, or w is adjustable or not, depending on the dominant or hegemonic class. R, the cost of

capital is assumed to be set by the state (central bank). Where the institutional configuration constraints capitalists/firms (labour is the hegemonic class) as in Fordism, the ratio of real wages to cost of capital is given and capitalists/firms are not able to adjust it. Similarly, firms are not able to adjust the quantity of labour by reducing it, since capitalists are powerless *ex hypothesi* and the labour market is extremely (tight) inflexible. Thus both real wage and the level of labour employment L are rigid and have an upward bias. From a given equality of the two ratios, an increase in real wage, e.g. as a result of collective bargaining or increase in wage by the state, the rigidity of the level of labour implies that firms are not able to maintain equilibrium by cutting down on labour employment as illustrated earlier. To prevent a fall in profit and maintain the equality of the ratio of the marginal output of labour to that of the marginal output of capital with the ratio of real wage to the cost of capital, the firm would increase the employment of fixed capital, to reduce the marginal output of capital and maintain equilibrium and (increase) profit.

When there is an exogenous increase in the level of labour employed, the marginal output of labour falls ceteris paribus. However, weaker capitalist firms are not able to maintain the equilibrium ratio by reducing real wages or reducing the cost of capital. The ratio of the real cost of labour (real wage) to that of capital remains as given. To maximise profit, therefore, given the equilibrium conditions, profit optimising firms increase rates of fixed capital accumulation, to reduce the marginal product of capital. Thus when labour is dominant, increases in real wages or labour employment (inputs) bring about increases in rates of fixed capital accumulation in departments I and II. During the golden age of post-war Fordism with wages indexed to inflation and productivity, trade openness was restricted so that wage labourers were more or less the consumers. Wage increases push up total cost and prices, as the pricing policy is assumed to be total cost pricing. The strong bargaining power of labour prevented firms from downsizing labour. Firms, therefore, adjust by increasing fixed capital accumulation to reduce the marginal productivity of capital, and thus increasing activities in department I. This can explain the virtuous circle between wage increases and fixed capital growth rates as well as the creeping inflation documented to be prevalent during the period of Fordism (Aglietta, 1978, p.59).

With trade openness (assuming no import), capitalists became the hegemonic class. They were therefore able to adjust not only capital stocks, but also wages and the quantities of labour. They could optimise profits by cutting down on wages. Such cutting down reduces the ratio of real wage to the cost of capital. For profit maximisation condition to be met, the ratio of the marginal product of labour to that of capital had to fall, and was achievable by increasing the ratio of labour to capital. With increases in the possibility of importation, firms could maximise profit even further by importing finished products from countries with lower wages and higher labour to capital ratio, for domestic sales or re-exporting, if it is cheaper to do so than domestic production. Either way, there is greater ratio of labour to fixed capital. This is consistent with the Leontief paradox that production for export uses more labour relative to capital than local production for home consumption. Therefore increases in trade openness should be inversely related to rates of business fixed capital accumulation. These could also potentially explain the observed declining rates of fixed capital accumulation, the increasing substitution of labour for capital over the sample period, and the higher trade openness in advanced capitalist economies.

6.5 The Model

The general case of the Kaleckian profit relation (Kalecki, 1954, p.49) is adopted as the starting point for the purpose of deriving a suitable model. In the original model, the economy/system is assumed to be opened. There is the state, which undertakes expenditure (G) and raises revenue via taxes (T) and borrowing (B). It is assumed that exports are in excess of imports. Investment is private investment, and public investment is embedded in the public/state spending on goods and services. Gross national value added is distributed between wage labour, the capitalists or paid as taxes. The general case profit relation is given as:

$$P = I + D + (X - M) + FD - S \quad \ldots\ldots\ldots\ldots\ldots 6.1$$

Where P is net profit, I is real investment, D is dividend, $(X - M)$ is foreign trade balance, FD is the fiscal deficit (G-T) and S represents employees' savings. We make the following supplementary assumptions:

1) Households and firms undertake savings.
2) Firms finance investments from retained earnings, while budget deficit is financed by the government borrowing from households' savings.
3) Profit-oriented firms undertake exports and imports.
4) Firms are rational and may import if it is more profitable to do so, otherwise, they may produce locally. Firms may export if it is more profitable than selling in domestic markets.

Given assumption 2, fiscal deficit and household savings net out to zero. Given assumption 4, the algebraic sign of import (m) becomes positive, as both export and import boost profit. We re-write equation 6.1 and render it dynamic by dividing through by capital stock (K) and render it stochastic to obtain equation 6.2

$$P/_K = I/_K + D/_K + X/_K + M/_K + \epsilon \quad \text{.....6.2}$$

We simplify the terms containing export (X) and import (M) by adding them; and rearranging to make $I/_K$ the subject of the equation, to obtain equation 6.3

$$I/_K = P/_K - D/_K - (X+M)/_K - \epsilon \quad \text{.....6.3}$$

Furthermore, as capital stock builds-up relative to dividend, the term containing dividend would approach zero, so that in the long run, the ratio of dividend to capital stock disappears. Assuming this long-run relationship; substituting GDP for capital stock (K) in the case of the term containing (X+M) and we have:

$$I/_K = (P/_K) - ((X+M)/_{GDP}) - \emptyset \quad \text{.....6.4}$$

Equation 6.4 expresses capital accumulation ($I/_K$) as a function of the profit rate (consistent with the Cambridge model), the ratio of the sum of export and import to

GDP { $^{(X+M)}/_{GDP}$ } and a stochastic or residual term ($\emptyset$). However, the profit rate is a function (F) of profit share (h), capacity utilisation (u), and an efficiency term (v). Where $h = {}^{P}/_{Y}$; $u = {}^{Y}/_{Y^*}$ and $v = {}^{Y^*}/_{K}$. The foregoings express profit share as the ratio of aggregate net profit to aggregate income or value-added, capacity utilisation is expressed in terms of the ratio of actual output to potential output and efficiency as a ratio of potential output to actual capital stock. Assuming that v has a fixed part and a stochastic part so that $v = {}^{Y^*}/_{K^*} + \vartheta$, where the first term on the right hand side is fixed and the second term is stochastic or residual. Assuming an additive relationship between the components of profit rate for simplicity, we express equation 6.4 as:

$$^{I}/_{K} = \frac{Y^*}{K^*} + \vartheta + h + u - {}^{(X+M)}/_{GDP} + \mu \quad \text{.....6.5}$$

Collecting the stochastic terms and assigning parameters to the non-stochastic terms imply that equation 6.5 could be represented as:

$$^{I}/_{K} = \beta_0 + \beta_1 PS + \beta_2 u - \beta_3 \frac{(Export+Import)}{GDP} + \varepsilon \quad \text{.....6.6}$$

Where $\varepsilon = (\vartheta + \mu)$ and $\varepsilon \sim iid(0, \delta_\varepsilon)$

In equation 6.6, $\beta_0 = \frac{Y^*}{K^*}$, PS (profit share) = h, u is capacity

Utilization, and $^{(Export+Import)}/_{GDP}$ = $^{(X+M)}/_{GDP}$ = trade openness.

Equation 6.6 expresses capital accumulation as a function of profit share, capacity utilisation and trade openness, as the deterministic terms. To accommodate some theoretical arguments in the literature, we control for relative cost (RC), long-term interest rate (i) and real unit labour cost (LC). The augmented expression of interest is, therefore, equation 6.7.

$$^{I}/_{K} = \beta_0 + \beta_1 PS + \beta_2 u + \beta_3 i + \beta_4 LC + \beta_5 RC - \beta_6 \frac{(Export+Import)}{GDP} + \varepsilon \quad \text{.....6.7}$$

Equation 6.7 implies that the relationship between fixed capital accumulation and trade openness is negative in the long run, as the algebraic sign (partial coefficient) of the term is negative. This is consistent with our argument and testable hypothesis:

$$\text{H0: } \delta\left(\left({}^{Export + Import}\right)/_{GDP}\right) \Big/ \delta\left({}^{I}/_{K}\right) < 0$$

$$\text{H1: } \delta\left(\left({}^{Export + Import}\right)/_{GDP}\right) \Big/ \delta\left({}^{I}/_{K}\right) \geq 0$$

Equation 6.7 is similar and comparable to an augmented Bhaduri and Marglin (1990) investment growth model, which expresses investment growth as a function of profit share and capacity utilisation. To reconcile equation 6.7 to the investment model of Bhaduri and Marglin (1990), we start from the rendition of the canonical Kaleckian investment growth model (Lavoie, 2009) given as:

$$I_{growth} = a + b^{u}U + b^{r}r \qquad \text{.....6.8}$$

Where a is a constant which may be negative or positive, U is current capacity utilisation, r is current profit rate, b^{u} and b^{r} are the respective parameters. Bhaduri and Marglin (1990) were critical of an investment model that renders investment growth as a function of profit rate (r) because it ignores the constituent of profit rate. They argued that such investment function assumes the same consequent investment level with a given profit rate, irrespective of the contemporary level of capacity utilisation and profit margin. But Bhaduri and Marglin (1990) are also critical of a model like equation 6.8, in that the mere inclusion of a term in capacity utilisation in addition to profit rate is not the solution. Assuming a stable/constant marginal cost as well as marginal cost pricing, the price relation would be such that price (p) is a positive function of profit margin (n) and money wage rate (w) (assuming constant labour/unit output-): i.e. $p = (1 + n)cw$. Because profit share (PS) per unit of output is the ratio of profit margin to price, profit share is a positive function of profit margin (i.e. $\frac{\delta PS}{\delta n} > 0$).

The foregoing differential suggests a conflict of distribution, as higher profit shares imply lower wage shares. A wage rate increase that decreases profit margin and profit share necessarily depresses corporate savings (expressed as a fixed proportion of profit rate). Bhaduri and Marglin (1990) have however argued that this does not necessarily imply that higher wage shares/rates suggest lower investment and capital growth rates. The impacts of profit shares on aggregate demand/output depend on the effects of lower profit margin/share on investment. A lower impact on investment growth as in a stagnationist case (defined as growth despite a lower profit-share) implies that a higher profit share (lower wage share/rate) would reduce output/activity/capacity utilisation so that the rate of change of capacity utilisation with respect to profit share is negative ($\frac{\delta U}{\delta PS} < 0$).

If however investment responds strongly to profit shares as in an exhilarationist case (defined as a case of higher growth as a result of higher profit share), then a higher profit margin/share (lower wage rate) would generate a higher investment/output rate, to at least compensate the resultant fall in consumption, so that there would still be a higher level of activity and a higher capacity utilisation rate. Therefore in the exhilarationist case, it is intuitive that as profit shares fall, capitalists would be less inclined to invest so that the theoretical functional relationship between profit margin/share and investment is positive. However, because the relationship between capacity utilisation and investment may be positive or inverse, it is essential that profit rate, on its impact on investment growth, be analysed into its components rather than in a restrictive relationship (consistent with the perspective of Bhaduri and Marglin, 1990). Therefore in investment growth context, profit rate would be analysed into additive components. Profit rate is defined as:

$$r = {}^{R}/_{K} = \left(\frac{R}{Y}\right)\left(\frac{Y}{Y^*}\right)\left(\frac{Y^*}{K}\right) = (PS)(U)(\propto) \quad \text{.....6.9}$$

Where R is total net profit, K is total net capital stock, Y is actual total output, Y* is potential (full capacity) output. The ratio of aggregate net profit to aggregate net capital stock is profit rate (r). The ratio of aggregate net profit to actual output is the profit share (PS), the ratio of actual aggregate output to full capacity output is the capacity utilization (U) (rate). The ratio of full capacity output to capital stock is the

full capacity output-capital ratio ($\propto$) and is assumed as given at least in the short run, so that according to Bhaduri and Marglin (1990):

$$I = I((PS), U);\ Y^{*} = 1;\ {}^{\delta I}/_{\delta PS} > 0;\ \text{and}\ {}^{\delta I}/_{\delta U} \gtreqless 0 \quad \ldots 6.10$$

Equation 6.10 is the Bhaduri and Marglin investment model (see Bhaduri and Marglin, 1990; Lavoie 1992, 2014; Marglin and Bhaduri, 1992). In an additive form (consistent with Bhaduri and Marglin (1990) argument that profit share and capacity utilisation be treated as independent and separate), equation 6.7 in its first three terms is identical to 6.10. Because capitalist predicts the future profitability of marginal investment from capacity utilisation, capacity utilisation is an accelerator effect. Profit share captures cost reduction or efficiency by the capitalist firm, which may reduce costs by trimming down wage shares (see Boyer, 2005, 2013). In equation 6.7, provision is made for the capital accumulation reduction effect of wage/cost reduction by the capitalist/firm, in that wage is a source of demand. Provision is also made for the effect of demand/profit expectations through the accelerator term, in capacity utilization. Provisions are also made for long-term interest rates as cost of capital, and finally, the relative cost of capital. The suggestion of an inverse relationship between the rate of fixed capital accumulation and trade openness by the derived model obtained through the analytical reconfiguration of the Kaleckian profit model gives further theoretical credence to a cardinal argument of this thesis that there exist an inverse causal relationship that runs from trade openness to business fixed capital accumulation.

6.6 The Variables, Sample Countries and Sample Years

The period of interest is 1970 to 2007, argued to be outside the well-acknowledged Fordist regime, we observed data from 1960 till 2014, to facilitate a more vivid connection between trade openness and capital accumulation rates in advanced capitalist economies. Because we are interested in advanced capitalist economies only, we approximate these countries by including countries in the OECD and limiting our sample countries to those member countries for which data are available. These two criteria yield a sample of twenty three (23) OECD countries of: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece,

Ireland, Iceland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom (UK), and the United States (US). The particulars of the variables included in equation 6.7 are discussed below.

(Fixed) capital accumulation: This describes the growth rate of private non-residential fixed capital. Private non-residential fixed capital is assumed to refer to the tangible fixed man-made assets owned by profit-oriented firms and enable these firms to undertake for-profit productive activities for which these firms were formed, without these fixed assets being consumed or changing forms in the cause of these productive activities. These fixed capitals include tools, machineries, equipment, and housing acquired for the accommodation needs of these productive activities. The expression capital accumulation as extensively used in the relevant literature is quite ambiguous, as it does not exclusively refer to the net acquisition of private non-residential fixed capital. In Marxian rendition, capital accumulation often describes the dynamic process of committing some initial funds to some commercial activities, intended to create profits or gains, which increases the initial wealth or funds invested. The sources of increases in the committed funds or capital accumulation may be profits, capital gains, interests, rents and royalties. From this perspective, capital accumulation refers to the making or generation of profits/gains.

A second perspective is increasing stocks of private non-residential fixed capital (growth in business tangible fixed capital) via net fixed capital acquisitions. Under this perspective, sources of capital accumulation may be retained earnings, conversion/realisation of initial/existing assets of firms, new fund from existing/new owner(s), and corporate debt. Contributions in the debate on capital accumulation across all schools of thought often fail to highlight this ambiguity. However, their indexations of capital accumulation often betray their conceptualisation of ‘capital accumulation’ as referring to the growth of business fixed capital, the second perspective. Capital accumulation is often indexed as the difference between business fixed capital stocks in a specified later period and a specified initial period, expressed as a percentage of the initial fixed capital stock, or indexed as the ratio of new fixed capital investment (I) in a given period to the stock of fixed capital at the

initial period (K). The latter index or ratio is adopted in this thesis, as it is the most popular in the literature. Moreover, observations have indicated that the series of both indices of capital accumulation tend to be very similar, if not identical.

The major issue is arguably the actual (monetary) value assigned to fixed capital stocks. Depending on the database, fixed capital stocks may be measured in different ways. Three methods often used are the perpetual inventory method (PIM), the survey method, and balance of fixed assets method. Because the data span different countries, measurement types may vary from country to country, in the same database. Furthermore, the value of stocks may depend on accounting policies, which again vary from country to country. Whether values are in current price or fixed price is another issue, just as differences in the base year in case of fixed price is also problematic. Reclassification and lack of synchrony in reclassification may introduce variations that could affect results. In the light of the foregoing issues, this research makes all effort to obtain data on fixed capital stock and fixed capital investment from the same data base. Thus the same method of valuation would apparently be maintained for capital stock and investment. Moreover, since capital accumulation is a ratio of investment to capital stock, issues in the measurement and data common to both variables would tend to cancel out. The source of the data for this variables (I and K) is AMECO Online.

Profit Share: Profit share is often indexed as the ratio of a measure of profit to the sum of profit and a measure of employee compensation. One issue is that Corporate net profit is often contingent on corporate policies, which are variable from time to time, from firm to firm and country to country. In this thesis, profit share is indexed as the ratio of gross operating surplus to the sum of gross operating surplus and employee compensation, both readily available in AMECO online. Some scholars have used net operating surplus (van Treeck, 2008). The advantage of gross operating profit to net profit is that the former captures all payments to rentiers or shareholders, as against net profit that captures the share of income to shareholders only. Furthermore, gross operating surplus is affected less by corporate income

recognition policies than net (operating) surplus. The ratio of profit to GDP is also an alternative index.

Capacity Utilisation: This is conceptualised as the degree of installed capacity actually used in production, by a firm or country. The most popular index particularly in the empirical Regulation School literature is the ratio of actual output to potential output (Bowles et al, 1986, 1989), where potential output is the possible output, if all the installed capacity in a firm or country is fully exploited. We adopt this index of the ratio of actual to potential output as it is the most popular in the Regulation School literature. Major issues, however, are associated with this index. The most problematic is the measurement of potential output. Potential output is measured in different ways. The concept of potential output in engineering tends to be different to the concept in economics. We can't observe potential output. Consequently, its measurement is often closely associated with capital stock and technological state, which may be hampered by the presence of multiple quasi-fixed factors and multiple products. There may be errors in measurement of capital stocks.

A consolation is that some flaws may be common to measurements of potential output and actual output measurement. With capacity utilisation being a ratio of actual output and potential output, these common flaws may cancel out. The index aptly captures the concept of capacity utilisation. Data on potential output and actual output are easily available from databases and therefore very feasible. Scholars have however used alternative indices for capacity utilisation. These include output gap, the rate of growth of business sector output, business sector capital productivity de-trended. These have often performed badly in estimations, as they have often turned out to be frequently insignificant and of wrong expected signs in empirical estimations (See Stockhammer, 2004; van Treeck, 2008). We therefore stick to the most popular index, and for which data are more readily available.

Long-Term Interest Rates: The measurement of interest rates was also problematic. There are different measures of interest rates: long-term, short-term, nominal, real,

and, risk-free rates on government bonds/bills. Researchers have used nearly all measures, as indices of the cost of capital. We did not find data on real long-term interest rates readily available from a single database. We had to compile data for this variable from different data sources. The major databases include AMECO online and UK data services.

Real Unit Labour Cost: Real unit labour cost is indexed as the ratio of compensation per employee to nominal GDP per person employed. The real cost captures all cost of labour that would be relevant to capitalists' decision making, rather than just real wage adopted by some researchers. Bhaskar and Glyn (1995) used Real labour cost indexed as average wages and salaries per-head deflated by an investment goods price index and by a smoothed index of residual productivity calculated from conventional Cobb-Douglas growth accounting, using output, capital stock, employment, and the NPS to weight inputs, as the denominator in relative cost. In Stockhammer (2004) real labour cost was not controlled for. There is therefore, significant variability in measures or indices of real labour cost. However, we are of the opinion that our data from AMECO online quite capture the relevant components of the cost of labour, that matter in decision making by cost-conscious profit maximizing firms.

Relative Cost (of Capital): Indices of relative cost of capital seem to vary among researchers. The variable performance of relative cost in past estimates, may sound a caveat to which index should be used. For example, Bhaskar and Glyn (1995) indexed it as a ratio of the sum of real interest rate and depreciation cost, to real wage that is adjusted for residual productivity. The resulting estimates were rather absurd both in their sizes and signs. They were too often statistically insignificant. Stockhammer (2004) used real interest rates and nominal interest rates as cost of capital and the parameter estimates were also insignificant both statistically and in size. The case of Bhaskar and Glyn (1995) may involve a numerator that contains a highly subject variable, the rate of depreciation. The use of absolute rather than the relative cost of fixed capital by Stockhammer (2004) does not adequately reflect the cost-comparing practice of profit-oriented firms. We rely on economic theory and, control for the absolute cost of capital using real long-term interest rate, control for

the real cost of labour using real unit labour cost, and control for the relative cost of capital as a ratio of the cost of capital to the real unit cost of labour. The real cost of labour captures all actual and imputed costs of using labour, including pension cost, but we expect the real unit cost of labour to also strongly positively correlate with real wage. The long-term interest rate captures the most objective cost of capital, devoid of the influence of subjective corporate policies. The data on real unit labour cost were obtained from AMECO online. However data on long term interest rates were very challenging to obtain. Consequently, we had to obtain them from sundry sources.

Trade Openness: An index of trade openness suggested in Aglietta (1998), is a ratio of the sum of total export and total import to GDP. This ratio is also the most popular index of trade openness in the literature. This is a *de facto* measure, in that it measures the actual flows of trade openness. There are a few *de jure* measures of trade openness in the literature (Quinn, 1997; Hauner and Prati, 2008). But we prefer the de facto index, in that apart from being the most popular index in the literature, it lacks the weaknesses of *de jure* indices. The *de factor* index as a flow (real-time) variable, captures the actual fluctuations in openness as they occurred and also captures the level of openness by making reference to GDP.

6.7 Empirical Evidence

6.7.1 The Data

Secondary annual data collected mainly from the AMECO and the UK Data Service (World Bank Development indicators) databases for the aforementioned twenty-three advanced capitalist countries that are members of the OECD are used. The available data are for the year 1960 to 2014 (55 years). There were cases of missing data for some variables, in some of the countries. The most affected were interest rates and potential outputs. Unavailable data had to be obtained or missing data augmented from alternative databases or estimated by extrapolations.

6.7.2 Summary Statistics and Correlation Analysis

Table 6.1 below presents summary statistics in connection with the variables. Net fixed capital formation represents net newly produced non-residential fixed capital (net fixed investments) per annum for the respective countries and measured in billions of the respective national currency at 2010 price. The mean net capital

Table 6.1: Summary Statistics

	Mean	Standard Deviation.		
Variable		Within	Between	Overall
Net Fixed Capital Formation	1108.054	3270.19	4945.467	5846.161
Net Capital Stock	42596.09	100253.8	189168.4	210737
Export	1.82E+12	5.21E+12	7.94E+12	9.30E+12
Import	1.66E+12	5.06E+12	7.22E+12	8.64E+12
GDP	1.45E+13	3.92E+13	6.58E+13	7.54E+13
Employee Compensation	7473.978	20609.56	34021.5	39150.58
Gross Operating Surplus	5957.302	15566.84	27133.5	30800.9
Potential GDP	14484.42	32892.58	64130.82	70844.76
Actual GDP	14880.19	29877.43	66086.42	71228.46
Long Term Interest Rate	7.775893	4.318671	2.330583	4.883696
Real Unit Labour Cost	106.7544	8.259639	4.788828	9.496041
Capital Accumulation	0.0286545	0.014258	0.005447	0.0152224
Trade Openness	0.6730425	0.208432	0.412458	0.4541043
Profit Share	0.4593096	0.038631	0.061792	0.0717969
Capital Utilization	1.018992	0.699905	0.146055	0.7143442
Relative Cost	0.0725185	0.040055	0.022273	0.0455995

(Source: Author computed from sample data)

formation for the 23 countries over the period of 55 years is 1108.054 billion (in 2010 constant price, in local currencies, mostly Euros). The variations are as given by the standard deviations and the table indicates that on the average, the dispersions or variations in fixed capital formation within countries over the period of 55 years were less than the variations between the sample countries. Similarly for the variables, net capital stock, export, import, GDP, gross operating surplus, potential and actual GDP, variations between the countries dominated temporal variations within the countries on the average, as indicated by the respective "between" and "within" standard deviations. Net fixed capital formation and net capital stock are measured in identical units.

However, for variables more conventionally associated with investments (long-term interest rate and real unit labour cost) within variations were more than the between variations, on the average. For trade openness and profit shares, the variations between countries were higher than within countries, while for rates of fixed capital accumulation, capacity utilisation and relative cost, variations within countries were higher than between country variations, on the average. It is noteworthy that rates of fixed capital accumulation experienced the least overall variation, while the next lowest were profit shares, as we can infer from Table 6.1. To facilitate comparison in variations among the variables, a coefficient of variation or relative standard deviation (the ratio of standard deviation to mean value) was computed for each variable. The coefficients of variation, on the average, are: 0.70, 0.67, 0.629, 0.628, 0.53, 0.16 and 0.09, for capacity utilization, trade openness, relative cost, long-term interest rate, fixed capital accumulation, profit share and real unit labour cost, respectively. Table 6.1 shows that there exist adequate within and between variations to facilitate econometric analyses, as it has been observed in some empirical literature that low within variations in a panel data set could reduce the accuracy of parameter estimates of explanatory variables.

Table 6.2 below presents a correlation matrix. Although the coefficients are relatively low compared to the time series cases presented in earlier chapters, this is because the coefficients were computed on the bases of variations within and between the panel units (the countries). The table shows that on the average, the

highest correlation coefficient of the dependent variable (capital accumulation) is a positive 0.43, with real unit labour cost. Its positivity suggests that real unit labour costs and rates of fixed capital accumulation tend to move closely in the same direction. From the perspectives of factor substitution elucidated in the session on "the theory" in this chapter, as well as the demand side argument (as argued in Boyer 2013, the stagnationist regime of Bhaduri and Marglin (1990), and the wage-led growth of Lavoie (Lavoie, 1995b, 1997, 2003, 2009)) higher real unit labour costs (higher wages) are associated with higher rates of fixed capital accumulation. The next highest correlation of fixed capital accumulation is about 0.18, with profit share. Increases in profit share on the average, tend to be closely associated with increases in rates of fixed capital accumulation. The next highest correlation (in absolute value) of capital accumulation is with trade openness. Consistent with the central argument of this thesis, the correlation coefficient is negative, implying that increases in trade openness tend to be closely associated with decreases in rates of fixed capital accumulation.

Table 6.2: Correlation Matrix – Main Variables

	Capital Accumulation	Profit share	Capacity Utilization	Relative Cost	Long term interest rate	Real unit labour cost	Trade Openness
Capital Accumulation	1						
Profit Share	0.1796	1					
Capacity Utilization	-0.0299	0.1208	1				
Relative Cost	0.0653	0.0405	-0.0367	1			
Long Term Interest rate	0.1224	-0.0104	-0.0397	0.9875	1		
Real unit labour cost	0.4255	-0.246	-0.0667	0.066	0.2044	1	
Trade Openness	-0.1529	0.0508	0.0832	-0.1259	-0.1512	-0.2801	1

(Source: Author 's computed from sample data)

More controversially, the variations between fixed capital accumulation and long-term interest rate moved in the same direction over the sample period. Interestingly, increases in trade openness were associated with decreases in unit real cost of labour. The highest correlation coefficient of trade openness, in absolute value, is with the real unit cost of labour (including wage), which in turn has the highest

correlation coefficient with rates of fixed capital accumulation. Implying that in the sample period and countries, dramatic increases in trade openness were most associated with decreases in real labour costs or wages, which in turn, were most associated with declining rates of fixed capital accumulation (the demand-side perspective). One of the highest absolute correlation coefficients in Table 6.2 is the inverse correlation coefficient between real labour cost or wage and profit share, consistent with the argument that as capitalist firms increase profit shares, it is apparently at the expense of real wages. Therefore, increases in trade openness were most associated with decreases in real labour cost (real wages), which in turn were most associated with increases in profit share, after decreases in rates of fixed capital accumulation, in the sample period and countries.

The significant positive correlation between the cost of capital (long-term interest rate) and the cost of labour is consistent with a rational profit maximising capitalist firm that increases its demand for labour as capital cost becomes higher, causing the price/cost of labour to rise. This factor substitution is inverse with changes in relative costs. The highest correlation coefficient in Table 6.2 is between long-term interest rate and relative cost. The correlation coefficient between capital accumulation and capacity utilisation is rather weak and negative. This is inconsistent with the argument that higher capacity utilisation tends to signal the need for increase in fixed capital accumulation, but consistent with the argument that firms are more prone to increasing rates of capacity utilisation to meet higher demand, than increasing their capital stocks (see Stockhammer, 2004).

The correlation coefficient between relative cost and capital accumulation is surprisingly positive, but very weak, implying that in the sample period and countries, as the cost of capital relative to real unit labour cost increased, rates of fixed capital accumulation increased, but weakly. This is against theoretical expectation, as it is expected that the higher are long-term interest rates relative to labour cost, the lower should be rates of fixed capital accumulation. On average, profit share was positively related to capacity utilisation and relative cost in the sample period and countries. Profit share moved in the same direction as trade openness. It has been argued in the Regulation School literature that the increase in

trade openness, driven by the desires of capitalists, was meant to increase profit rates and profit shares. The inverse relationship between profit shares and wage shares implies that increases in trade openness, by positively correlating with profit shares, would negatively correlate with wage shares and growth rates of wages, but positively correlate with the relative costs of capital. The actual and implied correlations among profit shares, wage shares and relative costs, tend to make more sense, if labour was being increasingly substituted for more expensive capital, or labour was contributing less to profit generation, because of imports and exports, in the sample period and countries. Capacity utilisation was inversely correlated with long-term interest rate, relative cost, and real unit labour cost, while it was positively correlated with trade openness, in the sample period and countries. Long-term interest rate correlated negatively with trade openness, in the sample period.

In an extension of the correlation analysis which turns out to be more revealing, Table 6.3 below presents correlations coefficients between capital accumulation rates and the contemporary as well as the first three lags of the respective explanatory variables in the model specification, in sample countries, during the sample period. The table shows consistently high positive correlation between capital accumulation and real unit labour cost up to at least the third lag of real unit labour cost. Capital accumulation persistently exhibited strong negative correlation with trade openness, up to the third lag of trade openness. Furthermore, capital accumulation rates were positively correlated with long-term interest rates, up to the third lag of long-term interest rates. However capital accumulation rates were

Table 6.3: Correlation: Explanatory Variables (3 Lags) with Accumulation

Capacity Utilization	Relative Cost	Long term Interest rate	Real Unit labour Cost	Trade openness
-0.0296	0.0668	0.1238	0.4234	-0.1545
-0.0133	0.0092	0.06	0.3851	-0.1384
-0.0082	-0.0162	0.0289	0.3576	-0.1229
0.0015	-0.0303	0.0102	0.3377	-0.1077

(Source: Author's Computed from sample data)

negatively correlated with capacity utilisation up to the second lag, then switched to

positive coefficient in the third lag. Fixed capital accumulation was positively correlated with relative cost up to the first and second lags of relative cost, but in the third and fourth lags, the correlation switched to negative.

Table 6.4 presents an autocorrelation matrix that indicates the presence of high persistence up to the 3rd lag, in each of the included variables in the specified model, except capacity utilisation. These autocorrelations were positive. The highest persistence was displayed by trade openness. A high level of trade openness in one period was followed by similarly high level of trade openness in the next period. For example, a unit increase in trade openness in period 1 was followed on average, by 0.9603 unit in period two, 0.9205 unit in period 3 and 0.885 unit in period 4. The next highest persistence in the sample period was exhibited by profit share. A unit increase in profit share in a period was followed on the average, by 0.9555 unit in the next period, 0.9061 unit in period 3 and 0.8675 unit in period 4. The high persistence displayed by fixed capital accumulation, highlights why in the period sequel to Fordism, fixed capital accumulation was persistently trending downward. The high autocorrelation associated with these variables may have significant implications for serial correlation and therefore be given significant consideration in the methods employed in the econometric analyses section.

Table 6.4:Autocorrelation of Main Variables (Up to 3rd Lags)

	Capital Accumulation	Profit share	Capacity Utilization	Relative Cost	Long term Interest rate	Real Unit Labour Cost	Trade Openness
Lags							
0	1	1	1	1	1	1	1
1	0.8919	0.9555	0.2528	0.941	0.9426	0.9217	0.9603
2	0.7528	0.9061	0.1294	0.877	0.88	0.8401	0.9205
3	0.6233	0.8675	0.0775	0.8105	0.8157	0.7694	0.885

(Source: Author computed from sample data)

In a further insightful correlation analysis, correlation coefficients of a structural analysis of trade openness and business fixed capital accumulation are presented in Table 6.5 below. Table 6.5 indicates that among the components of commodities involved in trade, goods exports and imports had the highest inverse movements with fixed capital accumulation, compared to services exports and imports, in the

sample period. Moreover, increases in goods exports, more than increases in goods imports, were more associated with the decline in fixed capital accumulation. The highest correlation coefficient of averagely positive 0.97, was between services exports as percentages of GDP and services imports as percentages of GDP.

Table 6.5: Structural Correlation Matrix - Trade Openness with Accumulation

	Capital Accumulation	(Services Import)/ Import.	(Services Export)/ Export.	(Services Import)/ GDP	(Services Export)/ GDP.	(Goods Export)/ GDP	(Goods Import)/ GDP	(Goods Exports)/ Export.	(Goods Import)/ Import.
Capital Accumulation	1.000								
Service Import/ Total Import.	-0.121	1.000							
Service Export/ Total export	0.031	0.535	1.000						
Service Import/ GDP	-0.050	0.815	0.611	1.000					
Service Export/ GDP	-0.028	0.747	0.705	0.970	1.000				
Goods Export/ GDP	-0.265	0.291	0.025	0.471	0.409	1.000			
Goods Import/ GDP	-0.175	0.164	0.264	0.479	0.493	0.896	1.000		
Goods Export/ Total export	-0.031	-0.535	-1.000	-0.611	-0.705	-0.025	-0.264	1.000	
Goods Import/ Total Import	0.121	-1.000	-0.535	-0.815	-0.747	-0.291	-0.164	0.535	1.000

(Source: Author's computed from sample data)

The average correlation coefficient between services exports as percentages of GDP and services exports as percentages of total exports is 0.71. The 0.71 coefficient implies that greater services exports were highly positively associated with greater proportion of GDP dedicated to the output of services designated for export. Such high dedication, in turn, was associated with massive importation of services, as collectively suggested by the average correlation coefficient of 0.97 aforementioned, the high correlation coefficient of positive 0.75 between services exports as proportions of GDP and services imports as proportions of total imports and, the high positive correlation coefficient of 0.82 between services imports as proportions of total imports and services imports as proportions of GDP. But high services exports as proportions of GDP were significantly but moderately correlated with goods exports/imports as percentages of GDP, implying countries experiencing greater trade openness in services were more likely to experience increases in trade

openness with respect to goods. But the negative correlation of 1.00 between services exports to total exports and goods exports to total exports suggests that higher services exports frustrated growths in goods exports. Increases in services exports as percentages of GDP were highly inversely (-0.747) associated with goods imports as percentages of total imports.

The correlation coefficient of positive 0.896 between goods exports as percentages of GDP and goods imports as percentages of GDP indicates that in the sample period, as countries increased the amount of goods exports relative to GDP, they tended to increase the amount of goods imported relative to GDP, and by implication reduced fixed investments relative to both GDP and fixed capital stocks. But goods exports as percentages of GDP had no significant correlation with goods exports as proportions of total exports, as the latter were more associated with movements in services exports as proportions of GDP as aforementioned. This insignificance suggests that growth in services on the average, apparently drove the structural changes in the pattern of trade openness. The inverse correlation between services exports/imports as respective percentages of GDP with fixed capital accumulation were overwhelmingly far less than those of goods exports/imports as percentages of GDP across the sample countries, as suggested by the average coefficients. This might be due to the fact that the monetary values of services on the average, across advanced capitalist economies, were still far less than those of goods and that fixed capital tend to be more intensively associated with goods production than with services production (Ietto-Gillies, 1992).

6.7.3 The Methodology and Econometric Analyses

The subsequent sections further the study by investigating a causative relationship between trade openness and rates of fixed capital accumulation. The econometric method of investigation is the panel data method. Panel data have both cross-section and time series dimensions. The choice of this technique dwells on the advantages of this method. The critical argument/explanatory variable in this chapter is trade openness, while the dependent variable is the rate of capital accumulation. Panel data method enhances the inferential accuracy of the parameter estimates, relative to cross section method, as the former has more sample variability and higher degrees

of freedom. Panel data method could also capture the more complex behaviours of cross-sectional units relative to cross section or time series method, because it can control for the effects of omitted variables. Omitted variables could significantly bias inferences, particularly if they correlate with included explanatory variable(s). Panel data method can capture complexities of cross-sectional units, because it can uncover dynamic relationships.

Differences between individual panel units could help reduce the collinearity between lags and current variables, to facilitate the estimation of unrestricted time-adjusting pattern and this is important for the included variables that have revealed significant persistence such as indicated in table 6.4. Panel data method simplifies statistical inferences and computation by enhancing the ability of a researcher to effect transformations to reduce measurement errors and help in situations where non-stationary time series are being analysed (see Hsiao, 2007). By comparing individuals both across intertemporal dimension and cross-sectional dimension, panel data method can offer more superior inferences compared to just cross-section or time series method (De Wachter and Tzavalis, 2004). These useful properties may be invaluable in the estimations. But a significant disadvantage of some panel data estimators is that they impose parameter homogeneity on the panel units. Panel data method may involve aggregating (MGE and PMGE), pooling (FE and RE) or averaging groups and estimating cross-section regression. In static analysis where the included explanatory variables are strictly exogenous, and parameters are independently and randomly distributed, all four approaches yield consistent and unbiased estimates of a coefficient mean. Otherwise, as argued by Pesaran and Smith (1995), only the aggregating estimators (MGE and PMGE) are consistent. Therefore to minimise misleading inferences arising from estimator biases as much as possible, a range of estimators from static estimators, dynamic estimators through pooling and aggregating estimators are used, to robustly test our argument.

6.7.3.1 Pre-estimation Data Checks

Given that the time dimension of each of the series is relatively long, it may be interesting to explore the stationarity conditions of the data.

6.7.3.1.1 Panel Unit Root Tests.

The dependent variable is (fixed) capital accumulation, while the argument variable is trade openness as earlier defined. The control variables consist of profit share, capacity utilisation, the relative cost of capital, long-term interest rate, and the real unit cost of labour. Multiple techniques are used to test for stationarity in the data series. Tables 6.6 to 6.8 below display the results of these tests of stationarity in the data series.

Table 6.6: Panel Unit Root Test (Im-Pesaran-Shin Unit Root Test)

	Capital Accumulation	Profit Share	Capacity Utilization	Relative Cost	Trade Openness	1st Difference of Trade Openness
Test Statistics	-4.3550	-2.134	-50.543	-4.164	5.737	-24.062
P-value	0.0000	0.0164	0.0000	0.0000	1.0000	0.0000
Initial Lag	8	8	8	8	8	8
Average Lags Chosen by AIC	2	1	1	1	2	1

Note: (1) Test options used: demean; lags (2) H0: All panels contain unit roots
(3) H1: Some panels are stationary

(Source: Author Computed from sample data)

Table 6.7: Panel Unit Root Test (Fisher Type)

		Capital Accumulation		Profit Share		Capacity Utilization	
		Statistics	P-value	Statistics	P-value	Statistics	P-value
Inverse Chi-sq.	P	206.2752	0.0000	146.5561	0.0000	445.0122	0.0000
Inverse normal	Z	-10.2858	0.0000	-8.1113	0.0000	-17.5890	0.0000
Inverse Logit	L*	-11.7317	0.0000	-8.2691	0.0000	-25.6676	0.0000
Modified inverse Chi-sq.	Pm	16.7098	0.0000	10.4837	0.0000	41.5999	0.0000

		Relative Cost		Trade Openness		1st Difference of Trade Openness	
		Statistics	P-value	Statistics	P-value	Statistics	P-value
Inverse Chi-sq.	P	168.1910	0.0000	85.6914	0.0003	454.4701	0.0000
Inverse normal	Z	-9.1854	0.0000	-2.0378	0.0208	-18.5079	0.0000
Inverse Logit	L*	-9.6044	0.0000	-2.0853	0.0196	-26.2338	0.0000

Modified inverse Chi-sq.	Pm	12.7393	0.0000	4.1381	0.0000	42.5860	0.0000

Note: (1) Test executed with options: dfuller; drift; and demean. (2) H0: All panels contain unit roots

(3) H1: At least one panel is stationary

(Source: Author computed)

Table 6.8: Panel Unit Root Test (Further First Generation Test)

variable						
	Capital Accumulation	Profit Share	Capacity Utilization	Relative Cost	Trade Openness	1st Difference of Trade Openness
Levin-Lin-Chu Test	-1.8442 (0.0326)	-1.9571 (0.0252)	-37.2990 (0.0000)	-2.9786 (0.0014)	5.2580 (1.0000)	-20.1007 (0.0000)
Harris–Tzavalis test	0.8892 (0.0000)	0.9032 (0.0004)	0.2563 (0.0000)	0.8965 0.0000	1.0048 (1.0000)	0.1041 (0.0000)
Breitung unit-root test	-1.7099 (0.0436)	-0.7407 (0.2294)	-0.5341 (0.2966)	-2.1314 (0.0165)	2.3853 (0.9915)	-4.9219 (0.0000)
Hadri Lagrange multiplier stationarity test	20.1050 (0.0000)	16.0987 (0.0000)	7.4749 (0.0000)	4.6307 (0.0000)	29.7256 (0.0000)	3.4823 (0.0002)

(Source: Author computed from sample data)

The null hypotheses for the Levin-Lin-Chu, Breitung, and Harris-Tzavalis tests are identical: that the panels contain unit roots, while the alternative is that the panels are stationary. This is rather restrictive, since the null would fail to be accepted even if just one panel includes a non-stationary variable. For the Hadri Lagrange multiplier stationarity test, the null hypothesis is 'all panels are stationary' versus the alternative hypothesis that 'some panels contain unit roots'. The Im-Pesaran-Shin unit root test and the Fisher-type test have the null hypothesis that all panels contain unit roots, but the alternative hypotheses are that 'some panels are stationary', and 'at least one panel is stationary' respectively. A significant limitation of first generation panel unit root tests like the tests above, is that they assume the absence of cross-sectional dependence. Consequently, they may not be very useful in the presence of cross-sectional dependence (Baltagi, 2005). The LLC test assumes homogeneity of slope coefficients of the first lags of the panel units. Harris-Tzavalis test assumes that the time dimension (T) is fixed and work better with fixed and

smaller T. The IPS and LLC exhibit loss of power in the presence of individual-specific trends and both also suffer from size distortions (Breitung, 2000; Choi, 2001). In the presence of a time trend, all panel unit root tests decrease dramatically in terms of power (Choi, 2001).

Karlsson and Löthgren (2000) have cautioned that panel unit root tests exhibit the potential risk of concluding that the whole panel is stationary when T is large, even if it is just a small fraction of the panel units that is stationary. But with small T, they tend to generate the inference that the entire panel is nonstationary, even though just a small fraction thereof is nonstationary. But Karlsson and Löthgren (2000) failed to define with exactitude, what is small T and large T. Against the background of these various caveats with panel unit root tests, the tests reported in the foregoing tables have shown mixed results. While the tests have consistently suggested that fixed capital accumulation, profit share, capacity utilisation and the relative cost of fixed capital are stationary in at least some panels, only the Fisher-type and Hadri Lagrange multiplier tests suggest that trade openness is stationary in at least some panel units.

Under the context of time series, the presence of a unit root has a high capacity to render a parameter estimate inconsistent. However, the adverse impacts of unit roots on parameter estimates in the context of panel data may be tempered by the inclusion of a cross-sectional dimension, as well as the differencing that is typical of panel data estimation of parameters. Furthermore, a dynamic panel data estimator is an autoregressive distributed lag (ARDL) based estimator, if lags of the explanatory variables (distributed lags) are included in addition to lag(s) of the dependent variable (autoregressive lag(s)), as explanatory variables. But with an ARDL-based estimator, the order of integration of the variables in the model is irrelevant, making prior testing for unit roots dispensable (van Treeck, 2008, p.372).

Further insights into the effects of time are enhanced in dynamic panel analyses (Arellano, 2003). Given the potential limitations of unit root tests, the reduced adverse impacts of unit roots on parameter estimates in panel data context and, the enhanced usefulness of dynamic panel estimators under the contexts of unit roots

and the effects of time, two approaches are used. First, a static approach is assumed, without much consideration to the effects of time. In the second approach in a later session, the dynamic panel data approach is used. These dual approaches would facilitate robust assessments of the impacts of trade openness on rates of private non-residential fixed capital accumulation, in advanced capitalist economies.

6.7.3.1.2 Error-Correction-Based Cointegration Tests for Panel Data

The main objective of a cointegration test is to assess the presence of a long-term relationship between two or more variables. The existence of cointegration between two variables indicates that the two variables are in a long-run relationship or band. Therefore, if at any time the two variables stray out of the long-run band or relationship, changes would occur to restore them to the long-run relationship. The Persyn and Westerlund (2008) test differs from alternative tests of cointegration. Most alternative tests are based on the residuals, but many studies have shown that such alternative tests may fail to reject the null of no cointegration, even where there is apparently cointegration (Persyn and Westerlund, 2008). The Persyn and Westerlund (2008) approach relies on the structural dynamics rather than the residual dynamics, with a speed of adjustment parameter playing a cardinal role in the test.

In a cointegration relationship, there exists a speed of adjustment parameter that ensures that two cointegrated variables outside the equilibrium relationship return to the equilibrium (long-run) relationship and this speed of adjustment parameter determines the speed at which they do so. Persyn and Westerlund (2008) test estimates this speed of adjustment (error correction) parameter and test if it is equal to zero or not. Under the null of "no cointegration", four test statistics are developed. The alternative hypothesis is a function of the assumptions about the homogeneity of the error correction parameters of the panel units. Under the group mean test, it is assumed that the error correction parameters are heterogeneous, so that each panel unit has its separate parameter. The null is that all the error correction parameters are zero against the alternative hypothesis that at least one of the error correction parameter is significantly less than zero.

The assumption under the panel test, is that the error correction parameters are homogenous across all the cross-sectional (panel) units. The null is that the error correction parameter is zero, while the alternative hypothesis is that the error correction parameter is significantly less than zero. For the group mean test, the test statistics are in pairs: $G_\tau = \frac{1}{N}\sum_{i=1}^{N} \frac{\hat{\varphi}_i}{SE(\hat{\varphi}_i)}$; and $G_\alpha = \frac{1}{N}\sum_{i=1}^{N} \frac{T\hat{\varphi}_i}{\hat{\varphi}_i 1}$; where φ_i is the error correction parameter, $SE(\hat{\varphi}_i)$ is the normal or conventional standard error of the parameter and $\hat{\varphi}_i 1$ is the standard error derived from using the long-run variance estimates of the Newey West (1994). For the panel test, there is also a pair of test statistics: $P_\tau = \frac{\hat{\varphi}}{SE(\hat{\varphi})}$; and $P_\alpha = T\hat{\varphi}$ (Persyn and Westerlund, 2008). The advantage of the Persyn and Westerlund test is that since it is not based on residuals, we could compute the test statistics for any pair of variables. The test is undertaken to assess and compare how the explanatory variables move with fixed capital accumulation. The results are juxtaposed in Table 6.9 below. The tests results in Table 6.9 suggest that profit share is strongly cointegrated with capital accumulation at both the group mean level and at the panel level tests, at the 1% significant level (using the conventional standard errors and the Newey and West long-run variance estimates).

Table 6.9: Error-Correction-Based Cointegration Test

	Capital Accumulation & Profit Share				Capital Accumulation & Capacity Utilization		
Statistic	Value	Z-value	P-value		Value	Z-value	P-value
G_τ	-1.573	-2.749	0.003		-2.220	-5.733	0.000
G_α	-5.906	-2.219	0.013		-5.761	-2.065	0.019
P_τ	-6.529	-3.496	0.000		-10.542	-6.857	0.000
P_α	-4.450	-5.671	0.000		-5.685	-7.717	0.000
	Capital Accumulation & Long term interest rate				Capacity Utilization & Real Unit Labour Cost		
Statistics	Value	Z-value	P-value		Value	Z-value	P-value
G_τ	-1.021	-0.205	0.419		-1.273	-1.366	0.086
G_α	-2.906	-0.945	0.828		-5.470	-1.758	0.039
P_τ	-5.338	-2.476	0.007		-6.038	-3.075	0.001
P_α	-2.953	-3.191	0.001		-4.434	-5.645	0.000
	Capital Accumulation & Relative Cost				Capital Accumulation & Trade Openness		
Statistics	Value	Z-value	P-value		Value	Z-value	P-value
G_τ	-3.146	-4.601	0.000		-2.259	-4.017	0.000
G_α	-15.725	-2.619	0.004		-8.948	-2.740	0.003
P_τ	-14.725	-5.253	0.000		-9.942	-4.100	0.000
P_α	-14.947	-4.704	0.000		-7.552	-4.945	0.000

(Source: Author estimated from sample data)

The estimated results in Table 6.9 also suggest the presence of strong cointegration between capital accumulation and capacity utilisation at the group mean level and panel level at 1% significant level, using both types of standard errors. The suggested cointegration between capital accumulation and profit share, as well as between capital accumulation and capacity utilisation are therefore robust to the standard error used. Furthermore, there exists some evidence of cointegration between real unit labour cost and capital accumulation at both the group and panel levels, using both the conventionally computed standard errors, and the NW long-run variance estimates, at the 10% significant level. The results also suggest the existence of some cointegration between capital accumulation and long-term interest rate, at the panel but not group levels. Very strong cointegration has also been estimated between relative cost and fixed capital accumulation, at 0.1% significant level. Even more statistically significant cointegration is estimated between trade openness and fixed capital accumulation than that between relative cost and fixed capital accumulation. These cointegration results are consistent with the results in the correlation analyses section, where strong co-movements between trade openness on the one hand and long-term interest rate and real unit labour cost respectively on the other hand were indicated. Long-term interest rate and real unit labour cost in turn moved in close association with the relative cost of capital, in the sample period.

From the results, there exist comparable cointegration between trade openness and capital accumulation, in comparison to the control variables suggested by theories and are highly cointegrated with capital accumulation. On the basis of the tests, therefore, we conclude that under the same conditions and assumptions associated with the Persyn and Westerlund (2008) cointegration test, we can strongly reject the null of " no cointegration" for trade openness, relative cost, real unit labour cost, profit share and capacity utilization respectively with fixed capital accumulation. But could not so confidently reject the same null between long-term interest rate and fixed capital accumulation. With this greater confidence in the ability of trade openness to negatively explain the declining trend in fixed capital accumulation, this study proceeds to the estimation of the models.

6.7.3.2 Static Panel Models Analyses (One-way Error)

The static approach excludes lag(s) of the dependent variable as explanatory variable(s) in the model. Both the fixed effects (FE) and random effects (RE) models provide for individual-specific effects (unobserved individual heterogeneity). The FE model assumes that the individual heterogeneity is fixed parameter(s|) for individual panel unit and refuse to rule out a relationship between the included explanatory variables and these individual-specific effects. As argued by Baltagi (2005), if the set of the panel units (N) remains fixed, then the fixed effects model is more appropriate. The random effects model assumes that the individual-specific effects are be random (thus part of the error term) and that the included explanatory variables are independent of the individual-specific effects. Baltagi (2005) has also argued that the random effects model is more suitable if the N are randomly drawn from a large population. Under the assumption that the covariance between the unobserved heterogeneity and the included explanatory variables equal zero, the random effects model is both consistent and efficient, while the fixed effects model is consistent but inefficient. If this assumption is however violated, the RE is inconsistent, while the Fixed Effect is consistent and possibly efficient. It, therefore, matters a great deal which of the two static estimators is used. The models are as presented below.

$$\left(I/K\right)_{it} = \mu_i + \beta_{PS}PS_{it} + \beta_{\cup}\cup_{it} + \beta_{RC}RC_{it} + \beta_{\left(\frac{Exp+Imp}{GDP}\right)}\left(\frac{Exp+Imp}{GDP}\right)_{it} + \beta_{\left(\frac{Exp+Imp}{GDP}\right)^2}\left(\frac{Exp+Imp}{GDP}\right)^2_{it} + \varepsilon_{it} \quad ..6.11$$

$$\varepsilon_{it}\ are\ iid; \sim N(0, \delta_{\varepsilon}^2)$$

$$\left(I/K\right)_{it} = \beta_{PS}PS_{it} + \beta_{\cup}\cup_{it} + \beta_{RC}RC_{it} + \beta_{\left(\frac{Exp+Imp}{GDP}\right)}\left(\frac{Exp+Imp}{GDP}\right)_{it} + \beta_{\left(\frac{Exp+Imp}{GDP}\right)^2}\left(\frac{Exp+Imp}{GDP}\right)^2_{it} + \cap_{it} \quad \ldots 6.12$$

$$\cap_{it} = \mu_i + \varepsilon_{it} \quad \text{and } \cap_{it} \text{ is } iid;\ \sim N(0, \delta_{\cap}^2),\ \mu_i \text{ is } iid;\ \sim N(0, \delta_{\mu}^2)$$

Equation 6.11 is the specification of the fixed effects model, while equation 6.12 is the random effects model specification. μ_i captures the individual-specific effects for each panel unit. Do we expect the unobserved individual heterogeneity to significantly co-vary with trade openness? Recall that the gravity model postulates that external trade varies positively with the size of GDP. But GDP is aggregate national output and therefore a function of the prevailing national idiosyncratic ability (individual heterogeneity). Thus we expect ability to significantly co-vary with trade openness. This together with fixed N (panel units) suggests that the FE

model is more appropriate in our case. Using AIC and BIC as the selection criteria, fixed effects and random effects models estimates are presented in Table 6.10.

Table 6.10: Model Estimates; Dependent Variable: Capital Accumulation (1960 – 2014)

	Model 1 (Fixed Effect)		Model2 (Random Effect)	
Variable	Coefficient (t-value)	P-value	Coefficient (z-value)	P-value
Profit Share	.0067 (0.64)	0.521	.0233 (2.57)	0.010
Capacity Utilisation	-.0013 (-2.24)	0.025	-.0010 (-1.87)	0.061
Relative Cost	-.0047 (-0.47)	0.641	.0046 (0.47)	0.642
Trade Openness	-.020 (-10.20)	0.0000	-.0133 (-8.41)	0.0000
Constant	.041 (7.48)	0.0000	.028 (5.95)	0.0000
sigma_u	.0092547		.0048219	
sigma_e	.01375877		.01375877	
rho	.31150566		.10938702	
corr(u_i, Xb)	-0.7204		Assumed to be 0	

(Source: Author Computed from sample data)

In the estimated fixed/(random effects) models, one percentage increase (decrease) in trade openness decreases (increases) the rate of fixed capital accumulation by 0.02% (0.013%). In both model estimates, trade openness is the most robust to either of the estimators. Furthermore, trade openness is by far the most significant explanatory variable both statistically and economically. The fraction of the variance due to unobserved heterogeneities is about 31%. A Hausman test is executed to test the significance of the differences between the FE and RE estimates. The Hausman statistics is defined as:

$$H = \left(\hat{\beta}_{FE} - \hat{\beta}_{RE}\right)' \left[\hat{V}\left(\hat{\beta}_{FE}\right) - \hat{V}\left(\hat{\beta}_{RE}\right)\right]^{-1} \left(\hat{\beta}_{FE} - \hat{\beta}_{RE}\right) \ldots\ldots 6.13$$

$\hat{V}(\hat{\beta}_{FE})$ is the estimate of the variance of the FE parameter estimate $\hat{\beta}_{FE}$. $\hat{V}(\hat{\beta}_{RE})$ is the estimate of the variance of the RE parameter estimate $\hat{\beta}_{RE}$. Under the relevant null hypothesis, the test statistics has a chi-square distribution with a degree of freedom equal to the number of estimated parameter estimates. In this case, the Hausman test statistics of 34.19 with prob>chi2 = 0.000 rejects the null of no systematic differences between the fixed effects and random effects estimates, implying that the unobserved individual heterogeneity correlates significantly with the included explanatory variables. The correlation between the unobserved effects and the fitted variables is -0.7204. Therefore ignoring this high correlation produces significantly biased parameter estimates. Since the random effects model assumes this correlation to be nil, its estimates are expectedly biased. The fixed effects model (model 1) which is consistent in this context is therefore preferred to the random effects model.

A combination of hierarchical estimation and the model selection criteria of AIC and BIC indicates that in the absence of trade openness in the model, the addition of any of relative cost, capacity utilisation or profit share contributes very marginally to the explanatory ability of the model. However the inclusion of trade openness significantly increases the explanatory ability of the model, suggesting that the ability of trade openness to explain the movements in fixed capital accumulation over the sample period was greater compared to any of relative cost, long-term interest rate, real unit labour cost and profit share. The statistical significance of the respective explanatory variable is indicated by their respective T statistics and p value. The economic significant is indicated by the size of respective coefficient estimates.

For further robust and unbiased inferences, the fixed effects model is re-estimated with robust standard errors and the estimates presented in Table 6.11. The robust standard errors are robust to the effects of serial correlation and heteroscedasticity in the error terms. Once again the model selection criterion BIC was used in selecting the best model. The estimated model in Table 6.11 indicates that capacity utilisation, relative cost, long term interest rate and trade openness are statistically significant at the 10% significant level. One percentage change in trade openness on the average

causes an inverse change of about 0.02% (i.e. 0.0260573 – 0.0082138) in the rate of fixed capital accumulation. This was about the same estimate for trade openness without the robust standard errors. The estimate of trade openness is therefore apparently robust to serial correlation and heteroscedasticity. Trade openness squared indicates a diminishing effect of trade openness on the rate of growth of fixed capital. A percentage change in the relative cost of capital either through an increase in the cost of capital or a fall in real wage (real unit cost of labour) causes an inverse change of 0.38% in fixed capital accumulation.

Table 6.11: Estimates with Robust Standard Errors: Dependent Variables: Capital Accumulation (1960 – 2014)

	Profit share	Capacity Utilisation	Relative Cost	Long term Interest rate	Real unit Labour cost	Trade Openness	Trade Openness Squared	Constant
Coefficient (t statistics)	.101 (1.64)	-.001 (-1.98)	-.376 (-1.81)	.004 (1.86)	.0003 (1.21)	-.026 (-1.75)	.008 (2.88)	-1.06 (-1.06)
P-value	0.115	0. 0.061	0.084	0.076	0.238	0.095	0.009	0.299
sigma_u	.0056							
sigma_e	.0106							
rho	.216							
corr(u_i, Xb)	-0.4302							

Heteroscedastic and serial correlation robust standard error used in this estimation. Time dummies included in this estimation. Within variation 0.4752; between variation 0.4746; overall variation 0.4348

(Source: Author's estimated from sample data).

Capacity utilisation is statistically significant, but the parameter estimate of 0.0007 (≅ 0.001) suggests economic insignificance. A unit change in real wage (real unit cost of labour) causes a change of a mere 0.0003% in fixed capital accumulation, in the same direction. The explanatory power of wage or the real unit cost of labour may have been exhaustively subsumed by the relative cost of capital, leaving the real unit cost of labour with no residual significant impact. This may indicate that a channel of impact of real wage is through capital-labour substitution. Long-term interest rate however has statistically significant but economically weak residual marginal impact, estimated at 0.004. A percentage change in long-term interest rate causes a change of 0.004% in the rate of fixed capital accumulation, in the same

direction. The relative robustness of the parameter estimate of trade openness is further highlighted by the changes to economic insignificance, of the parameter estimates of capacity utilisation, long-term interest rate and real unit labour cost. The static econometric estimates indicate the long-run or overall impact of the explanatory variables at the margin. Panel data method commonly deals with large cross sectional units (large N) and small time dimensions (small T), with the usual assumption of cross sectional independence (independence of the cross sectional errors). With large time (T) dimension, the possibilities of unobserved time-specific effects and cross sectional dependence biasing the parameter estimates of static estimates increase. The next section continues the investigation of the robust significance of the impacts of trade openness on rates of fixed capital accumulation, in advanced capitalist economies, where the effects of long time dimension are taken into consideration (see Arellano, 2003).

6.7.3.3 Dynamic Panel Analysis

The statistic panel model estimates offer significant support for the hypothesis that increases in trade openness cause significant decreases in fixed capital growth rates. Advances in panel data method have facilitated dynamic panel data modelling, to enable assessments of dynamic responses of economic variables and the estimation of long-run relationships, where coefficient(s) of lag(s) of dependent variables may govern speeds of adjustment . A dynamic panel data model includes lag(s) of the dependent variable as an explanatory variable. It may also include lag(s) of the exogenous variable(s) as explanatory variable(s) in the model. With data points spanning a period of 55 years (T = 55), there should be significant time series effects to justify the use of dynamic panel models and estimators. Different dynamic panel data estimators have their weaknesses and strengths, which are often highlighted by time series characteristics of macroeconomic and financial variables that tend to include high serial/autocorrelation and endogeneity. Consequently five dynamic panel data estimators: Pooled OLS; Dynamic Fixed Effects; Arellano-Bond; LSDVC; and MGE, have been applied to the data, to enhance unbiased and robust inferences. A re-specification of the model into a dynamic form is presented in equation 6.14 below.

$$\left(I/K\right)_{it} = \sum_{s=0}^{\infty} \beta_{t-s}^{\frac{I}{K}} \left(\frac{I}{K}\right)_{it-s-1} + \sum_{s=0}^{\infty} \beta_{t-s}^{PS} PS_{it-s} + \sum_{s=0}^{\infty} \beta_{t-s}^{RC} RC_{it-s} +$$

$$\sum_{s=0}^{\infty} \beta_{t-s}^{i} i_{it-s} + \sum_{s=0}^{\infty} \beta_{t-s}^{LC} LC_{it-s} + \sum_{s=0}^{\infty} \beta_{t-s}^{\left(\frac{Exp+Imp}{GDP}\right)} \left(\frac{Exp+Imp}{GDP}\right)_{it-s} +$$

$$\sum_{s=0}^{\infty} \beta_{t-s}^{\left(\frac{Exp+Imp}{GDP}\right)^2} \left(\frac{Exp+Imp}{GDP}\right)_{it-s}^{2} + \gamma_t + \alpha_t + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots 6.14$$

The estimated dynamic models are presented in Table 6.12. The dynamic fixed effect (DFE) model explains more than 86% of the variations within the countries (within variations) and about 92% of the variations between the countries (between variations). 87% of the total variations (overall variations) is explained by the DFE model estimate. This is far greater than the corresponding values for the static fixed effects model estimates, where the percentage of variations explained were in the 40s. All the five dynamic estimators more clearly indicate that virtually all the included explanatory variables granger cause fixed capital accumulation, in that lag values of trade openness and the others, significantly impact on contemporary rates of fixed capital accumulation. All five dynamic estimates except the mean group estimator (MGE) indicate that the first and second lags of fixed capital accumulation are significant. This is consistent with the high level of persistence exhibited by the variables, as discussed in an earlier section. It is particularly noteworthy that the estimates of these lags for the four aforementioned dynamic estimators fall within a rather narrow range. Moreover, apart from profit share in the MGE estimates and capacity utilisation in the DFE estimates, all the variables have been shown to significantly granger cause fixed capital accumulation. In line with the included lags of the dependent variable, all the lags of the explanatory variables displayed alternation in the signs of their parameter estimates. But how reliable are the estimates of the five panel estimators and the inferences therefrom?

The estimated Pooled OLS was chosen on the basis of two model selection criteria, the AIC and BIC. Time dummies from 1960-2014 were included in the model and gradually narrowed down on the basis of the significance of their parameter estimates, to select the model with the higher selection criteria. Although the Pooled OLS has been consistent with the other panel data estimates, it has a severe flaw, in that it gives equal weightings to between and within variations, and ignores the

Table 6.12: Dependent Variable: Capital Accumulation; Sample Period 1960-2014

	Pooled OLS	DFE	LSDVC	A-Bond	MGE
Capital Accumulation					
L0					
L1	1.078781	1.018831	1.03064	1.059787	0.5261368
	[0.0398241]****	[0.0588995]****	[0.0240639]****	[0.0326059]****	[0.138026]****
L2	-0.2232216	-0.1926785	-0.143032	-0.2157082	0.0279641
	[0.0382155]****	[0.044938]****	[0.0322497]****	[0.0321178]****	[0.1818283]
Profit Share					
L0	0.1025824	0.114221	-0.0516141	-0.049431	0.1395991
	[0.0209888]****	[0.0198926]****	[0.0205105]****	[0.0374681]*	[0.0737548]**
L1	-0.0910156	-0.0786049	0.080018	0.039164	-0.07542
	[0.0212762]****	[0.0162056]****	[0.0199791]****	[0.0265195]*	[0.0784468]
L2				0.0475084	-0.0153258
				[0.0275957]*	[0.0883223]
Capacity Utilization					
L0	0.0177489	-0.0002452	0.0315221	0.0330461	0.0968781
	[0.0069933]****	[0.0003477]	[0.0034372]****	[0.0097355]****	[0.0217111]****
L1	-0.014645		-0.0293068	-0.0291848	-0.0231461
	[0.0072519]***		[0.0034142]****	[0.0120219]***	[0.0260528]
L2	-0.0057978		0.0029541	0.002342	
	[0.0036778]**		[0.0006044]****	[0.0013451]**	
L3	0.1091605		0.0005696		-0.0342879
	[0.0769835]****		[0.0002558]***		[0.0218949]*
Long Term Interest rate					
L0	0.0005633	0.0017762	0.0016502	0.0015293	0.0009019
	[0.0007706]	[0.0007049]***	[0.0007121]***	[0.0005306]****	[0.0090471]
L1	-0.0005912	-0.0018832	-0.0020333	-0.00339	-0.0065342
	[0.0001253]****	[0.0009573]***	[0.0008799]***	[0.0011853]****	[0.0173411]
L2	0.0016944	0.0014858	0.0016366	0.0032159	0.0051325
	[0.0007124]***	[0.0006351]***	[0.0006494]****	[0.001377]***	[0.0116867]
L3	-0.0010192	-0.001485	-0.0008804	-0.0013502	-0.0212909
	[0.0007484]*	[0.0007009]***	[0.0006132]*	[0.0005068]****	[0.0079302]****
Real Unit Labour Cost					
L0	0.0006572	0.0004846	-0.0003797	-0.0003767	0.0001857
	[0.0001154]***	[0.0001093]****	[0.0001257]****	[0.0005068]****	[0.0006186]
L1	-0.0007155	-0.0005251	0.000313	0.0003355	0.0002402
	[0.0001135]****	[0.0001048]****	[0.0001264]****	[0.0001479]***	[0.0012005]
L2					-0.0008043
					[0.0010138]
L3	0.0001241	0.0001735	0.0001139	0.0001568	0.00205
	[0.0000555]***	[0.0000617]****	[0.000482]***	[0.0000476]****	[0.0008358]***
Relative Cost					
L0	0.0090012	-0.1793189	-0.1799268	-0.1638975	-0.0972926
	[0.0152185]	[0.0790602]***	[0.0747996]***	[0.0524019]****	[0.9258532]
L1		0.1252742	0.1661787	0.3085454	0.8404063
		[0.1020643]*	[0.0924624]**	[0.1210586]****	[1.826649]
L2	-0.1267871	-0.0850682	-0.1255351	-0.2953454	-0.705497
	[0.0753234]**	[0.0726635]*	[0.0686773]**	[0.1490408]***	[1.199714]
L3	0.1091605	0.1431728	0.0890137	0.1389527	2.261218
	[0.0769835]*	[0.0687674]***	[0.0638576]*	[0.0580128]***	[0.8105555]****
Trade Openness					
L0	-0.0074653	-0.0133004	-0.009902	-0.0093811	-0.0879798
	[0.0044881]**	[0.0028018]****	[0.0037453]****	[0.0045758]***	[0.1004687]
L1	0.0069186	0.0090724	0.0083891	0.0063787	0.0216361
	[0.0050226]*	[0.0022242]****	[0.0035834]***	[0.0027863]***	[0.0105724]***
L2	-0.0034001		-0.0017871		-0.0247428
	[0.0025259]*		[0.0012115]**		[0.0182167]*
L3	0.0024768				0.026628
	[0.0013987]**				[0.0151451]**
Trade Openness Squared					
L0	0.0006879	0.0016005	0.0012279	0.0012058	0.128612
	[0.0002978]***	[0.0006297]****	[0.0004549]****	[0.0006707]**	[0.1245315]
Constant	-0.0068218				
	[0.0048813]*				
R-squared					
overall	0.8878	0.8654			
Within		0.8614			
Between		0.9168			
Wald Chi2			2.91E+12		
P-value			0		
Sargan (p-value)				0.1466	
Arellano-Bond test for zero autocorrelation in FF errors					
Order:1 (p-value)				0.0017	
Order:2 (p-value)				0.5657	
RMSE					0.0009

unobserved individual heterogeneity. This could bias the estimated parameters, and this is more so if there exists a significant correlation between the unobserved individual heterogeneity and the observed explanatory variables. The static analyses section suggests the presence of such correlation between the individual heterogeneity and the observed explanatory variables. Including a lag of the dependent variable which is correlated with the individual-specific effects, renders biased, the estimated coefficient of the lag of the dependent variable, and possibly the other estimated coefficients. For this reason, the Pooled OLS estimates may likely be biased (see Flannery and Hankins, 2013; Baltagi, 2005; Nickell, 1981).

The estimated dynamic fixed effects model corrects for the effect of unobserved individual-specific effects by regressing data transformed by demeaning. Furthermore, it does not assume that the individual fixed effects are uncorrelated with the included explanatory variables. However in the case of a dynamic panel data model, with the presence/absence of distributed lags, the transformation executed by the fixed effects model does not remove correlation between the transformed lagged dependent variable and the transformed error term. This potentially renders the transformed autoregressive lag endogenous and biases the estimated parameter associated with the autoregressive lag. The estimated coefficients of the exogenous variables may or may not be biased. This notwithstanding, for the dynamic fixed effects model, this bias is only severe for short panels for as T increases, the bias peters out. When T is large, the bias is negligible and often T is considered large, if it is greater than 30 (see Judson and Owen, 1999). With T equal to 55 in this case, significant confident could be reposed on this DFE estimates.

To advance the degree of consistency of the inferences, the dynamic fixed effects model was estimated with Driscoll-Kraay standard errors. Driscoll-Kraay standard errors are robust to cross-sectional dependence (Driscoll and Kraay, 1998), which when present could severely bias the estimates. Cross-sectional dependence refers to correlations between the error terms of the cross-sectional units of panel data. The Driscoll-Kraay standard errors are also robust to heteroscedasticity and serial correlation (ibid). Although the tests of cross-sectional dependence using the Frees,

Pesaran and LM tests have been mixed, it is expected that with the spatial proximity among the sample countries and the fact that imports to one country imply exports from another, an assumption of the presence of cross-sectional dependence would be rather intuitive. Moreover like all other estimates, the dynamic fixed effects model was estimated with time dummies. Therefore the two way fixed effects were accommodated in the estimation. With these sundry measures to counter the potential biases that could have resulted from cross-sectional dependence, serial correlation, heteroscedasticity and endogeneity, we can repose significant confidence in the estimates of the dynamic fixed effect model.

The Least Squares Dummy Variable Corrected (LSDVC) offsets some of the shortcomings (bias correction) of the dynamic Least Squares Dummy Variable model or the dynamic fixed effects model, by computing and compensating for the small sample bias. The LSDVC presented here was initialised with a consistent Anderson and Hsiao estimator, to initialise the bias correction. It has been found that for data sets that have features similar to macroeconomic and financial data, such as omitted variables and unbalanced panel lengths, the LSDVC is prominent as the most accurate among the advanced panel data estimators, just as research has found that it is about the best where there exist unbalanced panel, missing observations, dependent variable censoring/clustering, while LSDVC and dynamic fixed effects estimators are about the most accurate estimators, when there is serial correlation (and absence of endogeneity) (Flannery and Hankins, 2013). This notwithstanding, the LSDVC assumes the explanatory variables are exogenous.

Arellano and Bond (GMM) estimator instruments the first differences of the lagged dependent variable, using level lagged dependent variable, thus exploiting the orthogonality that exists between the level lagged dependent variable and the differenced errors. It yields consistent estimates, even in the presence of unobserved heterogeneity, unbalanced panel data, and endogenous variables. The Arellano and Bond estimator makes the assumption that the original error terms are not serially correlated and that the first difference of the error terms is, therefore, a moving average with a unit root. However, it does not work well in the presence of a second-order serial correlation. We, therefore, test for the presence of a first-order serial

correlation and the absence of a second-order correlation in the differenced errors. For the estimated model in Table 6.12 using the full sample, the Arellano-Bond tests for zero autocorrelations in the first-differenced errors returned p-values of 0.0017 and 0.5628, for the first-order and second-order autocorrelations respectively, implying that for the null of "no autocorrelation" we reject the null in the case of the first order autocorrelation, at the 1% significant level and fail to reject the null in the case of the second-order autocorrelation.

The over-identification condition for the Arellano and Bond estimator is assessed. The larger is the time dimension (T), the more are the moment conditions and efficiency, but at the cost of a greater bias. The ideal, therefore, is to use less than the full moment conditions, at the benefit of reducing biases, but also reducing efficiency. For this purpose, we restrict the autoregressive lag to 2 and execute a sargan test of overidentification. The sargan test for overidentification restriction returns a p-value of 0.1496, implying we cannot reject the null of "overidentification restrictions are valid" at the 10% significant level (see Baltagi et al., 2009, for further detail). On the basis of these test statistics, we conclude that the estimated Arellano and Bond model is well behaved. Apart from second-order serial correlation, the Arellano and Bond estimator produces appropriate estimates, even in the face of unobserved heterogeneity, dynamic panel bias, unbalanced panel and endogeneity. Given the foregoing, therefore, we can repose significant confidence in the Arellano and Bond estimates.

The Pesaran Mean Group Estimator (MGE), unlike the rest estimators, assumes parameter heterogeneity, and averages parameter estimates across panel units after estimating a time series model for the panel units individually. Pesaran has argued that if the assumption of parameter heterogeneity is valid, the MGE is the most consistent estimate. It is, however, unclear if MGE provides for the impacts of individual fixed effects or heterogeneity among the cross-sectional units, which is one of the significant weaknesses of the time series method. A juxtaposition of the five estimated models suggests that even though there is overwhelming support for the argument that trade openness has a significant inverse causal relationship with fixed capital accumulation, the estimates of the Pooled OLS and MGE seem to be

outliers. Therefore if we winsorize both the Pooled OLS and MGE out of the estimated models, we have estimates from the DFE, LSDVC and Arellano-Bond that are closer in values. Once again the dynamic panel data estimators provide further robust evidence that trade openness is negatively (inversely) causally related with fixed capital accumulation. Given the novelty of this study and the objective of facilitating the robustness of the findings, the research is extended by seeking further support from the use of structural break analysis.

6.7.3.4 Structural Break Analysis

The structural break analysis is approached from two perspectives, a causality perspective and reliability of estimates perspective. The causality perspective is intended to assess if the tools of structural break could be exploited to obtain greater insight on which of the included explanatory variables potentially offers greater explanation to observed declining trends in rates of capital accumulation, the most. It involves comparing common breaks in the unconditional mean of each variable. The decline in rates of business fixed capital accumulation from about 1970 should be evidenced by a break in the unconditional mean of fixed capital accumulation circa 1970. There should be similar breaks in means of theorised explanatory variables. In the spirit of Emerson and Kao (2006), a comparison of the temporal locations of these breaks in means of the explanatory variables should indicate the most likely explanatory variable that drove the dynamics of rates of fixed capital accumulation, as these rates assumed their generally declining trends from about 1970. The second perspective involves the adverse effects of structural breaks on the parameter estimates of models and inferences drawn from these estimates.

In the absence of a straightforward algorithm for the determination of common break-points in unconditional means in the context of panel data, reliance is made on the argument that even in the context of heterogeneous mean and breakpoints (where there are N series with N being equivalent to the cross-sectional units of a panel data set), the common break is computationally the mean of the heterogeneous breakpoints (Im et al., 2003). But most, if not all structural break techniques adapted from time series for panel data, only have power when the break is located close to the middle of the sample. Moreover, the assumption is normally the presence of a

single break, with the objective being estimating breakpoints for the model parameters estimates, rather than the unconditional mean of a specific variable. Because the interest at this time are breakpoints in unconditional means, these methods applied in panel data are not very suitable both in objectives and methods of operation. To circumvent this obstacle and still achieve our goal, we use the Clement et al (1998) that allows for two structural breaks, as well as breaks in unconditional means and intercept. This allowance for double breaks enhances the chances of detecting breaks further away from the sample margins or centre, such as the breaks in rates of fixed capital accumulation and trade openness suspected to have occurred in the late 1960s/early 1970s. Table 6.13 below presents the various measures of the average breakpoints for the respective series.

Table 6.13: Average Break point Dates

	Variables						
Averages	Capital Accumulation	Profit Share	Capacity Utilisation	Long Term Interest Rates	Real Unit Labour Cost	Relative Cost	Trade Openness
Mean	1975.91	1970.7	1965.87	1976.13	1975.304	1976.13	1975.61
Median	1973	1969	1963	1974	1973	1975	1972
Mode	1972	1968	1963	1971	1968	1971	1971

(Source: Author estimated from sample data)

Using the mean as a measure of the average, the common break point in fixed capital accumulation is 1976. The break points in profit share, capacity utilisation were in 1971 and 1966 respectively. Although temporally located before the break point in capital accumulation, their breaks in means occurred too early from 1976. While the theoretical relationship between capital accumulation and relative cost (and long-term interest rate) is inverse, the breakpoint for the mean of relative cost occurred in 1977, temporally located after the break in capital accumulation. The break in the mean of real unit labour cost (in 1976) occurred just before the break in

the mean of capital accumulation, this is less so compared to the time of the break in the mean of trade openness. The break in mean of long-term interest rates occurred after that of fixed capital accumulation. Break in trade openness occurred just before that of fixed capital accumulation. These leave real unit cost of labour (real wages) and trade openness as the most competitive determining variables, on the basis of the mean as a measure of average.

Turning to the median as the measure of average, the common break date for capital accumulation in the 23 sample country was 1973. The median break dates in the means of profit share and capacity utilisation were 1969 and 1963 respectively. These are quite earlier than the break in the mean of capital accumulation. The median breakpoints in the mean of long-term interest rate was 1974, for unit labour cost, it was in 1973, and for the relative cost was in 1975. Once again, trade openness exhibited the median breakpoint in mean (in 1972) nearest to and preceding the median breakpoint in capital accumulation of 1973. The median breakpoints of the means offer even stronger evidence than the mean breakpoints, that trade openness was most likely the active explanatory variable that determined the observed declining trends in rates of fixed capital accumulation in the sample period and countries.

The third measure of the average break points of unconditional means is the mode. The modal common breakpoint in the mean of fixed capital accumulation was 1972. The modal breakpoints in the means of profit share, capacity utilisation and unit labour cost were in 1968; 1963; and 1968 respectively and were too early relative to the modal breakpoint of the means of capital accumulation. There is, however, ties among long-term interest rates, relative cost and trade openness, all three with the modal break date in their means of 1971. This is a marginal exception. Besides, this tie is easily resolved if we take into consideration that the ratios of modal panel units to total panel units were 8/23 for trade openness; 5/23 for long-term rates; and 2/23 for relative cost. Trade openness have the highest modal ratio and on the basis of these ratios of the modes, we accord greater weight to trade openness over long-term interest rate and relative cost of capital in the tie. 1971 preceded the break date of

fixed capital accumulation yet close enough to make trade openness the most likely determinant of the observed decreases in rates of fixed capital accumulation.

Structural break analysis in the context of panel data econometric often refers to the parameters of a model. A structural break is said to have taken place when one or more of these parameters change(s). We seek to assess if our significant findings regarding the inverse relationship between trade openness and capital accumulation, so far, were misled by the effects of structural breaks on our parameter estimates. There are two fundamental justifications for this. First, under the context of parameter instability, our estimated significant negative coefficients for trade openness could be a chance occurrence in a kaleidoscope of the sizes and signs of the parameter estimates. The second justification is due to a weakness of most panel data estimators (The assumption of homogeneity of slope parameters across time and cross-sectional units see Hansen, 2001; De Watcher and Tzavalis, 2004); in the presence of structural breaks, inconsistent parameter estimates may turn up, with resulting misleading inferences (Baltagi et al, 2016). As an example, breaks in the unobserved individual heterogeneity correlated with the initial conditions or significant breaks in slope coefficients, would render the Arellano-Bond estimator inconsistent (De Watcher and Tzavalis, 2004). Yet Structural changes are quite pervasive in economic series of any meaningful length (Hansen, 2001).

Most of the possible impacts of a structural breaks on parameter estimates and inferences are associated with time series econometric studies (See Chow, 1960; Quandt, 1960; Peron, 1989; Andrew, 1993; Bai and Perron, 1998). So a critical issue, is the choice of technique for the determination of structural breaks in a panel data context, given the problematic of aridity of methods (De Watcher and Tzavalis, 2004). This is further compounded by the possibilities of other complexities such as that structural breaks may affect different parameters, may occur at given points in time or evolve over stretches of time (with a transitory period) or there may be multiple breaks over a given stretch of time or sample period. Majority of the techniques for structural break analysis have their roots in methods proposed in Chow (1960) and later (Quandt, 1960). The Chow method involves estimating a model, using sub-samples for the sub-periods demarcated by some break dates. With

a null of “no structural break”, the Chow is an F statistics, which test the equality of the corresponding parameters of the estimates for the sub-periods defined by the break dates. A major limitation, however, is that an apriori knowledge of the break date is necessary to execute the test. While a prior knowledge is however rare, the arbitrary choices of dates based on the visual observance of the series may be too subjective and not necessarily coincide with the actual break dates. This, therefore, underscores the need for a more scientific approach to the solution for the problematic of unknown break dates.

One potential solution involves selecting several candidate break-dates, computing chow statistics for the estimated models for the respective sub-periods defined by these potential break dates. The largest chow statistics (the Quandt Statistics) is accepted as the best candidates for a structural break, and this is tested for significance (Quandt, 1960). A significant Quandt statistic suggests the presence of a structural break. Under the context of an unknown break date, however, the chi-square distribution is inappropriate, and this includes chi-square critical values (see Andrew 1993; Hanson, 2001). The absence of critical values thus straitjacketed the practical values of the Quandt statistics. Hansen (1997) introduced some algorithm that enhances the computation of probability (p) values for the Quandt statistics. Andrew (1993), as well as Andrew and Ploberger (1994), offered tabular critical values. These together, greatly enhanced the practical values of the Quandt statistics. We can apparently use the Quandt statistic to establish a break date as the date that corresponds with the Quandt statistics. But the propriety of this approach to estimating a break date is limited to the singular context of linear regressions where homoscedastic covariance matrix is used to construct the Chow statistic/test. Furthermore, the Quandt approach may not be very useful in the context of multiple breakpoints, for the obvious reason that it relates to only one data-point.

An apparently superior way to determine the break date involves the use of least squares errors. This approach splits the entire sample period into candidate break dates and after estimation for the resultant subsample periods, the sum of squared errors are computed at each potential break point. The potential break date where the sum of squared errors is the minimum, becomes the estimated break date. This

approach could also be used to estimate multiple break points sequentially: at each estimated break point (global minimum sum of squares of errors) divide the sample period into sub-periods and apply the same test to each sub-period until there is no more evidence of further break points. The points of divisions thus constitute the multiple break points or dates (see Chong, 1995; Bai, 1997; Bai and Perron, 1998). Further test statistics developed under the condition of unknown break dates are:

$$\underset{\pi \in \Pi}{\text{Sup}}\, W_T(\pi); \qquad \underset{\pi \in \Pi}{\text{Sup}} LM_T(\pi); \qquad \text{and } \underset{\pi \in \Pi}{Sup} LR_T(\pi)$$

where $W_T(\pi)$ is a test statistic for a Wald, $LM_T(\pi)$ is a test statistic for a Lagrange Multiplier test statistic and $LR_T(\pi)$ a likelihood ratio test statistic, where a break date is known. $\text{Sup}\, W_T(\pi)$, $\text{Sup} LM_T(\pi)$ and $\text{Sup} LR_T(\pi)$ are the corresponding test statistics where a break date is unknown. The sup, is the supremum function. Π is a time bound specified apriori, and a subset of [0, 1], where 0 is the lowest boundary and 1 the highest boundary of the total sample period. π is a break date/point and $\pi \in \Pi$ implies that the break date/point is located within the pre-specified time bound Π. According to Andrew (1993), these test statistics under unknown break dates are sufficiently powerful against the context of the unknown break date being within a very narrow bound or interval (e.g. consequence of known institutional changes), where an institutional change occurred within a narrow bound but the consequent structural change occurred after some time lag, and where the structural change spans a transition period rather than a dramatic/abrupt change.

A few of the theoretical methods suggested for panel data involve the adaptation of techniques used in time series context by averaging either along the cross-sectional dimension or time dimension so that as size increases along the panel units or time dimension, the weight of any cross-sectional unit or time in the average becomes less relevant. Some methods are based on the detection of a structural break in the slope parameters as well as a shift in individual effects (Holtz-Ekin et al., 1988; Andrews, 1999; Andrews and Lu, 2001; De Watcher and Tzavalis, 2004). The assumption of asymptote is usually along the panel unit dimension (N), with time (T) typically fixed. This is contrary to our interest where the desire is an asymptote along the time (T) dimension, as the number of advanced capitalist countries cannot be infinite. Furthermore, operationality is a standard issue with the listed theoretical

studies. Moreover, these methods for estimating unknown structural breaks in panel data context have reduced power when the breaks are closed to the beginning/ending of the data series, but more powerful, if the breaks are located toward the middle of the series (Chan et al., 2008). Furthermore, these methods suggest winsorizing the series. The choice of the margin for winsorization is however subjective.

A standard feature of all the theoretical articles that are favourably disposed to the application of structural break analysis in panel data context, is averaging either across time or panel units. Moreover, while operationality is apparently an issue with the various methods suggested, the models used in these articles are simple models, and it is highly likely that in the context of multiple regression, operationality of the suggested methods would even be more problematic. Based on these considerations, we adopt two approaches around these problems: we assume 1986 as a theoretical break date, been a popular date for a well acclaimed institutional change: *de jure* international financial liberalisation; and secondly, we use the *estat sbsingle* function of Stata for unknown break dates and average the break dates across all panel units (N). The average break date interestingly turns out to be 1990.

1990 is an alternative start date popular with some scholars in the literature, as the year in which *de facto* financial liberalisation took hold in advanced capitalist economies. Therefore on approximately this date, economic integration assumed a turning point. Trade integration thenceforth became just half of the concept of international economic openness or integration. Invoking these dates as the breakpoints, we re-estimate the model for the four sub-samples on either sides of the suggested break dates of 1986 and 1990, using all the five dynamic panel data estimators. In all four subsample sets of model estimates, overwhelming support for our thesis that greater trade openness significantly slows down rates of business fixed capital accumulation in advanced capitalist economies is maintained or reinforced. Once again, the justification for the five panel data estimators employed, is the minimisation of impacts of estimator biases on the findings. Tables 6.14 and 6.15 present the estimates on either side of the theoretical break date of 1986.

Table 6.14 Estimates; Dependent Variable: Capital Accumulation (1960-1985)

	Pooled OLS	DFE	LSDVC	A-Bond	MGE
Capital Accumulation					
L1	0.9012587	0.8692627	0.7910902	0.8700891	0.4290501
	[0.0589363]****	[0.0590634]****	[0.0267414]****	[0.0619597]****	[0.1639491]****
L2	-0.081903	-0.099104		-0.1630866	0.0799322
	[0.060004]*	[0.0639477]*		[0.0583932]****	[0.1216659]
Profit Share					
L0	0.0805273	-0.0163044	-0.0190317	-0.0343867	-0.2913469
	[0.0235564]****	[0.0300476]	[0.0279515]	[0.0364241]	[0.1020472]****
L1	-0.0481644	0.0656148	0.0858435	0.0295409	0.1894092
	[0.0286389]**	[0.0288245]***	[0.0273563]****	[0.0248832]*	[0.1044579]**
L2	-0.0197173	-0.0248164	-0.0376314	0.0250006	0.0214932
	[0.018168]	[0.0194756]*	[0.0098444]****	[0.023425]	[0.0387802]
L3	0.000275				
	[0.0098574]				
Capacity Utilization					
L0	-0.0010692	0.0131894	0.0135502	0.0257646	0.0513665
	[0.0003858]****	[0.004454]****	[0.0030886]****	[0.0069705]****	[0.0330915]**
L1	0.0004479	-0.0031514	-0.0033462	-0.0154827	-0.0546743
	[0.0002167]***	[0.0009731]****	[0.0007772]****	[0.0066896]***	[0.0263046]***
L2		-0.0008292	-0.0008018	0.000293	
		[0.0004023]***	[0.0003157]****	[0.0006345]	
L3	0.0002944				
	[0.0001709]**				
Long Term Interest rate					
L0	0.0019805	0.0024184	0.0025905	0.0014296	0.0113822
	[0.001313]**	[0.001011]***	[0.0010717]***	[0.0007515]***	[0.0144354]
L1	-0.0014606	0.0003393	0.0004302	-0.0008484	0.0002394
	[0.0017059]	[0.0015759]	[0.0013226]	[0.0010058]	[0.0006653]
L2	0.0034669	0.0005645	-0.000122	0.0018301	0.0005292
	[0.001786]***	[0.0010999]	[0.0010475]	[0.001478]*	[0.0043387]
L3	-0.003387	-0.0019141	-0.0017131	-0.0021446	
	[0.0015686]***	[0.0010282]**	[0.00133]*	[0.0018619]*	
Real Unit Labour Cost					
L0	0.0002275	-0.0003609	-0.0004125	-0.0003857	-0.0026381
	[0.0001509]**	[0.000185]**	[0.0001763]***	[0.0001191]****	[0.0012503]***
L1	-0.0002026	0.000112	0.0001906	0.0001458	0.0008309
	[0.0001517]*	[0.0001369]	[0.0001723]	[0.0001694]	[0.0005646]**
L2	-0.0002861				
	[0.0001501]**				
L3	0.0003324	0.0001584	0.000135	0.0001522	-0.000027
	[0.000115]****	[0.0000728]***	[0.0000791]**	[0.0001151]*	[0.0001598]
Relative Cost					
L0	-0.2028056	-0.2697144	-0.2868428	-0.1782	-1.178584
	[0.1391149]**	[0.1010117]****	[0.1170745]***	[0.0889521]***	[1.632279]
L1	0.0983469	-0.1393203	-0.1448697	0.020058	
	[0.1729984]	[0.1735115]	[0.1407021]	[0.0854199]	
L2	-0.3246291	0.0644715	0.117911	-0.1082865	-0.2242077
	[0.1884027]**	[0.1226254]	[0.1174307]	[0.1535766]	[0.39211]
L3	0.3675536	0.1821318	0.1748588	0.2057389	
	[0.1658167]***	[0.1103241]**	[0.1454498]*	[0.1943617]	
Trade Openness					
L0	-0.0097361	-0.0371232	-0.0410994	-0.0326626	-0.2864382
	[0.0063595]**	[0.0186971]**	[0.0106171]****	[0.0244571]*	[0.1849299]**
L1	0.0110124	0.0135882	0.0176977	0.0091326	-0.0072433
	[0.0061504]**	[0.0099409]*	[0.0075826]***	[0.0114591]	
Trade Openness Squared					
L0		0.012389	0.0131121	0.0130977	0.1006605
	-0.0016103	[0.0060138]***	[0.0043754]****	[0.008638]*	0.1912493
	[0.0013403]*				
Constant	-0.0081587	0.0052002		0.0096169	0.2882792
	[0.0079055]			[0.0310015]	[0.167562]**
R-squared					
overall	0.8494				
Within					
Between					
Wald Chi2					
P-value					
Sargan (p-value)					
Arellano-Bond test for zero autocorrelation in FF errors					
Order:1 (p-value)					
Order:2 (p-value)					
RMSE	0.00588				0.0008

Table 6.15 Estimates; Dependent Variable: Capital Accumulation (1985-2014)

	Pooled OLS	DFE	LSDVC	A-Bond	MGE
Capital Accumulation					
L1	0.9803268	0.9432993	0.8386645	0.9532614	0.2100224
	[0.039401]****	[0.0786971]****	[0.0205744]****	[0.0970024]****	[0.1809951]*
L2		-0.1189217		-0.1218663	0.0013937
		[0.0924232]*		[0.0803163]**	[0.1720597]
L3	-0.1311526				
	[0 .0308671]****				
Profit Share					
L0	0.0293378	-0.1294517	-0.1447975	-0.1172171	0.4173953
	[0.0164327]**	[0.064521]***	[0.0350482]****	[0.0520645]***	[0.1995216]***
L1	-0.0345288	0.0796874	0.0900015	0.063184	0.0980935
	[0.0183167]**	[0.0520672]**	[0.0417405]***	[0.0372639]**	[0.1671369]
L2		0.0784736	0.0862897	0.0901469	-0.0740056
		[0.0322162]***	[0.0231386]****	[0.0208161]****	[0.180023]
L3	0.0106712				
	[0.0091148]*				
Capacity Utilization					
L0	0.062246	0.1104289	0.114902	0.1091833	0.2616209
	[0.0210463]****	[0.0124049]****	[0.0096012]****	[0.0208161]****	[0.0581671]****
L1	-0.0531728	-0.0779768	-0.0709136	-0.0818307	
	[0.0241846]***	[0.0183933]****	[0.0139522]****	[0.0298817]****	
L2	-0.0132682	-0.0323736	-0.0469908	-0.0294106	-0.0240788
	[0 .0092465]*	[0.0126271]***	[0.0095537]****	[0.0181096]**	[0.0679832]
Long Term Interest Rate					
L0		0.0003818	0.0000417	0.0005552	-0.0286514
		[0.0009321]	[0.0010641]	[0.0010805]	[0.0148056]***
L1		-0.0031803	-0.0028566	-0.0035771	-0.0009305
		[0.0016316]**	[0.0013417]***	[0.0018816]***	[0.0006927]*
L2		0.0027237	0.0027869	0.0038766	-0.0136809
		[0.0014479]**	[0.0010918]****	[0.0018188]***	[0.148565]
L3	0.0001446	0.0001459	0.000118	-0.0006788	
	[0.0000692]***	[0.0006887]	[0.0008129]	[0.0007227]	
Real Unit Labour Cost					
L0	0.0007719	-0.0004884	-0.0004946	-0.0004387	0.00351
	[0.0001232]****	[0.000343]*	[0.0002153]***	[0.0002501]**	[0.0010856]****
L1	-0.0009578	0.0003703	0.0003679	0.0003079	-0.0004094
	[0.0001301]****	[0.0002771]*	[0.0002256]**	[0.0001784]**	[0.0004225]
L3	0.0002556	0.0000713	0.0000839	0.0001209	-0.000318
	[0.0000671]****	[0.0000755]	[0.0000978]	[0.0001303]	[0.0004225]
Relative Cost					
L0		-0.0367612	-0.0005813	-0.0586918	2.619306
		[0.0998192]	[0.1089263]	[0.108074]	[1.43395]**
L1	-0.0133162	0.2771295	0.2416375	0.3312601	
	[0.0075904]**	[0.1710327]**	[0.1396774]**	[0.1906847]**	
L2		-0.2570764	-0.2673964	-0.3888626	1.416735
		[0.1514968]**	[0.1159582]***	[0.2037514]***	[1.536403]
L3		-0.0006801	0.0076363	0.0852104	
		[0.065659]	[0.837618]	[0.0774396]	
Trade Openness					
L0	-0.0012615	-0.0110267	-0.0120538	-0.0127755	-0.2444357
	[0.0010285]*	[0.0042006]****	[0.0046331]****	[0.0053806]***	[0.1794645]*
L1		0.0019928	0.0031746	0.003594	-0.0231441
		0.0044714	[0.0038504]	[0.0046092]	[0.0148954]**
Trade Openness Squared					
L0	0.0005557	0.0016336	0.0016098	0.0017885	0.0230892
	[0.00035]**	[0.0007932]***	[0.0006767]***	[0.0009158]***	[0.1386585]**
Constant	-0.0002276	0.0011535		-0.0038152	-0.5090042
	[0.0050126]	[0.0169459]		[0.0114132]	[0.1272565]****
R-squared					
overall	0.886				
Within					
Between					
Wald Chi2					
P-value					
Sargan (p-value)					
Arellano-Bond test for zero autocorrelation in FF errors					
Order:1 (p-value)					
Order:2 (p-value)					
RMSE	0.0044				

Table 6.16 Estimates; Dependent Variable: Capital Accumulation (1960-1989)

	Pooled OLS	DFE	LSDVC	A-Bond	MGE
Capital Accumulation					
L1	0.9715	0.9458	0.8314	0.933	0.6005
	[0.0377]****	[.0675]****	[0.0215]****	[0.0508]****	[0.1169]****
L2	-0.1806	-0.1431		-0.1653	
	[0.0516]****	[.0560]****		[0.001]****	
L3	0.0609				
	[0.0349]***				
Profit share					
L0	0.0765	0	-0.0176	-0.021	-0.193
	[0.0098]****		[0.0251]	[0.0293]	[0.0918]***
L1	-0.0427	0	0.0815	0.0198	0.2764
	[0.0152]****		[0.0247]****	[0.0217]	[0.1189]***
L2	-0.0242	0.0248	-0.0318	0.0323	
	[0.0116]***	[.0056]****	[0.0090]****	[0.0071]****	
Capacity Utilization					
L0	-0.002	0.0234	0.0127	0.0267	0.079
	[0.0002]****	[.0088]****	[0.0029]****	[0.0071]****	[0.0324]****
L1	0.0007	-0.013	-0.0031	-0.0178	-0.039
	[0.0003]****	[.0052]****	[0.0007]****	[0.0074]****	[0.0451]
L2	-0.0006				
	[0.0003]***				
L3	0.0005				
	[0.0002]***				
Long term Interest rate					
L0	0.0002	0.0017	0.0025	0.0018	-0.0003
	[0.0001]**	[.0005]****	[0.0009]****	[0.0009]***	[0.0005]
L1	-0.0008	-0.0005	-0.0011	-0.0024	0.0007
	[0.0002]****	[.0002]***	[0.0011]	[0.0010]****	[0.0008]
L2	0.0029	0.0005	0.0007	0.0025	-0.0017
	[0.0011]****	[.0001]****	[0.0008]	[0.0010]****	[0.0028]
L3	-0.0028		-0.002	-0.0021	-0.0002
	[0.0010]****		[0.0008]****	[0.0009]****	[0.0029]
Real Unit Labour Cost					
L0	0.0004	-0.0002	-0.0005	-0.0004	-0.0011
	[0.00006]****	[.00004]****	[0.0002]****	[0.0001]****	[0.0005]***
L1	-0.0003	0.0001	0.0003	0.0002	0.0016]
	[0.00008]****	[.00005]**	[0.0002]***	[0.0001]***	[0.0005]****
L2	-0.0003				
	[0.0001]***				
L3	0.0003		0.0001	0.0002	
	[0.00010]****		[0.00006]***	[0.00007]****	
Relative Cost					
L0		-0.2148	-0.2745	-0.2065	
		[.0634]****	[0.0973]****	[0.0974]***	
L1			0.05	0.1975	
			[0.1200]	[0.0991]***	
L2	-0.2237		0.0019	-0.1942	0.0706
	[0.1085]***		[0.0889566]	[0.1179]**	[0.2739]
L3	0.2855		0.1996	0.1886	0.1585
	[0.1048]****		[0.0874]***	[0.0962]***	[0.3107]
Trade Openness					
L0		-0.0256	-0.032	-0.0244	-0.0444
		[.0135]**	[0.0081]****	[0.0161]**	[0.2266]
L1		0.0136	0.0201	0.0136	0.0184
		[.0062]***	[0.0059]****	[0.0086]**	[0.0113759]**
L2	0.0055				-0.0285
	[0.0033]**				[0.0132]***
L3	-0.0063				0.0087
	[0.0033]***				[0.0121]
Trade Openesssq					
L0		0.009	0.0092	0.0093	0.2197
		[.0049]**	[0.0030]****	[0.0050]**	[0.2317]
R-sq.	0.8445				
F-test(model)	102.34	847.3			
DF	38	27		22	28
R-sq.: within		0.8306			
Wald Chi-sq.				29878.4****	79.71****
RMSE	0.0056				
Number of Observation	710			620	682

Table 6.17 Estimates; Dependent Variable: Capital Accumulation (1991-2014)

	Pooled OLS	DFE	LSDVC	A-Bond	MGE
Capital Accumulation					
L1	1.024	0.8448	0.8369	0.934	0.3118
	[0.0708]****	[0.0379}****	[0.0252]****	[0.1053]****	[0.0881]****
L2	-0.1378			-0.0924	
	[0.0631]***			[0.0835]	
Profit Share					
L0	-0.0158	-0.1635	-0.1609	-0.1412	0.0331
	[0.0274]	[0.0904]**	[0.0438]****	[0.0608]***	[0.0386]
L1	0.0226	0.1335	0.1173	0.1	
	[0.0281]	[0.0696]**	[0.0518]***	[0.0487]***	
L2		0.0686	0.0763	0.0823	0.1486
		[0.0332]***	[0.0270]****	[0.0329]***	[0.0648]***
Capacity Utilization					
L0	0.0627	0.1264	0.1276	0.1107	0.164
	[0.0167]****	[0.0121]****	[0.0115]****	[0.0269]****	[0.0322]****
L1	-0.0563	-0.0914	-0.0891	-0.0853	
	[0.0197]****	[0.0162]****	[0.0156]****	[0.0365]***	
L2	-0.0241	-0.0387	-0.0415	-0.0275	-0.0554
	[0.0128]***	[0.0074]****	[0.0105]****	[0.0191]*	[0.0237]****
L3	0.0128				
	[0.0100]*				
Long Term Interest Rate					
L0	0.0051		-0.00002	0.001	-0.0004
	[0.0021]****		[0.0001]	[0.0015]	[0.0004]
L1	-0.0044	-0.0031	-0.0023	-0.0039	0.0052
	[0.0020]***	[0.0014]***	[0.0013]**	[0.0029]**	[0.0078]
L2		0.0022	0.0012	0.0025	0.0077
		[0.0013]**	[0.0015]	[0.0022]*	[0.0055]*
L3		0.0006	0.0012	0.0008	
		[0.0001]****	[0.0011]	[0.0008]	
Real Unit Labour Cost					
L0		-0.0005	-0.0005	-0.0005	
		[0.0004]	[0.0002]***	[0.0002]***	
L1		0.0005	0.0004	0.0005	-0.0006
		[0.0003]**	[0.0003]**	[0.0002]***	[0.0005]
L2	-0.00013				
	[0.00010]				
L3	0.0001		0.00005	0.00005	
	[0.00007]**		[0.0001]	[0.0001]	
Relative Cost					
L0	-0.5144			-0.0995	
	[0.2089]****			[0.1490]	
L1	0.4602	0.291	0.2148	0.3801	-0.5304
	[0.1935]****	[0.1473]***	[0.1337]**	[0.2935]*	[0.8114]
L2	-0.023	-0.2665	0.153	-0.2926	-0.7686
	[0.0184]*	[0.1486]**	[0.1558]	[0.2345]*	[0.5578]*
L3			-0.0692		
			[0.1110]		
Trade Openness					
L0	0.0045	-0.1194	-0.0122	-0.0101	0.037
	[0.0031]**	[0.0053]***	[0.0054]***	[0.0042]****	[0.0695]
L1	-0.0056	0.0049	0.0042	0.0026	-0.03
	[0.0030]***	[0.0042]	[0.0044]	[0.0039]	[0.0140]***
L2					-0.0047
					[0.0073]
Trade Openness Squared					
L0	0.0004	0.0012	0.0015	0.0014	-0.0137
	[0.0003831]	[0.0009]*	[0.0008]***	[0.0009]**	[0.0472]
R-sq	0.8882				
F-test(model)	99.18****	4307.46****			
DF	41	24			
R-sq: within		0.8912			
Wald Chi-sq				5.33e^10****	70.01****
RMSE	0.0047				0.0007
No of Obs	562	548		548	542

Tables 6.16 and 6.17 present model estimates on either side of the computed break date of 1990. All of the twenty model estimates strongly support the thesis that increases in trade openness cause decreases in rates of business fixed capital accumulation in advanced capitalist economies. Thus, the findings are not chance

occurrence caused by a structural break. Time dummies were included in all of the twenty model estimates, to provide for individual and time-based heterogeneities. One very interesting observation is that the greatest support for the thesis argument of an inverse causal relationship between trade openness and business fixed capital accumulation came from the Mean Group Estimates. Pesaran has greatly emphasised the power of the of the mean group estimator for consistent estimates.

6.8 Empirical Analyses and Discussion

The argument of this thesis is that increases in economic openness, following the increases in trade and later in international financial flows after these were liberalised, dominantly caused the decline in rates of fixed capital accumulation since circa 1970, as observed in advanced capitalist economies. The validity of this argument however, is dependent on whether there exist an inverse relationship between economic openness and rates of fixed capital accumulation in advanced capitalist economies. But there is no explicit proposition of such inverse relationship in the literature.

From premises based on theoretical propositions in the Regulation School literature, we reached the logical conclusion that for advanced capitalist economies, increases in economic openness cause decreases in rates of business fixed capital accumulation at the macro/aggregate level. The two main components of economic openness are trade openness and financial openness. This chapter is focused on investigating and obtaining evidence to back the claim that increases in trade openness, as a form of economic openness, since about 1970, played a great role in the observed decline in fixed capital accumulation. One of the cardinal task is to obtain convincing evidence that there is an inverse relationship between trade openness and rates of fixed capital accumulation. This is however an uphill task, as the orthodoxy has been that the relationship should be positive, based on inferences from neoclassical trade theories.

The help of a host of analytical tools have been enlisted to achieve this uphill task. Panel data estimators were used, to increase the validity and robustness of the

findings. Panel data has the great advantage over using time series method individually for the countries in the sample. This is because individual country's ability or factors exclusively peculiar to each country (called individual heterogeneity) may be part of the explanatory factors but cannot be seen and included in a model estimation. This could potentially lead to false findings and inferences. Panel data method is able to deal with this unseen factors, unlike time series method.

Further steps intent on deriving valid and reliable results and inferences, include executing cointegration tests, executing static and dynamic analyses, as well using different estimators and structural break analyses. The objective is to minimise potential undue influence from one approach, tool or estimator that could bias the results to the point of been misleading. In all cases, we find overwhelming evidence that increases in trade openness cause decreases in rates of growth of business fixed capital. In this section, we narrate or discuss the findings or results, under the contexts of the effects of the explanatory variables on rates of fixed capital accumulation in the short-run and then in the long-run. The focus would be on the dynamic estimators.

6.8.1 Short Run Analysis

The estimated models all have autoregressive lags and distributed lags. An autoregressive lag refers to a lag of the dependent variable (fixed capital accumulation rates in this case) included as an explanatory variable in a model. The inclusion of autoregressive lags implies that the estimated slope parameters of the other explanatory variables are representations of the short-run effects of the respective explanatory variables on the dependent variable (Baltagi et al., 2009). The estimated slope parameters for the contemporary and lag terms of each explanatory variable were found to have alternating signs. This is because the estimated coefficients of the autoregressive lags govern the pattern of the lag distribution and in this case, they have alternating signs themselves, except for the mean group estimator. The distributed lags are those of the exogenous variables. The statistical significance of parameter estimates of the distributed lags indicate that the effects of the explanatory variables on the dependent variable live beyond a single period. The

coefficients of the distributed lags are the respective lag weights and for an explanatory variable constitute the lag distribution. The lag distributions indicate the pattern of the impacts of the explanatory variables on the dependent variable. For the purpose of interpretation of the findings in this section, the estimates involving the full sample in Table 6.12 is used.

Profit share: Pooled OLS; DFE; LSDVC; A-Bond and the MGE estimators unanimously indicate that profit share is positively related with the rate of capital accumulation. The Pooled OLS estimates indicate that a percentage increase/(decrease) in profit share increases/(decreases) the rate of capital accumulation by 0.1% in the current period at the 1% significant level, but decreases/(increases) the rate of capital accumulation in the next period by 0.09%, at the 1% significant level. For an increase/(decrease) in profit share, the net effect on capital accumulation is positive/(negative). For the DFE, a percentage increase/(decrease) in profit share increases/(decreases) the rate of capital accumulation by .11%, at the 1% significant level in the current period, but decreases/(increases) it by 0.08% at the 1% significant level, in the next period. Similarly, the net effect is an increase/(decrease) or a net direct effect. However, according to the LSDVC estimates, a percentage increase/(decrease) in profit share decreases/(increases) the rate of capital accumulation in the current period by 0.05% at the 1% significant level, but increase/(decrease) it by 0.08% in the next period, at the 1% significant level. Again, the net effect is increase/(decrease).

The Arellano-Bond estimates show that an increase/(decrease) in profit share of one percent, decreases/(increases) the rate of capital accumulation by 0.05% at the 20% significant level in the current period, but increases/(decreases) it in the next period by 0.04% at the 20% significant level, and the next period by 0.05% at the 20% significant level, indicating a net positive/(negative) impact. The MGE estimates indicate that a percentage increase/(decrease) in profit share increases/(decreases) the rate of fixed capital accumulation by 0.14% at the 10% significant level in the current period, but does not impact the rate of capital accumulation in lags (no granger causality). Inference supported by all five estimates is that a percentage increase/(decrease) in profit share would have a net increase/(decrease) on the rate

of fixed capital accumulation. This inference is consistent with various theories across the literature (See Kalecki, 1954; Bowles et al., 1989; Bowles and Boyer, 1995).

Capacity Utilisation: Capacity utilisation, like demand growth, is an accelerator term. For the Pooled OLS, LSDVC, and Arellano-Bond, capacity utilisation has quite an extended impact on the rate of capital accumulation. For the Pooled OLS, a percentage increase/(decrease) in capacity utilisation increases/(decreases) the rate of fixed capital accumulation by 0.018% at the 1% significant level in the current period, decreases/(increases) it by 0.015% at the 5% significant level in the second period, decreases/(increases) it by 0.006% at the 10% significant level in the third period and increases/(decreases) it by 0.11% at the 1% significant level in the fourth period (a net increase/(decrease)). According to the LSDVC model estimates, a percentage increase/(decrease) in capacity utilisation increases/(decreases) the rate of capital accumulation by 0.032% at the 1% significant level in the current period, decreases/(increases) it by 0.029% at the 1% significant level in the second period, but increases/(decreases) it by 0.003% at the 1% significant level in the third period, and increases/(decreases) it by 0.0006% at the 5% significant level, in the fourth period (a net increase/(decrease)).

The Arellano-Bond estimates indicate that a percentage increase/(decrease) in capacity utilisation increases/(decreases) the rate of capital accumulation by 0.033% at the 1% significant level in the current period, decreases/(increases) it by 0.029% at the 5% significant level second period, but increases/(decreases) it by 0.002% at the 10% significant level in the third period (a net increase/(decrease)). The MGE estimates however indicate that a percentage increase/(decrease) in the rate of capacity utilisation increases/(decreases) the rate of capital accumulation by 0.1% at the 1% significant level, in the current period, but decreases/(increases) it by 0.03% at the 20% significant level in the 4^{th} period, a net increase/(decrease). The DFE estimates in Table 6.12 indicate that the rate of capacity utilisation has no significant impact on the rate of capital accumulation. But in all the four DFE estimates using four sub-sample periods presented in Table 6.14 to Table 6.17 changes in capacity utilisation cause significant changes in the rate of capital accumulation at the 1%

significant level, spread over more than one period. In these four estimates, a percentage increase/(decrease) in the rate of capacity utilisation causes a net increase/(decrease) in the rate of capital accumulation. Given these robust evidence, we therefore infer that changes in capacity utilisation bring about significant net changes in capital accumulation in the same direction.

Long-term Interest rate: Although all five model estimates unanimously indicate that long-term interest rate granger causes the rate of capital accumulation, such unanimity disappears as regard the net impacts of long-term interest rate on the rate of capital accumulation. The Pooled OLS estimates indicate that a percentage increase/(decrease) in long-term interest rate does not significantly affect the rate of capital accumulation in the current period, but in the second period, causes a decrease/(increase) of 0.0006% at the 1% significant level, in the rate of capital accumulation, but brings about an increase/(decrease) in the rate of capital accumulation of 0.002% at the 5% significant level in the third period, and a decrease/(increase) of 0.001% at the 20% significant level in the fourth period (a net positive/(negative) impact). The DFE estimates indicate that a percentage increase/(decrease) in long-term interest rate increases/(decreases) the rate of capital accumulation by 0.00177% at the 5% significant level in the current period, decreases/(increases) it by 0.0019% at the 5% significant level in the second period, increases/(decreases) it by 0.0015% at the 5% significant level in the third period, and decreases/(increases) it by 0.0015% at the 5% significant level in the fourth period (a net negative/(positive) impact).

The LSDVC estimates indicate that 1% increase/(decrease) in long-term interest rate increases/(decreases) the rate of fixed capital accumulation in the current period by 0.0017% at the 5% significant level, decreases/(increases) it in the second period by 0.0021% at the 5% significant level, increases/(decreases) it by 0.0016% at the 1% significant level in third period, and a decrease/(increase) of 0.0009% at the 20% significant level in the fourth period (a positive/(negative) net impact). In a similar vein, the Arellano-Bond estimates indicate that a percentage increase/(decrease) in long-term interest rate increases/(decreases) the rate of capital accumulation by 0.0015% at the 1% significant level in the current period, a decrease/(increase) of

0.003% at the 1% significant level in the second period, an increase/(decrease) of 0.003% at the 5% significant level in the third period, and a decrease/(increase) of 0.0014% at the 1% significant level in the fourth period (a net positive/(negative) effect). This net of about 0.000005% is apparently economically insignificant.

Lastly, the MGE estimates indicate that a percentage increase/(decrease) in the long-run interest rate decreases/(increases) fixed capital accumulation rate only in the third lag (fourth period) by 0.021% at the 1% significant level (a net negative/(positive)). All five estimators, except the MGE, suggest a positive contemporary impact of long-term interest rate on fixed capital accumulation rate. Out of all five model estimates, only two suggest a net inverse impact. A visual inspection of the time series shows that like capital accumulation rates, long-term interest rates trended downward generally, over the sample period. As pointed out earlier, the estimates are rather economically insignificant, even though they are highly statistically significant. The inconsistencies in the signs (directions) and sizes of the net impact of marginal changes in long-term interest rates on capital accumulation, suggest real long-term rates may be estimator sensitive. Moreover, this inconsistencies are consistent with the controversies in the literature, regarding the impacts of long-term rates on capital accumulation.

Real Unit Labour Cost: The Pooled OLS estimates indicate that a percentage increase/(decrease) in real unit labour cost would increase/(decrease) the rate of fixed capital accumulation in the current period by 0.0007% at the 5% significant level, decrease/(increase) it by 0.0007% at the 1% significant level in the second period and increase/(decrease) it by 0.00012% at the 5% significant level in the fourth period (a net increase /(decrease)). The DFE estimates indicate that a percentage increase/(decrease) in real unit labour cost increases/(decreases) capital accumulation rate by 0.0005% at the 1% significant level in the current period, but decreases/(increases) it by 0.0005% at the 1% significant level in the second period, increases/(decreases) it by 0.00017% at the 1% significant level in the fourth period (a net increase/(decrease)).

For the LSDVC estimates, a percentage increase/(decrease) in real unit labour cost decreases/(increases) capital accumulation rate by 0.0004% at the 1% significant level in the current period, but increases/(decreases) it in the second period by 0.0003% at the 1% significant level, and increases/(decreases) it by 0.0001% at the 5% significant level in the fourth period (a net positive/(negative) impact). The Arellano-Bond model estimate indicates that a percentage increase/(decrease) in real unit labour cost decreases/(increases) capital accumulation rate by 0.0004% at the 1% significant level in the current period, but increases/(decreases) it by 0.0003% at the 5% significant level in the second period, increases/(decreases) it by 0.0002% at the 1% significant level in fourth period (net increase/(decrease)). The MGE estimates suggests that a percentage increase/(decrease) in real unit labour cost has an impact on capital accumulation rate only in the third lag (fourth period), by an increase/(decrease) of 0.002%. at the 5% significant level.

All the five estimated models unanimously attribute net positive/(negative) impacts of a marginal increase/(decrease) in real unit labour cost, on the rate of capital accumulation. Similar to the impacts of a marginal change in long-term interest rate, the impacts of a marginal change in unit real labour costs on capital accumulation are highly statistically significant and extending to the third lag (fourth period) in all five cases, but rather economically insignificant. The significant positive and extensive impacts of real wages or real unit labour costs on the rate of capital accumulation give empirical support to the sundry theories that wage occupy the centre stage in the determination of fixed capital accumulation. The rather weak economic significance of long-term interest rates and real unit labour costs on fixed capital accumulation are likely explained by the relative costs of capital subsuming a significant part of the explanatory powers of long-term interest rates and real unit labour costs on capital accumulation.

Relative Cost: Because relative cost is defined as the ratio of the cost of fixed capital (long-term interest rate) to the cost of labour (real unit labour cost), the expectation is that as it increases, the rate of fixed capital accumulation decreases as a consequence, ceteris paribus. But an increase/(decrease) in the relative cost of capital may result from an increase/(decrease) in the cost of capital (real long-term

interest rates) or a decrease/(increase) in real wage (real unit cost of labour). Therefore as the cost of capital (real long-term interest rates) increases capital accumulation should decrease and vice versa, ceteris paribus. Similarly, as real wages (real unit cost of labour) increase/(fall) the rate of capital accumulation by profit-oriented businesses should increase/(fall), ceteris paribus.

The Pooled OLS estimates indicate that in the current period, a percentage increase/(decrease) in the relative cost of fixed capital decreases/(increases) the rate of fixed capital accumulation in the third period, by 0.127% at the 10% significant level, but causes an increase/(decrease) of 0.109% at the 20% significant level, in the fourth period (a net negative/(positive) effect of .018%). For the DFE, a percentage increase/(decrease) in the relative cost of capital decreases/(increases) the rate of fixed capital accumulation by 0.179% at the 5% significant level in the current period, increases/(decreases) it by 0.125% at the 20% significant level in the second period, decreases/(increases) it by 0.085% at the 20% significant level in the third period, but increases/(decreases) it by 0.14% in the fourth period (a net positive/(negative) impact of .004%). The LSDVC estimates indicate that a percentage increase/(decrease) in the relative cost of capital decreases/(increases) the rate of fixed capital growth by 0.18% at the 5% significant level in the current period, increases/(decreases) it by 0.166% at the 10% significant level in the second period, decreases/(increases) it by 0.126% at the 10% significant level in the third period, and increases/(decreases) it by 0.089% at the 20% significant level in the third lag (net negative/(positive) impact of .05%).

Furthermore, the Arellano-Bond estimates indicate that a percentage increase/(decrease) in the relative cost of capital decreases/(increases) the rate of capital accumulation by 0.164% at the 1% significant level in the current period, increases/(decreases) it by 0.309% at the 1% significant level in the second period, decreases/(increases) it by 0.295% at the 5% significant level in the third period and increases/(decreases) it by 0.139% at the 5% significant level in the fourth period (a net negative/(positive) impact of 0.012%). Lastly, the MGE estimates indicate that the relative cost of capital has a statistically significant impact on the rate of fixed capital accumulation only in the fourth period (third lag), so that a percentage

increase/(decrease) in the relative cost of capital increases/(decreases) the rate of fixed capital accumulation by 2.26% (net positive/(negative) effect)). This parameter estimate would most probably be an outlier. Since three out of the five model estimates indicate that a percentage change in the relative cost of capital produces a net inverse change in the rate of capital accumulation, we infer that this is generally the case. A remarkable insight is that while long-term interest rate and real unit labour cost are very statistically significant but hardly economically significant, it is in their relative values (the relative cost of capital) that they exert both significant statistical and economic impacts on rates of fixed capital accumulation.

Trade-Openness: The five estimators have consistently shown that trade openness significantly granger causes capital accumulation, in that the lags have significant coefficients. Pooled OLS estimates indicate that a percentage increase/(decrease) in trade openness decreases/(increases) fixed capital accumulation by 0.0068% (i.e. 0.0075-0.0006879*2) (where 0.0006879 is the estimated coefficient for trade openness squared) at the 10% significant level in the current period, increases(decreases) it by 0.0069% at the 20% significant level in the second period, decreases(increases) it by 0.0034% at the 20% significant level in the third period, increases/(decreases) it by 0.0025% in the third lag (fourth period) (a net negative/(positive) impact of .0008%). The DFE estimates indicate that a percentage increase/(decrease) in trade openness decreases/(increases) the rate of fixed capital growth by 0.0117% (i.e. 0.0133-0.0016005*2) at the 1% significant level in the current period and increases/(decreases) it by 0.009% at the 1% significant level in the second period (a net negative(positive) impact of .003%).

LSDVC estimates, indicate that a percentage increase/(decrease) in trade openness decreases/(increases) the rate of fixed capital accumulation by 0.0075% (i.e. 0.0099% - 0.0012279%*2) at the 1% significant level in the current period, increases/(decreases) it by 0.0084% at the 5% significant level in the second period, decreases/(increases) it by 0.0018% at the 10% significant level in the third period (a net negative/(positive) impact of .002%). The Arellano-Bond estimates indicate that a percentage increase/(decrease) in trade openness decreases/(increases) fixed capital accumulation by 0.007% (i.e. -0.0093811+0.0012058*2) at the 5%

significant level in the current period, increases/(decreases) it by 0.0064% at the 5% significant level in the second period (a net negative/(positive) marginal impact of .001%). By the second lag, the marginal effect will have been exhausted. The MGE estimates offer some complexities. They indicates that a percentage increase/(decrease) in trade integration increases/(decreases) capital accumulation rate by 0.021% at the 5% significant level in the second period. It decreases/(increases) accumulation by 0.025% at the 20% significant level in the third period. It increases/(decreases) accumulation by 0.027% at the 10% significant level, in the fourth period (a net positive/(negative) impact of .023%). The square of trade openness has the effect of dampening the immediate impact of trade openness on fixed capital accumulation. Hence the opposite sign to the parameter estimate of trade openness squared, at lag zero.

The complexities in the MGE estimates in Table 6.12 include the suggestion that the net relationship between trade openness and capital accumulation is positive. We have suggested earlier that the MGE estimates and Pooled OLS in Table 6.12 might be outliers. Moreover, the four MGE model estimates using sub-samples data, in Tables 6.14 to 6.17 have given strong indications that the relationship is significantly negative, with the net values for the estimated coefficients being -0.3%; -0.24%; -0.02%; and -0.03% at the 10% significant level on the average, for the MGE estimates in Table 6.14, 6.15, 6.16 and 6.17 respectively. Since the sub-samples were derived under the assumption of the presence of structural breaks, a potential explanation may be that the unexpected MGE estimates for trade openness in table 6.12 might be slightly under the influence of structural break. We therefore infer that overall, the data and all the five estimators have provided highly significant support for an inverse causal relationship between trade openness and fixed capital accumulation in the short-run.

6.8.2 Long-Run Analysis

In Table 6.9 in an earlier subsection, cointegration tests indicated that long-run equilibrium relationships exist between fixed capital accumulation and the explanatory variables in the model. Values of the test statistics and p-values indicated that the strongest long-run co-movements with fixed capital accumulation

are the relative cost of capital and trade openness, probably in that order. This is consistent with our argument that as trade openness changes, it affects fixed capital accumulation through changes in the relative cost of capital. But Table 6.9 did not state the signs of the long-run relationships. But we could derive the coefficients and their respective signs. In the dynamic models, lags of the dependent variable were included as explanatory variables. An implication of such dynamic models is that if the lags are significant, then the effects of a marginal change in an explanatory variable may run far longer through time than explicitly indicated by the estimated coefficients. The cumulative effect is the long run effect. For the determination of the long-run effects for the estimators, we rely on Pesaran and Smith (1995). For the simple rational lag model with one autoregressive lag:

$$y_{it} = \alpha + \delta y_{it-1} + \pi_0 x_{it} + \varepsilon_{it} \quad \text{.....6.15}$$

$$(1 - \delta L) y_{it} = \alpha + \pi_0 x_{it} + \varepsilon_{it} \quad \text{.....6.16}$$

$$y_{it} = \frac{\alpha}{(1-\delta L)} + \pi_0 \sum_{k=0}^{\infty} \delta^k x_{t-k} + \sum_{k=0}^{\infty} \delta^k \varepsilon_{it-k} \quad \text{.....6.17}$$

=>

Long-run aggregate impact of x_{it} on y_{it} is :

$$\pi_0 \sum_{k=0}^{\infty} \delta^k = \frac{\pi_0}{(1-\delta)} \quad \text{.....6.18}$$

If $0 < \delta < 1$.

Equation 6.18, by the same analogy, implies that the long-term cumulative impact of a unit change in trade openness on the rate of fixed capital accumulation is the ratio of the sum of the parameter estimates relating to trade openness and square thereof, divided by unity (i.e. one) minus the sum of the parameter estimates of the autoregressive lag(s). In the case of the LSDVC model (Table 6.12), the cumulative effect of trade openness is the sum of the parameter estimates of trade openness and the square thereof divided by one minus the sum of the two lags of fixed capital accumulation. Furthermore on the estimated LSDVC model, a percentage increase/(decrease) in trade openness at time t would generate a cumulative or long-run impact of (-0.009902 + 0.0083891+ -0.0017871 + 0.0012279)/ (1 – (1.03064+-0.143032)) = 0.018% decrease/(increase) in fixed capital accumulation in the long-run. By similar algorithm, the cumulative long-term effects of the respective exogenous regressors could be computed and these are presented in Table 6.18 below, for the five model estimates from Table 6.12.

Table 6.18: Long-run Model Estimates of Capital Accumulation (1960-2014)

Variable	Pooled OLS	DFE	LSDVC	Arellano and Bond	MGE
Profit share	0.080****	0.205****	0.253****	0.239*	0.110**
Capacity utilization	0.737****		0.051****	0.040****	0.140****
Relative Cost	-0.122**	0.023***	-0.447***	-0.075****	5.071****
Long term Rate	0.0006****	-0.0006***	0.003****	0.00003****	-0.048****
Unit labour Cost	0.0005****	0.0008****	0.0004****	0.0007****	0.004***
Trade Openness	-0.005**	-0.015****	-0.018****	-0.012***	-0.145***

****; ***; **; and * represents 1%; 5%; 10% and 20% significant level, respectively

Table 6.18 suggests that long-run estimates of the MGE and Pooled OLS are apparently outliers. The estimates of the DFE, LSDVC and Arellano-Bond are more similar and will be the focus of our interpretations. The long-run effects of marginal percentage increases/decreases in profit share, capacity utilisation and the real unit labour cost (real wage) on capital accumulation are direct or in the same direction. For long-term interest rate, the marginal effect on capital accumulation is on average positive. While being very statistically significant, the economic significance (sizes) of real unit labour cost and long-term interest rate are not significantly different from zero. It is in their ratio as the relative cost of capital that they exert significant economic impacts on capital accumulation. Relative cost is on the average negative and is both statistically and economically significant, suggesting that in the long-run, capitalists actively substitute labour for capital as the cost of capital increases relative to real unit labour cost and substitute capital for labour as labour cost increases relative to the cost of capital. This is consistent with the statistics readily available, that over the years, from 1960 to 2014, there was upward trending of the ratio of labour to capital, in production methods.

We interpret the long-run LSDVC estimates, in exemplification of the interpretation of Table 6.18. A percentage increase/(decrease) in profit share, increases/(decreases) capital accumulation by 0.25% at the 1% significant level, in the long-run. A percentage increase/(decrease) in capacity utilisation increases/(decreases) capital accumulation by 0.051% at the 1% significant level, in the long-run. A percentage change in long-term rate or real unit labour cost on its own causes no meaningful changes in capital accumulation. But a percentage increase/(decrease) in the relative cost of capital as a ratio of long-term rate to real unit labour cost decreases/(increases) capital accumulation by 0.45% at the 5% significant level, in the long-run. A percentage increase/(decrease) in trade openness

decreases/(increases) capital accumulation by 0.018% at the 1% significant level, in the long-run. Among the explanatory variables and statistical consistency, trade openness, real unit labour cost (real wage) and profit share have been the most consistent across all five estimators.

The significant causality from trade openness to fixed capital accumulation rate does not necessarily imply that the upward trending trade openness was responsible for the observed decline in the rates of fixed capital accumulation, particularly as the long-run model estimates suggest that of all the six exogenous explanatory variables, the marginal impact of profit share, capacity utilisation, and relative cost dominate that of trade openness. The clue lies, among others, in the causative relationship between profit share and capital accumulation as well as capacity utilisation and capital accumulation. While profit share is positively related with capital accumulation, profit share was rather increasing during the sample period. Similarly, even though the long-run estimates of the parameter of capacity utilisation is positive, the trend in capacity utilisation over the period (Figure 2.4) makes it unlikely that it was the dominant driver of fixed capital accumulation since circa 1970.

The long-run coefficient estimate of the relative cost of capital is negative and greater than that of trade openness in absolute value. But the Regulation School theory, by arguing that over the observed period, increases in trade openness decreased real unit cost of labour and thus increased the relative cost of capital, trade openness must dominate the relative cost of capital. Furthermore, the standard volatility of trade openness was 0.454, while that of relative cost was just 0.046. From these cumulative evidence we therefore infer that trade openness dominated profit shares, capacity utilisation, long-term interest rates, real unit labour cost and the relative cost of capital in explaining the observed decline in business fixed capital accumulation of the post-Fordism years, in advanced capitalist economies. How therefore do these findings compare with the literature?

6.9 Comparison with the Literature

The findings that changes in trade openness cause inverse changes in fixed capital

accumulation, lend empirical support to the argument in the Regulation school literature that the international regime of a country is a major determinant of the pattern of capital accumulation (Brenner and Glick, 1991). The emphasis of the Regulation Theory is however on the inverse relationship between trade openness and real wages, with fall in real wages growth and consequently demand, implying fall in rates of capital accumulation. This is a demand-side perspective. This chapter extends this theoretical proposition in multiple ways. First, it augments it by introducing the supply-side based channel of trade openness through changes in relative cost and the consequent factors substitution. Second, it argues and supplies empirical evidence that increases in trade openness cause decreases in rates of fixed capital accumulation by businesses collectively, in advanced capitalist economies. Third, this chapter argues and supplies empirical evidence that the increases in economic openness through trade openness dominated, in the explanation of the observed decline in fixed capital accumulation in advanced capitalist economies after Fordism. These findings also complement the findings of Bhaskar and Glyn (1995) that profit rates alone no longer explain capital accumulation rates. Moreover, it highlights the weaknesses in empirical studies of the determinants of the rate of fixed capital accumulation that assume a closed economy.

6.10 Summary

This chapter has as its main objective, the investigation of the contributions of the increases in trade openness since the late 1960s or early 1970s to the decline in rates of fixed capital accumulation, as observed in advanced capitalist economies, after Fordism or since circa 1970. Theoretical propositions exist in the French Regulation School literature, that production in capitalism is a power relation and that capital accumulation is a function of the prevailing social structures or institutional configuration. Relying on these propositions, this chapter argues that there exist an inverse relationship between trade openness and fixed capital accumulation in advanced capital economies, and that increases in trade openness dominated in explaining the post-Fordist decline in rates of capital accumulation as observed in these economies. Secondary annual data, as well as panel data methods were used, to enhance more robust findings. To minimise biases resulting from the weaknesses of a single panel data estimator, we adopted five panel data estimators and augment

these with panel data cointegration and structural breaks tests. Each estimator has some theoretical differences in assumptions, relative to alternative estimators. We initially adopted static analysis, to suppress the complications associated with dynamic panels. Pre-estimation assessments of a long-run relationship (cointegration) between trade openness and rates of fixed capital accumulation indicated that trade openness is highly cointegrated with the rate of capital accumulation. The structural break analyses were augment the evaluate of our claim that trade openness accounted more significantly for the observed declining rates of fixed capital accumulation. Given that the existence of structural break could bias the estimates of econometric models away from consistency, we estimated unknown breakpoints in the structural relationship and re-estimated the models on either sides of these breakpoints. Yet again, our argument receive overwhelming support from the data.

Our findings also support the theoretical claim that profit shares/rates are positively causally related with rates of capital accumulation. We did not find much evidence of wages and the cost of capital being economically significant in their own right, but that the ratio of both as the relative cost of capital, is highly statistically and economically significant in the determination of the rate of fixed capital accumulation. Capacity utilisation was also found to positively and significantly granger cause the rate of fixed capital accumulation. We extend the regulation school focus on demand side by showing that the argument of the Regulation School is still valid from a supply-side, using a cost/profit optimisation argument that underpins factors substitution by profit-oriented capitalist firms.

The range of tools of empirical analyses employed in this chapter provides strong empirical evidence that for advanced capitalist economies, trade openness is inversely related to fixed capital accumulation by profit-oriented businesses. That the increases in trade openness dominated in explaining the observed declining trends in rates of business fixed capital accumulation in advanced capitalist economies. In the next chapter, we empirically investigate the relationship between financial openness as a form of economic openness or international regime, and the rates of fixed capital accumulation by profit-oriented businesses, in advanced capitalist economies.

Chapter 7 : An Empirical Investigation of the Impact of Capital Account Liberalization on Private Non- Residential Capital Accumulation.

7.1 Introduction

This chapter argues that the capital account liberalisation from the mid-1980s and early 1990s, significantly contributed to the observed decline in rates of fixed capital accumulation in advanced capitalist economies. Adverse effects of financial liberalisation on fixed capital accumulation in advanced capitalist economies are not new in the debate on the cause of the declining trends in fixed capital accumulation, since the demise of Fordism, as observed in advanced capitalist economies. In fact financial liberalisation underpins most of the causes proposed in the literature before now. But empirical studies by scholars in this debate, have so far overlooked the possible deleterious effects of the increases in financial openness resulting from extensive capital account liberalisation that started in the mid-1980s, across advanced capitalist economies.

It has been argued in the French Regulation School literature that capital accumulation in advanced capitalist economies, is a function of the configuration of social structures or institutions. The five fundamental social structures or institutions in such configuration are the form of competition, the wage relations, the state form, the money form, and the international regime (Jessop, 1990a). However, an international regime includes the state of financial openness and capital account liberalisation, just as it consists of the state of trade liberalisation and trade openness. The data have furnished significant evidence that the change in international regime through increases in trade openness, subsequent to the trade liberalisation of circa 1970, significantly explained the observed post-Fordist decline in fixed capital accumulation. Therefore the financial openness from the mid-1980s by the same analogy, should have also contributed to the observed decline in rates of fixed capital accumulation, in advanced capitalist economies.

But do increases in financial openness cause decreases in fixed capital accumulation in advanced capitalist economies? If they do then through what channels do they exert their inverse effects on the rate of fixed capital accumulation? This chapter seeks to answer these questions and investigate the contributions of financial openness to observed decline in fixed capital accumulation. The structure of this chapter is as follows: section 7.2 reviews theoretical literature. Section 7.3 reviews relevant empirical literature. Section 7.4 develops a theoretical framework. Section 7.5 specifies the model. Section 7.6 highlights the variables. Section 7.7 highlights the sample and data. Section 7.8 presents the empirical results and findings. Section 7.9 compares the findings of the chapter with existing literature. Section 7.10 presents a summary of the chapter.

7.2 A Review of Theoretical Literature

The concept of financial openness refers to how opened a country is, in terms of international financial flows. It is a rather complex one in that quite a few components make up international financial flows: foreign direct investment (FDI) flows, portfolio investment flows; reserve flows; and 'other investments' flows. Moreover, FDI flows, 'other investments' flows and portfolio investment flows, have both inward and outward flows. It is, therefore, a veritable food for thought whether the conglomeration of these heterogeneous financial flows could have systematically affect rates of fixed capital accumulation, let alone played any significant role in the observed decline in rates of fixed capital accumulation of advanced capitalist economies.

In the Empirical literature on the debate on the cause of declining rates of fixed capital in advanced capitalist economies, the buck seems to stop with the extensive domestic financial liberalisation of the mid-1980s and thence, whose *de facto* form became very apparent in the early 1990s. The assumption is usually the existence of some power structures in capitalist firms that are usually the loci of capital accumulation (Boyer, 2007). Within the firm, the dominant classes of capitalism (wage labour, managers and owners of capital) are locked in fundamental and eternal struggles, arising from conflicts of class-centric interests. Each of these

classes strives to influence corporate strategic and tactical decision processes, in pursuit of class-centric aggrandisements. On one hand, wage-labour tends to strive for corporate activities and decisions that could promote greater employment security, higher real wages, shorter working hours and other wage-labour-friendly benefits. The uncontrolled realisation of these aspirations of wage-labour would progressively denude the economic benefits that could accrue to owners of capital, in form of higher profit rates, (Clarke, 1990). The owners of capital, on the other hand, tend to strive for corporate resources to be used in such a way that generates higher corporate profit rates (efficiency) over the long-term. Which way the firm sways is therefore contingent upon the locus of net balance in power between these classes, which in turn depends on the outer social/institutional framework, as argued in the Regulation School theory. This corporate power structure background is not however unique to the Regulation School, as many scholars in both Marxist literature and Post-Keynesian literature also share this view (Stockhammer, 2004, 2005-6; Dallery and Van Treeck, 2008, 2009; Duménil and Lévy, 2011).

A leitmotif among relevant scholars from across these schools of thought is that the wave of financial liberalisation that cut across advanced capitalist economies from the mid-1980s to the ultimate decades of the 20th century, shifted the net balance of power in favour of owners of capital. Consequently, new principle of corporate governance emerged, that is exclusively geared towards shareholder value maximisation (Ellsworth, 1985). Empowered by the aforementioned financial neoliberalism and justified by the principle of shareholder value maximisation otherwise known as shareholder value orientation, capitalist firms have progressively indulged in corporate practices aimed at shareholder aggrandisement. These often involve the deployment of corporate resources or the distribution of corporate value-added in logical permutations that have the greatest prospects of enriching the capitalists class and their agents, but often at the expense of wage labour and rates of corporate fixed capital accumulation (Boyer, 2013; Alvarez, 2015). Below, are practices underpinned by shareholder value orientation and argued to have caused the decline in rates of fixed capital accumulation.

7.2.1 Increases in Profit Pay-outs: Interest Charges and Dividends

One shareholder value orientation-based corporate governance practice argued to have caused the observed decline in rates of business fixed capital accumulation in advanced capitalist economies, is the dramatic increase in corporate profit pay-outs to owners of funds, in forms of interest charges and higher dividends (Aglietta and Breton, 2001; Van Treeck, 2009; Duménil and Lévy, 2011; Lazonick, 2014). According to this strand of argument, capitalist firms tend to finance corporate fixed capital accumulation with retained earnings. Consequently, increases in these pay-outs have over the years, squeezed out fixed capital accumulation, by eroding retained earnings that could potentially fund higher fixed capital accumulation. One mechanism through which the newly empowered fund owners (particularly shareholders) enforce this increases in pay-outs, is commonly argued to be the market for corporate control (Aglietta and Breton, 2001). According to some contributors of post-Keynesian provenance, shareholders inherently want higher profitability, at the expense of corporate growth through capital accumulation, while corporate managers, prefer corporate growth and accumulation, as this is the source of managers' power and prestige. Shareholders may get managers to indulge in shareholder value maximisation from payments of higher dividends and interests through the new market for corporate control that developed in the wake of financial liberalisation. But managers may also be enticed by the offer of lucrative remunerations (carrot), if they succumb to shareholders' biddings of increases in payments of interests and dividends.

Recalcitrant managers are forced to yield to shareholders biddings for higher profit appropriations, through the market for corporate control. This involves the threat (stick) of a hostile corporate takeover from undervaluation of corporate equities in the financial market, if disgruntled shareholders were to dump sufficient volume of their holdings of the firm's equity in the secondary capital market. Hostile takeovers have the grim prospect of managers losing their jobs, due to the change in ownership. But can increases in profit pay-outs actually reduce rates of fixed capital accumulation? Recollect the Kaleckian profit determination model in which gross profit (P) is expressed as the sum of gross investment (I), export surplus (X-M), capitalist consumption (D), the budget deficit (G-T), less workers savings (S) (i.e. $P = I + D + (X-M) + (G-T) - S$) (Kalecki, 1954:49). Capitalist consumption (D), is

assumed by Cordonnier (2006) to be identical to dividends. If we assume that household savings finance budget deficits, the profit determination becomes P = I + D + (X-M). Re-arranging to make I the subject of the equation and dividing through by fixed capital stock (K) implies that $\frac{I}{K} = \frac{P}{K} - \frac{D}{K} - \frac{(X-M)}{K}$, where $\frac{D}{K}$ is the ratio of corporate dividend to fixed capital stock. The foregoing capital accumulation equation suggests that if dividend payments to capitalists are sufficiently high relative to stocks of capital, then dividend payments could potentially reduce rates of fixed capital accumulation ($\frac{I}{K}$). This seems to give some theoretical credence to the increases in dividend and interest payments argument. But this increases in pay-outs argument has its flaws, from standpoints of both the shareholder value orientation theory and economic theory.

A recommended corporate practice that co-emerged with the shareholder value orientation, is the classification of business units according to their growth and profit potentials. For business units that are classified as having high growth and high returns prospects, the policy prescription is heavy investments or higher capital accumulation, if shareholders wealth is to be maximised. Business units with high market shares and low growth and profitability improvement prospects are often milked through higher profit distributions to shareholders, as increasing capital accumulation in these units may be at some disservice to shareholder value maximisation. Therefore in line with the Cambridge model, an important determinant of rates of capital accumulation is its profitability prospect. If it is high, capital accumulation increases, if it is low, more funds are distributed to shareholders. Poor profit rates prospects may be a potential reason for the observed increase in profit pay-outs (see the Boston Consulting Group Matrix for more details).

At the core of shareholder value orientation principle of corporate governance is equity market price (see Froud et al., 2000a, p.99). Studies have found empirical support for a strong positive relationship between equities market prices and valuation of equities using the Gordon dividend model (Kaplan, 2016). The Gordon dividend model estimates the market value/price of a corporate equity as the present value of the future dividend cash flows, so that the higher the dividend cash

payments, the higher the equity's value and thus shareholder wealth. However, an essential component of the model, is the growth rate of dividend cash flows. The higher the growth rate, the higher the evaluation of the equity by the model and the market and thus shareholder wealth. Underlying a robust growth rate is significant underlying capital accumulation or its substitute. Otherwise, informed investors would see through and the value of the equity may be adversely affected.

Furthermore, there is a tendency toward a strong positive association between capital accumulation and the free cash flows to equity, which is the source of cash available for dividends (ability to pay dividends). Where capital accumulation is declining without alternative cash-yielding assets to compensate the decline, then long-term free cash flows, dividends and the growth thereof, would be jeopardised. Informed shareholders would therefore, factor in the rate of growth of fixed capital or alternative cash-yielding assets so that if rates of accumulation is found to be jeopardised, higher dividends will reduce the market value of such equities and shareholders wealth rather than increase it. Owing to asymmetric information, investors may rely on actual dividend flows and observed growth rates thereof to value equities. Where capital accumulation is falling in a case of misleading growth in profit pay-outs, informed investors would realise before long, that the going concern prospect of such firm is poor. Thus higher profit pay-outs would not be to the benefits of shareholders. Consequently, managers would not pay out profits to the detriments of capital accumulation. Therefore rapid fixed capital accumulation may still matters, unless profit rate prospect is too low to justify it. Aglietta and Breton (2001) have argued that there are two sets of shareholders: majority shareholders who have as their collective objectives, higher corporate growth and lower corporate financial leverage. There also exist a set of minor shareholders that are bent on higher dividend payments and they get managers to do their biddings through the market for corporate control. Majority shareholder should be able to constrain, through their voting power, the ability of minority shareholders to induce capital accumulation retarding profit distributions that would also harm the interest of the majority shareholders.

From some economic theory perspectives, it is an issue whether the theory of higher

profit pay-outs as a microeconomic behaviour could actually transform into the macroeconomic process of declining fixed capital accumulation. Assuming demand is not affected and all other factors remain constant, then falls in supply growth from lagging productive capacities through not accumulating enough capital, would increase output prices and create sellers' markets that yield economic rents. Such rents would encourage new entrants, who would accumulate new fixed capital at rates that could potentially compensate declining rates of capital accumulation of existing higher dividends firms. Such compensating capital accumulation would shield the dynamics of macroeconomic capital accumulation from the impact of increases in microeconomic dividends. Moreover, there exists the counter macroeconomic argument that increases in profit pay-outs as higher dividends and interests to capitalists may be spent on consumption that stimulates market demand, which in turn, increases rates of capital accumulation at the macroeconomic level.

Would the capitalist firms necessarily increase rates of capital accumulation if they could reduce the level of dividend cash payments? A critical weakness of the higher profit pay-outs argument derives from the assumption that profits of firms not paid out as dividend are necessarily funnelled into fixed capital accumulation. This is apparent from the rendition of fixed capital accumulation identity by Aglietta and Breton (2001:456) as $K_{t+1} - K_t = I_t - \delta K_t = S_t + D_{t+1} - D_t - \delta K_t$; where $K_{t+1} - K_t$ is the incremental fixed capital stock, I_t is the contemporary gross fixed investment, δK_t is the amount of fixed capital depreciation, S_t is the contemporary savings by firms (post-distributions earnings), and $D_{t+1} - D_t$ is the incremental borrowing. Furthermore $S_t = P_t - rD_t - DIV_t$, which expresses retained earnings of firms as corporate earnings (P_t) before finance costs (rD_t) and dividends (DIV_t), less finance costs and dividends.

But corporate savings (retained earnings) may assume alternative investments forms or cash balances, so that retained earnings may not necessarily be channelled into real fixed capital accumulation. In recent decades, many firms have been saddled with free cash balances on their balance sheets, begging for profitable investment outlets. Observations have indicated that one of the factors that explain the high rates of post-Fordist hostile corporate take-overs (particularly leveraged buy-outs) is

the amount of idle cash on the corporate balance sheets. This has created the slogan of 'buy or be bought' (Kaplan, 2016). Therefore a possible issue that this theory has failed to look at, is whether there are really profitable capital accumulation opportunities if retained profit is not paid out to shareholders. Besides, Aglietta and Breton (2001) have just suggested that retained profits could be augmented by corporate debts in the financing of capital accumulation. Observations have indicated that by far the most popular dividend policy (by the number of adopting enterprises) is the stable dividend, whereby firms pay stable amounts that increase at lower rates than rates of growth of profits, and these include big multinationals (Kaplan, 2016). Dividend decisions are often the decision of management. Although shareholders may arm-twist management into increasing dividend payments through the market for corporate control, it is the responsibility of management to convincingly prove that net earnings could be more profitably invested in enhancing shareholder value than being paid out as dividends.

Data on dividend pay-outs presented in chapter one of this thesis, suggest that increases in dividends might unlikely have decreased fixed capital accumulation. In the case of the US, from 2003-2012, out of the 500 companies of the S&P 500, 449 companies spent US$1.64 trillion (37% of their profit) on dividend. Translated into pay-out ratios, the average pay-out ratios in the US were 47.9% in the 1950s; 42.2% in the 1960s and 42.3 in the 1970s; this ratio jumped to 49.3 in the 1980s; and 49.6 in the 1990s (see Lazonick and O'Sullivan, 2000). Going by these statistics, the pay-out ratios in the 1950s and 1960s are high compared to other decades, but the 1950s and 1960s were documented to be decades of higher rates of capital accumulation. Although the ratio increased by 7.1% from 1970 to 1980 when extensive *de jure* financial liberalisation occurred, rates of capital accumulation were already in decline in the 1970s, before this jump in pay-out ratios. The increase in pay-out ratios from the 1980s to 1990s is only 0.3. This 0.3% increase is likely less than the increase in corporate debts over the same period, which could have financed business fixed capital accumulation. The argument of higher dividend pay-out as proposed in the likes of Aglietta and Breton (2001), van Treeck (2008) and Duménil and Lévy (2011), under the context of domestic financial liberalisation in closed economies, upon closer analyses would, therefore, appear to be rather problematic.

7.2.2 Increases in Managers Incentive Pay/Remuneration

A variant of the increased earning pay-outs argument, is the proposition that pay-outs that are actually at the root of the capital accumulation squeeze, are increases in managers' remunerations by shareholders (Boyer, 2005). Higher incentive payments to managers often assume the form of corporate share options, running to values significant enough to potentially reduce rates of capital accumulation. These increases in managers pay, adversely impact capital accumulation potentially through three means. Managers are incentivised to subordinate fixed capital accumulation to meeting shareholders financial targets. Second, managers tend to meet financial targets through the rationalisation of labour employment and real wage growth, consequently reducing demands that could induce greater capital accumulation, if growth is wage-led. Finally, the level of financial outlays to managers if such share options are "in the money" are often enough to reduce the rates of capital accumulation, through reduction in capital accumulation funding. But there are so many firms in which the owners and managers are identical.

7.2.3 Increases in Share Buybacks Argument

Increases in share buybacks have often been associated with the new principle of corporate governance and are being argued to explain the observed decline in fixed capital accumulation. In the US, the volume of share buybacks was estimated at US$5 billion in 1980. This rose to US$349 billion in 2005 (Wikipedia on share buybacks). These were 1% (US$5bn/US$439.079bn) and 33% (US$349bn/US$1069.178bn) of domestic net business real fixed investments in the United States. This was quite a considerable increase. It could be argued that share buybacks are effectively ways of returning money to shareholders/rentiers, just like dividends. The derivation in section 7.2.1 from the Kaleckian profit model suggests that if the ratio D/K increases significantly, it could significantly reduce fixed capital accumulation. The increase from 1% to 33% is arguably a significant change and thus over the years could seemingly have caused a significant decline in fixed capital accumulation across the advanced capitalist economies, if share buybacks are widespread.

Over years of active share buybacks, from 2003-2012, 449/500 of the S & P

companies bought back their shares worth US$2.4 Trillion (54% of their profits) (Lazonick, 2014). Share buy-back has increasingly been popular in the US, but has also begun to take root in the UK, other European countries and even Japan (Lazonick and O' Sullivan, 2000). But why should domestic financial liberalisation of the mid-1980s to 1990s suddenly wreak this dangerous spell of share buybacks on the corporate world? The observation that from 2003 to 2013, corporate organisations in the S & P 500 group spent over US$2 trillion on share buybacks, which have raised the S & P 500 index by up to 70% over this period (see Chisholm, 2013, 2016) may provide a clue: to increase shareholder value or increase equity market prices (Aglietta and Breton, 2001). Shareholder value maximisation is closely associated with increases in market valuation and according to Chisholm (2016), share buybacks alone increased market equity prices by about 70% from 2003 to 2013 in the US. But as pointed out in the subsection under increased dividends, Studies have shown that the most crucial determinant of equity prices and thus shareholder value is the total free cash flows of a firm. This, in turn, depends on acquisition of some underlying cash yielding assets, including fixed capital accumulation, depending on the rate of return of such assets (Kaplan, 2016). A firm could therefore as well increase shareholder value by undertaking fixed capital accumulation with sufficient rates of return and cash flows as share buybacks.

Managers have to objectively satisfy the condition that there exists no superior alternative deployment of such cash, e.g. in adequately profitable fixed capital investment, to be able to justify and document that such share buybacks are in the best interest of corporate owners (Atkins et al., 2013);(see also Froud et al, 2000a; 2000b) for the example of Unilever and ICI). Consequently, by opting for share buybacks rather than fixed capital accumulation, a valid inference is that returns and cash flows from candidate fixed capital investments may not be sufficient to increase shareholder value to desired level. Therefore, while share buyback is actually becoming a global practice and increasing in volume, very often the distribution of cash in share buybacks may result from the dearth of re-investment opportunities that could generate the target level of returns. A rationale for share buybacks, some have argued, is to ward off hostile corporate takeover (Aglietta and Breton, 2001). Yet it may have been motivated by incentive remuneration schemes offered to managers (Boyer, 2005; Lazonick, 2014). There exist a host of alternative

methods that could be employed by managers to reduce the threat of hostile takeovers, apart from share buybacks that allegedly curtail fixed capital accumulation. One of such alternative methods is the ability to prove that existing capital stock and future capital accumulation could actually be sufficiently high enough to increase shareholders value more than the value on offer by the predator firm (see Kaplan, 2016). So share buy-backs as means of reducing the threats of hostile corporate takeovers are less likely to be so extensively used to the point of significantly straitjacketing fixed capital accumulation, if fixed capital accumulation were adequately profitable.

It cannot be overemphasised that share prices in capital markets, earnings per share, ROE (return on capital employed) could be more easily met by ploughing back profits into profitable investments opportunities, if such opportunities exist. Managers have to consider the possible consequences of such buybacks on corporate cash positions. Therefore even if there exist some shareholders more keen on cash distribution than have the firm funnel cash into profitable investments that are usually cash guzzlers, to the extent that the absence of target return investment opportunities induce cash dividends or share buybacks, then the argument that share buybacks have been financially constraining fixed capital accumulation is weakened.

7.2.4 Investments in Financial Assets by Non-financial Firms

The observations that non-financial firms have been increasing their accumulation of financial market assets, over the decades since financial liberalisation have moved some scholars to argue that these financial assets have been squeezing out fixed capital accumulation (Stockhammer, 2004). Over the years since financial liberalisation until the global financial crisis of 2007, acceleration in rates of accumulation of financial assets on the balance sheets of non-financial corporations has been the norm, particularly in advanced capitalist economies (IMF, 2006). It is intuitive that financial assets accumulation could be a credible alternative to fixed capital accumulation, in terms of the use of resources of profit-oriented firms to generate profits. Both classes of assets could be sources of periodic cash inflows as income, and both could also be sources of capital gains. Either of them could

underpin cash dividend payments and growth in dividend payments. Both could also underpin increases in shareholder value

But why did increases in firms' preferences for financial assets over fixed capital accumulation occur later rather than earlier, say in the Fordist years? During Fordism, the preferred asset class to accumulate by non-financial corporations was fixed capital rather than financial assets. If firms have turned to the accumulation of financial assets instead of fixed capital accumulation, the inference is that such financial assets accumulation more easily fulfil the goals of higher returns and higher shareholder value than fixed asset accumulation. This is particularly true for large non-financial corporations (Vickers, 1987; Kaplan et al., 2006). Why were there changes in profitability fortunes of fixed capital versus financial assets? There is a consensus that firms could invest in fixed capital or financial assets as substitutes, depending on prevailing macroeconomic conditions. The ultimate reason why fixed capital accumulation is sacrificed at the altar of financial asset accumulation remains controversial. Firms tend to accumulate financial assets in place of fixed assets for speculative and for liquidity purposes (Woodford, 1990; Holmstorm and Tirole, 1998). But speculative and liquidity drives are both symptoms of increased market liquidity. Changes in macroeconomic conditions have led to periods of rapid increases in financial market liquidity and growth. Empirical evidence exist to suggest that when financial market returns are excessively high, financial assets tend to become substitutes for real fixed capital accumulation.

But changes in macroeconomic conditions may be underpinned by changes in institutions or social structures. The institutional changes some scholars have identified were the extensive financial liberalisation of the late 1980s and thereafter, particularly the privatisation of pensions. These scholars have argued that this financial liberalisation is the source of the new increases in market liquidity, that raised progressively, prices of assets in financial markets. Yet in the relevant political economy literature, closed economy and domestic liberalisations are often assumed and capital account liberalisation ignored. If sources of financial market liquidity were only internal, inflows of such liquid resources into the financial

market would have been unsustainable over decades. The unsustainability derives from the fact that financial assets demand-based capital gains may be fictitious, if a gain by one agent implies a loss of another agent. As internal source liquidity progressively pushes up financial assets prices, the resulting price increases imply fewer assets out of the total available financial assets could be bought with new liquidity of domestic source. The implied fall in demand would, before long, create asset glut that would crash prices and returns of financial assets. Internal source increases in liquidity, therefore, has limited ability to cause progressive increases in financial asset returns. The prolonged growth in financial market liquidity and returns since the late 1980s until the global financial crisis of 2007, would suggest a wider, foreign source of liquidity, made possible by capital account liberalisation. The massive liquidity flows of foreign funds to domestic financial markets, by analogy, could also have driven up prices and returns of financial assets relative to those of fixed capital, in the same manner as local source liquidity. These foreign flows reversed abruptly around 2007, when financial assets markets returns crashed.

In closed economies, widespread accumulation of financial assets at the expense of fixed capital accumulation would reduce productive capacities. Assuming consumption demand is not adversely affected, then reduction in productive capacities will cause commodity prices to increase. Such increases in prices will in turn increase profits and cash flows from fixed capital accumulation and the appeal of financial assets will then be reduced, as a consequence. The increases in profits and cash flows from fixed capital will increase rates of fixed capital accumulation, according to the Cambridge model, as new entrants and even existing firms increase their rates of fixed capital accumulation. It is an argument of this thesis, that increases in financial openness cause decreases in fixed capital accumulation in advanced capitalist economies. The extensive capital account liberalisation across advanced capitalist economies after Fordism, increased financial openness, which in turn, reinforced trade openness in explaining observed progressive decline in rates of fixed capital accumulation in advanced capitalist economies, after Fordism. Greater financial openness is relevant, either in the way of driving up financial assets prices (assets returns requirements, see Boyer, 2000) or empowering capitalists in ways that ultimately result in financial assets accumulation. Financial openness dominated both liquidity of domestic source and trade openness, in depressing the rate of fixed

capital accumulation, for it is argued that Financial openness, as a variant of the new international regime, through international competition was by far more than trade openness, responsible for the change in macroeconomic conditions observed after Fordism (Brender, 1996; Aglietta, 1998). How can and, how have increases in financial openness contributed to observed decline in fixed capital accumulation in advanced capitalist economies?

7.2.5 Channels of Impacts of Financial Openness

There are a few channels through which increases in financial openness due to capital account liberalisation from the 1980s could and have reduced rates of fixed capital accumulation by profit-oriented businesses.

7.2.5.1 Impact on Equitable Distribution of Income

There appears to be some overlaps between trade openness and financial openness with regards to channels of impacts on fixed capital accumulation. Increases in financial openness tend to depress real wage growth. A potential explanation is that alternative derivation of corporate earnings from financial assets facilitated by increases in financial openness, reduce the importance of labour in corporate income generation, the bargaining power of wage-labour and consequently reduce growth rates of real wage and the distribution of income to wage-labour (Alvarez, 2015). The depression of real wage growth depresses the rate of fixed capital accumulation. This is because a cardinal condition for greater accumulation of capital, is equitable distribution of income and greater financial openness upsets this distributive equity (see Boyer, 1993, 2013; Aglietta, 1998; Petit, 2010). Inequitable distributions at the expense of wage labour, may hamper the growth rate of consumption demand, and therefore capital accumulation. During the period of negligible financial openness of Fordism, fixed capital accumulation was observed to be at historically high levels. When the former was increasing dramatically, real wage growth was declining, as in post-Fordism (Glyn et al., 1992; Aglietta, 1998, p.60). Threats of relocating production facilities and employment abroad, have often been used effectively to weaken labour bargaining power and induce compromise in wage growth (Boyer, 2013).

7.2.5.2 Accumulation of Fixed Capital Abroad

Capitalist firms have the option of accumulating fixed capital abroad, instead of doing same locally. This option has been extensively exercised, as shown by the large outflows in foreign direct investments by multinational companies. If foreign direct investments flow out, there should be similar inflows to counteract the adverse fixed capital accumulation impact of FDI outflows, some may argue. Statistics have however indicated that FDI outflows (which intuitively have greater accumulation impacts) far outweigh FDI inflows to advanced capitalist economies. The motives for such relocation are usually higher profit rates and higher shareholder value prospects (or in search of cheaper labour and divided labour force, according to Cowling and Sugden (1987)). Thus through financial openness, corporations hitherto constrained by regulating institutional configurations were able to expand their quests for higher profits to foreign countries, by globalising production (see Aglietta 1998, p.65-66). Studies have found that firms that maximise shareholder value, in descending orders are: multinationals with foreign production, firms engaging in international trade but not foreign production, and lastly, firms engaging in neither foreign trade nor international production (Fillat and Garetto, 2015). Accumulation of production facilities abroad, may have fixed capital accumulation at home as an opportunity cost.

7.2.5.3 Impact through Greater Competition and Business Risk

Increases in financial openness increase international competition, as new entrants (firms) from foreign countries into an industry become more likely, or domestic firms encounter greater substitutes for their products. The impact of competition on fixed capital accumulation is however controversial. On the one hand, we have the Smithian view that increases in competition increase innovations and capital accumulation (Bain, 1956; Porter, 1992). On the other hand, we have the Schumpeterian view that competition hinders capital accumulation (Schumpeter, 1939). Some contributors have argued that the impact is industry dependent (Mathis and Sand-Zantman, 2014). Brenner and Glick (1991) have argued that most Marxist and non-Marxist thinkers perceive that competition promotes rapid investments in fixed capital, as the need for survival encourages investments in fixed capital to facilitate the reduction in production cost, by cutting down the cost of labour; and

that the profit potential associated with such strategy outweighs the disincentive from the increase in investment risks under competition (for a comprehensive rejoinder to Brenner and Glick, see Aglietta, 2008).

Going down historical lane, Fordism was a period of low inter-firm competition but high fixed capital accumulation. The post-Fordist years have been those of rat-race inter-firm competition. The vertiginous increases in the cross-country flows of financial resources following capital account liberalisation have hiked international inter-firm competition (capital-capital competition), compared to the period of Fordism when competition and risks were rather low for the large Fordist corporations (Aglietta, 1998). Petit (1999) has argued that stiff competition from increased economic openness during post-Fordism has been the most dominant institution during neoliberalism; the institutional nexus of the post-Fordist institutional configuration. However, the post-Fordist years have been years of extensive decline in fixed capital accumulation. These empirical observations therefore fail to support the view that increases in competition increase fixed capital accumulation by firms.

Increases in competition raise business risk, in that they increase the volatility and uncertainty of cash flows used for investments valuation. Competition reduces expected cash flows and increases business risk, which in turn increases the discount factor used in capital accumulation appraisal. These generate the tendency for fixed capital accumulation projects to be deemed as unviable. Consequently, Firms are more interested in harvesting profits, buy rather than produce, or where production is necessary, the production method is biased towards labour intensity. It is the view of the Regulation School that higher inter-firm competition constrains fixed capital accumulation, as firms are more inclined towards profit pursuits, through methods that embody absolute value, thus biasing the system away from intensive accumulation (see Boyer, 1987; Aglietta, 1998). This risk-accumulation perspective of the Regulation school was further proclaimed in Brenner and Glick (1991):

"It is undoubtedly true, as the Regulationists argue, that capitalists have found the risk of investing in fixed capital under fiercely competitive conditions to pose

significant problems for capital accumulation and thus technical change" (Brenner and Glick, 1991, p.55).

Fixed capital formation is quite expensive in terms of resources, and it takes a long time to recoup costs of investments. Under intense competition, there exist high chances that similar investments could be executed by rival firms, so that the strategic advantage from such investments would be eroded before long, and the anticipated financial flows that could recoup the costs of investments may never be fully realised. Therefore the willingness to invest is an inverse function of the ease and time involved for rival firms to undertake similar investments to undercut the anticipated advantage. The higher the competition, the shorter is this time and the easier it is for the advantage to be undercut. Therefore, the Regulationist perception of the relationship between competition and capital accumulation apparently has more logic. Some Marxists have posited adverse impacts of the increased risks of neoliberal competition on accumulation (Crotty, 2003). Higher risks tend toward a smaller firm size (Lazonick and O'Sullivan, 2000; Herranz et al., 2015). Across the Advanced capitalist economies, the manufacturing sector has encountered the most intense international competition as well as having fared worst in terms of capital accumulation (Glyn, 1995).

7.2.5.4 Effect through International Portfolio and Other Investments Flows

International portfolio flows form a further channel via which international financial openness adversely impacts rates of fixed capital accumulation, in advanced capitalist economies. One difference between foreign direct investments and portfolio investments is that foreign direct investments represent some significant equity interests in investees; while portfolio flows are not. Furthermore, foreign direct investments embody higher liquidity risk relative to portfolio investments. Therefore for firms whose interest is the liquidity of their investments, foreign portfolio investments would be more likely. The consequence, however, is that domestic firms convert fund that could have increased home fixed capital accumulation into foreign portfolio holdings. Statistics indicate that portfolio inflows to advanced capitalist economies have been higher than either of portfolio outflows or FDI inflows. Some impacts of such vast inflows of portfolio investments, would include a progressive upward pressure on financial assets prices

or returns, and the tendency to substitute financial assets for fixed capital accumulation. Portfolio flows may be in the form of equity flows, or debt flows. By analogy, the same could be said about 'other investments' flows and even reserve flows.

7.2.5.5 Impact through Financial Market

Another channel through which greater financial openness causes decline in business fixed capital accumulation is found in the financial market. It relies strongly on the power relations argument. In the golden years of Fordism shareholders/rentiers (capitalists class) were not in the position to press for the pursuit of their wish. Either because capitalists were constrained in their ability to act by then existing institutions (Boyer, 2013) or shareholders were too few, uninformed and scattered, to present any unified activism (van Treeck, 2008). Then the banks dominated finance just as there was tight regulation of finance. There was the subordination of equity market to the industrial sector. There was high positive elasticity of fund (as bank credit) to change in corporate fixed capital formation (Aglietta and Breton, 2001, p.434). Then financial markets were majorly relevant only during episodic financing needs of real investment of firms.

Then extensive financial and capital accounts liberalisations started from the mid-1980s, which proved to be the connecting points of the new economy, occupying the centre stage among the institutional drivers of observed macroeconomic patterns since their onsets in the mid-1980s, modifying the connection between financial variables and fixed capital accumulation, through changes in corporate strategies and financial innovations (Aglietta and Breton, 2001, p.435-437). Financial and capital account liberalisations severed the strong connection between financial market dynamics and the rest of the economy, including fixed capital formation rates. It made the financial system a Frankenstein monster, with highly liquid markets and new brands of dominant and aggressive shareholders empowered by the market for corporate control, who influence corporate policies in their favour and often at the expense of wage labour. These are mainly pension funds, mutual funds, life assurance companies and other money managers of domestic and foreign origins. Shareholders, aided by financial markets, set required financial targets for

their firms (Boyer, 2000). Capital account liberalisation produced the influx of foreign shareholders who reinforced, if not dominated the new brands of shareholders. These wealth maximising shareholders, prescribe return targets based on the global financial market, e.g. returns as high as 15% (Aglietta, 1998, p.81). To meet these high financial targets, companies investments shifted primarily to information technology (ibid) and arguably financial assets investments.

Boyer (2000) gave only a schematic depiction, not a detailed mechanism, of how financial markets and shareholders generate financial targets for their firms. The literature on financial market practice suggests that this process may find a practical expression in the concept of capital assets pricing model (see Kaplan, 2016). Under this model, the required return of a firm, is set in relation to the financial (asset) market return. The required return (r) is determined as:

$$r = R_f + \beta_e(Market\ premium) \quad \ldots\ldots 7.1$$

R_f is the risk-free rate, β_e is equity beta of the firm and market premium is the difference between the financial market return and the risk-free rate. Equity beta is an index of how risky the firm is relative to the financial asset market. The financial asset market is the universal set of this type of financial asset. The equity beta varies positively with the level of financial leverage (financial risk) of the firm and how risky the fixed assets (capital) of the firm are, relative to the market (business risk) indexed by the asset beta. When asset risk (asset beta) increases, e.g. from higher economic openness, or debt to equity ratio (financial risk) increases, equity beta increases through the asset beta or leverage respectively, so that the required financial return target for the firm by shareholders with the aid of the financial market (r) increases. If for some reasons asset prices increase, e.g. through greater market liquidity(demand) or increases in assets fundamental, financial assets prices and the market premium increase and consequently, the required rate of return for the firm also increases, assuming the risk-free rate and equity beta remain constant.

If the number of firms meeting their target returns is sufficiently high, their good financial performances increase market assets prices and market premium, which in turn increase the required return expected of the firm. Such good performances

attract further financial inflows/outflows to domestic and foreign asset markets, mutatis mutandis. Such increases in financial flows/liquidity in turn, increase asset prices (see Minsky, 1975), market premium and the required return sets for the firm, in the next period. If the firm fails to meet expected required return, increases in market liquidity enables shareholders to enforce it through the market for corporate control. With financial openness dominating and sufficiently protracting this process, there thus emerges a protracted vicious cycle from *de facto* financial openness to required returns and back to *de facto* financial openness, until the process exhaust itself in a crisis.

An option open to firms as returns of financial market assets as well as their required returns go up in a spiral, is to increase their holdings of financial assets, to facilitate the achievement of their required returns. Increases in financial assets holdings may aid the realisation of required returns, through superior returns of these financial assets, or expand the asset portfolios of firms, in mimicry of the asset market, with the view to decreasing their risks and thus their equity betas and consequently their required returns. Moreover, firms may extend these acquisitions to share buybacks, to reduce the ability of shareholders to enforce these targets or to enable managers realised their incentive remuneration schemes of share options. Whatever the reason, financial assets acquisitions become at the expense of greater fixed capital accumulation, in that fixed capital accumulation is becoming less effective in the achievement of shareholders objectives, and those of managers now in alliance with shareholders. However, the increases in demand/liquidity as firms acquire more financial assets, reinforce the vicious cycle. The result of this vicious cycle, was the rapid rise in financial assets value on balance sheets of non-financial corporations, from the period of capital account liberalisation to the 2007 global financial crisis. For evidence of how the astronomical acquisition of financial market assets have pervaded the activities of non-financial corporations in advanced capitalist economies since the financial and capital account liberalisations, see Lazonick and O'Sullivan (2000); Aglietta and Breton (2001, p.437); and Stockhammer (2004)

Increases in returns from financial assets holdings reduce the significance of wage-labour in generating income of non-financial corporations, and consequently reduce

their bargaining power and the growth rate of real wages (Alvarez, 2015). In the spirit of maximising shareholder value, non-financial corporations tend to substitute these cheaper labour for fixed capital, in production (see Froud et al, 2000b; Boyer 2013; Fiebiger, 2016). Thus non-financial corporations increased their holdings of domestic and foreign financial assets that facilitated the achievement of their financial targets (Froud et al, 2000b). FDIs, foreign portfolio and other investments, domestic portfolio and similar domestic financial assets increasingly appeared on the balance sheets of domestic firms, as financial assets investments in the section also occupied by fixed capital accumulation. Share buybacks may also appear in this section as treasury shares. The surge in share buybacks in the US was facilitated by the spikes in cheap loanable funds in the US (Chisholm, 2016) and Europe (Zega, 2016). The significant role of financial openness in the cost and availability of funds is well covered in the relevant literature. In 1980, the gross influx of foreign funds into the US was US$63.05 billion (about 5% of stock market capitalisation) and US$1.2395 trillion (higher than 7% of stock market capitalisation) in 2005, an increase of about 1900%. Financial outflows other than FDI in search of investment opportunities from the US were an aggregate US$68.81 billion in 1980, and together with net FDI, totalled US$71.06bn in 1980 and US$439.079bn 2005 respectively.

With heavy demand and liquidity of financial market assets by pension schemes, managers of pooled household savings, of both domestic and foreign origins, financial engineers in a bid to supply these assets and unconstrained by liberalisation, restructured and re-bundled assets risks into different categories of risks to suit different risk appetites. These structured financial products were important to non-financial firms that wish to spread their risks, following spikes in business risk introduced by international competition from greater financial openness. But often, these assets are not backed by new productive fixed capital investments (Dymski 2010). Financial assets consequently grew independently of fixed capital accumulation. These financial innovations by financial engineers resulted in vertiginous increases in traded volumes and liquidity of financial securities associated with derivatives. The argument here is distinguished from previous works on how the acquisition of financial assets squeezed out fixed capital accumulation, by expressly introducing the role of capital account liberalisation, as

consistent with the argument in Boyer (2000) that the foreign sector actually aggravated the domestic dynamics.

7.2.6 Financial Openness and Capital Accumulation: Alternative Views

Alternative views on financial openness and fixed capital accumulation exist in the mainstream literature. One strand has its root in the Solow growth model and advocates from the perspective of international allocative efficiency. It posits that higher capital account liberalisation induces capital flows from capital-rich to capital-poor economies, owing to differentials in returns to capital. This is, therefore, returns differential perspective. The capital-rich countries are arguably advanced capitalist economies. The capital-poor countries tend to be the underdeveloped economies. Thus financial openness implies higher capital accumulation in developing countries. It does not necessarily imply a fall in rates of fixed capital accumulation in advanced capitalist economies. What then is the implication for advanced economies? The neoclassical theory is rather silent on this. But the implication that it could cause decreases in rates of fixed capital accumulation in capital-rich countries was acknowledged by Henry (2007).

Another view is that net inflows to developing economies depresses the cost of capital and increases access to fixed capital finances, thus triggering a temporary increase in rates of fixed capital accumulation in developing countries (Acemoglu and Zilibotti, 1997; Fischer, 1998, 2003; Obstfeld, 1998; Rogoff, 1999; Summers, 2000; Acemoglu et al., 2006; Henry, 2007). Actual series of capital flows, however, bears little resemblance to this theoretical propositions of mainstream economics, as flows to capital-rich nations are greater than flows to capital-poor nations (Lucas Paradox). Another argument is that increased financial openness causes financial instability, and financial instability is bad for physical capital investments (Rodrik, 1998; Stiglitz, 2000). This view does not discriminate between advanced and underdeveloped countries.

7.3 A Review of Empirical Literature

Some studies in the 1990s failed to find empirical evidence of a significant causal relationship between financial openness and the rate of fixed capital growth (see

Grilli and Milesi-Ferretti, 1995; Dooley, 1996; Kraay 1998; Rodrik, 1998). Other studies such as Henry (1997), Quinn (1997) alleged to have found a positive relationship. Bonfiglioli (2008) estimated fixed capital accumulation and productivity separately, using different measures of financial openness and using cross-sectional econometrics, both for developed and developing economies. He assessed both direct and indirect impacts (through financial instability (as suggested by Stiglitz, 2000 and Rodrik, 1998) and financial development effect (in the spirit of Klein and Olivei, 1999)) of financial openness on capital accumulation and productivity, using data from 1975-1999. The findings include a negligible direct causal relationship between rates of fixed capital accumulation and financial openness. The findings also include some adverse effects of financial instability (banking crisis and currency crisis) on capital accumulation and productivity, and that financial integration causes instability (only banking instability) in developed economies and increases the probability of occurrence of the crises in developed economies.

In all cases, the alternatives of *de jure* and *de facto* measures of financial openness were used. The *de jure* measures include dummy indicators by IMF, ranging from 1-0, and an index by Quinn. The distortionary effects/potentials of using this kind of de jure measures are highlighted in Henry (2007): because they originate from binary measures of capital control, where all countries are treated utterly closed/opened, there are no allowances for factual variations in intensities, both across time and countries. Aside cross-section regression, non-overlapping 5-year observations dynamic panel estimates over 1975-1999 were also executed. This thesis is distinguished from Bonfiglioli (2008). The focus of this thesis is advanced capitalist economies, their focus are all countries. While theirs is underpinned by a neoclassical perspective, this thesis is underpinned by the institutional perspective of the Regulation school, where financial openness represents a social institution. An argument also exists that the channel of causation between financial openness and fixed capital accumulation is rather a tenuous one, in that financial openness affects physical capital accumulation indirectly, via financial development (see King and Levine, 1993; and Beck et al., 2000).

A strong positive causal relationship between rates of capital accumulation and financial openness was found by Gehringer (2013). Gehringer used financial liberalisation, financial openness, and financial integration as synonymous. The focus, in this case, was on the European economy. The methodology was similar to Bonfiglioli (2008): there were 3-year non-overlapping averages of annual data from 1990 to 2007; and 18-year averages to produce a cross-section estimation. Similarly, in their measure of financial openness, de jure and de facto measures were employed. The de jure measure was the Chinn and Ito (2008) de jure indicator; while the de facto measure is the ratio of the sum of annual stocks of foreign assets and liabilities to GDP, in the spirits of Kose et al, (2009), Masten et al, (2008) and Prasad et al, (2003). Gehringer (2013) found a positive significant relationship between capital accumulation and financial openness/integration, using the de jure measure. Note once again that her indexes of financial openness and of capital accumulation differ to the ones in this thesis. Gehringer (2013) specified capital accumulation as the logarithmic growth rates of fixed capital stock (an inverse of exponential growth rate). The index of capital accumulation in this thesis, is the ratio of fixed capital formation/investment to fixed capital stock, identical to the index used by Aglietta and Breton (2001), van Treeck (2008), Duménil and Lévy (2011) and Glyn et al. (1992) and others. Furthermore, the index of financial openness is different to the one in this thesis. Her de facto measure is the ratio of the sum of foreign assets and liabilities stocks to GDP while the one in this thesis is the ratio of the sum of financial flows to GDP. Her focus is European countries and therefore makes no distinction between advanced and emerging economies. Moreover, this thesis is investigating the empirical implication of the Regulation School theory. Thus on the bases of underpinning theoretical frameworks and the definition of the dependent variables and the argument variables, Gehringer (2013) and this thesis are conceptually different.

Why higher financial openness cannot have a significant impact on real macroeconomic variables in general and on rates of capital accumulation in particular remains paradoxical to Henry (2007). According to Him, most of the empirical neoclassical studies that failed to find real effects of financial openness, did not really test the theoretical propositions of the neoclassical school of thought. It has been observed that the tendency in the empirical literature on financial

integration and capital accumulation underpinned by neoclassical theories, is to focus on developing countries or failure to distinguish between advanced and underdeveloped economies. These studies have so far refrained from directing the research searchlight on the potential implications of financial openness for fixed capital accumulation, exclusively in advanced capitalist countries. This may perhaps be explained by the presence of a theoretical lacuna in neoclassical economics, regarding the relationship between financial openness and fixed capital accumulation in advanced capitalist economies.

There are also studies that investigating the causative relationship between financial openness and output (GDP) growth, but this is not our focus. A few existing empirical articles have also looked into the positive causal relationship between financial openness and financial development (Levine, 2001; Rajan and Zingales, 2003; Chinn and Ito, 2006; Baltagi et al., 2009). We distinguish these studies from this thesis. Whereas the rate of fixed capital accumulation is an important macroeconomic variable, and financial openness has been a topical issue in recent times, there has not been any rigorous empirical analysis of any causal relationship between financial openness and rates of growth of fixed capital accumulation particularly from the perspective of the Regulation school theory.

Relevant empirical studies in the political economy literature include those that have found some significant relationship between an increase in corporate profit pay-outs and corporate capital accumulation (van Treeck, 2008). They also include those that have found a significant relationship between corporate accumulation of financial assets and fixed capital accumulation of corporations (Stockhammer, 2004, 2005-6). Studies that have also found a significant relationship between share buybacks and fixed capital accumulation are relevant (Aglietta and Breton, 2001; Duménil and Lévy, 2011). The relevance mostly stems from the assumption of some underlying power relations in the capital accumulation setting and identical specifications of capital accumulation. But they have not looked at the relationship between capital accumulation and financial openness. Others include empirical investigations in the Social Structure of Accumulation theory, whose focus is on the relationship between capital accumulation and power, with focus on the US. To the best of our

knowledge, we are the first to empirically investigate the contributions of financial openness to fixed capital accumulation and the observed decline in rates of capital accumulation in advanced capitalist economies, under the Regulation School theory and this is a source of our originality.

The two most relevant studies to the investigation in this chapter of the thesis, are Boyer (2000) and Aglietta and Breton (2001). While the former is similarly based on the French Regulation School theory, it invokes the role played by the new power of shareholders and market for corporate control in reducing fixed capital accumulation through higher dividend payments and share buybacks. It, however, assumed a closed economy. Boyer (2000) argues the new practice of financial markets setting financial returns targets for corporations, and the significant negative relationship between these set targets and rates of fixed capital accumulation. The theoretical framework developed in this chapter among others extends this view of Boyer (2000) by providing a more specific form to the process of financial targets setting and the channel through which these set targets potentially reduce fixed capital accumulation (increased financial assets accumulation and capital-labour substitutions) that implicated a crucial role of the relative cost of capital with respect to the cost of labour. It also extends the argument in Boyer (2000) by extending the roles of financial openness in the new practice of financial market targets setting, and the relative cost of capital. By these framework and extensions, this chapter develops a specific form to the argument in the Regulation School literature that capital accumulation in advanced capitalist economies is a function of the configuration of the international regime, money form, competition form, state form and wage relations, as argued in Jessop (1990a) and others. Thus a connection is explicitly made between financial openness and corporate fixed capital accumulation of advanced capitalist economies.

7.4 The Development of a Theoretical Framework

This section relies on the combination of a few theoretical propositions, to develop an algebraic reasoning that seeks to link financial openness to rates of fixed capital accumulation.

Assumptions: the relationship between the firm and capitalists.

1 There is a fundamental struggle between the capitalist classes, regarding the distribution of value created between wage and profit.

2 Business earnings generating properties belong to firms, while capitalists own the firms, as represented by documents such as equities. A capitalist has one or more varieties of such documentary wealth in a collection called portfolio. The total value of the portfolio is the wealth of the capitalist. Documentary assets are valued by financial markets. The value of a financial asset as well as the market is a function of two components: the value of the underlying assets and the state of liquidity/demand in the market. A financial asset stands in a defined relationship with the market, in terms of relative risk, as given in equation 7.1.

3 The basis for choosing documentary assets (financial assets) to include in the portfolio is the coefficient of variation (the ratio of the standard deviations of the returns of an asset to the mean of their returns). If the coefficient of variation of an asset is higher than that of the market, capitalists reduce their holdings of the asset, and increase their wealth or prevent their wealth from falling by holding more of an asset that has at least the same coefficient of variation as the market. Otherwise, they bias their portfolio in favour of an asset with a lower coefficient of variation than the market, at the expense of an asset that has a coefficient of variation equal to or greater than that of the market. When an asset falls out of favour with the capitalist, it could have adverse consequences for a firm and the managers. Therefore a firm and its managers dislike it when capitalists reduce their holdings of the financial assets of the firm.

4 The fundamental values of financial assets and the market are the respective net present values of the cash flows of their underlying assets, that would flow from the firms to the owners over some specified period either as dividends, share buybacks or other forms of (partial) capital liquidation. The increases in shareholders wealth from the increases in demand or market liquidity are the present values of the differences between cash sales of the assets and the fundamental values of the assets

or market. If the fundamental value falls or remain constant, shareholder wealth could still be increased from increases in demand or liquidity (thus increase in market liquidity tends to increase market values and shareholders wealth. See Minsky, 1975; Bergin, 2011). Higher liquidity facilitates disciplinary disposal of financial assets

Increases in financial openness give the capitalists power over their firms, in that, firstly greater financial openness reduces the limits of the geographical (spatial) constraints on portfolio value optimisation, and reduces the dependence of capitalists on the fortunes of one firm. Secondly, it increases total liquidity or demand for assets in general (the market) and thus the returns to financial assets of capitalists, as implies by equation 7.1 (and Minsky 1975) and ultimately capitalist wealth. Thirdly, capitalists could more easily punish firms and managers through (disciplinary) sales of the assets (the market for corporate control), from increase in market liquidity. Firms and managers, therefore, seek to increase the returns to or value of their equities, to yield the required returns as set by the markets in equation 7.1, by increasing the present value of the cash flows of assets of the firms. They could increase the present value by suppressing cost and thus increasing net cash flows or reducing the discount factors that divide into net cash flows to obtain present values, by reducing risks relative to the market (equity betas). This includes reducing competition or mimicking the market by increasing holdings of more varieties of financial assets, like the market.

<u>The relation within the firm (Firm versus labour)</u>

Firms/managers could increase the present value of physical assets by suppressing real wage growth. Firms or managers have the option of meeting shareholders value requirements by acquiring more of such fixed capital with more cash flows from suppressed real wage or turning to the financial markets for help, i.e. increasing holdings of financial assets that hold promises of higher cash flows than its fixed capital over time. Either or both thus helps to discourage the capitalists from punitively dispensing with assets of such firms from their assets portfolios.

Lastly, between the firms/managers on the one hand and wage labour, on the other hand, greater financial openness gives greater credence to threats by firms/managers to labour, of unemployment prospects (increasing financial assets abroad through FDI and foreign portfolio holdings) and therefore able to hold-down real wage growth. Firms now have alternatives offered by greater financial openness, to meet shareholders returns requirements and make themselves valuable to capitalists, while labour becomes less relevant. |Labour thus compromises in accepting suppressed real wages and or working longer hours with the same pay, so that firms can increase net cash flows from their fixed capital and, even more so through greater substitution of labour for fixed capital (see Hicks, 1963; Romer, 1987; Alvarez, 2015; Fiebiger, 2016).

Because liquidity increases market returns and thus the expected returns of each financial asset, if initial financial openness is sufficiently high, then an initial increase in market liquidity may be sufficient to jumpstart the process elucidated above. Increases in financial openness give capitalists power over firms, which in turn have recourse to the market for help by acquiring more profitable financial assets, and as a source of leverage over labour. To the extent that labour has no holdings of financial market assets, and more labour or financial assets is substituted for fixed capital, labour and domestic fixed capital accumulation become the ultimate losers in the power relations, as greater financial openness subjects both the firm and labour to capitalists and labour to the firm. Even with the increased cash flows from fixed capital due to suppressed real wage growth, firms could still substitute more financial assets for fixed capital, if returns from the former exceed that of the latter because of increases in market liquidity.

<u>The Consequence</u>

-Firms increase financial assets acquisition as their returns increase from greater market liquidity.

-Labour becomes less indispensable, has wages growth suppressed and increasingly used in place of capital, to increase fixed capital net cash flows.

The fixed capital – financial assets trade off could be algebraically presented thus:

$$TR = R_k K + R_f F \text{.....(a)}$$

$$dTR = \Delta R_k dK + \Delta R_f dF = 0 \text{.....(b)}$$

$$\Delta R_k dK = -\Delta R_f dF \text{.....(c)}$$

$$\frac{dK}{dF} = -\frac{\Delta R_f}{\Delta R_k} \text{.....(d)}$$

$$\frac{dF}{dK} = -\frac{\Delta R_k}{\Delta R_f} \text{.....(e)}$$

$$dF = -\frac{\Delta R_k}{\Delta R_f} dK \text{.....(f)}$$

TR is an expected or required return sets by the market. K is fixed capital stock. R_k is expected returns on fixed capital. F is the stock of financial assets held by a firm. R_f is expected returns on financial assets portfolio. Because TR is set by the market, we assume that firms are not able to adjust it in the nearest future, so that change in (dTR) is 0. ΔR_k is change in expected return of fixed capital stock. ΔR_f is change in expected return of financial assets. The total differential equation of the second line (b) above, suggests that a given change in the required returns set by the market could be met by changes in the returns of fixed capital and financial assets, or changes in the stocks of fixed and financial assets, or both.

Equation (d) suggests that the rate at which capital stock changes with respect to the stock of financial assets is the negative of the ratio of change in returns to fixed capital and change in financial assets. Equation (f) suggests that increases/(decreases) in financial assets stock of a firm is associated with decreases/(increases) in fixed capital stock, at the rate of the ratio of the change in returns to capital stock to the change in returns to financial assets. Therefore as expected returns on financial assets increase relative to those of fixed capital in a liberalised financial market, firms tend to substitute financial assets for fixed assets at higher rates, so that rates of fixed capital accumulation decline, assuming firms are constrained by the market to optimise risk adjusted returns. Because increases in financial openness tend to increase the liquidity and therefore returns in financial market/assets, by the above analogy, increases in financial openness tend to reduce the rates of fixed capital accumulation.

The increases in returns of financial assets in general, increased the volumes and values of financial assets on domestic corporate balance sheets in post-Fordism, across the OECD countries (see Stockhammer, 2004; Krippner, 2005; Jayadev and Epstein, 2007; Lin and Tomaskovic-Devey, 2013; Alvarez, 2015). To buttress the above algebraic process with a balance sheet approach and bring in international financial openness, we assume a typical corporate balance sheet is as in Table 7.1.

Table 7.1 A Representative Structural Corporate Balance Sheet

Capital & Liabilities		Assets		
	£			£
Capital	X	(A) Goodwill (GW)		X
Long Term liabilities	X	(B) Fixed Capital (K)		X
		Financial Assets:		
		(C) FDI (outward) (FDIO)	X	
Short Liabilities	X	(D) Foreign Portfolio (PO)	X	
		(E) Other Investment (OIO) (Outward)	X	
		(F) Domestic Portfolio (PD)	X	
		(G) Reserve	X	X
		(H) Cash		X
(I) Total Fund	XX	(I) Total Assets (TA)		XX

(Source: Produced by author)

Where items B, C, D, E, F and G have been on the average increasing progressively with the dominantly upward financial markets of post-Fordism. From the above balance sheet, with C and R representing cash balances and Reserve respectively, we develop the algebraic reasoning in Table 7.2. The partial differentials in equations 13, 14 and equation 15 in the table, suggest rates of fixed capital accumulation vary inversely with financial openness. The constraint $\beta < \gamma$ in equation 10 and equation 11 suggest that the marginal impact of gross capital outflows on fixed capital growth

Table 7.2: Financial Openness and Assets Substitution: An Algebraic Modelling

$$TA_t = GW_t + K_{t-1} + I_t + FDIO_t + PO_t + OIO_t + R_t + PD_t + C_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

$$\frac{TA_t}{GDP_t} = \frac{GW_t}{GDP_t} + \frac{K_{t-1}}{GDP_{t-1}} + \frac{I_t}{GDP_t} + \frac{FDIO_t}{GDP_t} + \frac{PO_t}{GDP_t} + \frac{OIO_t}{GDP_t} + \frac{R_t}{GDP_t} + \frac{PD_t}{GDP_t} + \frac{C_t}{GDP_t} \ldots\ldots 2$$

Where it is assumed that:

$$\frac{I_t}{GDP_t} = \alpha_1 + \beta\frac{I_t}{K_t} + \varepsilon \;\; ; \beta > 0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

$$\frac{PD_t}{GDP_t} = \alpha_2 + \gamma_1\frac{FDII_t}{GDP_t} + \gamma_2\frac{PI_t}{GDP_t} + \gamma_3\frac{OII_t}{GDP_t} + \epsilon \ldots\ldots\ldots\ldots\ldots\ldots 4$$

Where: $\gamma_1; \gamma_2; \gamma_3 > 0$

$$\frac{TA_t}{GDP_t} = \frac{GW_t}{GDP_t} + \frac{K_{t-1}}{GDP_{t-1}} + \beta\frac{I_t}{K_t} + \frac{FDIO_t}{GDP_t} + \frac{PO_t}{GDP_t} + \frac{OIO_t}{GDP_t} + \frac{R_t}{GDP_t} + \gamma_1\frac{FDII_t}{GDP_t} + \gamma_2\frac{PI_t}{GDP_t} + \gamma_3\frac{OII_t}{GDP_t} + \frac{C_t}{GDP_t} + \alpha_1 + \alpha_2 + \epsilon + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 5$$

$$\frac{I_t}{K_t} = \frac{TA_t}{\beta GDP_t} - \frac{GW_t}{\beta GDP_t} - \frac{K_{t-1}}{\beta GDP_t} - \frac{FDIO_t}{\beta GDP_t} - \frac{PO_t}{\beta GDP_t} - \frac{OIO_t}{\beta GDP_t} - \frac{R_t}{\beta GDP_t} - \gamma_1\frac{FDII_t}{\beta GDP_t} - \gamma_2\frac{PI_t}{\beta GDP_t} - \gamma_3\frac{OII_t}{\beta GDP_t} - \frac{C_t}{\beta GDP_t} - \beta\alpha_1 - \beta\alpha_2 - \beta\epsilon - \beta\varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 6$$

$$\frac{I_t}{K_t} = \frac{TA_t}{\beta GDP_t} - \frac{GW_t}{\beta GDP_t} - \frac{K_{t-1}}{\beta GDP_t} - 1/\beta\left(\frac{COD_t}{GDP_t}\right) - \gamma_1\frac{FDII_t}{\beta GDP_t} - \gamma_2\frac{PI_t}{\beta GDP_t} - \gamma_3\frac{OII_t}{\beta GDP_t} - \frac{C_t}{\beta GDP_t} - \beta\alpha_1 - \beta\alpha_2 - \beta\epsilon - \beta\varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 7$$

Where: $\frac{COD_t}{GDP_t} = \frac{FDIO_t}{GDP_t} + \frac{PO_t}{GDP_t} + \frac{OIO_t}{GDP_t} + \frac{R_t}{GDP_t} = \frac{Gross\ Capital\ Outflows_t}{GDP_t}$ ……8

And: $\frac{CID_t}{GDP_t} = \frac{FDII_t}{GDP_t} + \frac{PI_t}{GDP_t} + \frac{OII_t}{GDP_t} = \frac{Gross\ Capital\ Inflows_t}{GDP_t}$ ……9

Under the constraint: $\gamma_1 = \gamma_2 = \gamma_3 = \gamma$; $\beta < \gamma$ and $\gamma < 1$ ……10

Substituting equations 8; 9; and 10 into equation 6 implies:

$$\frac{I_t}{K_t} = \frac{TA_t}{\beta GDP_t} - \frac{GW_t}{\beta GDP_t} - \frac{K_{t-1}}{\beta GDP_t} - 1/\beta\left\{\left(\frac{COD_t}{GDP_t}\right) + \gamma\frac{CID_t}{GDP_t}\right\} + \beta\alpha_1 + \beta\alpha_2 + \beta\epsilon + \beta\varepsilon \ldots 11$$

$$\delta\frac{I_t}{K_t} \Big/ \delta\left\{\left(\frac{COD_t}{GDP_t}\right) + \gamma\frac{CID_t}{GDP_t}\right\} < 0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 12$$

But $\delta\left\{\left(\frac{COD_t}{GDP_t}\right) + \gamma\frac{CID_t}{GDP_t}\right\} \Big/ \delta\left\{\left(\frac{COD_t}{GDP_t}\right) + \frac{CID_t}{GDP_t}\right\} > 0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 13$

Since $\beta; \gamma > 0$ and constant

We infer therefore from Equations 11 and 12 that:

$$\delta\frac{I_t}{K_t} \Big/ \delta\left\{\left(\frac{COD_t}{GDP_t}\right) + \frac{CID_t}{GDP_t}\right\} < 0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 14$$

Where $\left(\frac{COD_t}{GDP_t}\right) + \frac{CID_t}{GDP_t} = \frac{COD_t + CID_t}{GDP_t} = Financial\ Openness \ldots\ldots\ldots\ldots 15$

(Source: Author derived)

is higher than that of gross capital inflow. This is intuitive, because while gross outflow affects fixed capital accumulation directly, gross capital inflow affects the

rate of fixed capital accumulation through its impact on prices and returns of domestic financial assets. The first term (ratio of total assets to GDP) in 6/7 fairly accounts for the neoclassical argument that the initial stock of capital matters.

The balance sheet (assets portfolio) approach highlights the direct effect of financial market as a channel of impact of financial openness on fixed capital accumulation. A second effect, an indirect effect, is potentially through the method of production. As labour loses bargaining power there is a negative distributional impact on real wages (see Froud et al., 2000b; Lazonick and O'Sullivan, 2000; Alvarez, 2015). Firms would, therefore, be incentivised to use more labour instead of capital, to reduce the cost of production (i.e. biasing production methods toward labour intensity). These increases in the ratio of labour to capital would tend to exert downward pressures on rates of fixed capital accumulation, across the advanced capitalist economies.

In the seminal work of Lavoie (1992), extended by Stockhammer (2004) (see also Dallery, 2008; van Treeck, 2008; Dallery and van Treeck, 2008; 2009) in the post-Keynesian literature, a model is developed, where over a certain phase, there exist an inverse relationship between the pursuit of shareholder's (capitalists') goal of higher profitability and the objective of growth. It is assumed that there exist power structures in capitalist firms, so that institutional changes could alter the locus of influence in these power structures. In the political economy argument, as shareholder power increases, e.g. because of financialisation, and impose higher profit targets on firms, activities of firms shift toward pursuits of higher profit rates and may cause lower growth rates. Dallery and van Treeck (2009), lamented the knowledge gap in the outworking of this process in the presence of greater international economic openness. This chapter, therefore, by explicating a relationship between financial openness and fixed capital accumulation through changes in shareholder power, this lacuna in knowledge acknowledged by Dallery and van Treeck (2009) is filled. If increases in financial openness, representing changes in an international regime, enhance the power of shareholders, then this new post-Keynesian model of capitalist firms suggests that decreases in rates of fixed capital accumulation could result from increases in financial openness. By assuming

a closed economy, scholars might have overlooked the ultimate driver of the dynamics they seek to explain, in the debate on the cause of observed decline in advanced capitalist economies' rates of capital accumulation. Managers, driven by targets set by financial markets with international boundaries, may intentionally increase the volumes of financial assets of local and foreign origins or share buybacks on their balance sheets, and accumulate at lower rates, fixed capital, to meet these set targets.

The dynamic force that underpins deliberate assets substitutions by managers, are the assets returns differentials. Managers now desire financial assets more than fixed capital, as markets that set financial targets for managers, seemingly offer managers ways of pursuing the attainment of these targets. It is, therefore, less likely the case that higher dividends, share buybacks financially constrained fixed capital accumulation. If shareholders want higher profit pay-outs, and fixed capital returns are no issues, shareholders would be incentivised to tolerate managers' increase of corporate debts for greater capital accumulation that would facilitate higher profit pay-outs. Corporate debts and leverage increased rapidly, but significant portions thereof were spent on dividends, financial assets acquisitions and share buy-backs, in spite of the displeasure of majority shareholders for greater financial leverage argued by Aglietta and Breton (2001).

7.5 The Model Specification

A number of models have been suggested in the literature. For example, Boyer (2000) expressed capital accumulation as a function of profitability-financial norm differentials and changes in demand. Aglietta and Breton (2001) expressed the rate of capital accumulation as a function of profit rate, debt ratio, and dividend payment. However, there need not be some corresponding co-movements between capital accumulation and debt ratio (see Lavoie, 1995a). We, however, prefer the most adopted model (the Bhaduri and Marglin (1990) investment growth model) by similar empirical papers in the political economy literature. The Bhaduri and Marglin investment growth function expresses capital accumulation as a function of profit share and capacity utilisation. It modifies the capital accumulation- profit rate

relationship, with the objective of making the role and importance of capacity utilisation in capital accumulation dynamics more obvious. The model, augmented with real long-term interest rate, real unit cost of labour, the relative cost of capital, trade openness and financial openness is given in equation 16 below, were apart from financial openness, all other included variables are control variables. The hypothesis of interest is also stated hereunder.

$$\frac{I}{K} = \beta_0 + \beta_1 PS + \beta_2 u + \beta_3 i + \beta_4 LC + \beta_5 RC + \beta_6 \frac{(Exp+Imp)}{GDP} + \beta_7 \frac{(CIF+COD)}{GDP} + \partial \ldots..16$$

$$\partial \sim iid(0, \delta_\partial)$$

$$H0: \beta_7 < 0 \qquad H1: \beta_7 \geq 0$$

7.6 The variables

The model has been used widely in the both the post-Keynesian and Regulation empirical literature, and we elucidate the model and the included variables in this section. See Chapter 6 for further details on the variables.

Profit share: The impact of profit share, while expected to be significant, may have signs dependent on the underlying theory. Under the exhilarationist model of growth and distribution in the post-Keynesian literature, it is expected to be positive, in that profit rate could be analysed into profit share and capacity utilisation. Under the exhilarationist model, higher profit share brings about higher capital accumulation. Where capacity utilisation is assumed to be exogenous as in the Cambridge model, higher profit rate brings about higher capital accumulation, and higher profit rate may imply higher profit share, ceteris paribus. Lavoie (1995) has argued that under the Cambridge model where capacity utilisation is assumed to be normal in the long run, the rate of fixed capital accumulation varies positively with profit share. Some authors in the Regulation School literature do not necessarily share this view. These authors have argued that wage rate determines capital growth rate and since a higher

profit share implies a lower wage share/rate, profit share should be inversely related to fixed capital accumulation. Some SSA scholars, however, argued a positive relationship. Based on this contrasting views, therefore, profit share may be + or -. Profit share is the ratio of gross operation profit to the sum of this profit and employee compensation. Data were obtained from AMECO online.

Capacity Utilisation: In the Kaleckian growth model, capacity utilisation is supposed to have a significant direct effect on capital accumulation (Lavoie, 1995b). While it may be assumed endogenous in the Kaleckian model, it is assumed to be exogenous in the Cambridge model. We index capacity utilisation as the ratio of actual output to potential output, in the spirit of Weisskopf (1987, p.139). Data were obtained from AMECO online.

Long term interest rate: Under a simplified Kaleckian model, Lavoie (1995) argues that an increase in real interest rate shifts down the investment function and by implication capital accumulation. This is because in that model, capital accumulation increases with the positive difference between expected profit rate and real interest rate. However, the Cambridge and Eichnerian models imply that a reduction in interest rate generates a lower rate of fixed capital accumulation. Thus in the same school of thought, the apriori sign of interest rate with respect to capital accumulation, may be positive or negative. Lavoie (1995, p.157) has argued that even the Neo-Ricardian strand of the post-Keynesian model of growth and distribution suggests a “direct positive” relationship between the real rate of interest and profit share/rate, implying indirectly, a positive relationship between real interest rate and fixed capital accumulation. Lavoie (1995a) however suggested that even if capital accumulation declines in response to interest rate, it would be limited. Pivetti (1985) is however of the view that whether real interest rate would exact a negative or positive impact on total demand and by implication capital accumulation could not be predicted on apriori basis.

The Minsky-Steindl model, incorporating debt ratio and interest rate into the traditional Kaleckian model, suggests three possibilities. The short run puzzling case, when a higher interest rate increases the rate of fixed capital accumulation. The

stable long-run case, when a higher interest rate causes a higher effective demand, a higher leverage and a higher rate of fixed capital accumulation. The unstable long run, when a higher interest rate increases leverage but reduces the rate of fixed capital accumulation. The neoclassical literature has however argued that through higher costs of capital, higher interest rates would decrease both profit rates and rates of fixed capital accumulation. Thus once again, a lot of theoretical controversies surround the apriori sign of the interest rate parameter on fixed capital accumulation. The sign may be + or -.

Real Unit Labour Cost: It has been argued in the French Regulation School literature that the cardinal basis for a sustained increasing capital accumulation is an equitable distribution of income in favour of labour wages. Expectedly, the higher are real wages, the higher are rates of fixed capital accumulation. This is consistent with the stagnationist case of the Kaleckian model, where growth increases when wage increases. On the other hand, as argued by Lavoie (1995b, p.154), the Cambridge model particularly, in the spirits of Robison (1956), Wood (1975) and Eichner (1976), suggests that a higher rate of capital accumulation implies a higher profit share but a lower real wage rate. From this latter theoretical viewpoint, the expected sign of the parameter is negative. The data was obtained from AMECO online.

Relative Cost: this refers to the relative cost of capital. Many empirical studies in the political economy literature associated on causes of fixed capital accumulation decline, have included this variable in their models. In most cases, the estimates of relative cost of capital were found to be insignificant. But in the argument developed in this chapter, it should be relevant and negative. From a supply-side viewpoint, higher real wages imply higher labour costs to firms. In a monopolistic labour market regulation, where firms are restrained from labour retrenchment, and demand is high because of higher wages, the tendency would be for managers to increase fixed capital accumulation, in order to cushion the impacts of rising wages on performance. As real wages fall relative to capital, the opposite happens. Thus the apriori sign for the parameter of relative cost should be significant and (-).

Trade Openness: neoclassical economics trade-growth arguments imply that greater trade openness would increase fixed capital accumulation in advanced capitalist countries that normally have fixed capital in abundance. This would imply a positive sign for the parameter of trade openness. However, the French Regulation School has argued that the impact is negative, implying a negative sign. Moreover, the empirical analysis in this thesis found a significant negative causal relationship. We thus expect the sign to be negative. A popular index of trade openness in the literature, is the ratio of the sum of total exports and total imports to GDP.

Financial Openness: Financial Openness has been indexed in at least three ways: de facto measures of the ratio of the sum of total financial inflows (CIF) and total financial outflows (COD) to GDP, the ratio of the sum of total external assets and total external liabilities to GDP and a de jure measure that involves the number of years and date a country has been financially opened. The ratio of the sum of private external assets and liabilities to GDP as often done in the neoclassical literature, in our opinion, does not adequately represent the concept of financial openness, as it changes via profits and losses and sales, that are external, even if the country is officially closed. The de jure measure does not adequately capture the intensity of financial openness, particularly as it changes with time and therefore not very suitable for our purpose. Our preferred index is the ratio of the sum of total inflows and outflows to GDP, as this captures the years and length of effective financial openness, as well as the intensity of financial openness. We expect that the parameter estimate has a negative sign. Data were obtained from Broner et al (2013)

7.7 Sample and Data

The sample countries are the 23 advanced countries of the OECD, for which there exist data. These are the US, the UK, Germany, France, Canada, Italy, Australia, New Zealand, Netherland, Belgium, Norway, Denmark, Luxembourg, Iceland, Spain, Greece, Portugal, Finland, Sweden, Switzerland, Ireland, Japan, and Austria. The data are annual secondary data collected from some databases, mostly from the AMECO and UK data Service. The Sample period is from 1970 to 2014, restricted by data availability.

7.7.1 Summary Statistics

Table 7.3 presents the summary statistics of the data representing the variables. 17 variables are presented, including the component variables that constitute compound variables such as aggregate capital inflows (CIF), aggregate capital Outflows (COD), and financial openness. The mean value of profit shares in Table 7.3 is 0.45. The minimum value is 0.27, while the maximum value is 0.74. The overall variation is 0.0668 (7%). Profit shares is more variable between the sample countries (0.0599), than variation within a country (0.032). To more accurately project the degree of variability, we derived the standard variation per unit of mean value. For profit shares, this is 0.148 (i.e. 0.0668/0.4513) on average.

Table 7.3: Summary Statistics

Descriptive Statistics								
			Mean	Standard Deviation				
s/n	Variable	Observations		Within	Between	Overall	Min	Max
1	Profit Share	1,032	0.4513	0.032	0.0599	0.0668	0.274	0.7427
2	Capacity Utilization	1,035	0.9948	0.0502	0.0518	0.0713	0.6484	1.3412
3	Long term Interest rate	1,035	8.1725	4.5622	2.6934	5.2687	0.519	45.95
4	Real Unit Labour Cost	1,035	105.7788	7.8001	4.4687	8.9421	85.7475	156.5226
5	Relative Cost	1,035	0.0767	0.0419	0.026	0.0491	0.0052	0.4407
6	Trade Openness	1,035	0.7115	0.1994	0.4362	0.4711	0.1073	3.7415
7	FDI (Inward)	1,035	1.27E+10	2.60E+10	1.85E+10	3.17E+10	-3.17E+10	3.14E+11
8	FDI (Outward)	1,035	1.77E+10	3.52E+10	2.36E+10	4.21E+10	-5.96E+10	3.97E+11
9	Portfolio (Inward)	935	4.03E+10	8.85E+10	6.67E+10	1.07E+11	-1.28E+11	1.15E+12
10	Portfolio (Outward)	935	2.91E+10	5.95E+10	3.47E+10	6.69E+10	-2.30E+11	5.49E+11
11	Other-Investments (In)	935	2.71E+10	1.07E+11	3.48E+10	1.13E+11	-1.41E+12	1.44E+12
12	Other-Investments (Out)	935	2.57E+10	1.04E+11	4.34E+10	1.09E+11	-1.00E+12	1.48E+12
13	Reserve (Out)	935	2.34E+09	1.32E+10	6.54E+09	1.46E+10	-3.83E+10	1.87E+11
14	COD	935	7.67E+10	1.51E+11	9.17E+10	1.71E+11	-1.01E+12	1.99E+12
15	CIF	935	8.14E+10	1.73E+11	1.14E+11	2.04E+11	-9.56E+11	2.07E+12
16	Financial Openness	892	0.476024	1.2366	3.593357	2.380326	-3.733802	32.00176
17	Capital Accumulation	1,031	0.026602	0.013454	0.005839	0.014619	-0.015786	0.0901064

(Source: Author's estimation from sample data)

The mean value of capacity utilisation is 0.9948 (nearly a hundred percent, and implying capacity nearly used to the full during the sample period). The minimum value is 65%, and the maximum is 134%, indicating that there were occasions when installed capacity were utilised beyond their maximum. An implication of this would be that higher level of labour was used, to make this possible. Standard variations

between the sample countries (0.0518) and within each country (0.0502) are more or less the same. The overall standard variation is just 0.0713, while the standard deviation per unit of mean is just 0.072 (i.e. 0.0713/0.9948). The standard deviation per unit of mean suggests that over the sample period, capacity utilisation was less variable on a relative term than profit share.

Long-term interest rates has an overall standard deviation of 5.27(%). Within standard deviation is 4.5622% compared to between standard deviation of 2.69% . These indicate that real long-term interest rates are, more variable within each country than between sample countries. The overall mean interest rate is 8.17%. The minimum value is 0.52%, and the maximum is 46%. The standard deviation per unit of mean is 0.64, suggesting that on a relative term, long-term interest rates were more variable than both profit shares and rates of capacity utilisation, over the sample period. Real unit labour costs has an overall mean value of 105.77 monetary units, and this variable fluctuated between the highest value of 156.52 and a low of 85.74. The standard deviation within a country is about twice the standard deviation of between the sample countries. With an overall standard deviation of 8.94, the average standard deviation per unit of mean is very small at 0.08, particularly when compared to the mean value of 105.78.

Relative cost, defined as the ratio of the costs of capital (long term interest rates) to real unit labour cost, exhibited almost the least mean value among the included variables, at 0.077. This variable fluctuated between a very low of 0.0052 and a high of 0.4407. The fluctuation in relative cost within a country in the sample country is 0.0419 and is nearly twice the standard fluctuations between the sample countries. The overall standard deviation/fluctuation is 0.0491, and this implies that the standard deviation per unit of mean is 0.64. This value puts relative cost nearly at par with long-term interest rate, in terms of relative fluctuation, and far ahead of real unit labour cost.

Trade openness has a mean value higher than the mean value of relative costs, profit shares, long-term interest rates, but lower than the mean value of capacity utilisation. The foregoing notwithstanding, trade openness has a far higher overall

standard deviation (0.4711) than all four of the aforementioned variables (including capacity utilisation). The relative standard deviation per unit of mean of trade openness is 0.66, and this would suggest a higher level of activeness of trade openness, relative to the rest aforementioned control variables. The standard fluctuation in trade openness between the countries is more than double the standard fluctuation within each country in the sample. The minimum value of trade openness is 0.1073, and the highest is 3.7415. The next nine variables jointly define financial openness, the variable that represents the argument of this empirical chapter. With reference to foreign direct investment, the average annual value that flew into the advanced capitalist economies in the sample in each year from 1970 till 2014 was US$12.7bn. Over this period, FDI inwards fluctuated very significantly, with the overall standard deviation of US$31.7bn and this is about two and half times the value of the mean annual inflows.

The annual mean value of outward foreign direct investments at US$17.7bn is greater than the mean annual inward FDI, by US$5bn. The overall standard deviation is about 2.4 times greater than the mean, implying that outward FDIs was steadier than inward flows. If we (rightly) assume that FDI is most associated with fixed capital accumulation, then a steadier relocation of net US$5bn worth of fixed capital outside advanced capitalist economies would have had significant downward pressure on rates of accumulation of fixed capital, in these advanced economies.

The summary statistics suggest that portfolio flows exhibited a pattern about opposite to that of FDI flows. The mean is US$40.3bn, about twice the corresponding value of portfolio outflows of US$29.1bn. Portfolio inflows were more robust than outflows. The standard deviation per unit mean annual portfolio inflow is mere 0.27, compared to portfolio outflows, with a corresponding value of 2.3. These huge portfolio influxes chased financial market assets, thus progressively driving up their market prices and returns, over these years. Firms might, therefore, be tempted to include more financial assets in their asset portfolios, to enhance their rates of returns. Such financial assets acquisition would tend to slow down rates of fixed capital accumulation. For other investments, the mean annual inflows and outflows are similar, as well as their overall standard variations. Capital outflows

were boosted by reserves, which were outward flows, only. The COD represents the sum of outward financial outflows, while CIF is the sum of financial inflows. The mean CIF is US$81.4bn. The mean COD is US$76.7bn. The US$76.7bn outflow is a rough value of annual fixed capital accumulation that constitutes the opportunity cost of these outflows. Of the mean annual inflow of US$81.4 billion, the proportion likely to finance fixed capital accumulation is just 15.6% (inward FDI/ CIF). Financial openness has a mean of 0.476 and an overall standard fluctuation of 2.38. The standard deviation per unit of mean is 5.000433, indicating that the standard deviation of financial openness is over five times the size of its mean. This relative measure of fluctuation implies that financial openness exhibited more fluctuations or volatility than the other variables over the sample period. The average annual inflow of US$12.7bn (inward FDI) compared to the fixed capital representing the opportunity cost of mean annual US$76.7bn outward capital flow would readily suggests that the financial openness subsequent to the liberalisation of capital account in advanced capitalist economies most likely contributed to the observed declining rates of capital accumulation observed in these economies in post Fordism. Whether this was actually the case, is the subject of the econometric investigation in the subsequent part of this chapter.

7.7.2 Correlation Analysis

Table 7.5 below, presents a correlation matrix for the variables included in the model. One of the major issues in this estimation is the unbalanced panel caused by missing data for a few countries. This is the cost of including as many years and advanced countries as possible, in the investigation. Because correlation method may not efficiently deal with missing data, the correlation matrix below is for 8 countries, for which the panel are strongly balanced.

Table 7.4: Correlation Matrix of Main Variables

		1	2	3	4	5	6	7	8
1	Capital Accumulation	1							
2	Profit Share	-0.1513	1						
3	Capacity Utilization	0.0399	0.1575	1					
4	Long term interest rate	0.2346	-0.1124	-0.054	1				
5	Real Unit Labour Cost	0.4514	-0.3456	0.056	0.553	1			
6	Relative Cost	0.1921	-0.0837	-0.0689	0.9906	0.4433	1		
7	Trade Openness	-0.2954	0.0446	-0.0099	-0.3503	-0.2358	-0.3464	1	
8	Financial Openness	-0.1229	0.0341	0.1239	-0.1456	-0.3196	-0.1096	0.1987	1

(Source: Author's computation from sample data)

The table suggests negative correlations between capital accumulation and profit share, trade openness, as well as financial openness. Profit share in turn has its highest absolute value of correlation coefficient with real unit labour cost (negative coefficient). In line with the expectation from the argument presented here, financial openness has the highest and inverse correlation with wage or real unit labour cost while real unit labour cost has the highest correlation with capital accumulation. This also strongly supports the theoretical proposition of the Regulation School, that labour remuneration is critical to capital accumulation and that international integration matters. Table 7.4 also suggests positive correlations between capital accumulation and capacity utilisation, long-term interest rate and unexpectedly, relative cost. However, trade openness is apparently more negatively correlated with the rate of capital accumulation, than financial openness. This may be due to the fact that trade integration has been active for a greater period than financial openness. and that trade integration is more homogenous, in that it is simply a conglomeration of imports and exports of goods and services while financial openness is a conglomerate of FDI, portfolio flows, other investments, and reserves, which are far more heterogeneous in nature. Table 7.5 below presents correlation coefficients between capital accumulation and the components of financial openness.

Table 7.5: Correlation - Capital Accumulation and Parts of Financial Openness

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Capital Accumulation	1														
2	FDI-In/Gross Capital In	0.0786	1													
3	Portfolio-In/Gross Capital In	-0.0145	0.6869	1												
4	Other Investment-In/Gross Capital In	-0.0404	-0.9359	-0.8989	1											
5	FDI-Out/Gross Capital Out	0.0568	-0.0341	-0.0838	0.0612	1										
6	Portfolio-Out/Gross Capital Out	-0.0739	0.0187	0.0371	-0.0293	-0.248	1									
7	Other Investment-Out/Gross Capital Out	-0.0088	0.0099	0.0362	-0.0235	-0.5553	-0.5464	1								
8	Reserve/Gross Capital Out	0.0432	0.0058	0.002	-0.0044	-0.0644	0.0238	-0.4083	1							
9	FDI-In/GDP	-0.1019	-0.0216	-0.0514	0.0379	-0.0698	0.0416	0.0155	0.0174	1						
10	Portfolio-In/GDP	-0.1291	-0.0083	-0.066	0.037	0.0323	0.0056	-0.0259	-0.0063	0.4996	1					
11	Other Investment-In/GDP	-0.0398	0.0401	0.08	-0.0629	0.0003	0.0397	-0.0315	0.0056	0.3877	0.2103	1				
12	FDI-Out/GDP	-0.2463	-0.053	-0.1348	0.0973	-0.0043	-0.0007	0.0079	-0.0093	0.73	0.6385	0.3564	1			
13	Portfolio-Out/GDP	-0.212	0.0023	0.0188	-0.0105	-0.037	0.0868	-0.0191	-0.0354	0.554	0.5896	0.4739	0.4428	1		
14	Other Investment-Out/GDP	-0.0606	0.0184	0.0425	-0.0317	0.0061	0.0183	-0.0209	0.0067	0.442	0.3242	0.9525	0.4214	0.4098	1	
15	Reserve/GDP	0.0611	0.0008	-0.0019	0.0004	-0.0374	-0.0952	0.0002	0.2212	-0.013	-0.0263	-0.0289	-0.0476	-0.1427	-0.0353	1

(Source: Author's estimation from sample data)

The table suggests negative correlations between all of the components of financial

openness and capital accumulation, except the ratio of reserve to GDP. The strongest correlation is between outward foreign direct investment as a proportion of GDP and capital accumulation, while FDI outward as a percentage of total capital outflow is not significantly correlated with capital accumulation. The next highest is the negative correlation coefficient between outward portfolio flow as a proportion of GDP to capital accumulation and then FDI inward as a proportion of GDP and capital accumulation. Portfolio inward as a proportion of GDP, is negatively correlated with capital accumulation. Inward FDI as a percentage of GDP is also negatively correlated with capital accumulation.

7.8 Econometric Investigation

This section commences an econometric investigation of a causal relationship between capital accumulation and financial openness. To facilitate this, we examine the stationarity properties of the data, using fisher unit root test, as well as IPS. The justification for these over the others is that given the problem of an unbalance panel, the above two are the most feasible and efficient. We further consider issues involved in the estimation methodology and the potential resolution of these issues, estimates of the model and post-estimation tests.

7.8.1 Test of Stationarity

Table 7.3 below presents the Fisher test of stationarity. With drifts, lags of 2 and demeaning, it shows that at least one panel is stationary, as we reject the null that all panels contain unit roots, at the 1% significant level, as could be inferred from the probability value. Contrary to the fisher test of stationarity however, the IPS test with similar provision for demeaning, trend and 2 lags, it is not possible to reject the null that all panel contains unit root for trade openness at the 10% significant level, let alone at 1% significant level. For all the other variables including financial openness, the null is rejected. This goes further to draw a clear dividing line between trade openness and financial openness as two distinct phenomena, to be investigated separately. Furthermore, while for the other variables both tests suggest that at least one panel is stationary, such conclusive inference could not be made for trade openness.

Table 7.6:Fisher Test of Stationarity

		Financial Openness		Trade Openness		Relative Cost		Real Unit Labour Cost		Long term Interest Rate		Capacity Utilization		Profit Share		Capital Accumulation	
		Statistic	p-value	Statistic	p-value	Statistic	p-value	Statistic	p-value	Statistic	p-value	Statistic	p-value	Statistic	p-value	Statistic	p-value
Inverse chi-squared(44)	P	141.2368	0	90.763	0.0001	172.551	0	166.7105	0	169.9714	0	215.4709	0	184.397	0	194.095	0
Inverse normal	Z	-7.9163	0	-3.769	0.0001	-9.3872	0	-8.9555	0	-9.2779	0	-10.2242	0	-9.6786	0	-9.934	0
Inverse logit t(114)	L*	-8.1039	0	-3.846	0.0001	-9.8674	0	-9.4656	0	-9.7157	0	-12.0557	0	-10.526	0	-11.061	0
Modified inv. chi-squared	Pm	10.3655	0	4.6668	0	13.1939	0	12.5849	0	12.9249	0	17.6686	0	14.4289	0	15.4399	0

Ho: All panels contain unit roots
Ha: At least one panel is stationary

xtunitroot fisher Relatcost , dfuller drift lags(2) demean
Fisher-type unit-root test for Relatcost
Based on augmented Dickey-Fuller tests

(Source: Author's estimation from sample data)

Table 7.7: IPS Test of Stationarity

	Financial Openness		Trade Openness		Relative Cost		Real Unit Labour Cost		Long term Interest Rate		Capacity Utilization		Profit Share		Capital Accumulation	
	Statistic	p-value	Statistic	p-value	Statistic	p-value	Statistic	p-value	Statistic	p-value	Statistic	p-value	Statistic	p-value	Statistic	p-value
W-t-bar	-4.6309	0	0.2159	0.5855	-2.0929	0.0182	-2.6477	0.0041	-2.2684	0.0117	-3.8247	0.0001	-3.0184	0.0013	-2.5192	0.0059

xtunitroot IPS FinOpeness , trend demean lag (2)
Ho: All panels contain unit roots
Ha: Some panels are stationary

(Source: Author's estimation from sample data)

7.8.2. Methodology

This study employs dynamic panel data estimations. The rationale for this choice is that panel data method rises above some shortcomings of times series as well as cross-section methods, because variations across the cross-section units as well as across time are included. These facilitate more robust inferences. However, the dynamic panel more clearly captures the dynamics of the causal relationship that is a focus of our study, aside from the general ability to account for individual

heterogeneity associated with panel data method. There are issues to be addressed, if the panel data estimates and inferences from them have to be robust and consistent.

7.8.3 Treatment of Issues involved in Estimation: Dynamic Panel Bias and Endogeneity; Heteroscedasticity; Serial Correlation; Poolability; Cross-Sectional Dependence

A dynamic panel data specification includes lag(s) of the dependent variable as an explanatory variable, potentially generating the dynamic panel bias. Furthermore, cross-sectional dependence is a particular issue commonly associated with panel data method and could have grave consequences for the inferences made. Potential sources of biased inferences from estimates include endogeneity, serial correlations in the error term, heterogeneity, poolability, as well as heteroscedasticity. These are of particular interest in this study, as in terms of financial flows, heteroscedasticity and cross-sectional dependence are likely to be present to significant degrees. Drastic steps to minimise their impacts if present, and facilitate more consistent and robust estimations and inferences are essential.

The problem of heteroscedasticity is reduced by using standard errors that are robust to heteroscedasticity and serial correlations in the errors. This could be the use of cluster robust standard errors (see Arellano, 1987). The foregoing robust standard errors are however not robust to cross-sectional dependence in panel data. The Driscoll-Kraay standard errors are however robust to all of heteroscedasticity and serial correlation in the error terms as well as the presence of cross-sectional dependence (see Driscoll-Kraay, 1998). Unobserved heterogeneity associated with the panel units may interfere with estimated results and inferences, but panel data method normally deals with this. We provide for possible time-specific unobserved heterogeneities, by introducing time dummies in the estimations.

The potential problem of dynamic panel bias introduced by adopting dynamic panel data estimations, is of no least importance. The specification of the dynamic panel data estimator includes lag(s) of the dependent variable as an explanatory variable. A significant correlation between the unobserved individual effects and the lagged

dependent variable (short panel bias) may generate potentially significant biases in the coefficient estimates of a dynamic model (Baltagi, 2005; Nickell, 1981; Nerlove, 1967). Fortunately, this bias reduces as the time dimension (T) increases (Flannery and Hankins, 2013), even though it could still be significant when T is as large as 30 (Judson and Owen, 1999). The bias in estimation resulting from the short panel bias may affect not only the included lagged dependent variable, but the rest of the estimated coefficients. If not treated, non-robust and inconsistent estimates may result.

A number of estimators have been developed with different characteristics, to deal with this biases: GMM (Generalized Method of Moments) estimator, IV (Instrumental Variables), and bias correcting formulae, in the form of 'system GMM' (Blundell and Bond, 1998), 'difference GMM' (Arellano and Bond, 1991), 'Least Squares Dependent Variable Corrected' (corrected least squares; Kiviets, 1995), and 'long differencing' (Huang and Ritter, 2009; Hahn et al, 2007). These listed estimators rely on some form of differencing to remove the fixed effects. Thus they apparently solve the problem of correlation between the fixed effects and lagged dependent variable. But with the exception of the LDVC, they introduce another form of bias: 'Nickell Bias', that may render some regressors endogenous, in that it introduces a new relationship between the differenced lagged dependent variable, and the differenced error terms or the demeaned variables, where the method of differencing is by demeaning (Nickell, 1981).

The systems GMM, difference GMM and Long Differencing have their specific assumptions and distinct ways of correcting this (Nickell) bias. The LSDVC estimator assumes strict exogenous explanatory variables, system GMM and difference GMM assume the absence of a second-order serial correlation in the error terms. Long-term differencing assumes strictly balanced data (for more details, see Flannery and Hankins, 2013; Zhou et al., 2014). Given that data on this type of research could be potentially unbalanced, endogenous, have autocorrelated error terms, even if not contemporarily apparent, the estimation strategy of using multiple estimators, for a robust inference on the relationship is adopted. Poolability is a

cardinal requirement that underpins panel data estimators, and in this research, poolability is assumed.

7.8.4 Estimation of the Model and Discussion of the Parameter Estimates

The estimation commenced with testing for the presence of fixed effects versus random effect. An F-test for fixed effects returns F (21, 771) = 2.550 and a probability value of 0.000. We therefore reject a null of no fixed effects. A Breusch-Pagan LM test for random effects, returns chibar2 (01) = 0.00 and Probability > chibar2 = 1.0000. We therefore strongly fail to reject a null of zero random effects. Consistent with the foregoing tests, we employ econometric estimators that assume fixed individual heterogeneities. The difference between them, being how they deal with the issues of short panel bias, as well as Nickell bias. The estimated models are presented in the Table 7.8 below, with the 23 advanced capitalist countries in the panel. The justification for this is that while it makes the study more robust, econometric estimates may have the capacity to deal with the issue of missing data, depending on the estimator.

Across the six estimators, the Pooled OLS is expected to be biased, so is used as a baseline estimator. The DFE and DFE with Driscoll Kraay may contain some biases, but since the mean is subtracted in estimation, the correlation constituting the source of bias is differenced away. With regards to the Arellano bond model, it is essential that there be no second-order serial correlation in the error term. The test however in the above model with a null of a second-order serial correlation could not be rejected at the 1%; 5%; and 10% level of significance, but at the 20% level of significance. To see if this was due to the problem of unbalanced panel, we re-estimated the model for 8 countries panel, where the panel is strongly balanced, and all test statistics were very satisfactory. Furthermore, there were marked improvements in the estimates, with the coefficient of financial openness tripling and that of trade openness, about doubling. Because the aim is to explain the observed decline in rates of capital accumulation in advanced capitalist economies, we prefer the 23-country panel over the 8-country panel. One reason is that a 23-country panel would be more representative of advanced capitalist economics, than an 8-country panel would.

Table 7.8: Estimates; Dependent Variables: Capital Accumulation (1970-2014)

Dependent Variable: Fixed Capital Accumulation [Sample Period: 1970-2014]

Variables	Pooled OLS Robust	DFE	DFE Driscoll Kraay	LSDVC	BB	ABOND***
Capital Accumulation						
L1	0.897	0.8626	0.8626	0.8646	0.8672	0.849417
	[0.0264]****	[0.0171]****	[0.0397]****	[0.0000]****	[0.0317]****	[0.0371]****
Profit Share						
L0	-0.0609	-0.0308	-0.0308	-0.0797	-0.0988	-0.08314
	[0.0363]**	[0.0203]**	[0.0453]	[0.0253]****	[0.0574]**	[0.0578619]*
L1	0.0192	0.0145	0.0145	0.0744	0.048	0.063526
	[0.0418]	[0.0261]	[0.0372]	[0.0305]****	[0.05152]	[0.0489207]*
L2	0.045	0.0542	0.0542	0.0416	0.0634	0.061296
	[0.0213]***	[0.0186]****	[0.0291]**	[0.0178]****	[0.0240]****	[0.0251449]****
Capacity Utilization						
L0	0.0918	0.0912	0.0912	0.1151	0.1238	0.116331
	[0.0179]****	[0.0070]****	[0.0176]****	[0.0084]****	[0.0226]****	[0.022541]****
L1	-0.0775	-0.0728	-0.0728	-0.1018	-0.1076	-0.09789
	[0.0208]****	[0.0101]****	[0.0179]****	[0.0111]****	[0.0305]****	[0.0284851]****
L2	-0.019	-0.0258	-0.0258	-0.0219	-0.0253	-0.02467
	[0.0083]***	[0.0073]****	[0.0083]****	[[0.0070]****	[0.0107]****	[0.0096628]****
Long Term Interest						
L0	0.0011	0.0008	0.0008	0.0001	-0.0003	-7.7E-05
	[0.0009]	[0.0007]*	[0.0008]	[0.0006]	[0.0014]	[0.001277]
L1	-0.0016	-0.0017	-0.0017	-0.0009	-0.0005	-0.00102
	[0.0012]*	[0.0009]**	[0.0012]*	[0.0009]	[0.001]	[0.0009939]
L2	0.0014	0.0014	0.0014	0.0014	0.001034	0.001478
	[0.0008]**	[0.0007]***	[0.0007]**	[0.0006]***	[0.0007]*	[0.0007107]***
Real Unit Labour Cost						
L0	-0.0002	-0.0001	-0.0001	-0.0002	-0.00013	-0.00018
	[0.0002]	[0.0001]	[0.0002]	[0.0002]	[0.0003]	[0.0002926]
L1	-0.0001	-0.0001	-0.00001	0.00005	-0.0002	3.96E-05
	[0.0002]	[0.0002]	[0.0002]	[0.0002]	[0.0004]	[0.0002864]
L2	0.0002	0.0001	0.0001	0.0001	0.000248	0.000182
	[0.0001]*	[0.0001]	[0.0001]	[0.0001]	[0.0001]****	[0.0000978]**
Relative Cost						
L0	-0.1285	-0.1025	-0.1025	-0.0269	0.0114	-0.0103
	[0.0956]*	[0.0690]*	[0.08207]	[0.0671]	[0.1399]	[0.1302429]
L1	0.1516	0.1583	0.1583	0.0773	0.0394	0.091864
	[0.1215]*	[0.0918]**	[0.1165]*	[0.0893]	[0.0950]	[0.0943377]
L2	-0.1196	-0.1228	-0.1228	-0.1222	-0.08527	-0.13463
	0.0858]*	[0.0687]**	[0.0734]**	[0.0659]**	[0.0821]	[0.0773407]**
Trade Openness						
L0	-0.0069	-0.0082	-0.0082	-0.01	-0.01123	-0.01091
	[0.0037]**	[0.0037]***	[0.0032]****	[0.0047]***	[0.0055]***	[0.0058953]**
L1	0.0018	0.0016	0.0016	0.0047	0.0066	0.004284
	[0.0034]	[0.0024]	[0.0014]	[0.0043]	[0.0038]**	[0.0036378]
L2	0.0022	0.0028	0.0028	0.0028	0.0032	0.003251
	[0.0015]**	[0.0018]**	[0.0009]****	[0.0017]**	[0.0013]****	[0.0014773]***
Financial Openness						
L0	-0.0003	-0.0003	-0.0003	-0.0003	-0.0003	-0.00032
	[0.0001]****	[0.0001]****	[0.0001]****	[0.0001]****	[0.00005]****	[0.0000665]****
L1	-0.0001	-0.0001	-0.0001	0.0001	4.00E-06	0.000094
	[0.0001]	0.0001]	[0.0001]	[0.0001]	[0.0001]	[0.0000751]*
L2	-0.0001	-0.0001	-0.0001	-0.0001	-0.00005	-8.8E-05
	[0.0001]	[0.0001]*	[0.0001]	[0.0001]	[0.0001]	[0.0001057]
Trade Openness Sq	0.0017		0.0015	0.0009	0.0012	0.001093
	[0.0006]****		[0.0010]*	[0.0009	[0.0010]	[0.0013307]
Cons					0.0091	-0.01274
					[0.0074]*	[0 .0097244]*
DF	65	65	65			
Within R-sq		0.9049	0.9049			
Between R-sq		0.7999				
Overall R-sq		0.8895				
Adjusted R-sq	0.9102	0.9137	0.9137			
F/Chi-sq-test	134.61****		1915998.74****		57834.73****	32341.88****
Number of Observations	858	858	858		852	830
Number of Time Period (T)					44	43
Number of Countries (N)						22
Sargan Test (p-value)					1004.341 [0.00]	892.5091 [0.00]
Test of Serial Correlation						
1st order [p-value]					-2.8268 [0.00	-2.8176 [0.00]
2nd order [p-value]					1.4301 [0.15]	1.4955 [0.13]

****; ***; **; * indicate statistical significance at 1%; 5%; 10% & 20% respectively

The fundamental thesis of this chapter is that financial openness sequel to Fordism contributed to the observed declining fixed in capital accumulation. We index financial openness by the de facto measure of the ratio of the sum of financial

inflows and outflows, to GDP. The parameter estimates for the included lag(s) of the dependent variable (fixed capital accumulation) turns out to be significant at the 1% significant level across all six model estimates. These suggest that there is a partial adjustment, in that the value of fixed capital accumulation in the contemporary period (time t) is a function of what the value was in the immediately preceding period (time t-1). This also implies that there are both short-run parameters and long-run parameters.

In spite of their differences, the six panel data estimators unanimously present strong empirical supports for the main argument of this chapter, in that the parameter estimates for financial openness are negative and significant at 1% significant level. We therefore infer or conclude that there is a significant inverse relationship between financial openness and fixed capital accumulation, for advanced capitalist economies. The magnitude of the parameter estimate appears uniform among all six of the estimators, unlike the other control variables. However, the size of the parameter estimate appears rather small; it suggests that a unit (1%) change in financial openness would induce a change of 0.0003% change in the rate of fixed capital accumulation, in the opposite direction, contemporarily. Financial openness is the result of public policy so that the possibility of reverse causality is highly untenable.

The parameter estimates of financial openness appear so small relative to the other variables. We, however, highlight the significant impacts of financial openness on rates of fixed capital accumulation, particularly relative to the control variables, by recourse to the summary statistics. We refer to the summary statistic that indicates that the standard fluctuation of financial openness is well over 5 times the mean value, suggesting that while the marginal impact of financial openness may be relatively small compared to other variables, the considerable fluctuations in financial openness may cause it to exert considerable effects on rates of fixed capital accumulation, that dominate the total impacts of any other control variable. This is obvious from the observation of the pattern of the various series.

Profit share has a net positive impact on the rate of fixed capital accumulation. Moreover, the introduction of financial openness has also significantly increased the parameter estimates of trade openness. Regarding the structure of the series of profit share, profit share series bottomed out around 1975 and thereafter started a persistent upward trend on the average, across the 23 sample countries . This is about consistent with the observations of some scholars in the literature (Glyn et al., 1992). The net positive parameter estimate for profit share suggests that when other variables and sources of profit have been provided for, increases in profit shares incentivise firms to increase fixed capital accumulation. This positive parameter sign is consistent with the Cambridge model and the other theories presented in chapter 2. But the upward trend of profit share indicate that profit share could not be the main driving force behind the downward trending capital accumulation.

Capacity utilisation increased in statistical significant, consistently across all six model estimates compared to the omission of financial openness in the model. It has also increased in terms of the absolute size of its contemporary parameter estimates. The net sign of the parameter estimate is negative. The positive sign of the contemporary parameter estimates indicates that higher capacity utilisation in a given year generates higher capital accumulation in the year, but reduces capital accumulation in subsequent two lags, so that the net result is negative. With regards to the structure of the series, it is highly varied from country to country. In some country, there exist clear co-movement with capital accumulation, while in others, as one is increasing, the other is decreasing. This may, therefore, imply the unlikelihood of capacity utilisation as the primary driver of the dynamics of capital accumulation across the sample countries, in the years under consideration.

Long-term interest rate is on the average positive across all model estimates. One way of rationalising the positive sign of the estimates of long-term interest rate parameters, is that higher long-term interest rate reduces the present value and returns of all assets but more so for financial assets, whose value and returns depend on both the present values of the underlying cash flows, and the market demand which in turn depends on the level of availability of liquidity in the economy. The lower rate of return on alternative (financial) assets to fixed capital accumulation

thus induces adjustment of firms' assets portfolio in favour of fixed capital, thus increasing the rates of fixed capital accumulation, once the financial openness and relative cost of fixed capital are accounted for. However, because the size of the significant coefficient estimates of long-term interest rates across the six estimators were not significantly different to zero, we infer or conclude that changes in long term interest rates would not on their own, cause meaningful changes in rates of fixed capital accumulation.

Next, we look at what happened by comparing the actual series of long-term interest rate with fixed capital accumulation. For the generality (18/23) of the sample countries, the series displayed rising trends from 1960 and peaking in about 1982; then generally declining thereafter. But capital accumulation exhibited generally increasing trends in most part of the 1960s, before a general and rather persistent decline after that period. The nonsynchronous movements in rates of capital accumulation vis a vis long-term interest rates, suggest that interest rates could not be the main driver of observed trends in capital accumulation. For example in the case of Austria, capital accumulation rose rapidly till 1970 and declined rapidly thereafter. Interest rate, however, rose from 1960 and peaked in 1982 before declining thereafter. For Australia, over the period of the 1960s when capital accumulation was rather flat, interest rate was rising. But when capital accumulation was trending upward, interest rate was trending downward.

Germany and Switzerland, have interest rates that peaked in about 1974; while capital accumulation started declining earlier in the late 1960s. Particularly noteworthy is the case of Greece where, while interest rates were rising and falling very rapidly, capital accumulation maintained a persistently downward trend. Therefore, while both series exhibit very weakly similar patterns, we repeat that the lack of significant synchronism between both series, as apparent from the visual inspection, suggests ipso facto, that real long-term interest rate could hardly be the major driver of fixed capital accumulation over the sample period.

An interesting observation is that even with the inclusion of financial openness, real unit labour cost continues to significantly granger cause capital accumulation, with

a net positive sign of its parameter estimates. Recall from the correlation analysis section that real unit labour cost has by far the highest (positive) correlation with capital accumulation, compared to the other included variables. It could also be observed from the series that for all countries in the sample except for Iceland, the real unit labour cost series has a relatively close pattern with the capital accumulation series. For virtually all of them, real unit labour cost rose in the early 1960s when capital accumulation was upward trending and started decline before or about 1973.

Except for Iceland, the levels of real unit labour cost post 1970, as at 2014 remained lower than the least value of the same variable in the 1960s. Nonetheless, the parameter estimates of real unit labour cost has been minimal in size. A correlation coefficient represents the parameter estimate in a simple regression (when there are no control variables), which changes with the subsequent addition of other variables. In the case of real unit labour cost, real unit labour cost parameter estimates might have been reduced by the inclusion of economic openness and relative cost. Another interesting finding, was the statistical and economic significance of relative cost. The estimated models suggest that relative cost has by far the largest marginal impact on rates of fixed capital accumulation. Out of the six estimated model, five: the Arellano-Bond, LSDVC, the two Dynamic Fixed Effect (DFE), Pooled OLS yield net negative parameter estimates for relative cost. Furthermore, in five out of the six estimated models, relative cost exact significant impact on rates of fixed capital accumulation up to the second lag. We therefore conclude that the relative cost of capital does significantly cause inverse change fixed capital accumulation.

The negative sign of the parameter estimates suggests that relative cost is causally related to fixed capital accumulation in the opposite direction: as the cost of capital increases relative to the cost of labour, the rate of fixed capital accumulation diminishes. This may imply that firms could be biasing the intensity of production method toward labour or increasing the acquisition of alternative forms of assets, as the higher cost of capital may reduce the returns to capital. On the other hand, as the real unit cost of labour increases relative to the cost of capital, the expectation is that firms would bias the method of production toward capital. This is particularly so if

firms are constrained in their ability to downsize (right size) their labour force. This is consistent with the observation in the literature, of plant sizes (ratio of capital to labour) increasing during Fordism (Glyn et al., 1992) when the strong bargaining power of labour constrained firms in downsizing labour force. This theoretical analysis was well covered in chapter 6.

Trade openness was found to be very significant in all the six estimators. It was also found that its impact on capital accumulation was significant up to the second lag of trade openness. In all of the six estimators, the net signs of trade openness parameter estimates were found to be negative. This negativity suggests that as trade openness increases, the rate of capital accumulation decreases. Ceteris paribus, trade may be active on capital accumulation if it causes decreases in home production of capital-intensive products via the importation of these products. Moreover, if corresponding exports are less intensive in capital, then trade may directly reduce rates of fixed capital accumulation in the home country. A visual observation of the series of trade openness and capital accumulation indicates a strong synchronism between the two. From the early to the late 1960s when capital accumulation was trending upward, trade openness was either trending downward or rather constant and low. However following the early 1970s when trade openness became very significant and persistently upward trending, capital accumulation assumed persistently downward trend, across advanced capitalist economies. It is however remarkable that trade openness can maintain its ability to significantly explain the declining trend fixed capital accumulation for the sample country, despite the presence of financial openness.

The six estimators, while they have produced important findings have also presented some puzzles that justify further investigation. A Comparison of the parameter estimates of the six estimators in Table 7.8 with the correlation coefficients in Table 7.4, indicates that some variables have parameter estimates far lower than their estimated correlation coefficients, while some have estimates higher than their correlation coefficients. Real unit labour cost, real long-term interest rate, trade openness, relative cost, financial openness belong to the former, while capacity utilisation and profit share belong to the latter. A likely explanation is that some of

the variables may be operative in the capacity of mediators and moderators, in that some may be operating through others. Furthermore, the analyses so far have been of short-run analyses. The short-run estimates only indicate the marginal impacts of the included explanatory variables on fixed capital accumulation in the short-run. More in-depth analyses, such as the interaction of the variables and long-run estimates, may increase insights into these relationships.

7.8.5 Investigating the Interactive Effects of International Financial Openness

A comparison of the correlation coefficients of the variables and the parameter estimates raises some puzzles that suggest possible interaction effects. An interaction occurs where a dependent (response) variable Y, is expressed not only as a function of some independent variables X and Z ($e.g. Y = a + b_1X + b_2Z + \varepsilon$), but also as a function of product(s) of the independent variables (e.g. $Y = a + b_1X + b_2Z + b_3X * Z + \varepsilon$); where X and Z are the main terms and X*Z is the interaction term. There may be more than a single interaction term.

The presence of significant interacting term(s) affect(s) quite significantly, the value and interpretation of all the estimated coefficients. For example where b_1 in the above example without an interaction term indicates the marginal impact of X on Y; it now becomes the marginal impact of X on Y, where Z is zero. Thus the presence of interaction renders the relationship between Y and X conditional upon Z. Furthermore, the presence of a significant interaction term suggests that a model may not be additive and thus may provide for omitted non-linearity in the model (Wooldridge 2008). In the model with an interaction term, $\frac{\delta Y}{\delta X} = b_1 + b_3Z$; so that the marginal effect of X on Y depends on the value of Z. The positive sign in $+b_3$ indicates that Z interact with X to increase Y; and the negative sign in $-b_3$ indicates that Z interact with X to reduce Y (See Rajan and Zingales, 1998).

Significant interaction term(s) indicate that several explanatory variables represent a particular regressor. The argument that the said regressor has no significant impact on the dependent variable (Y) is only valid, if the parameter estimates of the main

term (b_1) and the relevant interaction term (b_3) are jointly zero (Kmenta, 1971)(see also, Bramber et al., 2006). Against this background, we, therefore, further our understanding of the variables involved and their relationships, in our study, by investigating their interaction terms. Table 7.9 below presents the estimated model for the full sample country and period.

Table 7.9: Estimates with Interacted Terms; Dependent Variable: Capital Accumulation (1970-2014)

Variables		Coefficient	Drisc/Kraay - SE
L1 Capital Accumulation		0.847****	0.0338
L1 Profit Share		-0.0160	0.0241
L2 Profit Share		0.0572***	0.0266
L0 Capacity Utilization		0.0946****	0.0126
L1 Capacity Utilization		-0.0781****	0.0142
L2 Capacity Utilization		-0.0277****	0.0079
L0 Long Term Interest Rate		0.0002	0.0002
L1 Long Term Interest Rate		-0.0016**	0.0009
L2 Long Term Interest Rate		0.0019****	0.0006
L0 Real Unit Labour Cost		0.0002	0.0002
L1 Real Unit Labour Cost		-0.0002	0.0002
L2 Real Unit Labour Cost		0.0001	0.0001
L1 Relative Cost		0.0910	0.0996
L2 Relative Cost		-0.1397***	0.0634
L0 Trade Openness		-0.0156****	0.0061
L1 Trade Openness		0.0039*	0.0027
L2 Trade Openness		0.0060***	0.0029
L0 Financial Openness		0.0006	0.0061
L1 Financial Openness		-0.0192***	0.0083
L2 Financial Openness		0.0123***	0.0057

L0 (Financial Openness)*(Relative Cost)		0.1005	0.1420
L1 (Financial Openness)*(Relative Cost)		-0.3438***	0.1706
L2 (Financial Openness)*(Relative Cost)		0.1959	0.1668
Trade Openness Squared		0.0028**	0.0015
L0 (Trade Openness)*(Relative Cost)		-0.0481*	0.0350
L1 (Trade Openness)*(Relative Cost)		0.0703***	0.0363
L2 (Trade Openness)*(Relative Cost)		-0.0468**	0.0242
L0 (Financial Openness)*(Profit Share)		0.0044	0.0093
L1 (Financial Openness)*(Profit Share)		0.0231**	0.0125
L2 (Financial Openness)*(Profit Share)		-0.0239****	0.0067
L0 (Financial Openness)*(Capacity Utilizn)		-0.0030	0.0035
L1 (Financial Openness)*(Capacity Utilization)		0.0086*	0.0057
L2 (Financial Openness)*(Capacity Utilization)		-0.0026	0.0041
L0 (Financial Openness)*(Long Term Interest rate)		-0.00097	0.0014
L1(Financial Openness)*(Long Term Interest rate)		0.0036***	0.0017
L2 (Financial Openness)*(Long Term Interest)		-0.0018	0.0017

Note: *; **; ***; **** represents 20%; 10%; 5% and 1% significant level respectively.

The presence of the interaction terms have yielded rather exciting findings. It shows that when financial openness is zero, a percentage increase/(decrease) in profit share causes an increase/(decrease) of 0.057% in fixed capital accumulation, at the 5% significant level. However, financial openness reduces the ability of profit share to explain capital accumulation, as suggested by the net of the parameter estimates of the interaction terms of financial openness and profit share (0.0231 + -0.0239= -0.0008). If therefore financial openness increases/(decreases) by 1% and profit share increases/(decreases) by 1%, then capital accumulation increases/(decreases) by (0.057+0.0231-0.0239) = 0.056% at the 1% significant level, instead of the previous increase/(decrease) of 0.057%. An interpretation is that as financial openness increasingly accounts for increases in the profit share of a firm, the proportion of total profit share that is attributable to capital accumulation and the incentive to accumulate capital fall. The following functional form yields the marginal impact of

profit share on capital accumulation ($\frac{\delta capital\ accumulation}{\delta profit\ share}$), in the presence of financial openness:

$$(L0 + L1 + L2)_{PS} + (L0 + L1 + L2)_{PS*FO} * Financial\ Openness$$

Substituting the respective significant parameter estimates implies

(0.0572) + (0.0231 + -0.0239)*Financial Openness

(0.0572) – 0.0008*Financial Openness

Estimating at the mean of financial openness implies

(0.0572) – (0.0008*0.4760) = 0.056819

Whereas a percentage increase in profit share increases capital accumulation by 0.0572 units in the absence of financial openness, the negativity of the net coefficient of the interaction terms between financial openness and profit share implies in the presence of financial openness, a unit increase in profit share at best increases capital accumulation by less than 0.0572. Thus the effect of profit share on fixed capital accumulation is dependent on the value of financial openness. As financial openness increases, it reduces the classical positive relationship between the profit share of the firm and capital accumulation. That is as firms increasingly meet their profit targets through financial openness more than fixed capital accumulation, the lower the needed and actual rate of fixed capital accumulation.

In the absence of financial openness, 1% increase/(decrease) in capacity utilisation increases(decreases) capital accumulation by 0.095% in the current period at the 1% significant level, but decreases/(increases) capital accumulation by 0.078% at the 1% significant level in the second period, and a further 0.028% decrease/(increase) in capital accumulation at the 1% significant level, in the third period. This is a net decrease/(increase) of 0.011% in capital accumulation. But financial openness reduces the ability of capacity utilisation to reduce the rate of fixed capital accumulation. Capacity utilisation in the absence of financial openness has a net marginal impact of a -0.0112% on fixed capital accumulation. This is however moderated to a net of just -0.0071%, when financial openness increases from zero to its mean value. The significant interaction term increases the complexity of the

marginal impact of capacity utilisation on capital accumulation, as suggested by the following function.

$$(L0 + L1 + L2)_{CU} + (L0 + L1 + L2)_{FO*CU} * Financial\ Openness$$

(0.0946 + -0.0781 + -0.0277) + (0.0086)*0.4760 = -0.00711 if evaluated at the mean value of financial openness.

Therefore, the impact of a change in capacity utilisation on the rate of fixed capital accumulation is dependent on the value of financial openness. For relative cost (RC), the marginal impact thereof on capital accumulation is derivable from the function below:

$$(L0 + L1 + L2)_{RC} + (L0 + L1 + L2)_{RC*TO} * Trade\ Openness + (L0 + L1 + L2)_{RC*FO} * Financial\ Openness$$

Substituting the relevant significant estimates implies

(-0.1397)+ (-0.0481+0.0703+-0.0468)*Trade Openness +

(-0.3438)*Financial Openness

(-0.1397) + (-0.0246)*Trade Openness + (-0.3438)*Financial Openness

(-0.1397) + (-0.0246)*0.7115 + (-0.3438)*0.4760 = -0.32085 (estimated at means of trade and financial openness)

(-0.1397) + (-0.0175) + (-0.16365) = -0.32085

When trade openness and financial openness are both zero, a percentage increase/(decrease) in relative cost decreases/(increases) capital accumulation by 0.14% at the 5% significant level, in the third period only. 1% increase/(decrease) in financial openness all other factors being constant decreases/(increases) capital accumulation by 0.34% at the 5% significant level through induced changes in the relative cost of capital, in the second period of the initial change in financial openness. Furthermore, 1% increase/(decrease) in trade openness, assuming all other factors including financial openness remain constant, decreases/(increases) capital accumulation by 0.05% at the 20% significant level in the current period, increases/(decreases) it by 0.07% at the 5% significant level in the second period and decreases/(increases) capital accumulation by 0.05% at the 10% significant level, in the third period, all through induced changes in the relative cost of capital.

The marginal impact of relative cost on capital accumulation is an inverse 0.14%, when both openness are zero. This is larger than the -0.097% marginal impact suggested when there are no interaction terms. When trade openness increases/(decreases) by 1%, the marginal impact of relative cost changes from an inverse 0.14% to an inverse 0.165%. when trade openness remains constant but financial openness increases by 1%, the marginal impact of the relative cost of capital on capital accumulation changes from an inverse 0.14% to an inverse 0.48%. When trade and financial openness each increases by 1% simultaneously, then the marginal impact of the relative cost of capital on capital accumulation changes from an inverse of 0.14% to an inverse of 0.51%. Out of this 0.51% marginal impact of the relative cost of capital on capital accumulation, about 68% is attributable to the 1% change in financial openness; about 5% of it is attributable to the 1% change in trade openness, and the balance 27% attributable to neither trade nor financial openness.

When trade openness changes from zero to its mean value while financial openness remains constant, the marginal impact of the relative cost of capital on capital accumulation increases by 0.0175%. However when financial openness increases from zero to its mean value, assuming trade openness is constant, the marginal impact of the relative cost of capital on capital accumulation increases by 0.16365%. The percentage composition of the marginal impact of relative cost at the means are: financial openness – 51%, trade openness – 5.5%, and non-interaction term – 44%. The cumulative impact of both types of openness increasing from zero to their respective mean value on the marginal effect of relative cost on capital accumulation is an increase of 0.18%, which is by far more than a 100% increase in the partial marginal impact of relative cost on fixed capital accumulation without the interactive terms. Thus while the relative cost of capital to all reasoning affects capital accumulation, trade and financial openness severally and jointly reinforce this impact. Trade openness and more particularly financial openness are, therefore, moderators of the impact of the relative cost of capital, on rates of capital accumulation (albeit being partial moderations). Moreover, our argument that over the period, capitalist firms tend to increase capital to labour ratio in production during Fordism and increase labour to capital ratio during post-Fordism as

determined by the cost of capital relative to labour, therefore, receives strong empirical support, once again.

Regarding real unit labour cost, all the parameter estimates are not statistically significant, with the introduction of the interaction terms. A likely explanation is that its impact on fixed capital accumulation has been entirely mediated/subsumed by relative cost. Although not shown in the above table, the interaction of financial openness with unit real labour cost as well as that of trade openness with real unit labour cost turned out statistically insignificant, in their lags. This may apparently be puzzling in light of the political economy argument that openness depresses real wages. But an apparent rationalisation is that such significant interaction may have been exhaustively subsumed by the interaction of relative cost with either form of economic openness. This is a strong indication that the relative cost of capital may be a total mediator of real unit labour cost or wage.

The high correlation coefficient between long-term interest rate and relative cost would suggest that the rather low parameter estimates of long-term interest rate are caused by partial subsumption of the effect of long-term interest rates on capital accumulation, by the relative cost of capital. When financial openness is zero, a percentage increase in real long-term interest rate increases fixed capital accumulation by 0.0003%. This may suggest that in a closed economy, the bulk of the explanatory power of interest rate on capital accumulation is virtually subsumed by the powerful effects of the relative cost of capital on fixed capital accumulation. In spite of the low economic significance of the parameter estimate of real long-term interest rate, its positivity offers empirical support to the argument in the post-Keynesian literature that higher interest rates may cause increases in rates of fixed capital accumulation.

This positive marginal impact of long-term interest rate on fixed capital is however positively reinforced by financial openness. An increase in financial openness from zero to its mean value increases the positive marginal impact of long-term interest rate on fixed capital by 0.0036*0.476024 = 0.0017%. Therefore, the relative cost of capital is only a partial mediator of the impact of long-term interest rates on rates of

fixed capital accumulation. The impact of long-term interest rates on rates of fixed capital accumulation therefore is dependent on the level of financial openness.

The marginal impact of trade openness on capital accumulation rates from Table 7.9 is both direct and through the relative cost of capital. With financial openness accounted for in the model estimate, a percentage increase/(decrease) in trade openness decreases/(Increases) the rate of capital accumulation by 0.01% (i.e. 0.02% - 2*0.0028) at the 1% significant level, in the current period; increases/(decreases) capital accumulation by 0.004% at the 20% significant level in the second period, increases/(decreases) accumulation by 0.006% in the third period of the initial change in trade openness, all other factors remaining constant. This is a net inverse direct change of 0.001% in capital accumulation. But the estimates in Table 7.9 indicates that when trade openness changes, it necessarily induces changes in capital accumulation, through interaction with the relative cost of capital. From the estimated model in Table 7.9, the marginal impact of trade openness on capital accumulation ($\frac{\delta Capital\ accumulation}{\delta Trade\ Openness}$), is the result of the following function:

$$(L0 + L1 + L2)_{T/Op} + 2L0_{T/Opsq} * Trade\ Openness + (L0 + L1 + l2)_{TO*RC} * Relative\ Cost$$

Substituting the respective significant estimates implies

(-0.0156 + 0.0039 + 0.0060) + 2*0.0028*trade openness + (-0.0481+ 0.0703 – 0.0468)*relative cost,

(-0.0057) + (2*0.0028*trade openness) + (-0.0246*relative cost).

Evaluating these variables at their means implies:

(-0.0057) + (2*0.0028*0.7115) + (-0.0246*0.0767)

-0.0057 + 0.003984 + -0.00189 = -0.00361

Where T/Op, T/Opsq, and TO*RC stand for trade openness; trade openness squared; and the interaction of trade openness and relative cost respectively. The positive coefficient of trade openness squared implies that as trade openness increases, its adverse impact on capital accumulation is reduced, all things being equal. The marginal effect of trade openness on capital accumulation is a function of trade openness itself, but it also depends on the value of relative cost. To enable the

assessment of trade openness over the sample period, we estimated at the mean values of trade openness and relative cost, as above. Thus on the average, a percentage change in trade openness causes an inverse change in capital accumulation by a net of 0.004%. We therefore infer or conclude that a change in trade openness causes a significant inverse change in the rate of capital accumulation, but the size of this induced change in the rate of capital accumulation depends on the value assumed by the relative cost of capital, and the value of the change in trade openness.

The marginal impact of financial openness on capital accumulation is also both direct and through other variables. For the direct impact, assuming all other variables constant, a percentage increase/(decrease) in financial openness decreases/(increases) capital accumulation by 0.02% at the 5% significant level in the second period, but increases/(decreases) it by 0.01% in the third period. However, the impact of financial openness on capital accumulation also acts through the relative cost of capital, profit share, capacity utilisation and long-term interest rate. The total marginal impact ($\frac{\delta capital\ accumu;lation}{\delta financila\ openness}$), is thus complex, and given by the following function from the model estimate in Table 7.9 as follow:

$$(L0 + L1 + L2)_{F/Op} + (L0 + L1 + L2)_{FO*PS} * Profit\ share + (L0 + L1 + L2)_{FO*CU} * Capacity\ Utilisation + (L0 + L1 + L2)_{FO*RC} * Relative\ cost + (L0 + L1 + L2)_{FO*IR} * Int\ rate$$

Substituting the respective significant estimates implies:

(-0.0192+0.0123) + (0.0231+ -0.0239)*Profit Share + 0.0086*Capacity Utilisation + (-0.3438)*Relative cost + 0.0036*Interest rate.

(-0.0069) + (-0.0008)*Profit share + 0.0086*Capacity Utilisation) + (-0.3438)*Relative Cost + 0.0036* Interest rate.

Evaluating these variables at their means implies:

-0.0069 + (-0.0008)*0.4513 + 0.0086*0.9948 + (-0.3438)*0.0767 + 0.0036* 0.08173)

(-0.0069) + (-0.00036) + 0.008555 + (-0.02637) + 0.000294 = -0.02478

F/Op and int rate above means financial openness and long-term interest rate. $FO * PS$, $FO * CU$, $FO * RC$, and $FO * IR$ are the interaction of financial openness with profit share, capacity utilisation, relative cost, and long-term interest rate

respectively. It has a sub-net negative impact on capital accumulation through profit share and relative cost, but sub-net positive impact through capacity utilisation and interest rate. But having provided for the interaction of financial openness and respectively with profit share, capacity utilisation, and relative cost, financial openness still significantly inversely impact on capital accumulation (the direct effect). The overall net marginal effect of financial openness (direct and indirect) estimated at the mean, is a significantly inverse of 0.0248%. We therefore infer or conclude that a marginal impact of financial openness on the rate of fixed capital accumulation is inverse, but the size of this inverse effect is dependent on the value assumed by profit share, capacity utilisation, the relative cost of capital and long-term interest rate.

Balli and Sørensen (2013) have argued that the marginal effect (partial derivative) of an explanatory variable in an interacted regression is approximately the difference between the first partial of the self-same explanatory variable in a non-interacted regression and all the relevant interaction terms in the interacted regression estimated at the mean (i.e. given:

$$G = \gamma_0 + \gamma_1 H_1 + \gamma_2 H_2 + \epsilon; \text{ and } G = C_0 + C_1 H_1 + C_2 H_2 + C_3 H_1 H_2 + \varepsilon$$

and

$$\hat{C}_1 \cong \hat{\gamma}_1 - \hat{C}_3 \overline{H}_2 \text{ or } \hat{\gamma}_1 \cong \hat{C}_1 + \hat{C}_3 \overline{H}_2$$

Assuming the credibility of this assertion by Balli and Sørensen (2013), then -0.0069 (we call it the direct effect) represents the aggregate marginal impact of financial openness on capital accumulation apart from its effects through profit share, capacity utilisation, relative cost, and interest rate. A comparative analysis suggests that the percentage contributions of the terms in financial openness marginal impact function are: direct effect – (0.0069/0.042479) =16%, profit share effect – (0.00036/ 0.042479) = 0.85%, capacity utilisation effect – (0.008555/0.042479) =20%, Relative cost effect– (0.02637/0.042479) = 62%, and interest rate – (0.000294/0.042479)= 0.69%. The foregoing implies that the most important single channel through which financial openness exerts its inverse impact on rates of capital accumulation in the short-run is the relative cost of capital. In a further

comparative analysis, the impact of trade openness on fixed capital accumulation through the relative cost of capital is just 16%, compared to 62% in the case of financial openness, while the direct effect of trade is higher than 49%. This differences in impacts, indicate that financial openness even though a fraction of economic openness, is a distinct concept from trade openness and thus the separate investigation of their respective impacts on rates of fixed capital accumulation is justified. The foregoing estimates and analyses are however related to the short-run period. The parameter estimates are expected to be different in the long-run.

7.8.6 Long-run Econometric Analyses

The statistical significance of the included lag of the dependent variable as an explanatory variable indicates that a long-run analysis is very feasible. In this subsection, the focus is on long-run estimates and their analyses. Where the lag of the dependent variable included as an explanatory variable is significant, the long run value of a parameter estimate, is the estimated short-run parameter divided by unity minus the parameter estimate of the included lag of the dependent variable. Using the estimated model with the interaction terms in Table 7.9 above, the long run estimates are presented in the Table 7.10 below.

Table 7.10: Long-run Estimates; Dependent Variable: Capital Accumulation (1970-2014)

Variable	Long-run Coefficient	Value at the Mean
Profit Share	0.373856 + - 0.005229*financial openness	0.376345
Capacity Utilisation	-0.0732 + 0.056209*financial openness	-0.04645
Long- term interest rate	0.001961+0.023529*financial openness	0.013161
Relative Cost	-0.91307 + -0.16078Relative*trade openness + -2.24706Relative*financial openness	-2.09712
Trade openness	-0.03725 + 2* 0.018301*trade openness + -0.16078*relative cost	-0.0235
Financial Openness	-0.0451+-0.00523financial openness*profit share +0.056209*capacity utilization +-2.24706*relative cost +0.023529*long term interest rate	-0.16197

The long-run parameter estimates of an explanatory variable, indicate the long-term impact of a unit change in that explanatory variable. The presence of variables in the respective long-term marginal impacts presented in Table 7.10, indicate that these marginal impacts are also complex. The estimates indicate that relative cost has the highest long-run marginal effect on capital accumulation, estimated at the mean level. However, -1.06953 (i.e. 51% of it) is attributable to financial openness. Table 7.10 shows that in the long-run, the impact of a unit change in each of the other variables depends on economic openness. The marginal impacts of long-term interest rate, real unit labour cost or wage, the relative cost of capital on capital accumulation in the long-run, are dominated by changes in economic openness. The table also shows that in the long-run, the dominant channel through which economic openness impacts on rates of capital accumulation is the relative cost of capital.

Although not presented, the result of a comprehensive dominance analyses tends to suggest the principality of real unit labour cost in that real labour unit cost was consistently returned as completely dominating virtually every other independent variable (except the 1st lag of the dependent variable) in every specification in explaining the data on fixed capital accumulation. This has been followed by financial openness; long-term interest rate; relative cost; and trade openness; depending on the specification. Although we are aware of the shortcomings of dominance analyses: for example in this case the selection criteria was simple R-squared. Yet the correlation analysis and interaction regression have both strongly indicated these very same variables as the key variables. These tools of analyses suggest a powerful economic openness → real-wages →long-term real interest rate →relative cost of capital→ capital accumulation axis of causes and effects. With the econometrics estimators that are robust to many sources of biased inferences, it has been possible to investigate in greater detail, causality and mediation/moderation effects with great confidence.

Once again, do increases in financial openness cause decreases in business fixed capital accumulation in advanced capitalist economies? With the strong evidence from the robust econometric analyses as well as the correlation analyses, an

affirmative answer is supported for both the short-run and the long-run. But did the rise in financial openness in the wake of the capital account liberalisation from the mid-1980s contribute to the decline in fixed capital accumulation observed in advanced capitalist economies after Fordism? This cannot be answered exclusively from the marginal impacts or estimated coefficients analysed so far, as these only indicate the nature of the relationship with fixed capital accumulation. To answer this latter question, we have recourse to both the results of the marginal analyses and levels of volatilities of the variables (see Stockhammer, 2004).

The marginal analyses with the relevant parameter estimates have shown clearly that financial openness did not just reinforce trade openness, but actually dominated every other variable and operated through nearly all the other variables at the margin. To evaluate total impact over the sample period requires assessing the respective volatility of these theoretical explanatory variables in the sample period. Because the variables are in different units, we standardise the volatilities or standard deviations, by dividing through by the means of the variables respectively, as done in the section on summary statistics. To compare, we divide the standardised volatility of each variable into that of financial openness.

The results of this process indicate that financial openness was 34 times as volatile as profit share, 69 times as volatile as capacity utilisation, 8 times as volatile as long-term interest rate, 63 times as volatile as real unit cost of labour, 8 times as volatile as the relative cost of capital and, 8 times as volatile as trade openness. Combining the cumulative evidence from marginal effects and relative total volatility analyses, correlation analyses, cointegration analysis, and dominance analyses, we therefore conclude that empirical evidence strongly support the argument that the rise in financial openness in the wake of the capital account liberalisation of the mid-1980s to early 1990s, in the advanced capitalist economies strongly contributed to the decline in business fixed capital accumulation observed in these countries, after the period of Fordism.

Next, we reconcile the findings that the dominant channel of the impacts of financial openness is relative cost with our modelling of the impact of financial openness

through financial assets acquisition. Recall that all the channels including increased competition, have been logically explained to make financial assets acquisition more profitable than fixed capital accumulation either through more superior cash flows or less corporate risk as represented by the equity beta. We then argued how the increases in financial assets acquisitions caused by financial openness have direct effects on capital accumulation through corporate assets substitution. We argued further, that the increases in financial assets holding also have indirect impacts, through changes in relative factor cost and factor substitution, before proceeding to the empirics. Therefore our arguments are consistent with the findings. Further supports for our arguments, include the arguments that the increased earnings from greater financial assets progressively depressed growths in real wages or real cost of labour, as labour bargaining power waned, in light of their less relevance in the generation of corporate income (Alvarez, 2015). With progressively cheaper wage-labour cost, profit maximising firms biased their production methods towards labour intensity (Fiebiger, 2016).

While the availability of data allowed the inclusion of relative cost and the interaction thereof with financial openness, regrettably, there are no macro data on financial assets ownership. However, after providing for relative cost and its interaction with financial openness, and controlled for other variable, there were also economically and statistically significant residual (direct) parameter estimates for financial openness. To the extent that the argument of Balli (2013) presented in subsection 7.8.2.5 is valid, we exercise the belief that the potential parameter estimates regarding the direct impact of financial assets acquisition on fixed capital accumulation through assets substitution were captured in the direct or residual parameter estimates of financial openness presented in this chapter.

7.9 Comparison with the Literature

We re-echo the lamentation of Blanchard (1986) through Heye (1995) of the wide chasm between theoretical prescriptions and empirical studies, regarding investments and capital accumulation. While many empirical studies tend to limit their explanations to conventional theoretical variables and ignore neo-theoretical

variables like the international regime, this thesis suggests that the nature of international regime as espoused in the Regulation School literature should not be neglected in such empirical endeavours. We particularly refer critically to the strands of arguments that explicitly assume closed economy, in their analyses of the determinants of rates of fixed capital accumulation. The findings have interesting implication and connection with a number of arguments in the political economy literature and even in mainstream literature. First, it lends support to the inquisition of whether there has been emerging disconnection between profits rates and rates of fixed capital accumulation (Bhaskar and Glyn, 1995). It underlines the limitation of the strand of argument that corporate profit shares/rates have been the chief drivers of capital accumulation and their decline explained the observed declining rates of accumulation in the advanced capital economies (Glyn et al, 1992; Epstein and Gintis, 1995). The relevant profit variable in this case should not be corporate profit, but expected from fixed capital accumulation. The literature is very versed in the argument of how the post-Fordist era has been overly profit-oriented. In support of this, line plot of profit shares has indicated consistent upward trends over the period and countries, when and where rates of capital accumulation have been declining.

The strand of argument that proposes higher dividend pay-out as the cause of the decline would realise that financial openness matters. The assumption of a closed economy is consequently not tenable. If the efficacy of greater profit pay-outs is contingent on the state of economic openness, then economic openness is the ultimate explanatory variable. This is more so, given that profits pay-outs effects are nestled in financial openness, and that financial openness has proven to be a significant explanatory variable for capital accumulation across advanced capitalist countries. The same logic applies to share buy-backs, which is a kind of partial corporate equity liquidation, just like dividend.

While many of the empirical studies, similar and relevant to this research underline financial constraints from higher profit pay-outs, managers remunerations or financial assets acquisitions as the cause of decline of fixed capital accumulation by capitalist firms, we critically analyse these strands of argument and rather extend the viewpoint in Boyer (2000) that financial markets set required returns for

corporations, which then revise down wages growth that affects capital accumulation from fall in demand. We highlight the relation between these set targets on the one hand and assets and factors substitution on the other hand, in the determination of capital accumulation . We point out that the mechanism elucidated in this chapter is facilitated through the incentive pay of managers as explained in Boyer (2005) or enforced through the market for corporate control as explained in Aglietta and Breton (2001), either of which incentivised managers to reconstitute production methods with labour intensive bias, as well as firm portfolio restructuring with preferences for financial assets, whose returns dominated fixed assets returns of their firms.

This paper has a very close link with Stockhammer (2004), who argued that the financial assets of non-financial firms have been on the increase, while rates of fixed capital accumulation have been decreasing. However, under closed economy, as assumed by Stockhammer, his argument exhibits serious explanatory weaknesses, as could have been foreseen in Tobin (1997). Orhangazi (2008) found an inverse relationship between financial asset acquisitions and real investments of non-financial corporations but the focus was the US. We highlight this limitations but introduce the impact of opened economies, in the form of financial openness. Onaran et al. (2013) is a closely related literature, but the focus is the relationship between FDI and business investments in Germany. Germany is just a subsect of our sample countries, and FDI is not the same as financial openness.

The principality of wages (as real labour) as seen from the analyses accord valuable credence to the argument in the political economy literature particularly the Regulation School literature, the post-Keynesian School literature and Marxist literature that argue that growth tend to be wage-led. It offers empirical content to the argument of wage-driven versus profit-driven growth (or the stagnationist versus the exhilarating case of capital accumulation) as argued by Lavoie and others. However, the mechanism elucidated here is how increases in real wages drive growth not just through demand but also through factors substitution, motivated by profit motives of capitalist firms. Increases in institution-based constraints to

rationalising (wages and) labour employment, encourage increases in capital accumulation, as the former increase relative to (cost of fixed) capital and vice-versa

7.10 Summary

This chapter sets out to investigate the contributions of increases in financial openness on declining rates of fixed capital accumulation observed for advanced capitalist economies since circa 1970. Virtually all the explanations advanced in the literature revolved around how increases in profit pay-outs, share buybacks and, financial assets accumulation posed financial constraints to fixed capital accumulation. This thesis took rather critical views of these explanations. This is because the distribution of profits to shareholders are forms of capital/equity liquidations that could only be sustained by robust underlying cash yielding fixed capital assets, or some credible substitutes. These underlying assets must be seen as robust cash yielders by informed analysts and institutional investors, that have dominated financial markets in the post-Fordist period, if pay-outs are to increase shareholder value. Increasing the rate of equity-capital liquidation irrespective of the detrimental effects on underlying sources of free cash flows and shareholder value, would jeopardise the going concern status of a firm and make its equities worthless rather than increasing shareholder value.

Financial assets acquisitions increased, because managers deliberately substituted them for fixed capital accumulation. Financial assets are credible alternative underlying sources of cash flows that facilitate shareholder value. Why have financial assets become superior substitutes to fixed capital in terms of returns to shareholders' fund? It is because of progressive increase in market liquidity, dominated by financial openness arising from capital account liberalisation. The cause of increases in values of financial assets, financial, should therefore, be the ultimate cause of the decline in fixed capital accumulation. Potential adverse funding squeeze of systematic equity liquidations such as dividends and share buybacks on capital accumulation by some microeconomic entities may unlikely transform into sustained macroeconomic decreases in fixed capital accumulation. This is based on some interpretations of shareholder value and economic theories.

We argue in this chapter, that increases in financial openness progressively increased financial asset prices, returns, and market premium, which in turn, progressively increased required returns set by financial markets for capitalist firms. Firms are consequently incentivised to substitute financial assets for fixed capital and increase labour to fixed capital ratio in production, in light of decreasing ability of returns from fixed capital to adequately enhance shareholder value. While increases in competition from greater financial openness increased the risk of fixed capital accumulation, increase in financial assets returns progressively increased the volume and value of financial assets in firms' balance sheets, in the forms of foreign direct investments, foreign portfolio and other investments holding, as well as holdings of domestic financial assets. While financial markets progressively increased target returns for firms, they offered shareholders the means to enforce such set targets. Firms resort to the same markets for help, by holding financial assets. Reduction in the relevance of wage-labour in generating corporate income and increased competition in labour market depressed real wage growth. Real wage growth and the rate of fixed capital accumulation became the ultimate victims of increases in financial openness.

Six dynamic panel data estimators with robust standard errors were used, and other control variables included to minimise biased inferences. These were augmented with correlation and dominance analyses. Estimates of the six estimators support an inverse relationship between financial openness and fixed capital accumulation. It was found that financial openness acts through profit shares, long-term interest rates and the relative cost of capital and independently of these in affecting rates of capital accumulation. The dominant channel however, is the relative cost of capital. Trade openness apart from a direct inverse impact also acts through the relative cost of capital, to affect rates of capital accumulation. Financial openness decreases fixed capital accumulation through profit share and relative cost, but tend to increase it through capacity utilisation and long-interest rates. The argument here is underpinned by the French Regulation School that proposes that institutions, including an international regime part of which is financial openness matters in capital accumulation. Apart from the finding in this chapter, of the likelihood that financial openness complemented trade openness in explaining the decline in fixed capital accumulation, observed in the advanced capitalist economies. The evidence

that the way every other variable affects fixed capital accumulation depends on financial openness, indicates that financial openness matters; that institutions indeed matters, in fixed capital accumulation.

Chapter 8 International Economic Openness: An Institutional Hegemon? A Post-Fordist Regime of Development?

8.1 Introduction

This chapter starts by highlighting the findings of the previous two chapters and then goes on to consider whether the extended period of declining fixed capital accumulation and rising profit rates together with the findings of the previous two chapters were characteristics of a post-Fordist mode of development. Empirical evidence presented in this thesis robustly supports the argument that for advanced capitalist economies, increases in international economic openness whether through trade openness or financial openness, cause decreases in rates of business fixed capital accumulation. This body of evidence further substantiates the claim that increases in economic openness since the end of Fordism, robustly explain the observed slowdown in rates of capital accumulation across advanced capitalist economies in the post-Fordist period, since circa 1970. Inferences regarding the inverse relationship between economic openness and capital accumulation, as well as the contributions of increased economic openness to the prolonged decline in fixed capital accumulation are underpinned by econometric and statistical studies of a sample of 23 advanced capitalist economies, which are members of the OECD. The sample period is from 1960 to 2014. Panel data method involving six different estimators with their characteristic assumptions, weaknesses and strengths were used, to limit estimator bias on drawn inferences. To reinforce the robustness of these findings, these estimators were applied to segments of the sample period and, augmented with dominance, cointegration as well as structural break analyses. Economic openness was analysed into its two principal components of trade and financial openness and both proved to be independently significant.

An exemplary case of the inverse relationship between trade openness and capital accumulation and the role played by increases in trade openness in observed downward trends in fixed capital accumulation, is that of Luxemburg. As was pointed out in an earlier chapter, while the other countries in the sample had very

low levels of economic openness in the 1960s, Luxembourg stood out from the pack, as having the highest and high levels of trade openness. It is therefore not surprising that among the 23 countries in the sample, Luxembourg had the least rate of fixed capital accumulation, the least index of fixed capital formation, but the highest index of profit share and the third highest profit rate, in 1960. However, this level of openness remained more or less the same for a long time, over which business fixed capital accumulation remained more or less the same. A dramatic downturn that progressed into a downward trend in fixed capital accumulation was not observed, until just after the start of a dramatic upturn and progressive increases in trade openness (Figures A3 &A4 in Appendix A.2).

The primary theoretical framework that underpins this empirical study is the French Regulation School theory. There exist at least three channels through which economic openness could impede fixed capital accumulation rates, in advanced capitalist economies. Empirical evidence indicates that by far the most potent channel, is the relative cost of capital. Empirical evidence further indicates that international economic openness, in both forms of trade openness and financial openness, offers capitalists the means of increasing profit shares/rates. The channels through which economic openness enhance profit rates and straitjacket rates of fixed capital accumulation, also include increases in imports and exports, in the case of trade openness, and greater acquisition of domestic and foreign financial assets, by local corporations due to higher financial openness. Even when the channel of relative cost (factor substitution) has been accounted for, both forms of economic openness also wound up with significant residual negative coefficient estimates, which go a long way to suggest the complexity of the processes through which economic openness exact inverse movements on rates of fixed capital accumulation, in advanced capitalist economies.

The experience of the golden age of Fordism has apparently informed an orthodox view of a ‘profit – capital accumulation nexus’. However, this thesis argues, and supported by the data, that over the post-Fordist decades, economic openness increasingly undermined the strength of this positive relationship. This nexus was apparently superseded by an emerged economic openness - profit accumulation

nexus, based on the globalisation of profit accumulation processes. The Regulation School theory suggests that prolonged economic patterns such as the aforementioned ‘profit-capital accumulation nexus’, ‘economic openness - profit accumulation nexus, declining capital accumulation rates in the face of increasing rates of profits, likely tend to take place within the context of an accumulation regime, sustained by a mode of regulation. But mainstream economists have argued a continuous and unbroken process of accumulation. Even within the Regulation School literature, there exists a hot debate over the emergence of a post-Fordist mode of development since the demise of Fordism, inspite of the apparent emergence of prolonged post-Fordist economic patterns. Therefore, did the foregoing observed trends and relationships happen in the context of a new post-Fordist mode of development?

A mode of development consists of a regime of accumulation and the associated mode of régulation. An identification of a post-Fordist mode of development entails the tough task of identifying a post-Fordist regime of accumulation. A major reason for the intensive disagreement over the emergence of a post-Fordist mode of development relates to a lacuna in a standard method of establishing the emergence of a regime of accumulation. In light of the foregoing, this chapter reviews the debate, with the intent of mining out an objective way to assess the emergence of a posts-Fordist regime of accumulation. It then proceeds to identify the complementary mode of régulation and the hegemonic institution, as robust evidence of an emergent post-Fordist mode of development. The final part of the investigative effort in this chapter, is to find empirical evidence that the observed trends and findings presented in the earlier chapters of this thesis are characteristics of the post-Fordist mode of development. The structure of the chapter is as follows: Section 8.2 reviews the debate on an emergence of a post-Fordist regime of accumulation and endeavours to identify a regime of accumulation. Section 8.3 Identifies the complementary mode of régulation. Section 8.4 assesses the hegemony of the international regime. Section 8.5 assesses the hegemonic class that have emerged out of the struggles, by comparing relative class benefits during the identified regime of accumulation. Section 8.6 is a summary to the chapter.

8.2 Is there Evidence of a Post-Fordist Regime of Accumulation?

What really is a regime of accumulation? The theoretical concept of a regime of accumulation refers to a prolonged and prevailing pattern of economic activities, through which profit-motivated capitalists/firms enjoy sustained wealth creation, through the initial outlay of some level of value/wealth. It encompasses the prevailing patterns of production, consumption, circulation, and distribution that organise and expand the wealth of profit-motivated owners of investable funds (capitalists), in a way that stabilises the national economy over a period. This prevailing pattern may involve extended rapid accumulation of private non-residential fixed assets to facilitate mass production, investment or initial outlay on financial (paper) assets that yield interest income, royalties, capital gains, fees, royalties, rents and profits (see Wikipedia on capital accumulation).

If a regime of accumulation involves mass production, then there should be an equivalent mass demand/consumption, to clear the mass of outputs. If it involves increasing financial gains through acquisitions of financial and non-productive assets, then an equivalent demand for such financial/non-productive assets to generate such increases in financial gains should be in place. A regime of accumulation may bring about genuine increments to existing wealth or a mere redistribution of existing wealth, or both. Because of inherent contradictions in capitalist wealth production, long waves of wealth creation are argued to require more than mere market mediation to needing extra-economic institutions and norms (*juridico-political structure*) (see Jessop, 2013)). As argued by Jessop (2013), the resolution of contradictions that would otherwise prevent the reproduction of wealth accumulation that could potentially form a long wave process, is by institutional fix and spatio-temporal fix, and such fixes emerge through a processes of contests and trial by error.

Such fixes would bring about some compromise between the contesting classes, in the production-power configuration, that leaves one class or the other worse off, or both relatively well off, to permit another extended period that brings in a new stage of capitalism, in a manner complimentary to the concept of Kondratiev wave. In spite of the controversy over the emergence of a new regime, some post-Fordist

regimes of accumulation have however, been highlighted in the literature. The last regime of accumulation identified with a considerable consensus in the Régulation School literature, is Fordism. In a characterisation of Fordism, Lipietz (1992) highlighted intensive business fixed investments or fixed capital accumulation, mass production, complementary mass consumption arising dominantly from equitable distribution of value added between owners of profit and wage labour, full employment, full capacity utilisation, stable corporate profitability, and historically low economic openness (see Jessop, 2013). How and exactly when this regime of Fordism ended, remain controversial subjects. But Wallerstein (2010), and Castree et al (2013) put the period of Fordism between 1945 and 1973.

Some have argued that there are triple aspects to the ending of Fordism: a technical side that include an eventual exhaustion of the underpinning productivity growth, an economic aspect that include the concept of profit squeeze arising from organic composition of capital and increasing real wages, as productivity decline sets in, and a social aspect that include pressure on profitability, changes in prerogatives of managers and, pressure from demand on public finance. But as the curtains were drawn on Fordism, a new method of accumulation has to replace it, as capitalists endeavour to find new ways of increasing sagging profit rates (Clarke, 1990). Clark (1990) proposition suggest conscious effort or tendency by receivers of profits to find a new way of making profits,-a new regime of accumulation. But Has there been an emergence of a post-Fordist accumulation regime since the demise of Fordism? As hinted in an earlier section, this is about the most sensitive controversy in the Regulation School literature, and therefore calls for a methodical approach, as a simple affirmative or negative answer provides no logical reasoning regarding the emergence of a post-Fordist regime of accumulation.

The experience of golden years of Fordism has informed an enduring perception among some scholars, of a regime of accumulation as a stereotypical virtuous circle involving wealth accumulation (circuit of capital) through intensive fixed capital accumulation, lamented Kotz (2002, 2003) (See also, Gordon et al., 1982). A regime of accumulation should be both historical and institutional and not a-historic and a-institutional. Therefore if there exist criteria that collectively qualify a temporal

stretch as a period of a regime of accumulation, it should be irrelevant whether it is a virtuous circle between expenditure to the benefits of domestic labour and the profit of capitalists or a vicious circle. Yet the narrow perception that stereotyped a regime of accumulation as a virtuous circle still persists. Consequently, the non-emergence of another prolonged period of a discernible virtuous relationship between labour and capital, (a reciprocal higher expenditures in benefit of wage-labour class that would bring about increases in benefits accruing to the capitalists' class) since Fordism has on the one hand, generated a crop of scepticism regarding the emergence of a post-Fordist regime of accumulation, among some scholars. But the expectation that a regime of accumulation should have emerged after such a long time since Fordism, on the other hand, has created a crop of proponents of an emerged post-Fordist regime of accumulation. There is, therefore, this divide, fundamentally responsible for the lack of a consensus on the emergence of a post-Fordist regime of accumulation, so many decades after the demise of Fordism.

Proponents of an emerged post-Fordist regime have ventured ambitiously to identify some post-Fordist regimes of accumulation, albeit with some undertone of caution (Jessop, 1992b, p.32; 1994, p.27). However, among these proponents, the identities or characteristics of these regimes are themselves sources of further controversies. The list is quite long and includes: Toyotism, Service-led, Information/Communication Technology (ICT)-led, Knowledge-based accumulation regime, Competition-led regime, export-led and finance-led regimes (see Boyer, 2000; 2004). Although there have apparently been periods since the demise of Fordism, when features that typified each of the aforementioned post-Fordist regimes were discernible, the realities of these post-Fordist regimes of accumulation would imply about seven regimes of accumulation in less than three decades! If regimes of accumulation occur in sequence with intervening structural crises, then these would average about just four years per regime of accumulation. This implied brevity contrasts sharply with the concept of a regime of accumulation as a long wave or prolonged period of accumulation and the experience of Fordism which spanned nearly three decades. Alternatively, if these regimes are assumed to have overlapped, then this assumption would be inconsistent with the argued trajectory of a regime of accumulation: that it must wind up in a structural crisis, before another growth regime emerges. To make the matter more complex, it is often the case that

features respectively typifying Toyotism, competition-le growth, ICT-led growth, knowledge-led growth and the others so identified, are embodied simultaneously in the observed activities of a single firm. Do we then have two or more regimes of accumulation in a single firm at the same time? The overlap of regimes of accumulation within the spatial setting of a firm is virtually impossible, on the one hand. Structural crises of Toyotism, competition-led growth and of the others, have not however, been very much public knowledge or well documented in the literature, on the other hand.

This controversial scenario has attracted critical views from the likes of Leborgne and Lipietz (1992, p.333), who cautioned that most proponents of emerged post-Fordist regime, might have inadvertently downgraded it to some kind of new production systems. Sceptics of an emerged post-Fordist regime of accumulation, who attach higher weights to the emergence of a virtuous circle more than the supposition of the emergence of a regime of accumulation, have so far refrain from acceding to the birth of a post Fordist regime. These regime sceptics have argued that many instances of identified post-Fordist regimes eventually turned up as undoubtedly cases of premature visions of regimes of accumulation (Tickell and Peck, 1995). However, on a more objective note, should or shouldn't there have been a post-Fordist regime of accumulation, in the course of over four decades since the demise of Fordism? Alternatively, in an extreme case that raises the spectre of a never emergent post-Fordist accumulation regime, do we have to wait till around 2050 as suggested by Wallerstein (2010) for the next post-Fordist regime of accumulation?

There exist some bases to argue that a post-Fordist regime of accumulation by logic, should have emerged. The description of a regime of accumulation given in the literature suggests that a regime of accumulation may involve more than the virtuous circle of wage growth, rapid growth through fixed capital accumulation and profit rates, and more scholars have come to accept this reality. Although the SSA variant of the Regulation School has posited that there is an alternation of extended period of accumulation regime followed by an extended period of relative economic stagnation, historical analysis of past regimes readily suggest that these periods of

stagnation were rather short (often less than 10 years) compared to the time span of the accumulation regimes. The more than four decades since the end of Fordism would, therefore, unlikely be the stretch of a single structural crisis. But the end of a structural crisis presupposes the beginning of a new regime of accumulation.

The supposed fundamental and permanent class conflicts between the two dominant classes of capitalism regarding the distribution of output of a society would imply that either class is well informed about its socio-economic entitlements. Such conflicts also imply that either class is well informed about conditions that could facilitate greater shares of created values/income to accrue to them over their life time, given the constraints and opportunities facing them. A structural crisis of capitalism is not supposed to be one of such contexts that facilitate greater shares of outputs to labour or capitalists. Structural crisis with stagnant profit growth or falling profit rates, unemployment and real wage stagnation will be an ill wind that will hardly blow any of the classes of capitalism any good. This applies to the capitalist class, wage-labour class, managers or even the state in lost tax revenue. As such, crisis would be undesirable to wage-labour class or owners of investable funds (capitalists), even though it may be the result of their actions, for both classes are desirous of the reproduction of their respective benefits (Clarke, 1990) and crisis generally reduces the present value of their respective cumulative incomes (see Amable et al., 2005). But a regime of accumulation is expected to be favourable to at least a class of capitalism, who will exercise efforts to maintain the status quo.

Given the common dislike for crisis, before long, a stabilising institutional configuration that forges a form of compromise between labour and capital emerges and midwife another long wave of a regime of accumulation. Under these premises, therefore, a long wave or regime of accumulation should expectedly be longer than a period of crisis, and there should have occurred a post-Fordist regime of accumulation. So what post-Fordist regime(s) of accumulation has so far emerged, that is comparable to Fordism in in terms of time span and meet the expected trajectory of a regime of accumulation as theorised in the literature, and could be adjudged to be such under the Regulation School paradigm, in the spirit of Tickell and Peck (1995)? If there was a clearly laid-down criteria for identifying a regime of

accumulation, then there would have hardly been any controversy over its emergence, in the first place.

One consequence of the desire for such a regime of accumulation that is comparable to Fordism was the proposition of neoliberalism as an alternative post-Fordist regime of accumulation, by some scholars. Some have argued, however, that neoliberalism does not qualify as a regime of accumulation (see Tickell and Peck, 1995). Moreover, neoliberalism simply describes the regulatory stance of the state and hardly describes the economic activities of capitalists and labour. Kotz (2003) has identified a post-Fordist regulatory structure or mode of regulation for the United States: a liberal structure that regulates an accumulation regime, that started somewhere between 1979 and 1981. But the corresponding regime of accumulation was not identified. This proposed regulatory structure does not support rapid fixed capital accumulation and economic growth, according to Kotz (2003). This is a further basis to argue that a regime of accumulation may not involve rapid fixed capital accumulation or virtuous circle.

While a consensus regarding the emergence of a post-Fordist regime remains elusive, there has been a greater consensus on some of the economic features and pattern that typified the era from the mid-1970s to the global financial crisis. These features include a general decline in rates of growth of GDP, downward trending rates of inflation, increases in rates of unemployment, progressive income inequalities, neoliberal states, rapid increases in household debts, increases in profit rates co-existing with declining fixed capital accumulation and increases in economic openness (See Stockhammer, 2007). These are features that have been enduring but systematically antithetic to those of Fordism. How do we therefore identify a regime of accumulation?

8.2.1 A Method and Methodological Foundation for the Identification of A Post-Fordist Accumulation Regime.

A heuristic approach for the identification of a historical regime of accumulation is feasible. The perspective here is based on the Regulation School theory of accumulation. The heuristic approach relies on inductive inferences from the theory

of accumulation. What really is capitalism and accumulation? According to a definition of capitalism by the Webster dictionary, capitalism is an economic system, whose most typical feature is the private ownership of capital goods (wealth) arguably for the accumulation of wealth. This definition implies that capitalism is a social system that allows private accumulation of wealth through profits (Wallerstein, 2010). The search for increases in existing wealth of capitalists through higher profits, inter-firm rivalry and compulsive innovation have been described as the *raison d'être* of capitalism. In Marxism, capitalism is depicted as moving in alternating periods of growth and crisis. During growth, excessive profits are made. Wealth accumulates at higher rates (increasing profit rates). During crisis, a capitalist economy shrinks, and tends towards dis-accumulation of wealth.

Crisis persist until opportunities for growth in the old activities resurface, or new economic activities are discovered. Because either may take some time to happen, crisis would have the tendency to be period of really deep, acute, or marked decline in rates of growth of wealth (or profit rates). Therefore we could picture the movement of capitalism through time, in terms of the movement of wealth accumulation through time, which in turn would be reflected in the movement of aggregate profit rate, through time. The period of growth is not only a period of excessive wealth accumulation (excessive profits), but a period of wealth accumulating at higher rates (progressive growth/increase in profit rates). Crisis, as a period of capitalist economy/wealth shrinking, implies a period of loses or acute decline in wealth accumulation (acute falls in capitalist profit rates). These acute falls in profit rate persist until a new opportunity for growth comes around. If capitalism moves through time in alternation of growth (higher profit rates) and crisis (acute falls in profit rates) and the contour of capitalism could be seen in terms of movement in wealth accumulation through time, in turn reflected by movement in collective profit rates through time, then we could induce that the temporal movement of capitalism in terms of alternating growth and crisis is reflected in the temporal movement of aggregate profit rates, as a series of alternating period of progressively rising profit rates (growth or wealth increasing at higher rates, i.e. growth) and acute decline in profit rates (shrinking economy or wealth, i.e. crisis)

Castree et al (2013) opines that capitalist wealth accumulation, entails the undertaking of economic activities, which may involve the production, distribution, and realisation/disposal of myriad commodities, with the singular objective of increasing wealth laid out by capitalists at the start, through the generation of profits, at the end of the process. It is further opined that the unceasing quest for new and higher profitability, makes capitalists more than willing to switch or deploy their funds to new economic ventures or locations (perhaps overseas), often in conjunction with the financial markets (ibid). Historical observation of events before the 2007 financial crisis (the great recession) suggests that these myriad commodities may have evolved to include financial market products. Thus the specific forms assumed by the dominant economic activities for wealth accumulation or profits in a particular country may change with time. There is also a significant consensus in the literature that the myriad of commodities may vary from country to country. Thus the mode of wealth accumulation and therefore capitalism vary with time and location.

Given the temporal-spatial variation in wealth accumulation and capitalism, the common denominator across all wealth accumulation and capitalism from the foregoing definitions, is the commitment of initial wealth, with the view to reaping some increments to this initially committed wealth at the end of a period, otherwise known as profit generation (see Wallerstein, 2010). Underpinning accumulation, is the singular expectation of profits or wealth increases. Therefore, increment in wealth (profit) and the rates of wealth increment (profit rates) become the core variables present in all wealth accumulation, and capitalism. Because profit rate indicates how well wealth accumulation is progressing, profit rate should be an effective single variable that indicates, captures or reflects how wealth accumulation and capitalism progress through time. Most scholars of the Regulation School and many scholars of the post-Keynesian literature, have agreed that capitalism within a country proceeds through time, in alternation of a regime of accumulation and a structural crisis. If these crises are the crises in the Marxist rendition of the dynamics of capitalism as the alternation of growths and crises, then by the principle of equivalence, regimes of accumulation are the periods of growth in the Marxist dynamics of capitalism.

Castree et al (2013), proposed that a regime of accumulation is a historically specific but relatively long-lived means by which wealth accumulation (profit) is sustained or ensured and these means may be a dominant collection of industries, whose products and markets have characteristics in common (ibid). If wealth accumulation involves the growing of wealth (through profits) from the beginning of a period or process to the end thereof, and a regime of accumulation is a relatively long-lived means or processes of wealth accumulation as well as a period of (Marxist) growth, then a regime of accumulation is a series of sustained, ensured, long-lived repeated process or periods of growth in profit rates. This is consistent with the argument in the literature that profit rates pattern (and by implication wage pattern) is a fundamental feature of a regime of accumulation (Wallerstein, 2010). The inductive inference of a regime of accumulation as a relatively long period of repeated growth or increases in aggregate profit rates is also consistent with the argument of Bowles et al (1986, p.134), that if the system whereby there exists an institutional configuration or mode of regulation which sustains or ensures a regime of accumulation has any merit, then such boom or regime of accumulation regulated by a social mode of regulation should be characterised by rising and relatively high profit rates.

A regime of accumulation ends in a structural crisis, when the mode of regulation burns out. In the Regulation School literature, a configuration of institution that sustains or ensures a long-lived repeated process of growth in profit rates burns out, causing a structural crisis. There are different kind of crises in the Regulation School literature. Exogenic crises are of external causes, and the mode of regulation remains operational, with temporary or slight lull in wealth accumulation (profit rates). Endogenic crises are similar to exogenic crises in effects, but are of endogenous or internal causes. In the theory, exogenic and endogenic crises don't fundamentally change the general upward trends of rates of wealth accumulation or profit rates. Structural crises are crises of mode of regulation or mode of accumulation. The remedies therefore involve the search for a new mode of regulation (starting the same activities when they becomes profitable again because of new social institutions) or a new mode of accumulation (new profit generating activities). Thus periods of acute, deep decline in profit rates are periods of structural crises. The alternation of a regime of accumulation with structural crisis in the dynamics of

capitalism means a regime of accumulation is flanked by structural crises and the reflection in profit rates movement is extended upward trending profit rates, flanked on both sides by significant and acute descents in the series of profit rates.

But at any one time there is bound to be, at least a capitalist involved in wealth dis-accumulation through losses or wealth accumulation through profits. To get around this complexity, we rely on insights from Brown (2007) and statistically represent a regime of accumulation as a system-wide social process: A sustained period of repeated growth in collective (not individual) profit rates. A period of crisis is a period of acute repeated falls in collective profit rates that effectively change the trend of collective wealth accumulation or growth in collective profit rates. Theoretically wealth is accumulated if profit exceeds zero, or profit rate is greater than zero. Therefore in an extreme theoretical case, a regime of accumulation may not be upward trending. We make the assumption of non-*ergodicity* of a regime of accumulation. The assumption of non-ergodicity ensures that a regime of accumulation in terms of profit rates tend to be a sustain repeated process of rising profit rates, or upward trending series of profit rates, in in reality and don't assume alternative theoretical forms. Non-ergodicity of a regime of accumulation implies that an upward trending series of profit rates, is the representation of the statistical properties of underlying wealth generating economic activities of all regimes of accumulation.

Profit rate is indexed as the ratio of net profit to net fixed capital stock. Net profit objectively represents the increment in wealth, during a period. If wealth is accumulated through fixed capital accumulation falling profit rates indicate crisis in the underlying productive activities. If wealth is dominantly accumulated through alternative assets like financial assets, falling profit rates indicate the crisis of profits from this alternative method of wealth generation. The temporal stretch representing a regime of accumulation could be discerned, as an extended upward trending series of profit rates bounded by extended inflections or deep breaks representing structural breaks, by visual inspection or statistical tests of structural/regime breaks. A statistical structural or regime break indicates an abrupt change in a data series and the point in time of the change. It facilitates the determination of whether and

when there is a significant change in the data or the underlying mechanism that generates the data. Therefore, we could determine whether the underlying process sustaining wealth accumulation has ended, due to a structural crisis.

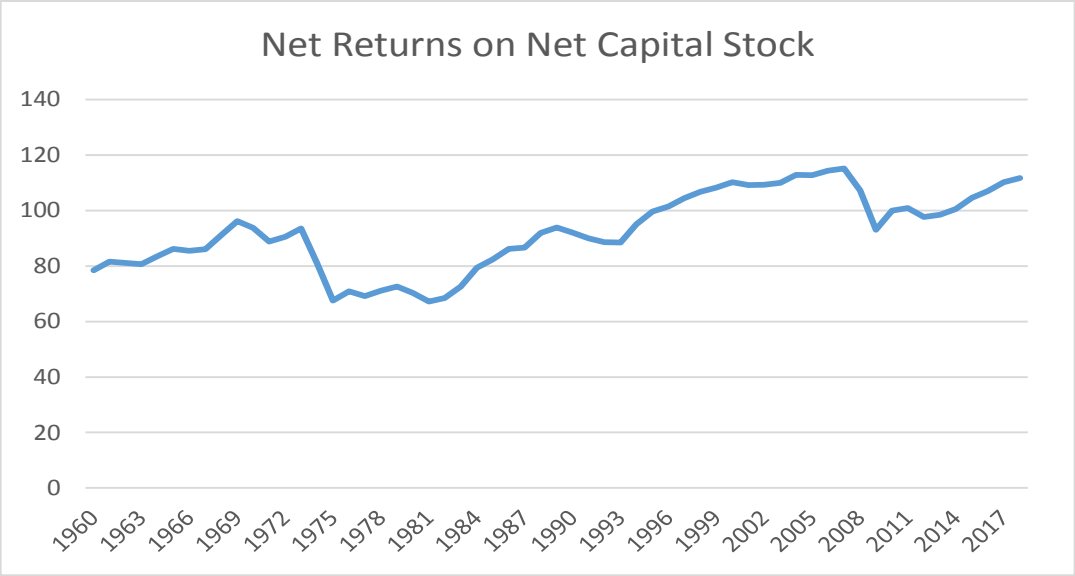
The methodological foundation of the approach used here for discerning/identifying the period of a post-Fordist regime of accumulation from both theory and the econometric analysis, is logical induction. Here, the statistical representations of a regime of accumulation and a crisis are induced from definitions in the theory of accumulation. In inductive reasoning, inferences are made from some given premises. However the truth of such premises or limited observed evidence do not guarantee the truth of such inferences or conclusion but make them probable. Unceasing quest for higher profit rates by capitalists and struggles for the emergence of an enabling or sustaining mode of regulation increase the probability of our induced statistical representation of a regime of accumulation as non-ergodically upward trending profit rates bounded by acute falling profit rates (structural crises).

Figure 8.1 is a series of collective net profit rates averaged across the 23 advanced capitalist economies in the sample, that are members of the OECD. A reproduction of the series with smaller country samples leaves the series more or less the same, suggesting the robustness and extensive nature of the reflected accumulation regimes. The shape of the series reveals two explicit locations of deep structural breaks. The breaks represent periods of abrupt/acute and deep decline in profit rates. The first was between 1971 and 1973 and the second between 2007 and 2008. Statistical tests of structural breaks, identify the years of structural breaks representing the structural crises as approximately 1971 and 2008 respectively. The period of the first break of between 1971 and 1973 has been well documented as the time of the structural crisis of Fordism, while between 2007 and 2008 is well documented as the time of the global financial crisis or the Great Recession. The length of time between these two periods is a long period induced to be representing a regime of accumulation.

The upward trending section of collective profit rates before the structural break/crisis of the early 1970s, arguably represents a part of the regime of Fordism.

Further to the crisis of Fordism evidenced by the deep and acute decline in profit rates in Figure 8.1, the Figure indicates that by 1975, profit rates have on the average, bottomed out, stabilised and, within a couple of years started its upward trend till about 2007 when there was a structural crisis (the global financial crisis). The long stretch of up-trending profit rates of nearly three decades in Figure 8.1, apparently evidenced an underlying profit rates momentum from some specific wealth generating activities by profit-minded owners of investable fund, and is long enough to qualify as a long wave of an accumulation regime.

Figure 8.1: Average Profit Rate: Advanced Capitalist Countries



(Source: Author's estimation from sample data)

This long stretch is apparently a post- Fordist regime of accumulation. Thus we have a first phase of evidence that supports the emergence of a post-Fordist regime as well as the time thereof. However, the accumulation of aggregate wealth/profit in this emergent Post Fordist regime is not based on mass production or fixed capital accumulation within national space, unlike in Fordism. The dents of 1981 and 1992 could be interpreted as periods of minor (exogenic/endogenic) crises as is typical of a regime of accumulation, which accommodate minor crises that do not exhaust its mode of regulation. The upward trending section marking the end of the structural break/crisis of 2007/2008 arguably suggests an evolving regime of accumulation. The profit rate series shows profit rates gathering momentum by 2010, after the

2007/2008 structural crisis of capitalism or that of the post-Fordist regime of accumulation. However, it is still far below profit rates enjoyed before the crisis of 2007/2008. The figure may suggest that a long wave of accumulation has almost passed by unidentified, and the emerging regime would be a post-global financial crisis accumulation regime. Yet the length of the data precludes any credible proposition regarding the emerging post-global financial crisis accumulation regime. Moreover, in the Regulation School Approach, the tradition is that a regime of accumulation is not predicted, but historically/retrospectively identified (see Tickell and Peck, 1995). Having identified the period of the post-Fordist regime, how do we identify the regime (by name)?

To identify the regime from the econometric test and analyses, we adopt a method that has grounded theory as the methodological foundation. We use this method to identify the regime induced from the econometric results. There is a tendency to adopt empiricism by positivist neoclassicals. But a tendency towards retroduction and grounded theory methods seem to be typical of critical realist post-Keynesians (Lee, 2002). Structuralism, retroduction and grounded theory are common with critical realist Regulation School scholars (see Jessop, 2003). An apparently more sophisticated and more modern methodological foundation of system-wide dialectic has been explicated in the literature (see Brown, 2007). The theoretical underpinning of this thesis however, is that of a critical realist Regulation School. We therefore adopt a method consistent with this philosophical foundation. We adopt grounded theory based method. A grounded theory based approach reaches theoretical conclusion through the rigorous combination and direct analyses of data, theoretical, empirical and historical literature simultaneously. Data collection, theoretical analysis and theoretical conclusion take place at the same time. Existing literature guides data analysis while the result of data analysis shape existing propositions, until new theoretical finding is achieved. Researchers are thus neither unduly influenced by exiting literature nor data, but produce theoretical propositions that describe the data, and do not go beyond the data (see Lee, 2002).

The theoretical literature argues that institutional configurations cause regimes of accumulation. The literature further proposed that in the regime of Fordism, wage

relation was the dominant social structure and, together with rapid fixed capital accumulation and capacity utilisation, underpinned that regime of accumulation (Glyn et al, 1992; Aglietta, 1998; Boyer, 2013). Wage-relations underpinned the mass consumption, mass production during Fordism. In response to mass consumption, the corporate strategy for sustaining high profit rates during Fordism involves greater emphases on fixed capital accumulation and greater capacity utilisation, to enable mass production. Wage relations, thus, came to underpin higher profit rates, higher real wages, fixed capital accumulation and the (equitable) distribution of income. If these theoretical arguments are true, the expectation is that these variables should correlate very significantly with (real) wages. It is not surprising that this regime of accumulation was named after the prevailing wage-relations introduced by Henry Ford in the US, and copied by other advanced capitalist economies.

The dramatic increases in internationalism helped to bring about the end of Fordism, by destabilising the regulatory structural forms of Fordism. These increases continued, explosively, in the subsequent years, to offer many more scopes for profit generation, that kept profit share continuously rising until about 2007/2008 (Figure 2.3). With this change in international regime, came strategy shift, with reference to the components of profit rates. Capitalists increased emphasis on profit shares, and a terrifying scaling down in rates of capacity utilisation. Furthermore, profit rates received significant boost from stupendous increases in the ratio of potential output to capital stock, brought about by decreases in rates of fixed capital accumulation. The fall in profit rates consequent upon the structural crisis of 2007/2008 lasted until just 2009. The decline in profit rates was brought about by falls in profit shares over the same period. Capitalists responded to the fall in profit rates without delay, by a ruthless cull of net capital stocks, to yield a near vertical increase in the ratio of potential output to capital stock (Figure 2.5). Further analyses of data presented in Figures 2.6, 2.7, 2.8 and Tables 2.2, 2.3 and 2.4 suggested that changes in international regime in the forms of increases in trade and financial openness underpin the new form of wealth accumulation.

The new international regime conditioned not only the dynamics of profit rates, but also those of real wages (and wage-relations), and the distribution of income (Glyn et al., 1992; Duménil and Lévy, 2011; Boyer, 2013). The dramatic changes in international regime across advanced capitalist economies, caused the supersession of wage-relations by the new international regime of greater economic openness, as the institution driving accumulation of wealth and profit rates. We found that this new increases in economic openness even explained observed dynamics of fixed capital accumulation in advanced capitalist economies in post-Fordism. Therefore, if these theoretical claims are true, indices of economic openness should correlate very strongly with the relevant variables, particularly profit rates, in these economies. If the correlations turned out to be strong enough, then in parallel with Fordism, the post-Fordist regime of accumulation should by analogy, be named after the conditioning institution of international regime. Thus the identification of the post-Fordist regime of accumulation modifies the theory of regime of accumulation in the Regulation School literature, as consistent with the grounded theory approach.

Table 8.1 presents the correlation coefficients between an index of international regime of economic openness and the relevant macroeconomic variables associated with a regime of accumulation, as aforementioned. The table identifies three potential regime of accumulation, as suggested by Figure 8.1. The figures in italic are coefficients of determination. A coefficient of determination, given as the square of a correlation coefficient, is the proportion of variation in a variable predicted or explained by changes in another variable. The 5th row of the table indicates how corporate profit rates correlate with economic openness, under the three distinct sections identified in Figure 8.1. During Fordism (to the extent that 1960-1969 represents Fordism), the correlation between profit rates and economic openness was just 0.08 (not significantly different from zero). The coefficient of determination of 0.7% means that only 0.7% of corporate profit rates during Fordism could be explained by the state of the international regime or economic openness. However, during the period of corporate internationalism, the correlation coefficient was 0.88. The coefficient of determination indicates that during this regime, the new international regime explained 77% of the growth in corporate profit rates, on average, across the sample countries. After the global financial crisis of 2007/2008, the correlation coefficient and coefficient of determination fell to

about 0.4 and 17% respectively. In the 6th row, regarding the correlation between fixed capital accumulation and profit rates, it was 0.57 during Fordism. This implies

Table 8.1: Regimes of Accumulation: Correlation Coefficients

	Accumulation Regimes		
	Post War Fordism	Corporate Internationalism Regime (Post Fordism)	Post Crisis Regime
Estimated Regime Period	1945-1973 (Wallerstein, 2010)	1975-2007	2009 - date
Actual Data Period	1960-1974	1975-2007	2008-2014
Corporate Profit Rate and Economic Openness	0.081 *(0.007)*	0.88 *(0.77)*	0.41 *(0.17)*
Corporate Profit Rate and Fixed Capital Accumulation	0.57 *(0.32)*	-0.39 *(0.15)*	0.67 *(0.45)*
Profit Rate Business Fixed capital Differential and Economic Openness	0.081 *(0.007)*	0.885 *(0.78)*	0.41 *(0.17)*
Real wage and Economic Openness	0.21 *(0.04)*	-0.824 *(0.68)*	0.820 *(0.67)*

(Source: Author's computation from sample data: AMECO database and)
(World Bank Development Indicators, UK data Services)

that over 32% of changes in profit rates was explained by fixed capital accumulation in Fordism. During Corporate Internationalism, the correlation coefficient was a negative 0.39, implying that 15% of falls in fixed capital accumulation was explained by increases in profit rates, during corporate internationalism. After the financial crisis of 2007/2008, the correlation coefficient is 0.67 and the coefficient of determination is 45%. Regarding the observation that fixed capital accumulation rates have been trending downward, while rates of profit have been trending upward in advanced capitalist economies, Table 8.1 shows that the correlation coefficient between this divergence in rates and the international regime was 0.08 in Fordism.

Then, only 0.7% of the divergence in rates could be explained by the international regime. However, the new international regime during corporate internationalism explained 78% of the differential between rates of capital accumulation and profit rates. In Fordism, the international regime or economic openness explained just 4% of changes in real wages, with a correlation coefficient of 0.21. But the correlation coefficient is a negative 0.824 during the identified post-Fordist regime. The coefficient of determination of 68% shows that about 68% of the changes in real wages during the identified post-Fordist regime is explained by the new international regime of economic openness.

The post-Fordist profit accumulation regime was a regime whose foundation was a new wave of economic/corporate internationalism, which best characterises this new post-Fordist regime. This new corporate internationalism not only sustained profit rates but triggered economic structural changes, as increased specialisation away from industries to services ensued. We therefore more confidently identify the post-Fordist accumulation regime discerned in Figure 8.1, as Corporate Internationalism. Corporate internationalism, apart from rivalling Fordism in temporal as well as spatial spans, seem to have quite some features that paralleled those of Fordism. In Fordism, the scope for profit generation was dominantly investment in fixed capital, which facilitated mass production. The closed economies in terms of trade and capital account restrictions (see Jessop, 2013) helped to limit the exploitable scope for profit generation by the capitalist class, and making profit generation dependent on fixed capital accumulation within national boundaries. However, the empirical findings in the previous chapters indicate that the greater economic openness after the late 1960s or from early 1970s made profit generation less dependent on the national accumulation of fixed capital, during corporate internationalism. Greater internationalisation offered capitalists the prospect of mass importation at a considerably lower prices; production for exports, that relied more on labour intensification; and the opportunity and pressure to acquire more financial market assets at the expense of fixed capital accumulation within the home country, as identified in chapters 6 and 7. The regime of Corporate Internationalism was therefore, a new era of fixed capital efficiency by businesses that also kept profit rates rising until about 2007/2008.

Corporate Internationalism increased in scope with financial and capital account liberalisation, as capitalists were able to increase profit accumulation not only through export and importation of goods and services, but also the export and import of financial resources, consistent with greater profit accumulation. This latter version of corporate internationalism increased foreign investments of domestic firms and increased foreign ownership of domestic assets, thus increasing cross-country interlocking ownership of assets. The increases in foreign ownership increased prices of domestic assets, financial market liquidity, and financial targets for domestic capitalist firms, significantly above what the underlying fixed capital assets could justify, thus pressuring firms to increase profit accumulation through greater export-import of goods/services and financial capital. It is remarkable that this is some form of vicious circle, where greater corporate internationalism generates greater corporate internationalism, with apparently grim prospects for labour, unlike the virtuous circle of Fordism where greater wages underpinned greater fixed capital and profit accumulation. Corporate internationalism was made possible by the neoliberal state forms. Thus a major role played by neoliberalism in corporate internationalism, was the removal of barriers to internationalism.

Once internationalism has offered capitalists the means of bringing labour under its control and fulfilling the imperative of profitability, capitalists became exposed to increasing competition from other firms at the international level, which introduced further dimension to the threat to profitability of capital. Moreover capitalists exposed not only themselves, fixed capital, but also wage labour to international competition. Capitalists have been able to adopted strategies to earn competitive advantages, to help sustain or increase the generation of profits. Wage-labour has rather been more docile, accepting real wage rates decided by the international labour market, with the consequence that real wages are either decreasing/stagnant/ or growing at slower rates. For capitalist firms, the strategies have been more varied. Some features of these strategies, include just-in-time inventory system, that involves painstakingly sourcing for market/order before production, in order to reduce the cost associated with input and output inventories. They also include increases in expenditure on research and development as well as knowledge acquisition, to facilitate competitive advantage in the internationalised environment. There has been the introduction of greater computer-based system or information

communication technologies to increase information advantage, reduce information processing time/cost and reduce the cost of production, through computer-aided production systems.

Most of the products of research and development expenditure are normally associated with international production and investment, to undercut foreign competitions. More features of the strategies include sectoral changes, with shifting of economic activities from real/secondary production to services/tertiary production (service-led growth), as a way of exploiting new areas of competitive advantage and escaping the rat race which global competition in secondary production has become. These evolving competitive strategies to enhance profit accumulation and survival of capitalists and their firms have been identified as distinct post-Fordist regimes in the literature, as earlier itemised. But it could be argued that they are prevailing strategic phases within a more encompassing corporate internationalism, underpinned by the prevailing international regime of excessive post-Fordist international liberalism, and the consequent competition form.

The struggles and strategies adopted have had wide-reaching distributive effects for the classes of capitalism, with greater distribution in favour of capital and to the disfavour of wage labour. The characteristic distribution presented a fundamental contradiction in capitalist profit generation efforts. The sustained reduction in distribution in favour of wage labour would imply a fall in both growth rates of total output and the demand for output. At the national level, this contradiction is deferred through spacio fixes, whereby domestic consumers are replaced or augmented by foreign consumers. Because this approach to capitalism diffuses across national boundaries, so is the reality of the contradiction mentioned above, which is, in turn, deferred temporally by huge household debts. Capitalists promote consumerism through promotions and advertisements with psychological persuasion (persuasive advertising), and facilitate it through the advancement of credits to households (Wallerstein, 2010). Risk management strategies in light of the increasing household debts, include the securitisation of these debts, through special purpose vehicles that produced very profitable assets back securities, that attracted vast flows of profit-seeking funds from domestic and foreign firms. But this unstable equilibrium

experienced a structural crisis in the global financial crisis, when (indices of) the new and sustaining economic openness exhausted itself or crashed (see Figure 8.2).

However, while it lasted, capitalists could increase their profit rates, through increasing profit shares from distributing less to wage labour, increasing profits through greater automation, greater product differentiation/innovations, increases in financial market assets, increases in profit rates by less capacity utilisation and higher ratios of potential output to fixed capital asset. In short increasing profit rates through less fixed capital accumulation. Apart from the distributive effect, productivity growth and employment rates changed with the advent of corporate internationalism. Thus we characterised the post–Fordist regime of accumulation and reconcile it with alternative post-Fordist regimes identified in the literature. However, in the spirit of the Régulation theory, if we have identified a post-Fordist accumulation regime, it is necessary to identify the regulating social structure or mode of accumulation, and to identify the hegemonic institution. The next two sections seek to identify the mode of regulation of corporate internationalism and assess that economic openness is indeed hegemonic.

8.3 A Complementary Institutional Configuration (Mode of Regulation)

This section identifies the mode of régulation that regularised Corporate Internationalism. According to the theory of institutional complementarity, such extended and sustained economic pattern of Corporate Internationalism would not be possible, in the absence of a regulatory institutional configuration (see Boyer, 2004; Amable et al., 2005). The complementary mode of regulation refers to the peculiar combination of the wage relations, international regime, money form, state form, and form of competition that supported the enduring regime of accumulation. A retroductive analysis involved in identifying the institutional forms that sustained for a time, the new accumulation regime is also highlighted.

A post-Fordist regime of accumulation has been discerned and identified as Corporate Internationalism. But why did this identified regime of accumulation

occur at that specific time? Citing the philosophical foundation of Critical Realism, we state that the real world is complex and the actual events we observe, instantiated for example by the identified post-Fordist regime of accumulation, are contingently realised. In social relations, there are tendencies and counter-tendencies, which in conjunction, make up their laws of motion (Jessop, 1990a). Mechanisms, which are channels through which tendencies and counter-tendencies operate, are transfactual. Social institutions/structures, which could exert power/tendencies/counter-tendencies through transfactual mechanisms to produce observed/empirical/actual events, do change (Lee, 2002). As changes in social institutions exist simultaneously and exert tendencies and counter-tendencies on themselves and potential actions of human-agents through mechanisms, some tendencies are overwhelm by others, while some are complemented by others. The combination of these multiple determination or tendencies produce the contingently realised or observed real world. It is an argument in the Regulation School, that modes of regulation sustain and define regimes of accumulation. The former contains social structures and the latter constitute contingently realised events/effects. The core five social institutions that jointly exert power to bring about and sustain a regime of accumulation have been given emphasis in this research. As each institution varies, it exerts tendencies, through human agents, to bring about some macroeconomic conditions. As all relevant social institutions or structures change simultaneously, tendencies and counter-tendencies from them are overwhelmed or reinforced, to produce a net macroeconomic set of condition with specific features, depending on the dominant institution, that last as long as the specific configuration of these social institutions lasts. This resultant, sustained, net macroeconomic set of conditions becomes a regime of accumulation and the institutional configuration is its mode of regulation. In this section we walk through some typical mechanisms of the core five institutions and the changes that have occurred in them since the demise of Fordism, and how these changes through the mechanisms, could have worked-out to enthrone the identified regime of Corporate Internationalism.

8.3.1 The State Form

The concept of ‘state form’ has been the most problematic, relative to the other four core institutions, in the Regulation School literature. We start with some perspectives on the nature of a state form. According to the state derivation theory,

the state is seen as a structural component of the capitalist relations of production itself, its specific political form. The capitalist classes and relations of exploitation are set up so that the economically ruling class do not rule directly but their rule can only be realised by means of a body that is relatively separate, the state. At the same time, the structural and functional logic of capitalism remains in control. The state does not stand outside and independent of capital. The bourgeois state is therefore a class-state without being the direct instrument of a class and this particularisation or relative autonomy of the state, is the basis of the state illusion (Bonefeld, 1991; Hirsch, 1991)(see also, Wikipedia on State).

A second perspective argues that capitalism may be viewed as an interrelated processes of capital's penetration of society. Of these processes, the first is the capacity possessed by capital to establish its rule and commodify the reproduction of labour power, to form a highly woven reproduction of both labour and capital, leading to the universalisation of wage-relation as the primary source of reproduction and to the tendency to destroy traditional support systems for young and old, sick and lonely people. This extensive destruction of previous patterns of reproduction is described as 'social disintegration'. The state therefore intervenes or moves into society, in response to the penetration of society by capital, so that the state could recompense social disintegration of society in the interest of capital production. The state is therefore seen as the primary force of reproduction (Bonefeld, 1991, p.42)

Another perspective is that a coherent/compatible organisation of the proper measure of labour disorganisation as well the corresponding organisation include repressive, ideological and mass-integrative forms of regulation. Their compatible and corresponding operation facilitates the historical reproduction of a specific social form of class relations. Furthermore, it is within the purview of the state, that the regulative forms are condensed, homogenised and their operations achieved (Aglietta, 1979). The state carries through or executes the proper form of disorganisation of the activity of labour, which enhances the direction or funnelling of class struggles into suitable forms of capitalist production (Bonefeld, 1991).

From these propositions in the literature, we can simplify the problematic of the concept of a state form, by assuming that a state form depends on the interventionist tendencies of the state. We assume further, that state interventionism is usually for the distribution of income in favour of wage labour, and constraining capitalists' exploitive tendencies. When the state form is more intervening, wage relations strengthen, so that the macroeconomic tendencies would be increases in real wages, increases in consumer demand, increases in rates of fixed capital accumulation and more modest but stable increases in corporate profit rates. When the state form tends towards non-interventionism, wage-labour is at the mercy of capitalists, depending on the strength of labour union. It is however worse, if the state form starts by weakening the labour union. The tendency therefore of a non-interventionist state form is fall in real wage growth rates, fall in demand growth and output, as well as decreases in fixed capital growth rates. How then, have state forms changed historically, in the advanced capitalist economies, since the demise of Fordism?

The complementary state forms were those of social democratic compromise or Keynesian welfare states during Fordism. In the words of Wallerstein (2010), the Old Left political ideology reached its zenith between 1945 to about 1970, and this political ideology underpinned the activities of state forms across about two third of the world, including pan Europe. Across advanced capitalist economies, this political ideology promoted unprecedented state-backed social and economic egalitarianism that sent jitters down the spine of the rather more wealthy and conservative capitalist class. Under the watch of the Old Left between 1945-circa 1970, state-sponsored egalitarianism, was an unprecedented moment of long wave economic expansion and this was not fortuitous (ibid). The demise of Fordism brought about the demise of the effective political representation of the working class. It was replaced by a neo-liberal state form in the next long wave of accumulation. This state form that embodies the ideologies of the political new right, was not fortuitous but, arose from the class struggle and represents a reinforcement of the despotism of the capitalist class. The mission of this state form is the social restructuring of the state, that put both powers of the state and capitalists ultimately from the purview of any form of democratic review (Clarke, 1990). The primary motivation of the architects of the new political right is to undo the economic and social gains that accrued to the lower economic classes of capitalism during the

height of the reign of the Old Left, by facilitating higher profit rates through the suppression of real wages and cost of production, and commit the welfare system to its grave (Wallerstein, 2010). It is therefore obvious that behind the rise of the New Right, are the capitalists (see Nilsson, 1996).

The capitalists, by being the architect of and dominating the state form after Fordism, made themselves and wealth increasingly beyond the regulatory reach of the state. They have also made themselves, their resources and the state, beyond the influence and control of the working class. Meanwhile, the capitalists have pulled down the state provisions that ameliorated the sufferings of the poor. Through the influence of capitalists, state/public economic outfits were wantonly privatised, to the dramatic enrichment of the capitalist class. While neoliberalism has captured the heart of even many political left, with its purported principles of decentralisation, decentralisation is actually a hegemonic project, used as a vehicle for putting power centrally in the hands of multinational conglomerates (both industrial and financial), independent judiciary, central banks, supranational organisations as well as executive agencies, that are biased in favour of the capitalists and leave the state almost with virtually no independent power to respond to the cries of the working class of labour protesting of the wider adverse social-economic effects or negative externalities of capitalists' repressions. The wealth of capitalists have subjected not only the working class but also the state, to its logic. State forms across the advanced capitalist economies in general emerged under the aegis of capitalist class political activism, as neoliberal states. In their ultra-liberal stance, they are more or less permissive puppets installed to facilitate higher profits generation and, unable to hold the capitalists class accountable for their actions. This permissiveness found a perfect expression in the Greenspan put (see Varoufakis, 2011).

At the moment, the only effective adversary of capitalists is neither the state nor the working class, but apparently capitalists themselves (see Boyer, 2013). When the working class faces economic distress, the capitalists class and its apologists highlights the economic irrationalities of a state-funded intervention. However, they have severally benefitted from state transfer payments intended to bail out the capitalists class from its own recklessness (e.g. the Greenspan put). A more recent

development more associated with the post-global financial crisis, and likely as a positive reinforcement from Greenspan put, is the capitalist class dumping of its excess finished goods inventories on the laps of the state. Thus from domestic markets to international markets and now to states' markets. Conclusively, the prevailing state form after Fordism is a non-interventionist, non-regulatory state form that liberalised obstacles out of the way of higher profit generation. All things being equal, the macroeconomic tendencies of this prolong non-interventionist state form, would be weak wage relations, the distribution of income in favour of capitalists, fall in real wage growth rates/shares, decline in rates of fixed capital accumulation, as already analysed. As this state form persists, these macroeconomic tendencies prevail.

8.3.2 The Form of Competition

Corporations have hardly been subjected to such fierce competition as they faced during the period of Corporate Internationalism, relative to Fordism. During Fordism, the inter-firm competition was rather low, with few large firms in an industry organised in the form of various and large departments. The demands for their outputs were expected to be stable, revenues and the increase thereof could be predicted with greater certainty. By contrast, after Fordism, the inter-firm competition became fierce almost to the extent of a rat race. The idea of certainty in expected inward and outward cash flows in project evaluation became luxuries relative to the period of Fordism. Firms are therefore more cautious concerning fixed capital investments, with increases in write-down or depreciation of existing capital stocks, probably unless in instances where there are greater assurance of protection of cash inflows by patent laws. Corporations have to enlist all the tricks in the books, to satisfy the imperative of corporate profitability in the face of stiff competition and risk therefrom, including: intense research and development effort, knowledge acquisition, human capital accumulation and, use of information technology. Firms have been driven by competition and risks to develop a penchant for cost advantage, which motivates them to relocate to peripheral countries where wage cost is very low (Wallerstein, 2007).

If there are equivalent increases in labour market competition, firms could reduce

the risk of falls in profit rates, from higher competition, by depressing real wage shares and rates, as wage-relations would be weakened. Moreover, firms could relocate productive facilities to poorer countries, suppress real wage growth at home, outsource services department to less developed countries where the cost of labour is rather low and, encourage mass immigration of low cost labour. All things been equal higher competition among firms and wage-labourers would tend towards an accumulation regime with lower growth in output and fixed capital accumulation, but modest increases in profit or wealth accumulation rates.

8.3.3 The Money Form

Money form changed from the national currencies of Fordist period of international convertibility and robust relative value under Bretton Wood System, to national currencies with very unstable values and the advent of financial market instruments that are highly liquid across nations. Firms where very zealous to hold increasing number of highly liquid instruments both for (speculative) profitability and liquidity enhancement. Firms were also able to more easily raise funds by way of short-term debts as money market instruments. Money in the form of debit/credit cards and households' loans became easily accessible and these were often relied upon to fund personal consumption, as real wage growth lagged behind. The result became unsurmountable household debts that partly accounted for the global financial crisis of 2007. As money form increases general liquidity, the tendencies would be for prices to increase. Capitalists may increase wealth through capital gains, beside profits from operations. The tendencies to increase profit from substituting financial assets for fixed capital by non-financial corporation also increased. The increases in wealth independently of labour, deteriorated wage relations and real wage growth. Therefore increases in money form and liquidity tends toward increases in profits rates, increases in income inequality, increasing (financial) asset prices, and falls in growth of real/industrial production and fixed capital accumulation. Like competition, increases in money form may weaken wage relations.

8.3.4 The Wage-Relations

Wage relations define the wage-paying employment relations between capitalists and wage-earning labourers. They are associated with class struggles, relating to

appropriation of the creative power of labour by capitalists. The crisis of capitalism in the 1970s stems from class struggles, with profitability threatened by the demand and bargaining powers of mass workers. Capitalists, therefore, desirous of changing the social relations to that in which labour is broken, weak and fragmented, pursued the restructuring of social relations of production, with capitalists endeavouring to decompose the working class by fragmenting and dividing workers, from one another. The collective bargaining of wage relations during Fordism eventually gave way to private and individual negotiation between a wage-labourer and an employer.

The increase in internationalism brought increased competition in the labour market. The labour market was made loose. The diversification of capital ensures the near impossibility of wage-labour to form a critical mass that could challenge both capitalists and states. Organised labour unions became broken reed, in terms of helping to negotiate labour advantages, in relationship with the capitalists class. The labour class, highly fragmented, became rather subservient to capitalists. Weak wage-relations imply weaker real-wage growth and higher profit shares and rates. Weak growth in real wages will in turn cause weaker growth in demand, consumption and fixed capital accumulation. Therefore all things being equal, strengthening wage-relations would tend towards a regime of accumulation characterised by higher growth rates of real (industrial) outputs, fixed capital accumulation but fall in income inequality. Fall in income inequality would tend to cause modest growth in profit rates. Weakening of wage relations would bring about the opposites, including facilitating a regime with higher profit shares and rates.

8.3.5 The International Regime

The International regime has as its principal components, trade openness and financial openness. In a world of multiple exertion of power, changes in international regime exert tendencies on the other core regulating institutions. Increases in international relations or economic openness may have the tendency to weaken wage relations, increase both inter-firm and labour competitions, affect liquidity (money form) and, may enhance capitalists ability to evade state regulation. There may be counter tendencies or feedbacks on the international regime, from these four institutions. Weakening of wage relations and wages condition may lead

to political activism by wage labour to decrease international relations (See Chapter 4 and 5). But an international regime of increasing economic openness imply feeble or unsuccessful counter-tendencies or feedbacks from wage-relations on the new international regime. Firms facing higher competition have the options of fighting to reduce economic openness, ignore or exploit the opportunities it bring. Too much liquidity may generate the tendency for a state to intervene, to reduce inflation. Increasing economic openness is, therefore, evidence of overwhelming tendencies of an emergent international regime.

There are therefore net tendencies from a persistent change in international regime, which become the net law of motion driving the dynamics of the contingently realise macroeconomic set of conditions or regime of accumulation. A new regime of greater economic openness implies increasing rates of wealth accumulation through direct means such as globalisation of production or trade, or assets substitutions enhanced by higher liquidity from increases in economic openness. Higher economic openness will reduce fixed capital accumulation as found in chapters 6 and 7. It will reduce growth rates of aggregate output, because of the cointegration between fixed capital accumulation and GDP growth rates, as found in Chapter 2. It increases profit rates and promotes income inequalities as seen in chapters 6 and 7. Moreover, it may have effects on wealth and fixed capital accumulation through the other four core institutions. Therefore a prolonged period of increases in economic openness as seen from the end of Fordism to 2007 would mean net macroeconomic tendencies where these features are prevalent.

Changes in international regime operated through mechanisms such as profit shares, capacity utilisation, relative costs of capital and directly through import and exports, and financial assets acquisition, to bring about a new regime of sustained wealth accumulation/expansion, where compared to Fordism, production is more biased from industries in favour of services, and distribution is geared toward greater inequality, circulation and liquidity are fuelled by increases in consumer debts and international flow of funds. These tendencies and counter tendencies as well as their implications for a regime of accumulation are presented in the Table 8.2.

Table 8.2 Post-Fordist Mode of Regulation

Institution	Historical Change	Counter tendency on international regime	Impacts/Characteristics of Historical Cahnge		
			Profit Rates	Income Inequality	Fixed Capital Accumulation
Wage Relations	-ve	Weak counter tendency	+ve	+ve	-ve
Money form (Liquidity)	+ve	Weak counter tendency	+ve	+ve	-ve
State Intervention (State Form)	-ve	Weak counter tendency	+ve	+ve	-ve
Competition form	+ve	Weak counter tendency	-ve	+ve	-ve
International regime (economic openness)	+ve	Net tendency over all counter tendencies	+ve	+ve	-ve
"Sustained Wealth Accumulation Regime" (Corporate Internationalism)	**+ve**	**Net influence/tendency by internationalisation**	**+ve**	**+ve**	**-ve**

(Source: Author derived)

In Table 8.2, a +ve sign indicates an increase or increasing impact, while a –ve sign indicates a decrease or decreasing impact. Using profit rates, income inequality and fixed capital accumulation as representative features of a regime of accumulation, the table shows tendencies of the respective five core institutions on this features and the net outcomes. The direction of change in all five imply sustained macroeconomic tendencies towards increasing profit rates, decreasing fixed capital accumulation rates and, increasing income inequality. Consequently we have a prevailing net macroeconomic condition or regime of accumulation where profit

rates are increasing and fixed capital accumulation rates declining. The net force driving the macroeconomic condition is the new international regime of increasing economic openness or internationalism, and hence the name Corporate Internationalism.

8.4 The Institutional Hegemony of International Economic Openness

This section evaluates the possibility of the hegemony of the new international regime during Corporate Internationalism. Theoretically, increasing economic openness is expected to intensify competition among capitalist firms. There is the possibility that higher domestic competition may increase the pressure for greater economic openness, as firms struggle to increase the market-base for their outputs. But as soon as economic openness increases, firms become more exposed to stiffer competition from external firms (see Neo-Chamberlinian models; Neo-Hotelling models; Brander-Krugman model, in Krugman, 1992). Firms in turn are motivated to adopt greater competitive behaviour either for survival, maintain or increase profits. Logically, when the international regime becomes liberalised, it should be expected to dominate and influence the pattern of contemporary form of competition.

Even more vulnerable to international regime or economic openness is the wage relation. Greater international openness increases competition and rivalry between local and foreign labour, as the labour market becomes globalised. Consequently, wage-labour bargaining power relative to the firms' or capitalists class is undermined. The desperation of labour from possible loss of employment makes labour rather docile in the hands of firms and capitalists. Under the non-artisanal method of production and economic structure in modern capitalism, capitalists increase profit and wealth by investments. The absence of an external alternative and the quest for greater wealth, motivate increases in local investments, employment and thus tight labour market, which in turn increases labour bargaining power. But under such a closed economy, wage labour makes a higher percentage of the customer base of firms, so that a weak bargaining power of labour feeds back on

firms as weak financial performance. Weak financial performance would lead to lower capital investment. Under a regime of increasing economic openness, wealth creating ability of capitalist firms becomes less dependent on wage labour. Therefore, under greater economic openness, wages growth and how wage labour relates with the capitalists class are conditioned or dominated by economic openness or international regime.

In a liberalised international regime, the state form and the money form are also dominated by international regime. The state liberalises the international regime, yet once it is liberalised, the options open to the state for controlling the capitalists class fade. Because the state depends on the capitalists class for fund (either through tax or loans), a liberalised international regime and the dependence of the state on the capitalists class gives the latter more leverage over the former. Money in the form of debts and other monetary instruments seem to increase with a more liberal international regime. This is at least supported by historical experiences. Expansion in economic activities or loanable funds of foreign source increases the volume and varieties of liquidity. Therefore, a liberalised international regime dominates the money form. On the merit of the argument in this subsection, we conclude that changes in the international regime, through its principal components of trade openness and financial openness evidenced by their increases, have indeed been hegemonic or dominant over money form, the state form, the form of competition and wage relations, thus dictating the dynamics of the regime of Corporate Internationalism.

8.5 Greater International Economic Openness: The Benefactors and the Beneficiaries

If capitalism is fundamentally associated with conflicts between wage labour and capitalists over the distribution of created values, then which class has been the primary beneficiary and which is the loser or benefactor in the post-Fordist regime of Corporate Internationalism? The mainstream view is that greater trade and financial openness are beneficial for all countries involved, in that they increase the total pies of output and income to be distributed in all countries involved. Assuming

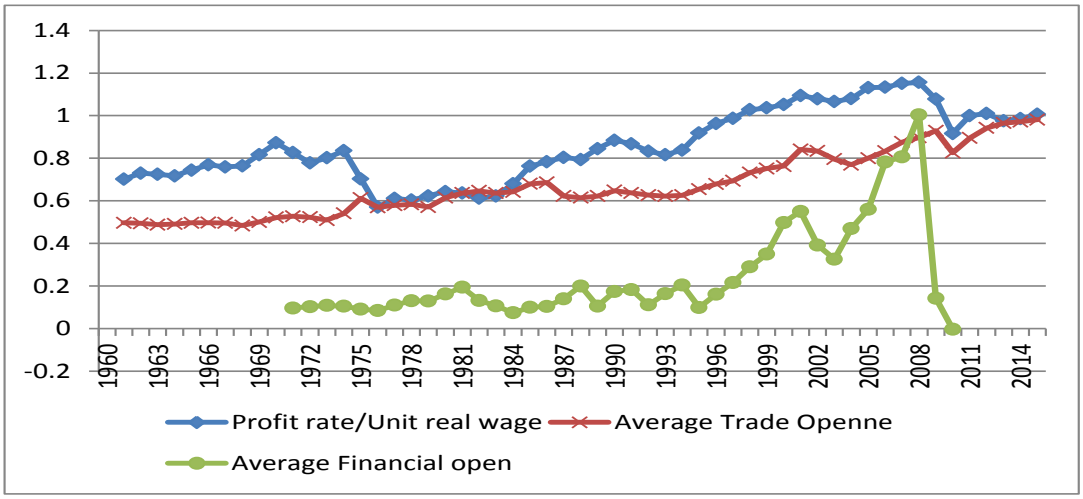
efficient redistribution of income, mainstream view is that economic openness is beneficial for all individuals in these countries. But empirical evidence has suggested otherwise. While the data suggest possible shrinking in rates of growth of the pie of income to be distributed among all individuals, internationalism tends to facilitate a sustained redistribution of the pie from one class to another class of capitalism. But which class benefits/loses? The apprehensive view by the wage labour class, of greater economic openness is apparent, as early as the 19th century, from the following abstract from the Leicester framework knitters in 1817, quoted in Thompson (1963) and Marglin and Bhaduri (1992). Comparing its welfare under international economic closeness and openness, the quote goes as follows:

> *"That in proportion as the reduction of wages makes the great body of the poor and wretched, in the same proportion must the consumption of our manufactures be Lessened. That if liberal wages were given to the mechanics in the general throughout the Country, the home consumption of our manufacturers, would be immediately more than doubled, and consequently every hand would soon find full employment. That to reduce the wage of the mechanic of this country so low that he cannot live by his labour, in order to undersell foreign manufacturers in a foreign market, is to gain one customer abroad, and lose two at home"*
>
> (Home Office Papers 42.160, Quoted in Thompson, 1963, p.206; and Marglin and Bhaduri, 1992)

Kotz (2003) has described the regime which embeds greater economic openness as that, which exclusively benefits the capitalists class, drives down real wage growth and, increases wealth and income inequality. Evaluating the relative benefits of capital and labour arising from increases in economic openness, Figure 8.2 juxtaposes ratios of profit rate to real unit cost of labour (wage) with indices of economic openness. The series of the ratio of profit rate to real wage clearly displays three different regimes, consistent with Figure 8.1. Between 1960 till about 1971, economic openness was low and remained more or less the same. The ratio of profit

rate to real wage stayed more or less the same. The benefits ratio declined briefly in the early 1970s, due to the crisis of Fordism.

Figure 8.2: Profit Rate to Real Unit Cost of Labour Ratio and Economic Openness: Advanced Capitalist Economies Average



(Source: Author Computed from sample data)

As capitalists mastered the exploitation of the opportunities that the emerging international regime offered, returns increased, and real wages fell. Consequently, the benefits ratios rose with increases in trade openness. The ratios of profit rate to real unit labour cost rose faster, as capital accounts were liberalised in the mid-1980s. With the crisis of 2007/2008, de facto economic openness declined and the benefits ratios also fell, but later buoyed by trade openness, as de facto financial openness crashed out of the scene. The relationship captured in Figure 8.2 suggests that the capitalists class tend to be the favoured class, when economic openness increases.

In further investigation of this relationship, an econometric estimation of the relationship is undertaken. Table 8.3 presents the relevant summary statistics of the variables. The data covers the period of 1974 to 2007, to capture Corporate Internationalism as exclusively as possible. Of particular note, is the rise in the ratio of profit rate to real unit cost of labour (real wage), from an average of 0.57 during the

Table 8.3: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
year	34	1990.5	9.958	1974	2007
Profit rate-unit real wage ratio (P/W)	34	0.865	0.191	0.571	1.156
Trade Openness	34	0.688	0.094	0.570	0.898
Financial Openness	34	0.271	0.234	0.075	1.0035
Interaction of Trade/ Financial Openness	34	0.206	0.211	0.048	0.901

(Source: Author computed from sample data)

onset of Corporate Internationalism in the mid-1970s, to more than the double of that value, at a ratio of 1.156, by the time of the structural crisis of 2007/2008. Financial openness, rising from nearly zero at 0.075 by more than 1230% to 1.0035, controlled the pattern of economic openness as soon as it became active in the mid-1980s. This is obvious by the proximity of the interaction of trade and financial openness to financial openness in terms of averages, minimum/maximum values and volatilities. Table 8.4 presents the correlation coefficient among the series. The highest correlation of the ratio of profit rate to real wage is with trade openness.

Table 8.4: Correlation Matrix

	Profit/wage P/W	Trade Openness (top)	Financial Openness(fop)	Interaction top & fop
pw	1			
top	0.892	1		
fop	0.788	0.896	1	
top & fop	0.778	0.9	0.998	1

Table 8.5: Model Estimates; Dependent Variable: Profit Rate to Real Unit Cost of Labour (1970-2014)

Variable	Coefficient	Robust Standard Errors	P - Value
Trade Openness	2.130	0.211452	[0.000]
Financial Openness	2.482519	0.652147	[0.001]
Interaction of Trade and Financial Openness	-2.88831	0.126115	[0.000]
Adjusted R-square	0.8243		
F(3, 30)	126.40		[0.000]
Root MSE	0.08015		

Table 8.5 above, presents estimates of the regression of the ratio of profit rate to real unit labour cost (real wage), on trade and financial openness, using ordinary least squares estimator with robust standard errors. According to the estimates, 1% increase(decrease) in trade openness will cause a 2.13% increase(decrease) in profit rate to real wage ratio, at the 0.1% significant level. 1% increase(decrease) in financial openness will cause a 2.5% increase(decrease) in profit rates to real wage ratio, at the 0.1% significant level. The negative sign of the parameter estimate of the interaction of financial and trade openness, indicates that the combined/cumulative effect of both types of openness on the ratio of profit rate to real wage, would be less than the sum of the individual effects.

To understand the impact of economic openness on how relatively well-off capitalists have been at the expense of labour, during the regime of Corporate Internationalism, the impact is assessed at the standard deviation level (see Table 8.6). Over the period of Corporate Internationalism before the global financial crisis, economic openness explained or caused 90% of the increases in profit rates over real

wages. Therefore, the capitalists are the beneficiaries, while the wage labour class is the benefactor of the post-Fordist regime of Corporate Internationalism.

Table 8.6 Impact Assessment: Economic Openness on Relative Class Benefits

Variable	Coefficient	Standard Deviation	Impact (Coef*std dev)
Trade Openness	2.1297	0.0937	0.1995
Financial Openness	2.4825	0.2339	0.5807
Interaction term	-2.8883	0.2112	-0.6101
Economic Openness			0.1701
Average variation in Profit rate/ Wages		0.1912	
% explained by Economic openness		{0.1701/0.1912}*100	90%

8.6 Summary

The implications of the findings that changes in economic openness cause inverse changes in business fixed capital accumulation, that observed decline in fixed capital accumulation since circa 1970 in advanced capitalist economies was chiefly explained by the increase in economic openness, and that over the sample period economic openness has interacted with profit shares to the detriment of fixed capital accumulation are relied upon to strengthen the proposition that a post-Fordist mode of development has emerged. A mode of development consists of a regime of accumulation and its complementary mode of regulation.

Bowles et al (1986) have proposed that a boom or a regime of accumulation is characterised by rising profit rates, while a crisis is expectedly marked by declining and low profit rates. Using a process of inductive inference, and grounded theory, a post-Fordist regime of accumulation was identified as Corporate Internationalism, having statistical features that are consistent with the aforementioned proposition of Bowles et al (1986). Using a process of retroductive analysis, historical changes in and macroeconomic tendencies of the core institutions of money form, wage-relations, form of competition, state form and, international regime, the complementary mode of regulation was identified. To characterise this regime of accumulation, the different stretches of historical profit rates series were correlated

with economic openness, with the region within the regime breaks displaying the highest correlation.

At a correlation of 0.88, the positive relationship between economic openness and profit rates over the identified regime of accumulation is statistically significant, with a $p < 0.001$. The probability of the relationship occurring by chance is less than 1 in 1000. Furthermore, at 0.88, the coefficient of determination (0.88 squared) is 0.77, which implies 77% of the growth in corporate profit rates is explained by increases in economic openness. By contrast, in the period before this regime of accumulation, the correlation coefficient was just 0.081 with a coefficient of determination of 0.0066 implying that then, economic openness explained only 0.66% of corporate profit growth. On the basis of this predominance of *de facto* international economic openness in the determination of profit accumulation during the period of the discerned post-Fordist accumulation regime, we characterised the discerned regime of accumulation as Corporate Internationalism.

Furthermore, during Corporate Internationalism, economic openness explained about 67% of the decrease in rates of growth in real wages. While in the previous era, corporate profit rates varied positively and significantly with business fixed capital accumulation, during Corporate Internationalism, it was a significant negative variation. In our previous studies, we find that the ratio of the cost of capital to real wage is the dominant channel through which economic openness inversely affects business fixed capital accumulation, and that changes in economic openness explain about 70% of the variations in real wage rates during this regime. We therefore infer that in this regime of profit accumulation, with its regulating institutional configuration, increases in economic openness, dominantly explain the downward trends in business fixed capital accumulation observed in advanced capitalist economies. Furthermore, the corresponding regulating institutional configuration is identified, to establish the mode of régulation, with apparent hegemony of the changes in international regime. With reference to the power struggle between the capitalists class and wage labour class, we observed that over the period of Corporate Internationalism, the ratio of profit rate to real unit wage that was about 0.57 at the outset of the regime rose to about 1.16 at the end of the

regime, an increase of over 100%, with economic openness accounting for about 90% of these variations (the redistribution of value created or income) in favour of capitalists class.

This thesis identified and filled the gaps in the role played by increases in economic openness in observed decreases in rates of corporate fixed capital accumulation in the face of rising profit rates in advanced capitalist economies, and the fundamental lack of consensus in the emergence of a post-Fordist regime of accumulation. By filling these gaps, this thesis consequently made some original contributions. Three original contributions of this thesis to the literature are: first, in advanced capitalist economies, changes in economic openness tend to cause inverse changes in business fixed capital accumulation. Second, the provision of robust evidence in support of the claim that institutional configuration matters. And third, the identification of an alternative post Fordist regime of accumulation, Corporate Internationalism.

Chapter 9 Conclusion

9.1 Introduction

The topical controversy that motivated this research is the problematic of finding alternative explanations for observed decline in rates of business fixed capital accumulation across the advanced capitalist economies since circa 1970, at a time when corporate profit rates are upward trending. This is despite the theoretical orthodoxy in the literature that over the long-run, there exist a positive relationship between profit rates and business fixed capital accumulation. The debate on the cause of the decline has been long-standing. Independent studies have been conducted in the context of one or a few of the advanced capitalist economies. Three broad strands of argument have been put forward to explain these downward trends in rates of fixed capital accumulation. These are the increasing dividend and interest pay-outs argument; the share buybacks argument; and increased financial assets holdings by non-financial firms. Although proponents of these strands of explanation continue to simultaneously make claims to the support of empirical evidence, it is somewhat difficult to see how these strands could justify the sustained rising trends in profit rates, even if they have robust explanatory power with regards to the downward trends in fixed capital accumulation.

Another problematic of these extant strands of argument are the temporal inconsistencies between the explanans and the explanandum. The three strands of explanation are based on the extensive financial liberalisation across advanced capitalist economies. However, the aforementioned financial liberalisation commenced in significant measure only from the mid-1980s (see Sawyer, 2013), while the declining trends extend back to circa 1970, implying the explanandum precedes the explanans. There is strong logic in the argument that microeconomic slowdowns in rates of fixed capital accumulation from the indulgence of corporations in higher dividend pay-outs, interest pay-outs, share buybacks, and higher financial assets acquisition may unlikely transform into extended macroeconomic downturns in rates of fixed capital accumulation, because resultant

economic rents from a seller's market may attract new entrants with compensating rates of fixed capital accumulation. This, together with other shortcomings of these strands of arguments, in light of the importance of fixed capital, suggests that further research to unravel the underlying cause is still of the essence. Ideally, the theorised cause should simultaneously give some insights into the up-trending of profit rates, as it provides a robust explanation for declining capital accumulation.

There exists a theoretical proposition in the French Regulation School Literature that capital accumulation is a function of the configuration of five key institutions or social structures: a money form, wage relations, a form of competition, a state form; and an international regime. Capital accumulation is proposed to take place in the context of a regime of accumulation, sustained or regulated by the aforementioned institutional configuration (the mode of régulation). The regime of accumulation and mode of régulation collectively form the mode of development. In the institutional configuration, there is supposed to be a leading or hegemonic institution. The two primary constituents of an international regime are trade openness and financial openness. With the observation that there have been dramatic increases in trade openness and later financial openness across advanced capitalist economies since circa 1970, together with historical insights, we invoke the Régulation school proposition and argue that: the increases in trade openness offer initial explanation to the observed decline in fixed capital accumulation and that trade openness was later reinforced by financial openness, in reducing rates of fixed capital accumulation. In order to assess if this posited economic openness – fixed capital accumulation trade-off happened in the context of a regime of accumulation, this research proceeded to the identification of a potential post-Fordist regime of accumulation and, the enabling institutional configuration (mode of régulation). This concluding chapter is structured as follows: Section 9.2 presents a summary of the methodology. Section 9.3 presents summaries of the findings. Section 9.4 highlights the contributions of this research to the literature. Section 9.5 presents some policy implications. Section 9.6 presents some potential future research areas.

9.2 Summary of methodology

Three key chapters were dedicated to empirical investigations, in this thesis. The methodology involved applying panel data econometrics to secondary data, spanning the years from 1960 to 2014, of 23 advanced OECD countries, for which data are more readily available. We augmented the panel data econometric estimators with structural break analysis, dominance analysis, as well as cointegration analysis. Models were estimated for different segments of the sample period, where different estimators with different assumptions including slope homogeneity and heterogeneity were used. Standard errors robust to heteroscedasticity, serial correlation, and cross-sectional dependence were used. Control variables were included in our estimates and provision made for time, using time dummies, to facilitate robust findings.

9.3 The findings of this Study

It was found that once other potential sources of corporate profits such as international trade and financial assets investments have been controlled for, profit share is statistically and economically significant, in the determination of fixed capital accumulation, in a positive way. This is consistent with the Cambridge and other models, which posit that expected profits from fixed capital accumulation govern the dynamics of fixed capital accumulation. The interactions of other sources of profits such as economic openness with profit share, have negative parameter estimates, with regards to fixed capital accumulation. This implies that as superior alternative sources of profits increase corporate profits share, the higher is the tendency for profit-oriented firms to decrease the rates of accumulating fixed capital.

Once trade and financial openness have been accounted for, capacity utilisation on a net basis reduces the rate of fixed capital accumulation. Suggesting that capacity utilisation reduces the need for fresh capital accumulation rather than as an incentive to accumulate. Long-term interest rates and real unit labour cost have hardly any economically significant residual explanatory powers with respect to rates of fixed capital accumulation, once the relative cost of capital has been controlled for. This is because their effects on capital accumulation are virtually subsumed by relative cost.

The sizes of parameter estimates suggest that the key variables determining rates of capital accumulation are profit share, the costs of capital relative to real wage, and economic openness. Once these have been accounted for, other parameter estimates tend towards economic insignificance, even if statistically significant.

9.3.1 Trade Openness and Business Fixed Capital Accumulation

In the econometric analysis in chapter six, it was found that increases in trade openness cause decreases in rates of business fixed capital accumulation, in advanced capitalist economies. Economically and statistically significant residual parameters (explanatory powers) estimates exist with trade openness, after interacting trade openness with other variables. Furthermore, combined evidence from the estimated parameters, the relative volatility of the explanatory variables, dominance analyses, and structural break analysis facilitated the conclusion that trade openness dominated in the determination of the dynamics of business fixed capital accumulation, in the absence of financial openness, in advanced capitalist economies since circa 1970. The correlation analyses of the constituents of trade openness and fixed capital accumulation indicate that over the sample period, trade openness in terms of goods exports and imports had the highest correlation with fixed capital accumulation. Goods exports as proportions of GDP correlated with capital accumulation, more than did goods imports as proportions of GDP.

These findings are also antithetical to and suggest some lacks of empirical evidence supporting the predictions of key mainstream trade theories that increases in trade openness increase rates of fixed capital accumulation in advanced capitalist economies. These key mainstream trade theories include absolute and comparative advantages trade theories of Adam Smith and David Ricardo respectively. They also include subsequent theories: the Heckscher-Ohlin two factor model, the imitation-gap theories of trade (see Posner, 1961), the Neo-Heckscher-Ohlin Model (see Falvey, 1981; Falvey and Kierzkowski, 1987), the Neo-Chamberlinian Models (see Krugman, 1979, 1992; Venables, 1984; Lawrence and Spiller, 1986), the Neo-Hotelling models (see Lancaster, 1980) (see Krugman, 1992, for the new trade theories) and Rybczynski Theorem (see Rybczynski, 1955).

9.3.2 Financial Openness and Capital Accumulation

It was also found in this thesis that for the advanced capitalist economies, increases in financial openness bring about decreases in business fixed capital accumulation. To evaluate if financial openness influences rates of business fixed capital accumulation through sundry Mechanisms (channels), interaction terms of financial openness and other variables were included in the model estimates. The model parameter (marginal) estimates in conjunction with the relative volatility analysis of the included explanatory variables, and dominance analysis, facilitated the conclusion that increases in financial openness, following the capital account liberalisation contributed significantly to explaining observed decreases in rates of fixed capital accumulation of advanced capitalist economies, in post-Fordism

Among the constituents of financial openness, openness in terms of outward foreign direct investments have the highest negative and absolute correlation with fixed capital accumulation over the sample period. The next highest negative and absolute correlation with fixed capital accumulation was financial openness in terms of outward portfolio flows, and then inward portfolio flows and inward foreign direct investments flows, in that order. Although the correlation analysis indicated that the respective correlation between fixed capital accumulation and financial openness in terms of other investments inwards and other investments outwards were relatively low, these might be higher when combined. The correlation between the ratio of reserves (inward) to GDP and fixed capital accumulation was insignificant.

9.3.3 Relative Factor Cost through labour-capital substitution is a dominant Channel

The study found that the profit optimising tendency of capitalist firms incline them to substitute labour for capital, as labour becomes relatively cheaper than fixed capital and substitute fixed capital for labour if capital becomes cheaper than wage-labour. This medium is a dominant mechanism through which both trade and financial openness exert their growth retardation impact on fixed capital accumulation. This mechanism was found to be the dominant mechanism through which economic openness explained the observed decline in rates of fixed capital accumulation after Fordism. These findings highlight real-wage of labour as a

cardinal nexus through which institutions exert their effect on fixed capital accumulation whether favourable or adverse, consistent with arguments of the French regulation School. During Fordism, increasing wages underpinned unprecedented rates of fixed capital accumulation and growth, either from a demand side perspective as implied by Boyer (2013) or a supply-side perspective as explicated in this thesis. During the post-Fordist era, real wages once again was the dominant route through which fixed capital accumulation is reduced, and by implication, growth rates of output, because of the cointegration between fixed capital accumulation and output growth. This has far-reaching implications for the probabilities of recently theorised wage-led growth (the stagnationist case) and profit-led growth (the exhilarationist case): that higher rates of fixed capital accumulation and output growth in advanced capitalist economies may be non-ergodically wage-led.

9.3.4 Institutions Matter for Fixed Capital Accumulation

To the extent that financial openness and trade openness as components of international regime represent institutions or social structures, this study furnishes strong evidence that institutions matter in rates of fixed capital accumulation. The study also gives further support to the theoretical proposition that the characteristics of economic accumulation are a function of the institutional configuration, as argued in the Régulation School literature.

9.3.5 Evidence of a Post-Fordist Mode of Development

The study relied on the proposition in Bowles et al (1986:134) that a boom and regime of accumulation is characterised by rising profit rates and comparatively high profit rates, while a crisis is expectedly marked by declining and low-profit rates, as well as the theory of wealth accumulation to inductively abstract a statistical representation of the dynamics of wealth accumulation in advanced countries' capitalism and, together with the tool of structural break analysis, identify a period of post-Fordist regime of accumulation. This analysis suggested that there was a post-Fordist regime of accumulation between 1975 and 2007, flanked by the structural crisis of the regime of Fordism and the global financial crisis of 2007/2008. We were able to identify the features of the regime of accumulation,

using further statistical analyses and a retroductive analyses of recent institutional changes, as a regime of Corporate Internationalism.

During this identified regime of accumulation, it was found that profit rates across the advanced capitalist economies on the average had a positive correlation coefficient of about 0.9 with the newly prevailing international regime of economic openness, in the form of trade openness alone. However, in the regime of Fordism that preceded this post-Fordist regime of accumulation, this correlation coefficient was just 0.08. It was found that the coefficient of determination between trade openness and profit rates in this new-found regime, was 0.77, implying that the new economic openness explained about 77% of growth in corporate profit rates during this regime. This statistics (0.77) indicates that the probability that the high correlation between profit rates and the newly prevailing economic openness was a chance occurrence was less than one in a thousand. We consequently described this pattern/regime of accumulation as Corporate Internationalism. It was found that while the correlation coefficient between profit rates and business fixed capital accumulation, averaged across the sample countries, was about a positive 0.6 during the previous regime of accumulation (Fordism), it was a negative 0.4 during Corporate Internationalism. Because the Cambridge model and other key investment theories suggest that rates of fixed capital accumulation are positively dependent on the profit rates expected to be generated from such capital accumulation, the negative 0.4 correlation coefficient suggest that during Corporate Internationalism, profit opportunities alternative to fixed capital accumulation, offered by the new international regime obviated the need for higher fixed capital accumulation to generate higher returns to capitalists' invested wealth.

Regarding power relations, the correlation between real wages and trade openness alone was a negative 0.824. We found that the ratio of profit rate to real unit labour cost (real unit wages) which was 0.57 at the onset of Corporate Internationalism, was about 1.2 at the end of the regime and, the correlation between this ratio and trade openness was found to be 0.89. Econometric analysis estimated that the increases in trade openness and financial openness jointly explained 90% of the increases in profit rates over real unit labour cost, during Corporate Internationalism.

This is consistent with the argument of Wallerstein (2010) that the primary motivation of the architects of the new institutional structure is to undo the economic and social gains that accrued to the lower economic classes of capitalism during the height of the rain of the Old Left (in Fordism), by facilitating higher profit rates through the suppression of real wages and cost of production, and commit the welfare system of Fordism to its grave. We have found that the new configuration is indeed favourable to the growth of profit rates but detrimental to fixed capital accumulation and real wage growth, and thus able to sustained Corporate Internationalism.

The findings in this study, therefore, not only evidenced that increases in economic openness underpinned the observed decline in fixed capital accumulation, in post-Fordist advanced capitalist economies, but that this among other observed macroeconomic trends like the falling trend of real wages, were characteristics of a post-Fordist mode of development that include the regime of Corporate Internationalism and the complementary ultra-liberal mode of régulation, a new era of business capital efficiency.

9.4 Contributions to the Literature

This thesis lays claim to quite a number of original contributions to the French Regulation School literature. One of the contributions is the provision of empirical evidence that the prevailing institutional configuration matters in capital accumulation, by the empirical verification of the broad theoretical proposition of the relationship between capital accumulation and the prevailing institutional configuration. This was achieved by the introduction and empirical testing of the effects of the institution of economic openness on business fixed capital accumulation.

Previous empirical investigations have initially included monetary; operations; and then financialisation variables to the model of fixed capital accumulation determination. This thesis has provided empirical evidence of the need to augment the fixed capital accumulation model specification with institutional variable(s). This contribution has proved to be very useful, not only in explaining the declining

trend of business fixed capital accumulation, but also why it started the decline in as far back as circa 1970. While the findings have resolved the paradox of the observed co-extensive declining rates of fixed capital accumulation and up-trending of profit rates, they have also unintentionally furnished a potential resolution to the age-long Leontief Paradox

A second contribution, are the findings that, for advanced capitalist economies, increases in *de facto* trade and financial openness could slow down the rates at which capitalist (profit-seeking) firms accumulate fixed capital in the long run at least, given the significant net negative signs of the relevant parameter estimates of economic openness in a capital accumulation model. This is important, because the mainstream orthodoxy is the implication of trade theories that greater trade and financial openness would generate higher rates of fixed capital accumulation in advanced capitalist economies. This contribution would also be of particular interest to renowned scholars who have contributed to the debate in this literature. Arguing under one of the broad strands of financialisation-based argument; they have assumed a closed economy. They have however highlighted the knowledge gap under the context of an open economy (see Bowls and Boyer, 1995; Aglietta, 2002; van Treeck, 2008). This thesis fill this crucial knowledge gap, by providing some insight into the impact of economic openness on both business fixed capital accumulation and the emergent divergence in the orthodox investment-profit nexus. Furthermore, this is a new understanding, as arguably the most prevalent view (informed by mainstream orthodoxy) is that increases in trade and financial openness increase rates of business fixed capital accumulation.

The findings in chapter 8 make further contributions to the debate on the emergence of a post-Fordist regime of accumulation and its characteristics, by the identification of a post-Fordist regime of accumulation that is underpinned by greater corporate internationalism. Further contributions in this regards are the attempt to characterise this never before identified alternative post-Fordist regime of accumulation, to identify evidence of power struggles and skewed income distribution. This regime of accumulation is then linked to the observed dynamics of profit and fixed capital

accumulation after the demise of Fordism. Importantly, it sets an empirical precedent in the identification of a regime of accumulation.

Further contribution in our opinion, is the strategic shift in profit rates generation, highlighted in chapter two. There we pointed out that capitalism changed from the accumulate to make profit tendency of the post-war years, to a new era of higher profit rates through capital efficiency and the factors that underpin this neo-capital efficiency. The chapter shows that while during the golden age, the prevailing strategy was focused on increasing capacity utilisation and labour productivity through increases in capital/labour ratio under the constraints of wage-employment rigidity and closed economies, profit rate growing strategy changed to the ruthless downsizing of per capita fixed capital and increases in profit share, under the flexibility offered by new economic openness and wage determination.

9.5 Policy Implication

The findings of this research have extensive implications for public policy. While a policy tendency in neoliberalist advanced capitalist economies is to subdue the growth of wages and increase the profit-generating ability of capitalist firms, under the perception that higher profit and lower wages generate greater fixed capital accumulation and employment, this research suggests that the reverse is the case. This research furnishes support for the theoretical argument of many heterodox scholars that higher growth rates in advanced capitalist economies tend to be non-ergodically wages-led. Public policy makers should therefore be warned of the caveat in real-wage growth supressing policies, if the policy objective is growth. It highlights the weakness in the drive for greater trade and financial openness as a driver of fixed capital accumulation and economic growth. We argue that even if higher openness increases growth, it reduces the growth rate. Policies that increase economic openness exploitable by the capitalist groups, may be counter-productive in that it fosters greater inequality in distribution. The efficient re-distribution of the benefits from higher economic openness taken for granted in mainstream theories of trade is hardly enforceable, let alone automatic.

What then are the policy options consistent with this findings? An increase in real wages is particularly crucial for higher rates of capital accumulation and growth. A tight labour market may be more beneficial to accumulation, than a loose labour market. The argument by Boyer (2013) that "the efforts of some interest groups to reinstate the golden era of Fordism would be unfruitful because of some irreversible institutional changes", implies how difficult if not impossible to revert to relative economic autarky. Reverting to the very low economic openness of Fordism may be difficult and even run up against some social sentiments and resistance. Luckily such reversion to relative autarky is not necessarily the only policy prescription consistent with our findings. High global growth rates, global fixed capital accumulation rates, global employment and global productivity rates that reflect those in the advanced capitalist economies in the golden age of Fordism could emerge, if the institutional configuration of Fordism is globalised. Harmonising global strong wage relations, global efforts geared towards a more global equitable distribution of income between capitalist and wage labour, would be helpful. Global wages that grow with labour productivity would facilitate a more equitable distribution of income. It would also augur well for a more regulatory state form that constrains the excesses of the capitalist class. If the Fordist institutional configuration could not be achieved at a global scale, or economic openness constrained, then the state should be more prepared to enforce greater equitable redistribute of the benefits from economic openness that have the skewed tendency to automatically accrue in favour of capitalists.

9.6 Potential and Related Areas for Future Research

1. The focus of this research is the advanced capitalist economies. An important investigation would be to assess the relationship between international openness and fixed capital accumulation in the emerging states that have been classified to be between the underdeveloped economies and developed economies. These include the new members of OECD and the European Union. Many of them had been part of communist state forms, in the past.

2. It would also be relevant to research whether these hypotheses hold for the underdeveloped economies.

3. It would be useful to keep an eye on the emerging regime after the global financial crisis with the view to identify its characteristics particularly its implication for capital-labour relations

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Appendix A

A.1 Convergence in Labour- Fixed Capital Ratio Across the Advanced Capitalist Economies.

Figure A 1

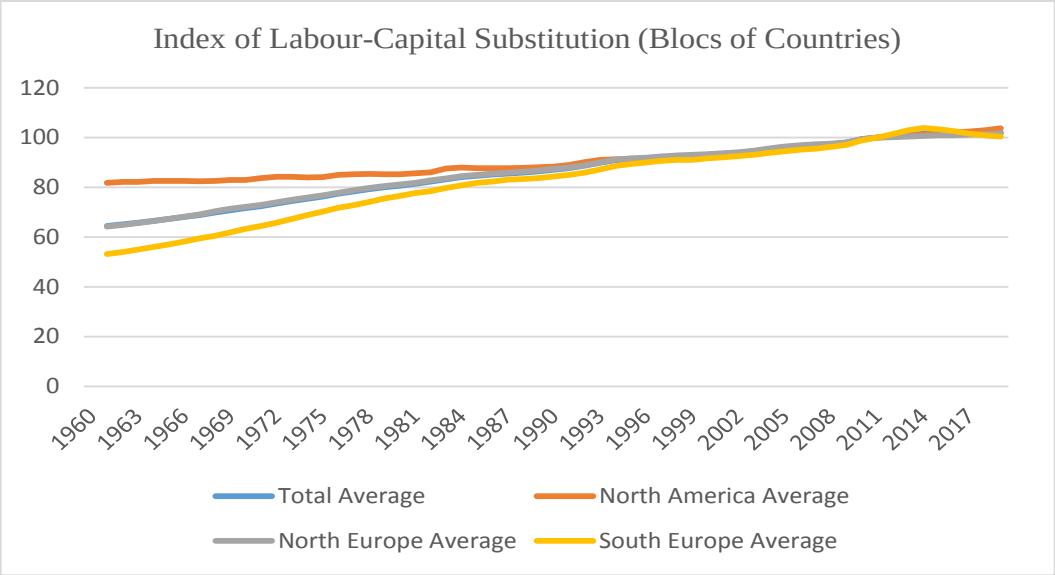
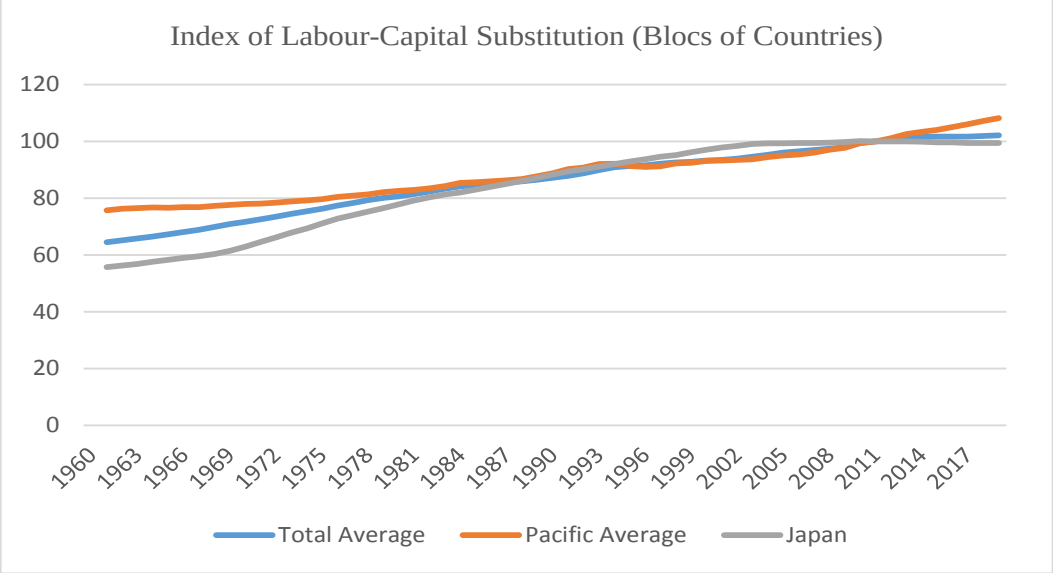


Figure A 2



(Source: Author computed from AMECO database)

Notes:

Figures A1 and A2 present the average series of the rate of substitution of labour for fixed capital, or labour to fixed capital ratio, for the 23 advanced capitalist economies in the sample, in this thesis. The averaging is to summarise, for ease of presentation. The 'total average' series refers to the series averaged across the 23 countries. 'North European average' refers to the series, averaged across the North European countries of: Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Sweden, Switzerland, and the United Kingdom (UK). 'South European average' refers to the series averaged across the countries of: Greece, Italy, Portugal and Spain. 'North America average' refers to the series averaged across the United States and Canada. The 'Pacific average' refers to the series averaged across Australia and New Zealand. Japan refers to the series for Japan.

The two figures indicate that during the 1960s, as part of Fordism, the ratios or series varies to a greater extent across the countries, or country blocs. This is in spite of the claim that production methods underpinned by Fordism diffused from the United States to other advanced capitalist economies. After Fordism, specifically during the mid-1970s to about 2008, there appeared to be the greatest overlap among the averages, implying the greatest convergence of the series, compared to Fordism and the post-global financial crisis period. The period of the mid-1970s till about 2008, is the period identified in this thesis as Corporate Capitalism, characterised by excessive de facto economic openness or international integration.

A.2 Trade Openness and Rates of Private Non-residential Fixed Capital Accumulation: An Exemplar Case-Luxembourg

Figure A 3

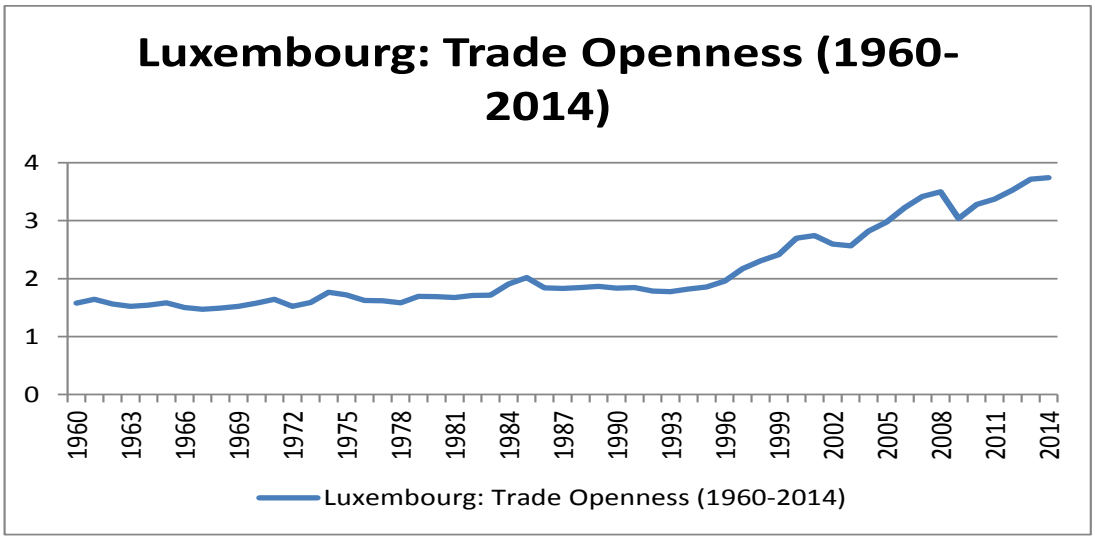
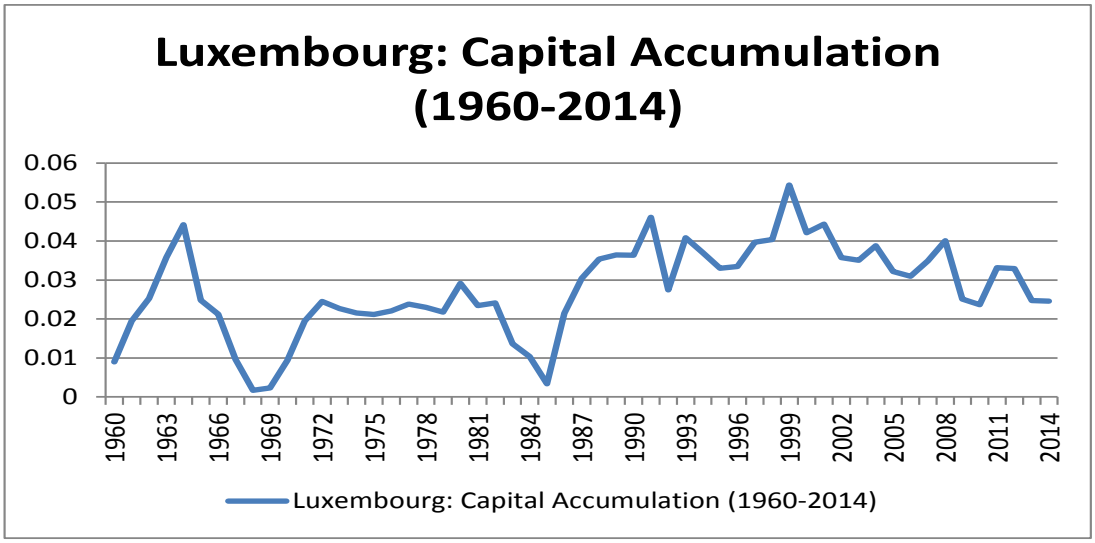


Figure A 4



Notes:

Figures A3 and A4 in appendix A.2 respectively present the series on trade openness and fixed capital accumulation in Luxembourg. From the 1960 till about 1996 when trade openness was relative horizontal in the country, fixed capital accumulation seemed to be slightly upward trending. Further to the dramatic uprising of trade openness after about 1996, fixed capital accumulation commenced an extended dramatic downward trend, in Luxembourg.