The savings behaviour and decision-making of scheme participants in Save As You Earn employee stock ownership plans

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Abstract

This thesis makes a significant contribution towards an underdeveloped yet growing strand of research that has emerged in recent years seeking to identify which specific factors are most influential on the savings behaviour and decision-making of scheme participants in broad-based employee stock ownership plans. More specifically, this study conducts empirical analysis into a savings related share option scheme known as Save As You Earn in the pursuit of answering three key research questions. The first research question seeks to identify which factors best account for how much a scheme participant chooses to place within their plan. The second research question focuses on identifying which variables are shown to alter the concentration of monthly savings directed into Save As You Earn as a proportion of a scheme participant's total monthly wealth. The final research question focuses on which determinants best explain decisions at the point of maturity, when scheme participants are faced with the opportunity to purchase shares in their employer or take the cash. In terms of the explanatory variables explored, this study includes measures for socio-demographic factors, employment-related attributes, motives for joining, attitudes towards their employer and job, risk preferences, perceptions of past share price movements and whether a scheme participant has received financial education. The research findings presented within this thesis are derived from conducting univariate, bivariate and multivariate statistical analysis upon a cross-section of two thousand and fifty one survey responses from ten separate companies from a across range of industries. While this study finds that some traditional economic factors are partially able to explain a scheme participant's savings behaviour, the major academic contribution of this research is to document that financial literacy and financial education has a recognisable and notable impact on a scheme participant's financial decision-making.

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Author's Declaration

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as references.

Chapter 1

Introduction

1.1 Background

The use of financial participatory schemes such as company share plans and profit sharing schemes has grown significantly in many industrialised economies in the past four decades (Blair et al., 2000). It has been estimated in the United States for example, that over half of all American workers are now participating in some form of deferred remuneration practice that directly or indirectly links an employee's current or future pay to the financial performance of their employer (Kruse et al., 2010). As the use of contingent forms of compensation has broadened over the years, so has the associated level of attention paid to the subject from policy-makers, employers and employees, as well as inspiring a substantial succession of academic research in the fields of general management, industrial relations and human resource management, as well as a smaller but important body of published research in the psychology and sociology literature. Consequently, when viewing the academic research as a collective body of knowledge, the available literature on financial participatory practices has become relatively extensive in the past few decades. Despite the relative depth and breadth of academic attention directed at this subject to date, there is surprisingly little known about which specific factors are most influential on the savings behaviour of scheme participants within their employee stock ownership plans (ESOPs).

Looking beyond only filling a gap within the employee share ownership literature, research into defined contribution plans has gained a high level of attention within the wider economic literature. This is because in the last thirty years or so defined contribution retirement plans have steadily replaced defined benefit plans as the primary investment vehicle by which most employees working today are preparing for their financial retirement (Brown and Liu, 2001). For over fifty years prior to this major transition, defined benefit plans were the principal package offered by the majority of large and medium sized employers to support their workforce during retirement. What key factors have prompted such a transformation within the pension market is still subject to debate, however there is a general agreement amongst the majority of researchers that such an overhaul has arisen as a consequence of a range of compounding factors rather than by any sole influence (Broadbent et al., 2006). Factors put forward as explanations include a sustained period of low interest rates, high levels of turbulence in the equities and other asset markets, regulatory changes, reductions in unionisation, the transition towards market value-based accounting methods, and finally the increasing average life expectancy. Regardless of the reason, one notable consequence of the transition away from defined benefit plans is that workers are now being asked to choose from an increasingly complex menu of financial products when choosing where to place their savings and investments in preparation for retirement (Byrne, 2004).

As a consequence, a large number of empirical studies have been undertaken to investigate the financial behaviour and decision-making of employees in defined contribution plans, particularly in the United States, where the use of such schemes has been particularly prevalent. The most common of these is the 401 (k) plan, a scheme named after its federal tax code. This scheme allows participating employees to have a percentage of their gross pay withheld and transferred into a tax deferred investment account. In addition to an employee's own savings, many companies offer their workforce a matching contribution incentive to encourage savings, which is often limited to a percentage maximum of the employee's total pay (Papke, 1995). As discussed, many studies have sought to observe the investment behaviour of scheme participants in their 401 (k) plans, and it has been a common finding that many employees are prone to making sub-optimal investment decisions (e.g. Benartzi, 2001; Madrian and Shea, 2000; Benartzi and Thalter, 2001; Meulbroek, 2002; Mitchell and Utkus, 2003; Liang and Weisbenner, 2002). As a result of these findings, the 401 (k) literature has become synonymous with the field of behavioural economics, particularly because a number of eminent behavioural economists have used 401 (k) plans to demonstrate that people are not perfect utility maximisers, and that their investment decisions are systematically affected by a range of different social, cognitive and emotional biases.

Looking beyond investment behaviour in defined contribution plans, there is further mounting concern about the rising levels of debts and inadequacy of personal savings (Reinhart and Rogoff, 2011). The significance of the potential problem was underlined in a report by the Chartered Insurance Institute (2011), who estimates that there is a £9 trillion savings retirement deficit in the United Kingdom. This report identifies that there are two key factors amplifying a retirement shortfall. The first is the high level of consumer credit and personal debt in today's society, which means that many workers will need to carry a large proportion of their financial commitments into retirement. In a recent study on the same subject, it was suggested that one in four soon to be retirees have mortgage debts in excess of £50,000 in the few years preceding their 65th birthday (Aviva, 2011). These concerns were also echoed in an earlier study by the Organisation for Economic Co-operation and Development (OECD, 2009), which calculated that many individuals will need to maintain 70% of their pre-retirement income to meet their financial obligations for many years after passing retirement age. In addition to high levels of consumer debt, the second problem recognised to be inflating a pension bubble is an ageing population, on the simple basis that retirees who live longer require a proportionally larger retirement fund to support themselves throughout their extended years. Furthermore, due to increases in life expectancy, many people of a working age today will need private care in their later years (Lakdawalla and Philipson, 2002). As a result of this latter factor, the Chartered Insurance Institute's (2011) report also calculates that even if retirees of the future were able to enter into retirement without any debts, because of the growing cost of long-term elderly care in this country and there being no apparent way to fund it, there could still be as much as a £4.4 trillion retirement savings shortfall to be resolved in the United Kingdom.

1.2 Research Problem

There is a compelling academic case that can be made for why there is a need for further research to be conducted into the savings behaviour of scheme participants in broad-based employee stock ownership plans. As was already alluded to, over the past few decades there has been an expanding body of literature that has sought to better understand the effects of employees owning a stake in the company where they work, with one strand looking at minority employee-owned firms (*hereafter referred to as employee share ownership*) and a second body of research exploring majority employee-owned firms (*referred to as employee ownership*). When reviewing the existing literature within its entirety, Pendleton (2001) separated the published research into five identifiable strands relating to performance impact, reasons for adoption, influences on participation, the effect on unions and a final branch investigating how employee share ownership alters workers' attitudes. Since Pendleton summarised the overall academic literature more than a decade ago, there has since been the emergence of a sixth strand of employee share ownership research, as recognised in a working paper by Kaarsemaker et al. (2009), which has begun to empirically investigate the savings behaviour and financial decision-making of scheme participants in their company share plans.

Given its recent emergence in only the last few years, this strand of the employee share ownership literature can be regarded as being in its infancy and consists of only a small number of published studies. So far the focus has been on the determinants of participation, contributions and savings plan concentration, with most empirical studies to date exploring the effects of socio-demographic, employment related attributes and a small number of risk and attitudinal factors (e.g. Dewe et al., 1988; Degeorge et al., 2004; Pendleton, 2005, 2010a, 2010b; Welz and Fernández-Macías, 2008; Bryson and Freeman, 2010; Caramelli and Carberry, 2014). Based upon the way this early literature has emerged, a number of parallels can be drawn between this body of research and the early 401 (k) empirical literature, which also began by investigating these same determinants to assess their impact on participation and investment decisions (e.g. Papke, 1995; Bassett, 1995; Yakoboski and VanDerhei, 1996; Kuskoe et al., 1998; Basset et al., 1998; Clark and Schieber, 1998).

Where the 401 (k) literature has since progressed, and where the equivalent employee ownership literature might be anticipated to proceed to in the coming years, is towards a more critical form of investigation comparable to more contemporary academic research on 401 (k) investment behaviour. More specifically, the majority of studies published in the last decade or so have published evidence of sub-optimal investment decision-making (e.g. Benartzi, 2001; Madrian and Shea, 2000; Huberman, 2001; Benartzi and Thalter, 2001; Meulbroek, 2002; Liang and Weisbenner, 2002; Mitchell and Utkus, 2003). Given that this has been a recurring finding within the 401 (k) literature, there is an apparent need for the employee share ownership literature to expand the existing investigation beyond the more traditional economic factors when investigating the savings behaviour and decision-making of scheme participants within this form of defined contribution plan.

With regards to exactly where important gaps in newly emerging strand of the literature currently exist, this is only revealed and made apparent when reviewing which research questions have so far been investigated. As was previously alluded to, much of the existing literature has so far concentrated on identifying which variables are most influential on participation and contribution levels, of which there currently exists four published studies in peer-reviewed journals and one working paper (i.e. Degeorge et al. 2004; Welz and Fernández-Macías, 2008; Pendleton, 2010a, Bryson and Freeman, 2010; Caramelli and Carberry, 2014). The majority of these empirical studies have so far focused on traditional economic determinants that are traditionally anticipated by economists to influence savings, such as social-demographic factors, employment-related attributes and risk preferences. In addition to these determinants which have been explored within all these studies, a smaller proportion have drawn from the 401 (k) literature by including latent variables for attitudinal factors such as organisational commitment, identity and loyalty (i.e. Pendleton, 2010a; Caramelli and Carberry, 2014) as well as measures for share scheme information and uncertainty aversion (i.e. Caramelli and Carberry, 2014). While this existing literature has offered some significant and unique insights, there are a number of explanatory factors which have yet to find their way into this specific strand of the employee share ownership literature. These include measures for capturing financial literacy, financial education, familiarity, job satisfaction, reciprocity, as well as measures to capture perceptions and predictions about past and future share price movements, as each of these have been explored within the 401 (k) literature and have been documented to have an impact on scheme participants' savings behaviour and decision-making.

Looking beyond this small group of studies within existing empirical literature that have empirically investigated participation and contributions levels, there is currently only one published study that has so far pursued the research question of identifying which specific factors affect the concentration of savings allocation directed into a company share plan as a proportion of a participant's total monthly savings wealth (i.e. Pendleton, 2010b). This is a major shortfall within the available literature because the concentration of savings allocation is much more revealing of savings behaviour and decision-making than viewing contribution levels in isolation without the context of how much of the flow of monthly savings wealth is held within the scheme. The fact that there currently exists only one study of this nature is in itself a major research gap because there is nothing else available to verify or refute this existing evidence base.

The final gap within the employee share ownership literature on savings behaviour and decision-making is the most apparent, because there currently exists no published study that has sought to empirically investigate which explanatory factors best explain decision-making at maturity within savings related share option plans, when a scheme participant is offered the investment choice between purchasing shares in their employer or liquidating their savings plan and receiving a lump sum of cash.

In addition to the academic foundation for this study, it will also be argued that there is a compelling social rationale for conducting an empirical study into the investment behaviour and financial decision-making of scheme participants in broad-based employee stock ownership plans. More specifically, there are at least two very strong social arguments for conducting an empirical study of this nature. The first of which relates to potential social benefits of expanding the employee share ownership model on society, an argument first proposed in a book entitled '*The Capitalist Manifesto*' by Louis Kelso and Mortimer Adler. This book begins by describing some of the many social injustices that exist in a capitalist economic system, it then proceeds to provide the reader with a detailed justification for why society would benefit from a greater number of people owning shares in companies, particularly workers, which the authors contends will help resolve a range of socio-economic problems that have arisen through the division of labour and capital (Kelso and Adler, 1958). While their book may initially start off as a strong critic of capitalism, as the title may suggest, the book offers an advocation of capitalism and instead makes the rather novel and intriguing argument that the underlying problem with the current economic system is that there are simply too few people owning capital.

In addition to the ideas presented by Kelso and Adler, other commentators have since provided a similar social argument for why more employees should own an equity stake in their employer, such as Gates (1998), who wrote a book entitled '*The Ownership Solution*'. Adopting a similar approach to '*The Capitalist Manifesto*', the author begins by highlighting a number of faults within the current economic system, more specifically he chooses to recite a widely recognised socio-economic imbalance within most nations, which is the fact that often the top one percent of wealthy people in a county will collectively hold the equivalent of half or more of that nation's total household financial wealth. While Jeff Gates promotes many of the same ideas as Kelso and Adler, his work is also distinguishable, as he is more hesitant in promoting share ownership as a mechanism for stimulating large scale economic growth in the economy, but instead contends that the expansion of the employee share ownership model would generate a fairer distribution of wealth in society.

Building upon these arguments, the social contribution of this research is that it offers various stakeholders interested in expanding the employee share ownership model with robust empirical evidence on the key characteristics which actually influence employees to purchase shares in the company of their employment. More specifically, this thesis will go on to demonstrate that two key factors influence whether an employee will choose to purchase shares in their employer at the end of their employee stock ownership plan. The first key finding on this subject is that perceptions about the employee stock ownership plans are fundamentally important to whether employees actually choose to purchase shares at the end of their scheme. This thesis also demonstrates that financial education plays an important role in encouraging employees to purchase a stake in their employer and therefore offering workplace based financial education might be implemented as an intervention to encourage more employees owning shares.

1.3 Statement of the Research Aims

i) The primary research aim of this thesis is to make a significant contribution to the existing employee share ownership literature, with a particular focus on contributing to the emerging strand of research which focuses on the investment behaviour and financial decision-making of scheme participants in their broad-based employee stock ownership plans.

ii) A secondary research aim of this thesis is to add to the body of empirical evidence that has attempted to explore workplace based investments and savings schemes in the United Kingdom. By consequence, this study shall seek to build upon a niche area of the economic and human resource management literature which has sought to better understand how workplace based investment schemes influence the wealth accumulation of an employee.

iii) In addition to these two central aims, a third research objective of this study is to complement the wider economic literature on financial behaviour and decision making, by better understanding how employee stock ownership plans fit into the economic life cycle of the average worker.

1.4 Statement of the Research Questions

i) What key factors influence how much a scheme participant in Save As You Earn chooses to allocate into the savings plan of their scheme?

ii) What key factors distinguish scheme participants who choose to concentrate a high proportion of their total monthly savings wealth into their Save As You Earn scheme from those which choose to allocate a lower percentage of their total monthly savings wealth?

iii) As the savings plan of a Save As You Earn scheme enters maturity, what key factors influence a scheme participant's decision to exercise his or her share option and purchase the shares, or alternatively, liquidate their savings contract and take the cash?

1.5 Research Design

The research findings presented within this thesis are based on investigating the savings behaviour of scheme participants within a savings related share option scheme operated in the United Kingdom known as Save As You Earn (also known as SAYE or Sharesave). This tax incentivised plan invites employees of participating firms to save between £5 and £500 (the savings limit was £250 during the period of data collection) over a three, five or seven year timeframe, with interest and a bonus offered by HMRC to encourage savings. In addition to these benefits, the plan also includes a non-obligational share option at maturity to buy at the share price from the date when the savings contract commenced, commonly offered with a 20% discount. As a consequence, Save As You Earn has the same fixed savings period and agreed monthly savings amount as a number of other savings schemes (e.g. fixed term ISAs and fixed term bonds), but it also has the added and unique benefit of having a share option built into it which offers a relatively risk free investment opportunity. This is because scheme participants are under no obligation to exercise the share option and can simply choose to liquidate their tax-free savings contract with interest and bonus at the plan's maturity, particularly if the share price falls and the scheme is 'out of the money'. Irrespective of these apparent benefits and while uptake can be high in some companies, there is still a significant proportion of employees who relinquish the opportunity to participate. In light of this mystery and the fact that Save As You Earn has a well structured choice architecture from which to observe a participant's savings behaviour and decision-making, Save As You Earn was identified as being ideal for investigation.

In pursuit of answering the identified research questions, a quantitative research strategy is adopted and operationalised using an online survey questionnaire to attain a cross-sectional sample of Save As You Earn scheme participants from a range of companies to investigate their financial behaviour and decision-making within this savings related share option scheme. Access to the data that is used within this study was provided by Prof. Andrew Pendleton and Prof. Andrew Robinson, who worked in collaboration with a leading share scheme plan administrator to disseminate an online survey questionnaire in November 2012.

While the online survey originally achieved four four thousand five hundred and ninety responses, steps were subsequently taken to clean the dataset before further analysis. This includes a process of removing incomplete or erroneous responses, as well as rejecting all survey responses from any company with fewer than one hundred completed responses. This latter step leads to a significant reduction in the size of the sample, but increases the robustness of the dataset due to the nature of the explored variables that require a representative sample from each company. As a consequence, the final dataset that is used for statistical analysis is based upon a cross-section of 2051 responses from 10 separate companies.

1.6 Key Contributions

1.6.1 Summary of Overall Contribution

The academic contribution of this thesis, in most broadest terms, has been to add to an emerging strand of research that has sought to better understand those specific factors which are most influential on the savings behaviour of scheme participants in broad-based company share plans. The body of academic research on this particular subject is comprised of only a small number of studies, which encompasses in total less than a dozen publicly available working papers or published peer-reviewed articles which directly investigate a diverse range of important research questions regarding the financial decision-making of employees which have chosen to place their wealth in a company share plan offered by their employer. As mentioned, this stands in stark contrast to the closely related 401(k) literature which also investigates defined contribution plans but in the context of the tax incentivised retirement schemes in the United States. The 401(k) literature has easily in excess of a hundred empirical studies in investigating the financial behaviour of scheme participants, many of which have led to important insights about how the general public save and invest in preparation for retirement. It is observing these two strands of closely related economic literature that perhaps best and most simply demonstrates the major gaps in our existing knowledge about the specific factors which are most influential on the savings behaviour and decision-making of scheme participants in broad-based employee stock ownership plans.

It could further be contended that this thesis' social contribution goes beyond the academic process of filling a knowledge gap within the employee share ownership literature, because as a consequence of the movement away from defined benefit plans and further liberalisations in the pension market which includes legislation allowing for the removal of funds prior to retirement with fewer tax disincentives, there is almost unquestionable need for research which looks directly at the savings behaviour of the general public (Byrne, 2004). The wider social and political context for this study therefore includes concerns about overly-indebtedness and inadequate personal savings, rising concern about low levels of financial literacy and financial education.

While this thesis does not directly attempt to investigate whether those surveyed are overly-indebted, are under-prepared for their retirement or have made investment decisions which in the past have seen them lose a significant proportion of their hard earned savings; this study does indicate that at various key points within the choice architecture of Save As You Earn, financial literacy and financial education are shown to be influential on scheme participants' savings behaviour. This is arguably the most important finding presented within this thesis, because while some additional factors are shown to be equally or more influential on a participant's behaviour, many of these additional factors are unchangeable by the employees themselves, by the employer or otherwise by policy-makers. This includes key factors such as a participant's age, income, household income and gender. Furthermore, the very nature of share options means that they are at the mercy of the markets when it comes to the share price movements, and likewise, employers and policy-makers can only effect latent factors such as job satisfaction and motives for joining a company share plan in limited ways. Financial education is therefore one of the few initiatives that can be implemented by an employer or policymaker that could actually have a discernible impact on a savings behaviour and why this study regards this to be such an important finding.

1.6.2.1 Data chapter 5 - Savings Plan Contributions

The first data chapter presented within this thesis makes a unique contribution to the academic literature by exploring a number of independent variables which have so far never been investigated elsewhere within the employee share ownership literature. In particular, this first data chapter makes a significant academic contribution to a specific sub-strand of the empirical literature which has emerged within the past decade or so and has sought to investigate the investment behaviour of scheme participants within their employee stock ownership plans. New variables explored include financial literacy, perceptions and predictions of share price movements, and finally, a variable exploring whether scheme participants have been in receipt of financial education.

In addition to exploring a number of new independent variables, this first data chapter makes a significant contribution to the available literature by re-investigating a number of variables already explored elsewhere within the existing published research on employee share schemes. As shall be described within the literature review, the sub-strand of the employee share ownership literature which has already begun to explore savings plan contributions is still in its infancy, as it currently consists of only three published studies and one working paper (i.e. Degeorge et al., 2004; Welz and Fernández-Macías, 2008; Pendleton, 2010a; Bryson and Freeman, 2010). Given that the body of research is small, the act of re-investigating independent variables is in itself an academic contribution to the literature, because it contributes towards building an evidence base, reaffirming and in other cases refuting the factors most influential on savings plan contributions.

1.6.3 Data chapter 6 - Concentration of Savings Allocation

The second data chapter makes arguably an even more significant and unique contribution to the employee share ownership literature by choosing to empirically explore the concentration of savings allocation. This is because as things stand, only one other study has conducted analysis in this area, with Pendleton (2010b) being the first to explore a dependent variable measuring how much scheme participants choose to invest within their employee stock ownership plans as a percentage of their total monthly savings wealth.

It is a fundamental and central argument of this data chapter that conducting a detailed empirical investigation into the concentration of savings allocation is actually of more social and academic importance than research into savings plan contributions. This is on the basis that concentration of savings allocation is more revealing of how much employees are concentrating the flow of their monthly savings wealth into a company share plan as a proportion of their total monthly savings wealth across all forms of investment. Therefore the data presented within this chapter is of particular social value because there is a major concern which arose from within the 401 (k) literature that many workers do have an increased proclivity to invest within their employer (e.g. Benartzi, 2001; Huberman, 2001; Mitchell and Utkus, 2003). The importance of the second data chapter within this thesis is that it builds upon earlier research by Pendleton (2010b) through investigating new variables that help create greater knowledge about what factors precipitate employees to overly-invest within their employer.

1.6.3 Chapter 7 - Decision at Maturity

The third data chapter builds upon the former data chapters by investigating which variables are most influential on a scheme participant's investment behaviour and financial decision-making when the share option element of their employee share ownership plan enters maturity. By conducting empirical analysis in this area, the final data chapter presented within this thesis makes arguably the most significant and unique contribution to the employee share ownership literature, on the simple basis that no past study has so far conducted a detailed empirical investigation to explore which factors are most influential on a scheme participant's decision at maturity. The third data chapter therefore fills a major knowledge gap in the academic literature.

Why the literature has so far not explored a dependent variable for decisions at maturity is unclear, however it can be speculated with some degree of accuracy that the reason for why academic attention has so far not been directed at this subject is simply because the employee share ownership literature is still in its infancy. Research that has been conducted thus far has so far focused almost exclusively on the factors which influence participation levels and savings plan contributions (i.e. Degeorge et al., 2004; Welz and Fernández-Macías, 2008; Pendleton, 2010a; Bryson and Freeman, 2010). In addition to this area of analysis, there are only two further empirical studies: With one further study exploring which factors are most influential on whether employees choose to keep or sell their shares after purchasing at the a employee share option maturity (i.e. Pendleton, 2005) and a second empirical study investigating which specific variables are most influential on the concentration of savings allocation a scheme participant chooses to place into their share plans as a percentage of their total monthly savings wealth (i.e. Pendleton, 2010b).

Given that the empirical literature is still very small, being composed of only a few published studies, it can be speculated that the central reason why the spotlight of academic attention has so far not been directed at empirically investigating which factors are most influential on a scheme participant's decision at maturity thus far, is because the biggest driver is anticipated to be the employer's share price and whether the share option is '*in the money*' or '*out of the money*' at the point of maturity. The emergence of additional research outside of the employee share ownership literature highlights that this might be an oversight, because in the short period since much of this empirical literature which is looking at the savings behaviour of scheme participants was published, there has been an emergence of empirical research documenting that a number of factors beyond what has so far been investigated also affects behaviour, with financial literacy being shown to affect stock market participation (Van Rooij et al., 2011) as well as retirement planning (Van Rooij et al., 2012). Therefore, the last data chapter within this thesis makes a significant and unique academic contribution because it is the first empirical study within the employee share ownership literature to empirically investigate a dependent variable for decisions at maturity, while also making an important contribution to the literature by investigating a number of independent variables that have only been shown in recent years to be important to an individual's investment behaviour.

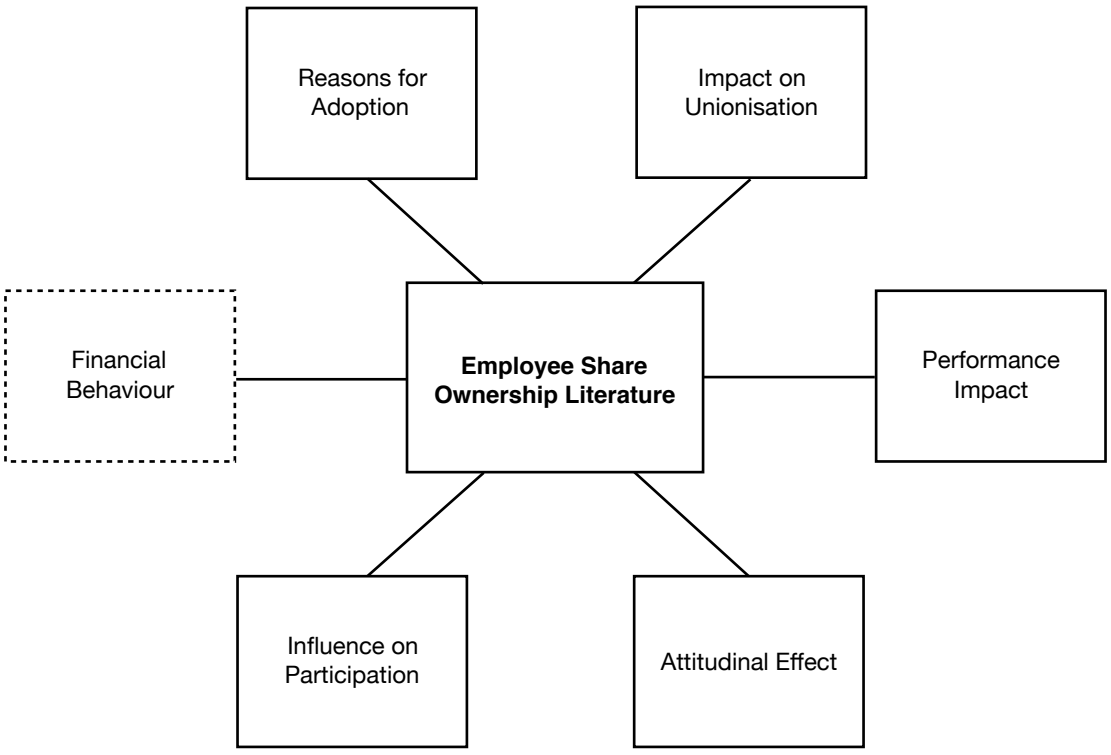
Chapter 2

Literature Review

2.1 Introduction

This second chapter will offer a broad overview of the employee share ownership research to date, reviewed with the purpose of identifying where gaps have arisen within the existing literature on the subject. More specifically, this section of the literature review aims to provide the reader with a broad contextual understanding of how research on the subject of employee share ownership has developed over the years, and the direction that the research has since taken. The structure of this chapter is inspired by Pendleton (2001), who outlined the literature at the turn of the millennium in his book, in which he summarised the existing research into five distinguishable strands relating to performance impact, reasons for adoption, influences on participation, impact on unionisation and finally a significant branch of research that has developed investigating how employee share ownership might have altered the attitudes of employees who have acquired a stake in their employer. Since Pendleton summarised the employee ownership literature more than a decade ago, there has since been the emergence of a sixth strand of research, as recognised in a working paper by Kaarsemaker et al. (2009), which has begun to more formally investigate the financial behaviour and decision-making of scheme participants in employee stock ownership plans (ESOPs).

Diagram 2.1: Diagram illustrating key strands of the employee share ownership literature



2.2 Reasons for Adoption

In the United States, the National Center for Employee Ownership (2008) estimates that at the end of the nineties there were over ten thousand firms operating employee share schemes, which would indicate that there were approximately eleven million workers involved in financial participation in the United States. These estimates are likely to be conservative, as research by Kruse and Blasi (1997) calculates that about half of the total growth of employee share ownership in the early nineties came as a result of 401(k) retirement plan investment. As a consequence, a recent book by Kruse et al. (2010) puts the figure at about half of all working Americans. Why has the usage of financial participatory compensation practices extended so far? A significant body of academic research has been devoted to specifically answering this exact question. In a paper reviewing the collective literature on the topic, Kruse (1996) summarised all existing explanations into one of four categories, these being productivity-related justifications for adoption, flexibility related reasons for adoption, unionism based reasons for adoption and finally financial or takeover based explanations for adoption.

Beginning with productivity-related justifications, the most extensively used and perhaps the oldest explanation for why many firms have chosen to adopt financial participatory compensation practices is the argument that profit sharing and employee share ownership schemes are being implemented as a mechanism for aligning the objectives of a workforce with the goals of their employer (e.g. Jones and Kato, 1995; Kruse, 1996; McNabb and Whitefild, 1998; Sensil et al., 2002). The majority of papers in this strand of the literature rely on the conceptualisation of agency theory and its underlying conjecture that without the implementation of incentives, agents of the principal will naturally seek to 'shirk', and will use their efforts to pursue personal objectives (Jensen and Meckling, 1976). By consequence, it is considered in these papers that management have developed incentive mechanisms such as individual performance pay, deferred compensation, above-market efficient wages and collective incentive schemes including profit sharing and employee share ownership schemes as an approach to resolve the problems of moral hazard and adverse selection.

While many papers in the employee share ownership research rely on the agency theory framework, there is notably less consistency amongst researchers on their predictions of the characteristics of firms most likely to incur an agency problem. One possible reason for this discrepancy is that scholar in this area are unable to agree on the actual merits of group incentives, with some arguing they lead to a free-rider or 1/N problem. Which is the claim that as the number of workers sharing a reward expands, each recipient of the reward receives a diminishing return for the equivalent effort. The counterargument to that while individual performance pay might be preferable, in modern production there are vast array of products and services which are reliant on group production and it would otherwise be unrealistic and/or too costly to determine each employee's contribution, and therefore the use of group incentives are a much more practical way to generate self and peer monitoring (Alchian and Demsetz, 1972). Research on firm characteristics aimed at resolving this debate has produced mixed results, particularly with regards to firm size, technology, capital intensity and monitoring costs, and therefore agency theory remains just one explanation for the existence of share schemes (Kruse, 1996).

In addition to the productivity related explanation of agency theory, a second conceptual framework that has gained increasing attention relates to human capital, where a growing body of studies connected the adoption of financial participatory compensation practices to the increased movement in many industrialised nations towards knowledge based economies (e.g. Blair, 1999; Wilson et al., 2002; Pendleton and Robinson, 2011). The conceptual foundation for this line of inquiry is the belief that the relationships, knowledge and skills which workers have acquired is an important source of competitive advantage for many firms in the modern marketplace (Becker, 1964). The human capital explanation in the employee ownership literature is contingent on a positive attitudinal impact being incurred through employees participating in profit sharing or employee share schemes; more specifically, it is based upon the conjecture that financial participation has the ability to stimulate a sense of identification or some other long-term commitment to the employer (Long, 1978a; Tannenbaum, 1983). Developing from this, a number of scholars have explored the possibility that employee share schemes have been introduced as a method of safe guarding human capital investment that an employer has made in its workforce. A recurring empirical finding which supports this explanation is the reoccurring finding that absenteeism and labour turnover levels are often lower in companies which operate financial participation schemes (Long, 1978a; Rhodes and Streers, 1990; Hammer et al., 1981; Wilson and Peel, 1991; Buchko, 1993; Brown et al., 1999; Robinson and Zhang, 2005). It should also be noted, however, that human capital explanation is not without its critics as there are those like Culpepper et al. (2004) who argue that employee share ownership schemes may actually encourage employees to leave their employer rather than remain, particularly if selling shares results in a large windfall gain and acts in much the same way as a severance package.

Moving away from productivity based justifications, the next category of explanations for why employee share ownership schemes might have been adopted by employers is based upon easing workforce tensions. One of the earliest studies of this kind was an article by Ramsey (1977), who proposed the possibility that profit sharing and employee ownership schemes have originated as a mechanism for abating worker resistance in industries with notable labour pressures. To argue this point, the author of this paper provides the reader with a historical account of financial participatory schemes in the late 19th and early 20th century. More specifically, Ramsey provided a description of various firms that had introduced financial participatory compensation practices to resolve labour conflicts in this period, and he showed that in many cases they would withdraw from using such practices once the labour issues in question had been resolved. As a result, the paper provides a compelling argument that management are, or at least in some cases were then, using participatory schemes as a method of negating labour pressures. Discussing this particular explanation for adoption, Pendleton (2001) does question whether this interpretation is now outdated with regards to the modern re-emergence of participatory schemes, particularly with regards to the growing use of ESOPs, as the direct association between employee share ownership and worker resistance appears to be less apparent in a modern context.

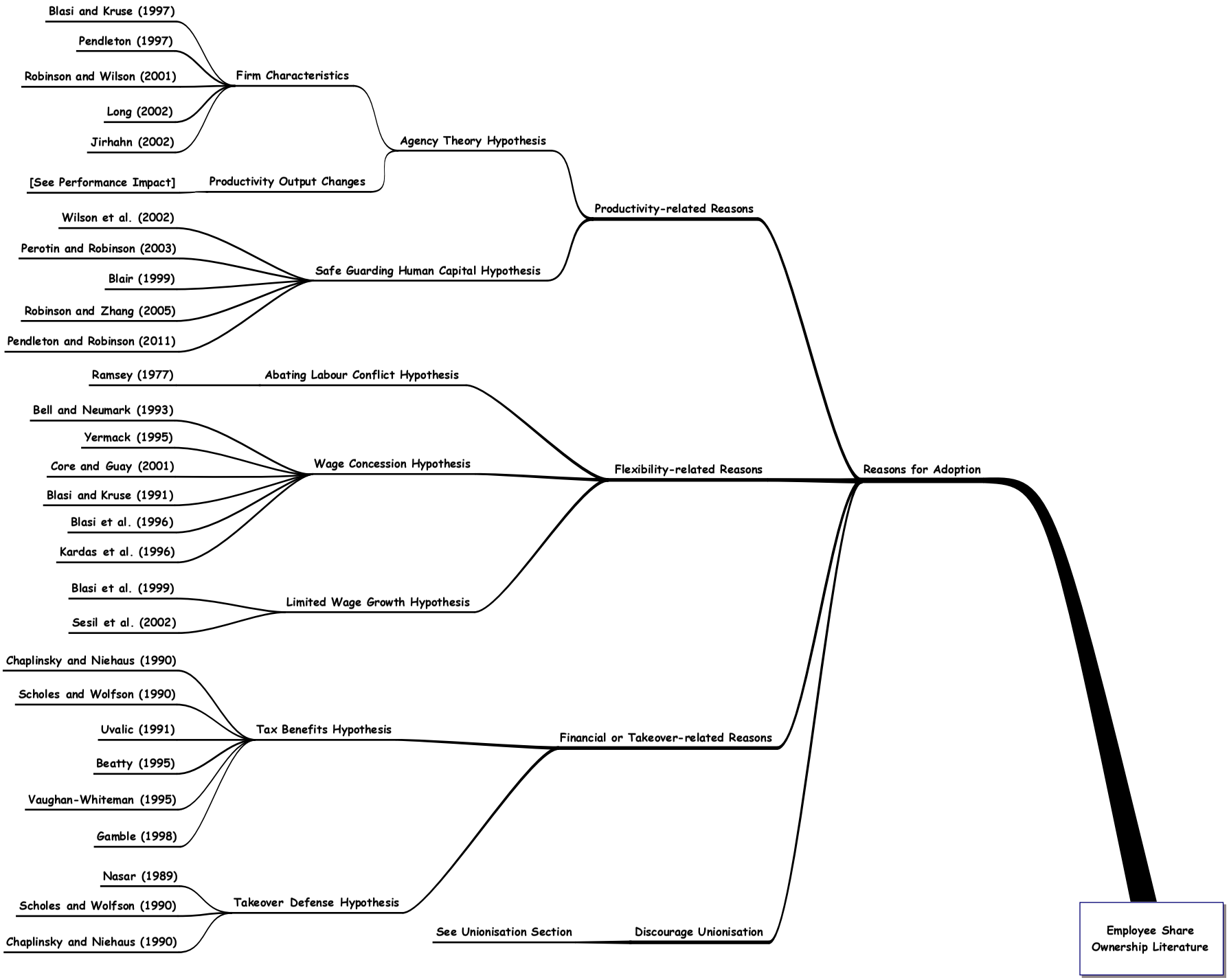
Another closely related justification that has gained significant debate in the academic literature is the suggestion that employee share ownership schemes have existed as something of a bartering tool to gain significant concessions in pay and benefits from workers (e.g. Bell and Neumark, 1993; Yermack,1995; Core and Guay, 2001). The reason why this explanation has gained notable attention is due to the fact that there were a number of well publicised examples, particularly in the 1980s, where this did actually happen and unions did accept a notable reduction in wages and/or other benefits in exchange for gaining shares in the company. The most famous case of this was United Airlines. As a result, a number of researchers have conducted investigations seeking to determine to what extent employee share schemes have effected pay and other benefits. Blasi and Kruse (1991) for example gathered remuneration data from close to a thousand firms using employee share schemes in the 1980s, and found that out of a thousand firms only forty had subsequently seen a reduction in wages or other financial benefits. As a result, this paper concluded that financial participation is not adopted with the common purpose of gaining wage concessions. In actual fact, the empirical evidence is to the contrary, as the general research finding is that ESOPs are more often positively correlated with higher wages. For example, Blasi et al. (1996) conducted analysis on a large sample of public companies in the United States and found that wages and other benefits were on average 8% higher in companies with ESOPs. A similar study conducted by Kardas et al. (1998) using a sample of firms in Washington found that ESOPs in the majority of cases added to employees' pay rather than subtracted from it. The one possible exception where share ownership may be used as an alternative to higher pay appears to be in start-ups and young businesses which are competing to acquire staff in a highly competitive labour market. A key example of this is in high-tech industries, as Yermack (1995) published evidence which is suggestive of a link between cash constraints and high capital needs and the offering of equity based pay, which offers lucrative share options to potential employees if the start-up is successful.

The final flexibility-based justification for why contingent forms of compensation have come into existence is that they may be offered by some employers as an alternative to improvements in fixed wage contracts. It is suggested under this argument that financial participation schemes have been implemented to compensate employees for a lack of real growth in pay during a period when their real wages have languished (Sesil et al., 2002). This study finds that base upon their data, that employees participating in the scheme were achieving a steady rate of annual return between 6 - 8%. The idea was therefore put forward that employee share ownership and other such practices are compensating employees for a lack of growth from their primary form of remuneration and and are therefore offered to supplement income. This system of compensation would also be beneficial to the employer too, because contingent forms of compensation would negate risk during a downturn period for the business, as labour expenditure becomes more closely linked to performance. While this argument is compelling, the available evidence base is limited in support of this particular explanation, although Kruse (1996) did find that profit volatility is positively correlated with firms using ESOPs.

In addition to flexibility based justifications for the occurrence and expansion of financial participatory schemes, there is also the argument which has been made that ESOPs may be implemented by some employers for the simple benefit of gaining favourable tax benefits (Beatty, 1995). This explanation is also supported by the simple fact that the only way policymakers can directly encourage share schemes is by offering tax allowances (Uvalic, 1991; Vaughan-Whiteman, 1995). More specifically, the legal tax framework which surrounds ESOP schemes in many countries allows employers to borrow a leveraged amount to buy their own shares which can later be allocated to employees, as the ESOPs loan becomes repaid. The financial incentive for a company is that both the principal and interest payments on the loan are tax deductible. Furthermore some governments allow banks to deduct one-half of the interest payments on the loans from their own taxable income, for the purpose of encouraging bank lending to ESOPs. As a result, it is therefore argued that there are strong financial benefits to firms for offering employee share ownership schemes, as it will reduce a company's corporation tax and as a result increase available cash-flows. There are however those who question just how much of a financial incentive ESOPs really are, particularly when compared with other forms of tax-deductible debt financing. This argument was made by Scholes and Wolfson (1990) who highlighted that the tax benefits of ESOPs are just one of a number of alternatives which could be used for the same purpose. Chaplinsky and Niehaus (1990) argued this point in more detail by empirically showing that in many cases firms were not taking full advantage of the tax benefits of ESOPs, particularly in relation to dividend deductibility. Likewise, Gamble (1998) presented a similar but alternative argument, as his paper observed the financial performance of firms and concluded that agency theory rather than tax benefits provided a stronger argument for the widespread use of ESOPs.

In addition to the discussions relating to the financial benefits of employee share ownership schemes, there are a number of scholars who have discussed the possibility that ESOPs are being implemented in some instances as a defence against take-overs (e.g. Scholes and Wolfson, 1990; Chaplinsky and Niehaus, 1994). The foundation for this belief is because there have been a small number of well known examples where employee stock ownership plans were used as a defence tactic by management, such as in the takeover attempts of Delaware and Polaroid. This argument does however tend to exist predominantly in the American literature. The reason why ESOPs could be used as an anti-takeover device relates to the fact that management can use an ESOP loan to buy shares, which from an accounting perspective means that shares are placed into a suspense account and are legally regarded as unallocated shares until the point of allocation to an employee's account. While the shares are still held in this trust, which can be for a number of years, the associated voting rights are restricted and therefore cannot be used to vote in favour of the hostile takeover. With the exception of a small number of cases, the evidence is weak that ESOP schemes are commonly being implemented as a defence. For example, a study by Chaplinsky and Niehaus (1994) found little evidence to support that ESOPs schemes were commonly being used in this manner in the majority of takeover cases.

Diagram 2.2: Diagram illustrating the reasons for adoption literature



2.3 Impact on Unionisation

Another possible justification for why financial participation schemes have come into existence relates to the suggestion that share ownership and profit sharing schemes have been used by management to lower union membership amongst their workers. In this respect, much of the research on unionisation in the employee share ownership context extends from the adoption literature discussed previously, however the subject of unionisation has been so extensively researched in both the employee ownership and employee share ownership domain that it is more than worthy of being recognised as a clearly identifiable strand of the literature in its own right. While various elements of the union relationship has been researched, most studies in one form or another seek to explore how employee share ownership alters the dynamics of the traditional three-way relationship between shareholders, management and workers. This is because workers owning a stake upsets the standard hierarchy, given that the convention is that shareholders hire management, and management subsequently hire employees. This long established dynamic changes in an employee owned firm, as was pointed out by Dilts and Paul (1990), because it generates the unusual predicament where the employee owners must bargain with themselves and are subordinate to the management which they are responsible for hiring.

By consequence, a common area of investigation within literature has been to explore whether employee share ownership and profit-sharing have lessened the need for unions. Fuelling much of the research interest on this topic is the fact that the growth of participatory compensation practices in the late 1970s and early 1980s coincided with a significant reduction in union membership in the United Kingdom in much the same period. Discussing the expanding use of company share plans and its co-occurrence with the weakening of the unions from a British perspective, Pendleton (2001) highlighted that any link in these events is most likely coincidental, as the Tory government of this period is widely recognised to have taken a hard line against the unions and implemented a number of direct policy measures designed to directly limit the powers of the unions.

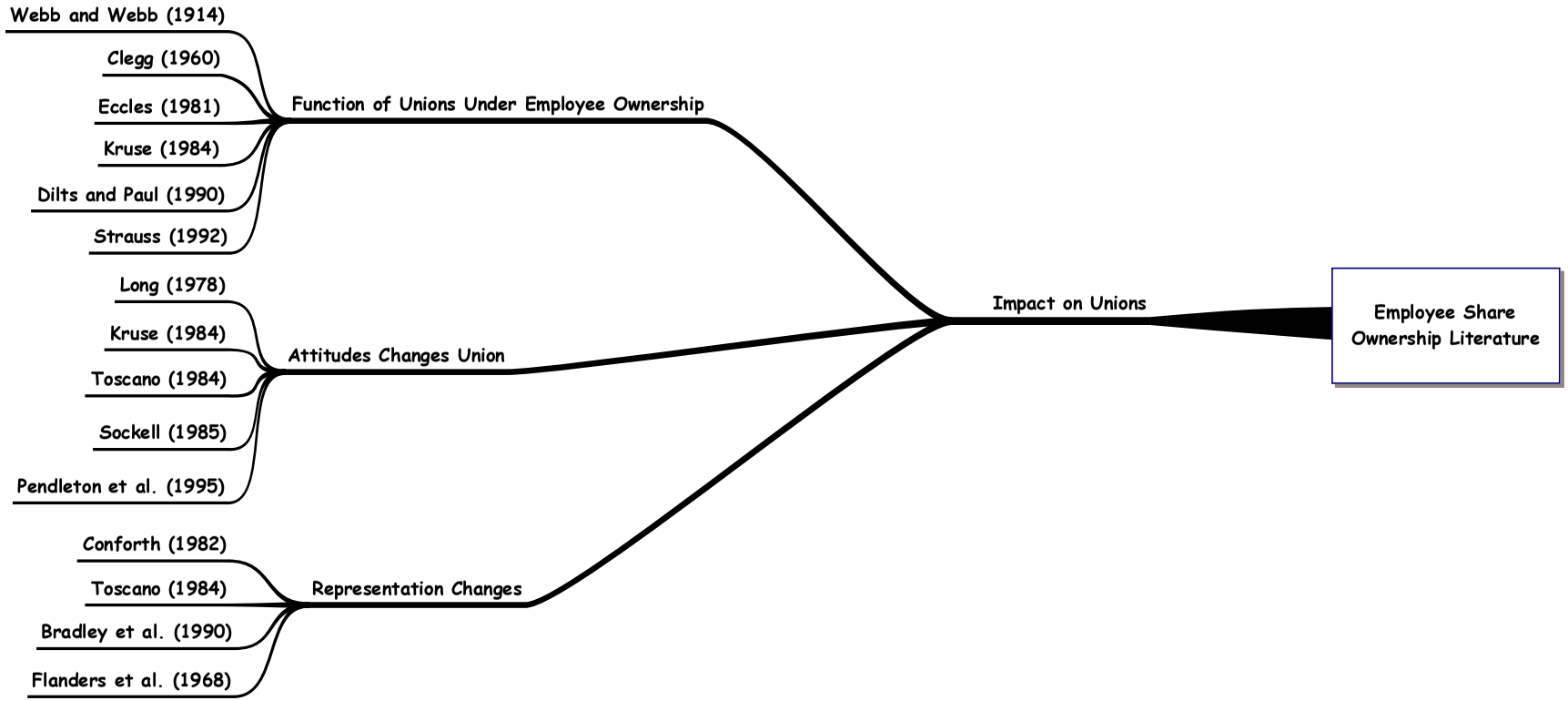
This leads to the question of why employee share ownership has the potential to undermine the unions? The literature on the subject tends to suggest it happens in one of three ways. The first is based upon the assumption that financial participation creates positive attitudinal changes, either because it aligns the workers' interests with the viewpoint of management and shareholders on events that would otherwise be controversial and lead to tensions between these two groups issues (Webb and Webb, 1914; Clegg, 1960) or because having such a package of compensation helps makes up or at least partially makes up for grievances (Bryson et al., 2014). A second justification is that participating workers in share schemes feel an increased sense of loyalty and commitment towards their employer, and as a result are more likely to be sympathetic towards management (Kruse, 1984). A third possible and final justification for why financial participation lessens the need for unions is because it provides unhappy workers with an alternative method of representation and opportunity to discuss their grievances that would otherwise be communicated through a union (Bradley et al., 1990).

Developing from this and building into a debate which exists in the unionisation literature more generally, is the discussion of whether workers can hold positive feelings towards their employer and union simultaneously. Alternatively expressed, there are those who debate whether it is possible for an employee to feel a joint sense of allegiance to both their employer and union at the same time. There is a growing body of academic evidence that questions the validity of the previously held presumption that employees cannot simultaneously be loyal to both an employer and union and this has led to a discussion in the industrial relations literature on dual commitment (Conlon and Gallagher, 1987). The employee ownership and employee share ownership literature is broadly supportive of dual commitment, as a number of attitudinal studies have found that employee owners are shown to hold positive views towards both their employer and unions at the same time. For example, one approach has been to compare the attitudes of employee owners and non-employee owners towards their unions with the intention of testing whether there exists a discernible difference between in their employee-union relationship. To this end, a number of studies have adopted this approach (e.g. Baddon et al., 1989; Dunn et al., 1991; Nichols and O'Connnell-Davidson, 1992). In most cases, the empirical finding of this nature has found no statistical differences in the attitudes of employee owners towards their unions.

Another approach which has been adopted to test whether employee ownership alters the union relationship has been to use longitudinal data, investigating employees' attitudes towards the unions both pre and post-adoption of employee share ownership. One example of such a study is a paper by Long (1978b), who gathered attitudinal data on employees' opinions about their unions over a number of years in a Canadian trucking company that had been the subject of an employee buy-out from its previous corporate owners. His evidence was strongly supportive of a dual commitment, as those employees who expressed a strong sense of loyalty toward their employer also often indicated a sense of commitment towards their unions. Furthermore, this study asked workers to offer their opinion on whether employee ownership was compatible with unions, and also whether they thought that unions had become unnecessary. In both cases the majority of employee owners responded that they thought that unions were compatible and that there was still a need for them. These findings also appear to be supported elsewhere in the literature, such as in a paper by Toscano (1984) who used a similar approach and likewise concluded that most employee owners believe that there is still a valued place for unions in protecting the interest of workers and providing representation.

A final area of prominent debate and an area where there is growing empirical evidence in support of such claims is the suggestion that company share plans can actually improve the employee-union relationship. This was the finding of Kruse (1984) looking at ESOPs and later Pendleton et al. (1995) at majority owned firms, where both these studies presented empirical evidence to this effect, as both studies revealed that union membership remained broadly unaffected by the use of ESOPs. Likewise, the evidence suggested that employees' attitudes towards the unions was often more favourable.

Diagram 2.3: Diagram illustrating the unionisation literature



2.4 Performance Impact

Within the employee ownership literature as a whole, including both the body of research examining majority employee-owned firms, plus the area of research which investigates share ownership in conventional firms where staff own only a minority of the share capital, the subject that has been most extensively researched to date has been a significant body of literature that focuses on how employee ownership affects a firm's productivity (e.g. Jones and Kato, 1995; Ben-Ner and Jones, 1995; Blasi et al., 1996; Robinson and Wilson, 2006). Highlighting just how extensively this subject has been investigated, Kaarsemaker et al. (2009) counts more than seventy studies on productivity impact since the 1970s. As previously discussed, there is a number of possible conceptualisations for why financial participatory schemes could impact productivity, which includes both agency theory or human capital theory, but as a collective nearly all explanations are built upon the assumption that workers' attitudes improve, and this in turn this has a favourable impact on productivity.

One of the most celebrated and cited studies on this subject is a paper by Jones and Kato (1995), who conducted analysis on ESOP schemes in Japan and published their paper in the highly prestigious economics journal the *American Economic Review*. While employee share ownership is more commonly thought of as a western incentive system, the authors highlighted to the reader that 91% of firms listed on the Japanese stock exchange in 1989 had implemented some form of ESOP. As a result, the authors were able to tap into an extensive dataset of six hundred manufacturing firms between 1973 -1988 to conduct a detailed panel analysis on productivity levels both pre and post adoption of ESOPs. The study found that productivity increased by 4% - 5% on average after three to four years post-adoption. Supporting these findings, Kruse and Blasi (1997) reviewed thirty-two similar studies to create a meta-analysis and calculated that the average estimated productivity difference between ESOP firms and non-ESOP firms was 6.2%, with the average estimated increase in productivity post-adoption of ESOP being a 4.4% increase.

Given that the subject of productivity has been so extensively researched, some papers have now come into existence which combined the empirical findings from a range of studies to perform a meta analysis with the purpose of testing the literature as a collective to determine whether employee ownership has had a significant impact on productivity (e.g. Doucouliagos, 1995; Kruse and Blasi, 1997; Kaarsemaker, 2006). One example of such a meta-analysis study is the paper by Kruse and Blasi (1997), who found that while many empirical studies cannot independently reject the null hypothesis of there being no relationship between employee share ownership and productivity, their collective reviews of the findings from many different studies is capable of rejecting the null hypothesis because of the disproportionate number of studies which do find a positive and statistically significant relationship of employee share ownership increasing productivity. As a result, these meta-analysis studies provide the strongest evidence in favour of a productivity impact.

In addition to the literature observing productivity, another closely related area of analysis has been to investigate the impact that employee share ownership has on the financial performance of a firm. A range of different financial indicators has been examined including sales, operating profits, return on equity, employment growth, liquidity ratios and asset/debt leverage. One of the earliest of this type was a paper by Conte and Tannenbaum (1978), who investigated a sample of thirty ESOP firms and found that pre-tax sales were higher in these firms than in the industry averages, although the difference was not statistically significant. Their study did however find a positive relationship between the percentage of equity that the employees owned and the profitability of the firm. In a similar later study conducted by Rosen and Klein (1983) which sought to answer the same research questions using a different approach, where this study instead observed changes in the level of employment growth for a group of forty-three firms using ESOPs and documented employment growth of 2.78% per year higher based upon this dataset. for firms offering ESOPs compared to the industry averages. Using an alternative method, Rosen and Quarrey (1987) compared forty-five ESOP firms against a control group of two hundred thirty and eight non-ESOP firms and found that after adjusting for firm size and industry, in the five years prior to adopting ESOPs the sales growth rate was 1.89% higher than in the control group, but after implementing an ESOP scheme the sales outperformed the control group by a rate of 5.4%. Likewise, employment growth increased from 1.21% pre-ESOPs to 5.05% post-adoption. Further supporting a pertinent link between firm performance and the use of employee share ownership in this study was the finding that 73% of the firms using ESOps had an increases in sales and employment post-adoption.

While there is a strong body of evidence which suggests that employee share ownership has a positive impact on financial performance (e.g. Doucouliagos, 1995; Jones and Kato, 1995; Kruse and Blasi, 1997), it must also be recognised that there are also papers that have found no effect (e.g. Blasi et al., 1996; Chaplinsky et al. 1998) or even in some rarer cases documented a negative impact on financial performance. One example of the latter a study is an article by Livingstone and Henry (1980), who compared a test group of fifty-one ESOP firms against a control of fifty-one non-ESOPs, where each company in the sample was matched with a corresponding company based on their sector and size. Observing profitability, leverage and liquidity ratios, the study found no statistical difference between the two groups with regards to leverage and liquidity ratios. However, their paper found a negative impact with regards to ESOPs on all nine of the profitability ratios tested. Further supporting a negative impact on firm performance, was a paper by Davidson and Worrell (1988), who found that after controlling for industry there was a detectable decrease in performance post ESOP adoption, although these findings were not statistically significant. As mentioned, there are also a number of studies that have found a neutral impact on financial performance such as a paper by Oswald et al. (1992) who gathered data on one hundred and forty firms in the three years after ESOP adoption and found that based upon their sample, the use of company share plans does not have a discernible impact on financial performance.

A subject matter closely related to financial performance that has also gained attention in the employee share ownership literature has been the effects which financial participation has had on employment growth and stability within the firms where it has been implemented. There have been a number of theories offered for why employee share ownership or profit-sharing schemes could have a positive effect on employment. Perhaps the best known theoretical argument was published in a book by Weitzman (1984), who outlined the potential economic benefits of profit sharing on employment. However, while such a theory is convincing, it is difficult to empirically confirm and it relates exclusively to the economy-wide use of profit sharing schemes. In terms of comparable theories in the employee share ownership literature, there is a general view that when workers gain ownership and control rights by being owners, they will use it to gain greater job security. In addition to this line of reasoning, there is a suggestion as will be discussed in greater detail later on in this chapter that the implementation of a company share plan leads to positive attitudes towards the employer. The empirical evidence does suggest that employee stock ownership plan have a positive impact on employment. For example, a study by Blasi et al. (2003) found that those firms which placed 17% or more of their share capital in broad-based share ownership schemes between the period of 1983 - 1995 went on to see significant improvements in employment stability. Furthermore, Blasi et al.'s study also found a positive impact on employment which did not come at the loss of labour cost efficiency. Likewise, Rosen and Quarry (1987) investigated this same subject using a different approach by investigating pre and post adoption of ESOPs and found a positive impact on employment, particularly in firms with increased participation in decision making.

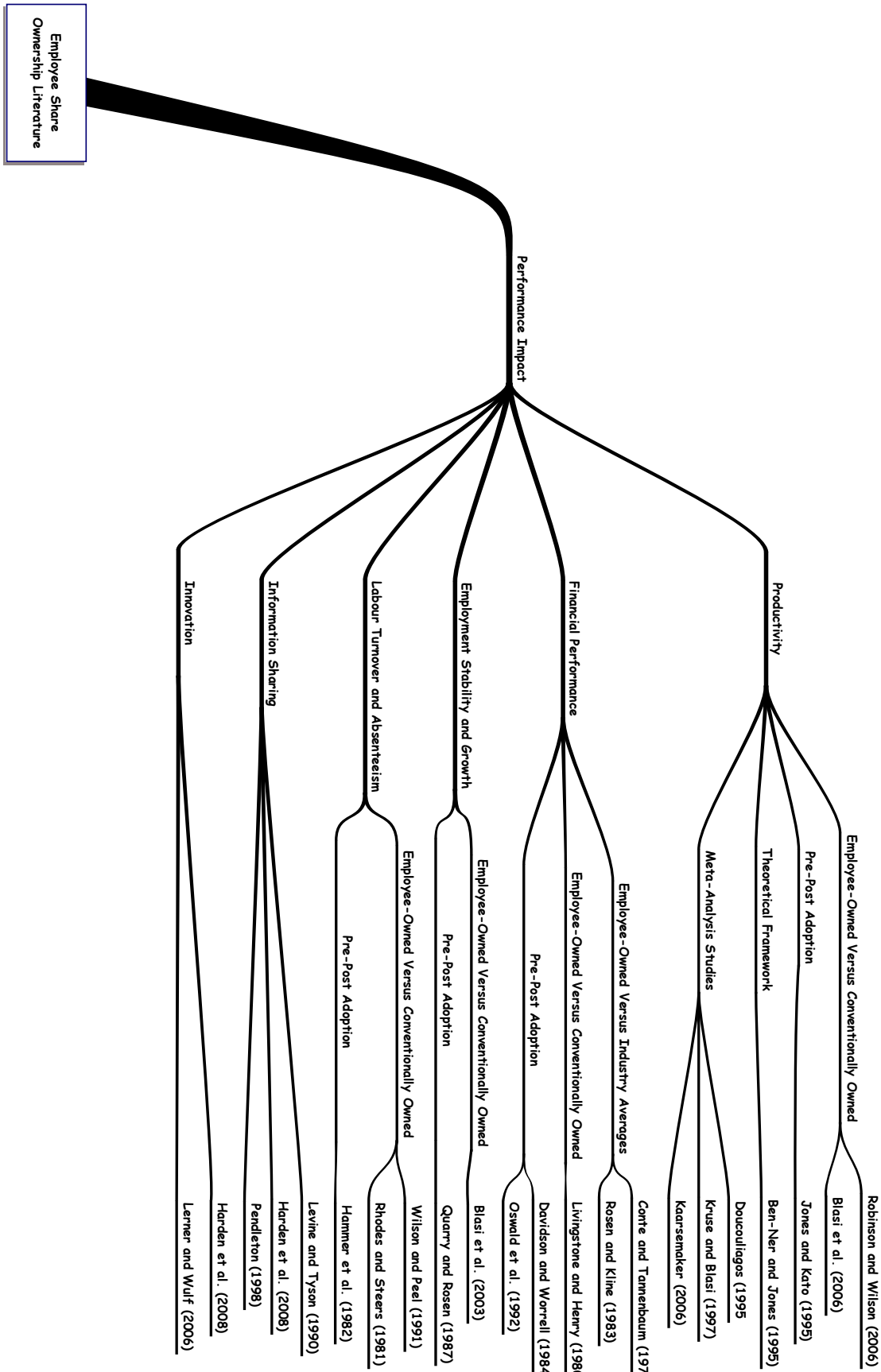
In addition to employment growth and stability performance impact, there has also been a growing body of research emerging from an attitudinal perspective which has looked at absenteeism and labour turnover changes as a result of financial participation (e.g. Long, 1978a; Rhodes and Streers, 1990; Hammer et al., 1981; Wilson and Peel, 1991; Buchko, 1993; Brown et al, 1999; Fakhfakh, 2004). The basis for why financial participatory schemes could be anticipated to have a positive impact on absenteeism and labour turnover develops from the assumption that profit sharing and share ownership schemes generate higher levels of employee satisfaction in their job roles.

Continuing from this conjecture, there is an expectation that employee owners are more satisfied in their employment and will therefore be less likely to call in sick or leave their positions. One of the most important studies to conduct analysis in this area was a paper by Wilson and Peel (1991), who looked at absenteeism and resignations in engineering firms in the UK, and found a significant reduction in both factors where ESOPs had been implemented. It is however important to note that the empirical research to date is not unanimous in its findings of favourable impacts. One example of evidence to the country is paper by Rhodes and Steers (1981), where this study instead documented that absenteeism and labour turnover were in fact higher in employee owned firms as compared to conventionally owed firms.

While the most commonly described impacts in the existing literature have already been highlighted, there is however a small body of literature which discusses the possibility that employee share ownership and profit sharing schemes may have been implemented, at least in some instances, as a mechanism for increasing information sharing between management and employees. This potential reason for a performance impact was first argued by Levine and Tyson (1990), who suggested that financial participatory schemes could be used where information asymmetry exists between management and workers, particularly in situations where employees have superior information over management. The paper contended that in these conditions where a misalignment of information exists between the principal and agent, management may seek to implement financial participation schemes as an information sharing mechanism so that workers benefit from communicating their information and the study provides evidence to support such a claim. Another paper to draw a similar conclusion but from a different approach was an article by Pendleton (1997). In this paper the author sought to better understand why firms have chosen to implement ESOPs, and to answer this research question data was gathered from the 1990 Workplace Industrial Relations Survey (WIRS3). The paper begins with a discussion of the main economic arguments for why financial participatory schemes might be implemented but finds only weak support based upon the WIRS3 data. Instead the findings do lend support to the suggestion that profit sharing and share schemes exist as an information sharing mechanism. More specifically, this conclusion was drawn because of a link between financial participation and recognition agreements in their surveyed sample.

A final performance impact and one which relates closely to the former discussion, is the growing debate within some elements of the employee ownership literature that financial participatory schemes can be used in some situations to generate higher levels of innovation. To date literature on this potential impact is on the whole limited but a working paper by Harden et al. (2008) produced for a National Bureau of Economic Research (NBER) conference on the subject of shared capitalism did discuss the potential explanation for adoption in detail. The paper explores this research question because of a reoccurring finding within the literature that financial participatory schemes are often positively correlated with high levels of R&D expenditure (e.g. Kruse, 1996; Gamble, 2000; Sesil et al., 2002). The paper also cites Lerner and Wulf (2006) who reviewed three hundred publicly-traded companies and found that in industries where product development is crucial to attaining a competitive advantage there is often wide spread use of broad-based employee stock ownership plans. The main contribution of Harden et al.'s (2008) paper to the literature is it remains the largest employee-level survey conducted to date, and therefore offers arguably the strongest and most credible evidence on the association between financial participation and innovation. More specifically, this conference paper concluded: "*that a system of shared incentives and a shared high performance employment culture at the lowest levels of organizations is important to create both an innovative environment that is fertile ground for innovative ideas, and the willingness to work on innovative ideas*" (p.p 249).

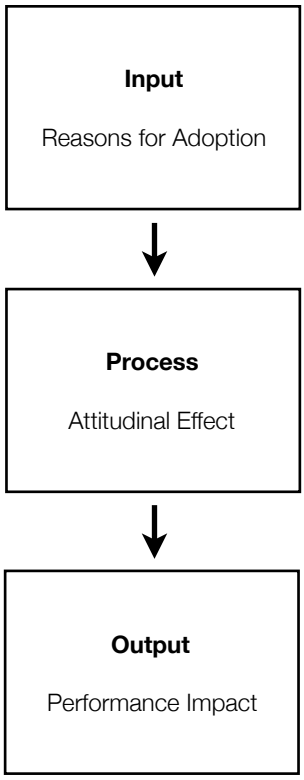
Diagram 2.4: Diagram illustrating the performance impact literature



2.5 Attitudinal Effect

What this previous section on performance impacts highlights is that employers have a strong incentive to encourage financial participation because of its association with increases in productivity, financial performance, lower absenteeism, lower labour turnover, employment stability, resilience in turbulent markets, improved information sharing, more innovation and a higher likelihood of firm survival. Why do these alleged effects take place in firms where employees are shareholders? In many respects, the attitudinal literature on employee ownership has developed to answer this exact question, by investigating exactly why financial participation could have a positive impact on the performance of a firm. Alternatively viewed, it could be suggested that the literature on the attitudinal effects of employee share ownership exists to resolve a black box problem (see Diagram 2.5), because while empirical findings can easily be recorded for factors such as productivity, profitability, labour turnover and absenteeism, what is much less transparent and difficult to determine is what specifically happens internally within an organisation to generate a positive performance impact. While almost all studies test the same hypothesis, which is that share ownership generates a more positive attitude towards the employer or job, what distinguishes different elements of this research from one another is the underlying causes that each study argues drive attitudinal changes in an employee. As a result, the majority of research in this literature seeks to investigate whether it is rooted in the simple act of ownership, increases in participation in decision-making, the financial benefits of share ownership or perhaps sociological or psychological factors.

Diagram 2.5: Diagram illustrating the link between the adoption, attitudinal and performance literature



In a seminal paper on the attitudinal effects of employee ownership entitled '*Employee stock ownership and employee attitudes: a test of three models*', Klein (1987) provided a detailed review of the attitudinal literature at that date and from it identified three separate but not necessarily mutually exclusive forms of satisfaction which employees could conceivably attain from owning shares in their employer. The first form of satisfaction she termed intrinsic satisfaction and describes it to be a form of satisfaction derived from the actual act of owning shares. She cites a number of scholars, such as Tannenbaum (1983) who had previously suggested that becoming a part-proprietor of a business is in itself ego enhancing and can for many be a source of motivation in itself. Discussing how the literature had so far attempted to empirically examine intrinsic satisfaction she reflects that one of three strategies had commonly been implemented. The first of these approaches had been to compare employee owners' attitudes who own different volumes of shares to determine if those scheme participants who own more shares have higher levels of satisfaction. This method of analysis has been adopted in only a few papers because the majority of research papers have instead used a dummy variable for ownership rather than a continuous variable which records the number of shares held. From the limited available literature there is, both Hammer and Stern (1980) and French and Rosenstein (1984) found that the number of shares held had little significant impact on employees' attitudes, however research by Long (1980) suggested that the number of shares held by employees was in fact more important than the number of employees holding shares in generating a sense of commitment towards management and the employer.

The second approach that can also be used to capture intrinsic satisfaction, as Klein (1987) describes, has been to compare the attitudes of employee owners and non-employee owners. This strategy has been adopted more extensively and is the most common method in this attitudinal sub-section of the literature (e.g. Baddon et al., 1989; Bradley and Nejad, 1989; Poole and Jenkins, 1990). It could be argued that this methodology is one of the most robust methods to examine the intrinsic model, as non-employee owners provide a control group and therefore a baseline for the average level of loyalty and organisational commitment in the firm. With this in mind, those studies that have implemented this approach have generally found few discernible differences between the control and test group. For example, this was the finding of Baddon et al. (1989), who indicated that share scheme participants did appear to become more sympathetic towards the management and the company, but any identifiable attitudinal changes were on the whole very small.

The third approach used to test the intrinsic model that Klein (1987) also discussed within her paper has been to compare the attitudes of workers within employee-owned firms against those of employees in conventionally-owned firms. This form of analysis is therefore similar to the methodology previously discussed, but instead uses the conventionally-owned firms as the control group, but arguably with the added limitation that the data is less controlled because it does not use employees from the same firm. Such an approach was adopted by Greenberg (1980) who looked at cooperatives and found only limited attitudinal differences.

In addition to these three methods which Klein (1987) discusses to investigate intrinsic satisfaction, there are a further three forms of analysis that have also been adopted within the attitudinal literature to investigate intrinsic satisfaction. The first of these has been to ask employee owners to perform self-reflective analysis, where respondents are commonly asked to assess the impact that owning shares has had on their attitudes. One such study that adopted this approach in the United Kingdom was Bell and Hanson (1987), who surveyed around four thousand employees in twelve firms in the mid-1980s and found that 50% of their sample group believed that profit sharing schemes had changed their views about their employer, and 70% believed that employee share ownership schemes had led them to think more positively about their employer. Similar findings were presented by Fogarty and White (1988) who also adopted this self-reflective approach. While there is a certain value in adopting this strategy to assess attitudinal changes, a number of researchers have been critical of adopting this methodology, such as Pendleton et al. (1998) who questions the robustness of the data collected from this approach due to respondent bias. Furthermore, these criticisms appear to be supported by the fact that the self-reflective approach is currently the only methodology in the empirical literature to repeatedly return positive attitudinal changes arising from employee share ownership.

A penultimate method used to examine the intrinsic model of satisfaction has been to collect attitudinal data pre and post adoption of an ESOP scheme. One example of such a study is a paper by Dunn et al. (1991), who found little attitudinal differences between the two periods, but interestingly their study did find that those non-scheme participants who had considered joining the share scheme but did not, developed a more negative attitude towards the employer post adoption, as was shown in the second survey. In a comparable study, Keef (1998) adopted a similar approach and found that employees attitudes towards the employer marginally declined by the time of the second survey.

The final method to investigate intrinsic satisfaction has been to adopt a longitudinal approach, where attitudinal data has been collected over a number of intervals after employee ownership has been introduced. The empirical evidence from this approach is limited, particularly as few studies have been able to collect data in this manner and to date there are only three studies adopting this approach. The earliest study to adopt this approach was Long (1982) who explored majority owned firms and documented a decline in attitudes over time. A study by Kruse (1984) found that attitudes were less favourable over time, rather than more so. Results from this method have not always been negative however, for example Tucker et al.'s (1989) looking at ESOPs found attitudinal changes were positive in their latter surveys but statistically speaking these findings were not significant. Discussing this longitudinal attitudinal approach in the literature, Pendleton et al. (1998) highlights that: "*these findings are extremely suggestive since, if ownership remains unchanged between the two points of investigation, something other than ownership per se must be driving attitudinal change*" (p.102). It is this '*something other*' which remains a subject of continued debate in this sub-section of the literature.

The second motivation which Klein identifies is instrumental satisfaction, which she describes as a form of fulfilment derived not directly from owning shares, but attained from the indirect benefits of being a shareholder shareholder in the company of their employment. It is proposed by Klein that instrumental satisfaction may arise from such acts as increased involvement in decision-making, better communication of company information or employees having greater control over their tasks and job role. It is therefore the contention of this sub-section of the literature that opportunities for participation and control are a moderating factor which are essential to attain a positive attitudinal change (Long, 1978b, 1981; Kruse, 1984; Buchko, 1992; Pendleton et al., 1998). As a result, it is proposed that to generate instrumental satisfaction, management must recognise participating employees as owners of the company and develop a culture where information sharing and employee involvement exists within the company (Blasi et al., 2003).

The empirical evidence is broadly supportive of the link between greater control and participation to generate positive attitudinal changes. For example, a study by Kruse (1984) found that ownership by itself was insufficient in both generating and then subsequently being able to maintain a significant attitudinal impact. He therefore concludes that greater involvement within decision making is more likely to have the required effect. Research by Klein and Hall (1988) also supports the instrumental model, as they produced findings which suggested that employee share scheme participants were more satisfied in those companies which are more dedicated to industrial democracy. Likewise, Perotin and Robinson (2000) discussed this subject with regards to its impact on productivity and concluded that when employee participation is combined with financial participation, the productivity effect was at its most enhanced. In his book reviewing the literature in detail, Pendleton (2001) concluded that "*the suggestion that participation in decision-making is an essential accompaniment if share ownership is to bring about attitudinal change has been supported in study after study*" (p.158).

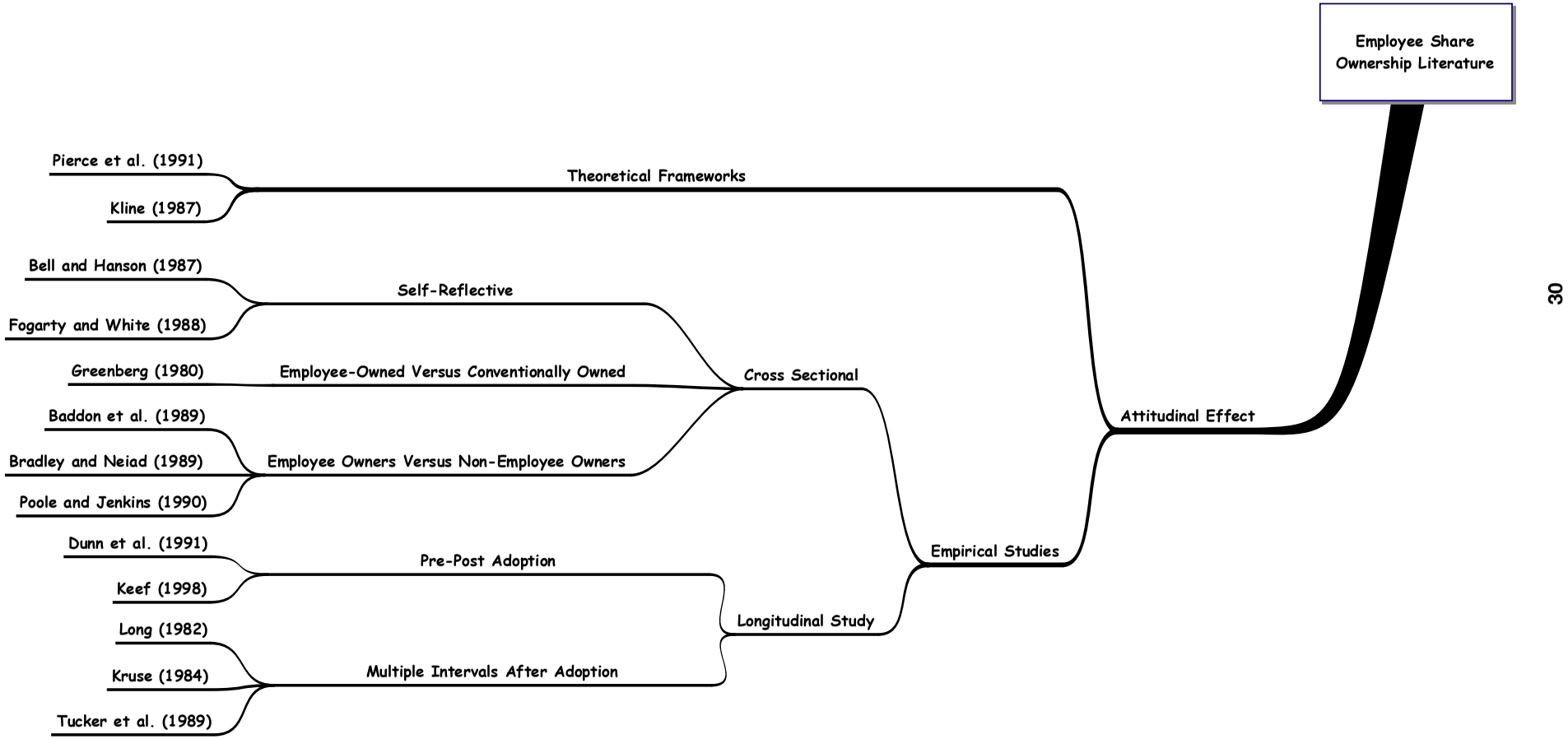
When interpreting these findings, one may begin to question whether share ownership is needed at all. Alternatively expressed, could management bypass the offering of a stake in the company and simply offer workers more involvement in decision making and have the same effect? This was discussed in part by Ben-Ner and Jones (1995), who argued that from a theoretical perspective financial returns are equally important when attempting to solve the agency problem, because theoretically where an agent only has control rights but no rights on financial returns, the expectation is that agents will focus their control rights on improving their conditions. This view was also offered by Bartlett (1994) who suggested that without owning a stake, employees' decisions would be orientated towards their own income-maximising. A deeper empirical investigation on this issue was offered by Guest and Peccei (2001), who showed that control by itself did not lead to significant attitudinal change. Instead, their evidence found it was the combination of both financial and control participation that led to higher levels of positive attitudinal changes, which could therefore be described as instrumental satisfaction.

The final form of motivation identified under Klein's (1987) framework is termed extrinsic satisfaction and it proposes that scheme participants gain a sense of satisfaction from the financial rewards of share ownership. This strand of the literature generally suggests that employee shareholders' are akin to conventional shareholders, in that they view their shares simply as an investment (Kruse, 1981). It is on this issue that the attitudinal literature has developed into two opposing groups of debate, because there are those who argue that involvement in decision-making is an important and crucial mediating factor essential to bring about attitudinal changes in the firm (e.g. Long, 1978b; Kruse, 1984; Buchko, 1992). There are also those who argue the opposite and suggest that employee owners have little control orientation and instead have a strong financial preference for participating (French and Rosenstein, 1984; French, 1987; Baddon et al., 1989). The empirical evidence on this issue is more consistent with the latter, a finding which is true both for majority employee owned firms (Hammer et al, 1982; Rhodes and Steers, 1981; Greenberg, 1981) and also in the studies conducted looking at ESOPs in minority employee owned firms (Rosen et al., 1986; Baddon et al., 1989).

In addition to Klein's three factor model, there is a second perspective promoted by Pierce et al. (1991), known as '*psychological ownership*'. This theoretical framework is grounded in constructs familiar to the disciplines of sociology and psychology, where it argues that for there to be an attitudinal or behavioural change, an employee must first develop a sense of psychological ownership towards their employer or job role. In a later paper on this same subject, Pierce et al., (2003) describes psychological ownership to develop through socio-psychological desires such as the need for self-efficacy, self-identity, socio-identity and elements of territorial behaviour with regards to their role. Overall this framework broadly argues that employees develop psychological ownership from one of three identifiable paths. The first potential route is to attain greater control over their environment, particularly in relation to their job or department. In addition to this route, a second identified factor which Pierce et al. (1991) proposes might contribute towards a sense of psychological ownership is the level of information that becomes disseminated by the management to their workforce. The final identified route is through self-investment, which is the proposition that employees develop a sense of psychological ownership by investing themselves heavily in their role, such as through the amount of time, knowledge and energy they put into their job.

In terms of empirical evidence to support this framework, Pendleton et al. (1998) conducted an attitudinal study which looked at employees' perceptions and the effects of employee ownership across four separate bus companies that underwent employee buy-outs in the United Kingdom. In this paper, the authors concluded that their findings were strongly supportive of intrinsic and instrumental satisfaction based upon Klein's (1987) three factor model, however the authors also highlighted that their study's results were equally as supportive of Pierce et al's (1991) psychological ownership framework. In its conclusion this paper recognised that psychological ownership also offered an equally valid explanation for their documented attitudinal changes, which included higher levels of organisational commitment and job satisfaction.

Diagram 2.6: Diagram illustrating the attitudinal effect literature



2.6 Influence on Participation

While the subject of employee involvement and participation is undoubtedly interlinked with many aspects of the attitudinal literature, given the extent of the debate and analysis that has been presented on this topic, the participation literature can be recognised to be an independent strand of the research in its own right. To this end, one of the most commonly pursued research questions in this area has sought to determine whether employee owned firms have higher levels of industrial democracy than their non-employee owned counterparts. The basis for conducting this research has arisen from the underlying assumption that employees are either acquiring an equity stake because they have a direct intention to gain a greater level of control in their employer, or as a consequence of their newly gained ownership rights, that employee owners will subsequently seek to gain higher levels of participation in decision-making where possible. As a result, many studies in the participation literature have investigated whether workers in employee owned firms have higher levels of involvement in the corporate governance and strategic management of the company, or alternatively, if the employer is more likely to share greater amounts of downwards and/or upwards communication with its employees, and similarly, if employee owners are more likely to be given increased opportunities to participate in low level decision-making, such as being offered greater control over their day to day tasks.

There is a general discussion in the literature that the use of employee share ownership and profit sharing schemes works best when combined with direct participation, a point argued in a Communication from the European Commission (2002) which recommends that '*the benefits of financial participation (profit sharing and employee share ownership) are greatest when schemes are embedded in participative management systems*' (p.19). Underpinning these claims are a number of strong theoretical arguments for why a combination of both could have a favourable impact on firm performance. For example Weitzman and Kruse (1990) suggested that a blend of both financial participation and direct participation could help eradicate or limit the free-rider problem by creating a culture of shared interests, an argument repeated by other scholars in the area (e.g. Ben-Ner and Jones, 1995; MacDuffie, 1995). Discussing the free-rider problem from a different angle, Kandel and Lazear (1992) suggested that use of financial participation stimulates greater levels of peer-to-peer monitoring. Developing from this reasoning, Poutsma et al. (2006) discussed that financial participation may lower the need for supervision, as workers would have a greater incentive to coordinate their own tasks amongst themselves.

The empirical evidence collectively does lends much support to these claims. A study by Poutsma and Huijgen (1999) for example found a positive relationship between financial participation and employee involvement across a number of European countries. A similar study by Festing et al. (1999), using a comparable methodology and dataset, also identified a statistical link although the relationship was shown to be less strong in this paper. Overall much of this literature has documented a close link between the offering of financial participation and higher levels of direct participation by a workforce.

In addition to these studies that have investigated employee involvement and financial participation irrespective of company performance, there is a further dominant area of the employee share ownership literature, albeit overlapping, that has sought to better understand whether employee involvement acts as an intervening variable in the relationship between ownership and company performance, with a particular focus on productivity. As discussed previously, there is a number of strong theoretical underpinnings that encourage researchers to postulate that financial participation when combined with other direct forms of participation shall have a positive impact on the performance of the firm. In addition to the arguments relating to a potential reductions in the free-rider problem, as just discussed, there are also a number of conceptual frameworks specific to the literature such as Klein's (1987) three factor model and Pierce et al.'s (2003) psychological ownership that also anticipates that high levels of employee involvement is an important potential driver within their respective models.

One of the earliest empirical studies to comprehensively conduct research in this area was a paper by Estrin et al. (1987), who found that when viewed individually, the productivity effects from employee involvement were shown to differ significantly between industry sectors. However when viewed as a collective their study found that the joint use of financial participation with other forms of participation had a positive impact on productivity. A meta-analysis study by Doucouliagos (1995) found that an increase in participation in majority employee-owned firms was commonly linked to increases in productivity, yet interestingly the impact from employee involvement on productivity in minority owned firms was shown to be largely negligible. A study by McNabb and Whitfield (1998) provided what might be the strongest empirical support for the productivity effects of involvement on productivity. A more recent study by Pérotin and Robinson (2000) showed strong empirical support for the joint effects of financial participation and other forms of employee participation on productivity.

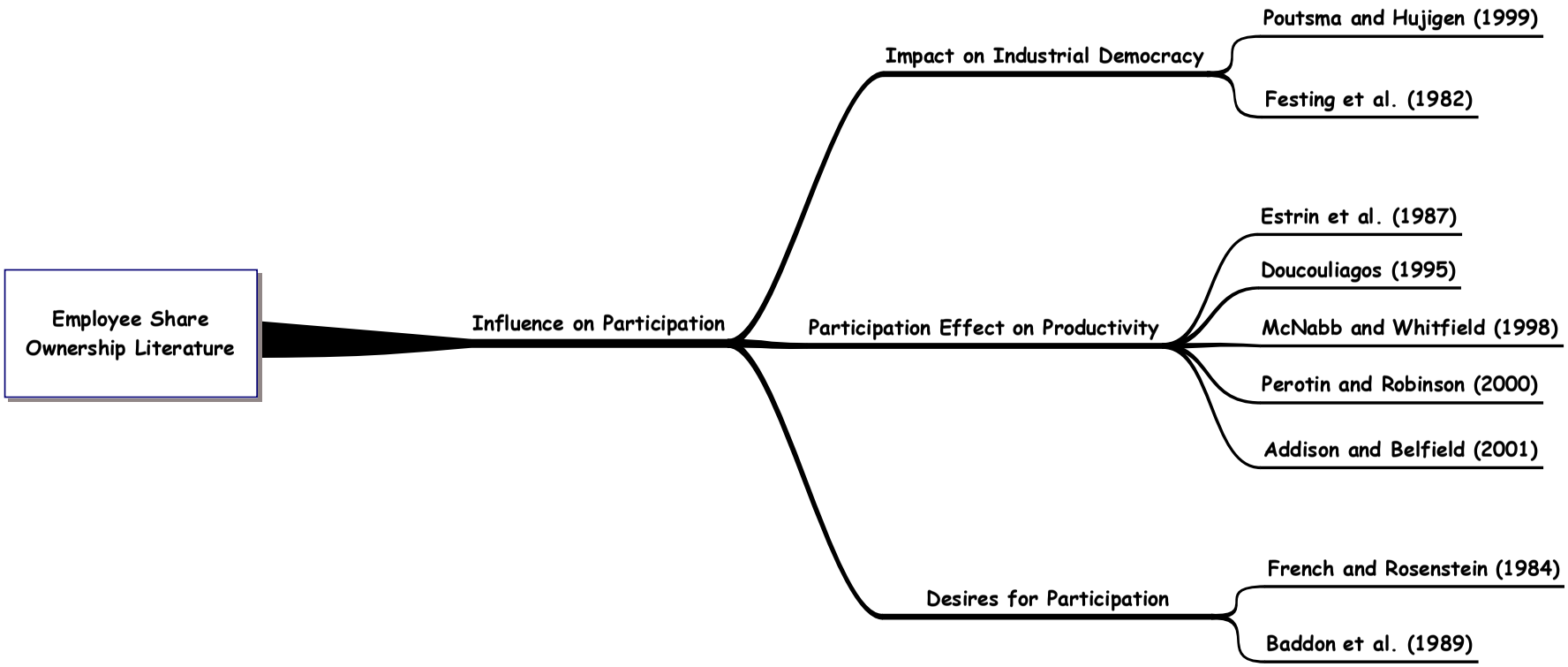
A very interesting paper by Addison and Belfield (2001) is perhaps one of the few studies to cast doubts on link between financial participation, participative management systems and a company's performance and was in effect a reappraisal of an earlier study by McNabb and Whitfield (1998) using a later dataset. More specifically the dataset used by McNabb and Whitfield (1998) was the Workplace Employment Relations Study of 1990 (WERS90), while Addison and Belfield's (2001) study was based upon data attained from the Workplace Employment Relations Study of 1998 (WERS98). The comparative analysis between these studies revealed that while employee involvement was found to be positively linked to productivity levels in the WERS90, when re-examined eight years later by Addison and Belfield, the later study found that a positive impact on productivity was now not shown, a finding that led them to conclude that '*the incidence of worker representation schemes is not much changed, yet their impact on firm performance appears to have been*' (p.358). Based upon this, the study suggested that other factors in the external environment, such as economic conditions, better explained variations in performance between the two periods, and offered the criticism that earlier studies in the area were often mistaking correlation with causation.

What is notable about the literature discussed thus far is that it has focused exclusively on conducting firm level analysis of how financial participation influences other forms of employee involvement and is often based upon the inherent assumption that employees have either acquired shares with a direct intention of gaining more control in their employer, or as a consequence of their newly gained ownership rights will seek more influence. The first paper to really question the validity of this assumption was a paper by Hammer and Stern (1980), who conducted research on employee owners in a furniture manufacturer and presented empirical evidence that indicated that employees who held an equity stake in the employer were on average negatively correlated with the desire to participate in management decision-making. The following year, a study by Long (1981) indicated much the same thing, as his paper also found that employees who acquired shares in their employer were actually less likely to have the desire to participate in management decision-making in the company.

What these findings appear to indicate is that employee owners may see share ownership schemes as nothing more than an investment, and like conventional shareholders, accept that ownership can often be divorced from control in a modern enterprise. One of the papers to argue this point most poignantly was a discussion paper by French (1987), who suggested that much of the firm level literature on this subject has had a tendency to ignore the motivations behind why workers might want to become owners. Those studies which have asked these questions do on balance find that employee owners are more likely to participate in employee ownership schemes because they seek a financial return rather than because they seek to gain more influence or otherwise have some sort of control orientations. One example of such a study was an investigation conducted by French and Rosenstein (1984), who surveyed participants in employee stock ownership plans and found that three quarters of respondents considered their shareholding to be an investment rather than an opportunity to become an owner. A comparative study by Baddon et al (1989) drew a very similar conclusion, which this time surveyed SAYE scheme participants in the United Kingdom. This paper found that ninety percent of the respondents selected either ‘very’ or ‘quite’ when asked if financial rewards were a key reason for participating in their employer’s company share plan. However, when the same individuals were asked if they had chosen to enter into an employee share ownership scheme because they wanted to gain a greater level of input on how the company would be run in the future, only sixty-four percent responded with ‘very’ or ‘quite’.

In summary, the majority of studies in this literature argue that financial participation and direct participation must be combined in unison if there is to be a performance impact on a firm. The theoretical underpinning for this arises from the expectation that both forms of participation are required to change attitudes, and by developing a more positive attitude this improves behaviour in the workplace and with it firm performance. The evidence base is mixed however and there are some unanswered questions in the literature relating to the fact that if workers are not actually seeking to gain more involvement in the employer, as many studies suggest, then why does the literature also suggest positive attitudinal changes when offered more involvement?

Diagram 2.7: Diagram illustrating influence on participation literature



2.7 Financial Behaviour

Given the growing empirical evidence that employees have a strong financial desire for participating in employee share ownership schemes, there is only a very limited body of existing research that has directly sought to investigate company share plans from an employee's perspective. This shortfall was pointed out in a working paper by Kaarsemaker et al. (2009, pp. 15), who highlighted the following: "*One issue that has received little attention in the literature is employee participation in employee share ownership. Why do some employees participate, and others do not? What factors influence levels of participation in share ownership plans*?" The authors of this paper elaborated on a possible explanation for why there exists a major gap in the literature, highlighting that research on employee share ownership has developed from the employee ownership literature where participation by its very definition either includes all or the majority of the workforce, making the need for research that explores factors like participation decisions largely redundant. If this interpretation is correct, then it should be regarded as a remarkable oversight, because the proportion of employees who partake in employee share schemes, and the even greater number of all those offered the opportunity to participate largely outnumbers the amount of workers in majority owned firms. As a result, there are major gaps in our knowledge about company share plans from an employee's perspective, which is unfulfilled by the existing literature.

The emergence of literature that has attempted to fulfil this gap has developed in two dominant directions, with the first stream looking at participation and a more recent avenue of research interested in diversification. The earliest study of the former was a paper by Dewe et al. (1988), who investigated two hypotheses, both orientated towards investigating whether those with the most positive attitudes towards their employer are the most likely to participate in a company share plan. The basis for this hypothesis is grounded in the common assumption often made within the attitudinal branch of the research that workers with more positive orientations towards the firm are the most likely to join share schemes, or equally the reverse causality that through owning a stake in the employer, employees' attitudes subsequently become more positive. After conducting a questionnaire on the subject, Dewe et al's paper finds that a strong sense of organisational commitment towards the employer does not necessarily translate into an increased propensity to participate. What this study does find however, perhaps somewhat unexpectedly, is the discovery that employees who perceive the company share plan to be a method of enhancing workforce commitment are the most likely to join the schemes, even if they themselves do not feel high level of commitment towards their employer. In addition to this particular finding, the paper also revealed that those scheme participants who perceived employee share ownership to be financially beneficial are the most likely to join. The study additionally concludes that participation is negatively correlated with the perception that ownership schemes are complicated. Therefore in summary, Dewe et al. (1988) overall concluded that an employee's perception about the employee stock ownership plans is amongst the most important and central determinants of participation in a company share plan.

The second paper to explore the determinants of participation within the employee share ownership literature is an article by Degeorge et al. (2004), which observed a state owned telecommunication company that underwent privatisation in France. Similar to the recent privatisation of the Royal Mail in the United Kingdom, a proportion of the newly formed company was made available to workers through a tax incentivised share plan. More specifically, employees were offered the opportunity to select from one of four possible share plans, the first three of which offered a stepped discount on the share price. Distinguishing each plan was the level of discount offered off the original share price, however with the higher discounts there was a requirement for longer vesting periods before shares could be sold. The fourth scheme differed significantly, because it gave employees the opportunity to purchase a bond like call option, not too dissimilar to the savings contract element of SAYE, which provided employees with downwards protection, but the opportunity to make a significant return if the share price increased. Given these four different share schemes to choose from, Degeorge et al. recognised that this situation provided the opportunity to conduct a natural experiment to observe which employees had the greatest propensity to participate in each of the optional schemes based upon socio-demographic determinants and employment-related attributes, as well as a number of other factors. This paper found that age, income and gender were all positively correlated with participation and contributions levels in the share schemes. In addition to this area of analysis, the paper also makes an important interpretation of its findings, as it was the first article in the employee share ownership literature to find that workers were not always acting in their own best interest, or as an economist might describe it, they were not always perfect utility maximisers, as this paper found that: "*many [employees] completely shunned the most attractive investment vehicle offered to them*" (p.170).

Welz and Frenandez-Macias (2008) published an article in the *European Journal of Industrial Relations* which provided an altogether different offering to the literature, as it is the only paper to conduct a cross comparative study on financial participation across a diverse set of nations, where this paper focused on Europe. As a result, this paper makes an important academic contribution, but also offers insights important to policymakers, as this paper discusses which government initiatives have been successful at increasing the number of profit sharing and share schemes in different countries. For example, the study by Welz and Frenandez-Macias highlights that financial participation is common in countries that have implemented specific tax concessions and related legislation to support the growth of share ownership. Likewise, their study also finds that employee share ownership plans are particularly widespread in countries that have constructed a savings plan arrangement to aid employees in the acquisition of shares. Building upon this and relevant to the participation strand of the literature, this paper also provides a breakdown of the socio-demographic determinants and employee related factors found to influence participation levels in employee share ownership schemes across various European countries. This study overall finds that gender, age, formal education and an employee's position within the company are all important determinants of a workers decision to participate in their company share plan.

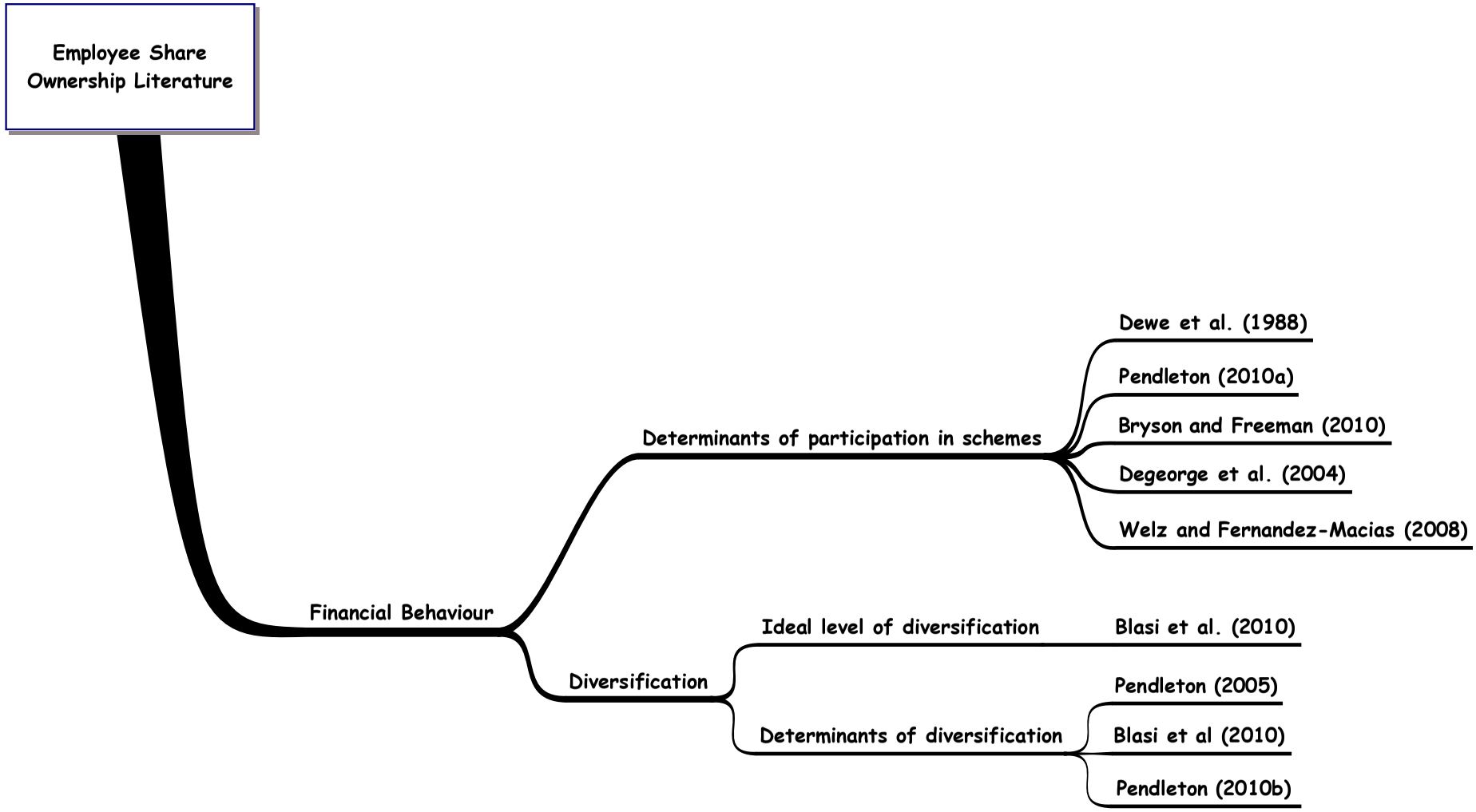
The penultimate paper within this group of studies to focus on determinants behind employees' decisions to participate in share ownership schemes is a paper by Pendleton (2010a), who decided to re-investigate SAYE schemes in a similar manner to Dewe et al. (1988). Instead of focusing exclusively on employees' perception, Pendleton's paper explored a more complete set of socio-demographic determinants and employee related factors to assess their impact on participation and contribution levels in share ownership schemes. Such as including a measurement for income, where this paper went on to find a positive link between income and an employee's participation and contributions levels into the share scheme. Elaborating on these finding, this paper discusses liquidity constraints as a potential explanation, but Pendleton also discusses a novel line of inquiry by proposing that those workers on higher wages may also be using SAYE schemes to protect their savings from tax, particularly if these wealthier workers have already exceeded other sources of tax-free savings. Age was a further important variable documented in this study, which found a humped shaped increase in participation and contributions until on average an employee's mid-fifties, where participation enters into a decline. This paper also explored gender and found that females are more likely to enter into the scheme, but contribution levels are on average higher amongst males. In addition to demographic determinants, the study also re-examines loyalty, organisational commitment and perceptions of the benefits of participation. With regards to this analysis, the study finds that contrary to previous findings, that organisational commitment is in fact negatively correlated with the likelihood of participation, however consistent with prior literature this paper did find that the included indicators for loyalty were positively correlated with participation. Finally, in line with Dewe et al's study, Pendleton's paper also found that the perception that share schemes provide financial benefits was strongly correlated with participation in employee share ownership schemes.

In a working paper produced for the Centre of Economic Performance, Bryson and Freeman (2010) also explored the socio-demographic determinants and employee related factors that increase an employee's propensity to participate in share ownership schemes. The study paper uses data gathered from two types of schemes in Australia. The first of these plans referred to as an '*exempt scheme*' allowed employees to contribute up to AUD $500 per year from their pre-tax salary, with the employer matching an equal amount each year into the scheme and after three years of holding the shares, scheme participants could sell their shares without having to pay tax on the sale. The alternative scheme was referred to as a '*deferred plan*' and allowed employees to contribute between AUD $1,500 and half of their before tax annual salary, with the employer matching up to the maximum AUD of $3,000 per year. This latter scheme was referred to as a deferred scheme because if employees chose to hold the scheme for two years they had the opportunity to double their money, and could sell their shares for approximately the same value as the initial investment even if the share price after the two years dropped to half its value. Arguably the most important contribution of this paper is that it follows a similar line of investigation to Degeorge et al. (2004), because the authors concluded that participation in the schemes should be a '*no brainer*' and therefore the authors discussed the possibility that behavioural factors might best explain why there were not more employees participating in the scheme.

In addition to the previously described avenue of existing research that explores why employees choose to participate in share ownership plans, there is a second identifiable branch of the literature on the subject of financial behaviour which has sought to better explore diversification decisions relating to the participation in employee share ownership schemes. The first paper on this subject was Pendleton (2005), who gathered data from participants in Save As You Earn schemes in the United Kingdom. More specifically, this paper looked to identify which key factors were most influential on a scheme participant's decisions to disinvest or retain stock when their plan entered into maturity. The paper underlines the importance of diversification, as it reminds the reader of the fact that workers rely on their employer for not only a continual salary, and as Degeorge et al. (2004) also argued, employees have a significant amount of their specific human capital invested in their employer, because some skills are not easily transferable to other employers. Therefore as a result, if employees invest heavily in their employer through the scheme, then they are in danger of placing all their eggs in one basket. It is the general conclusion of this paper that in most cases employees are acting as rational economic agents, choosing to hold investments appropriately and disinvesting as required. As a result, these findings contradict Degeorge et al. (2004) and also Bryson and Freeman (2010), and further open up an interesting debate in the literature with regards to whether investment concentration in company share plans is a major concern or not. In addition to this particular finding, Pendleton's (2005) study also reiterates Dewe et al's (1988) finding that perceptions about the schemes have a significant impact on investment decisions, while Pendleton also found that a participant's age has a positive impact on their decision to retain stock. Conversely, the study indicates that income and risk preferences have little discernible impact on the decision to retain or divest stock.

This same subject was also investigated in a working paper by Blasi et al. (2010) produced for the purpose of a National Bureau of Economic Research (NBER) conference on the subject of shared capitalism. Their paper expands upon the issues of diversification. More specifically their paper explores whether it is possible for a worker to participate in employee share ownership without exposing their wealth to excessive levels of risk. Authoring this paper is Joseph Blasi and Douglas Kruse, who are amongst two of the most prominent researchers on the subject of employee ownership in the world. In addition, the paper is also co-authored by Harry Markowitz, who is widely regarded to be the father of modern portfolio theory and a Nobel Laureate in economics for his contributions to the subject of diversification. Their paper calculates a maximum level of concentration that workers can invest in their employer as a percentage of their total investment portfolio. Providing a detailed discussion of their calculations, the authors show that a five to fifteen percent allocation of investment in the employer does not expose an employee's wealth to excessive levels of risk, nor does it cause the portfolio to incur a significant loss of utility from holding extra risk. Using the largest sample of employee level data to date their study found that almost twenty-one percent of employees had invested twenty-eight percent or more of their total investment wealth in their employer.

Diagram 2.8: Diagram illustrating the financial behaviour literature



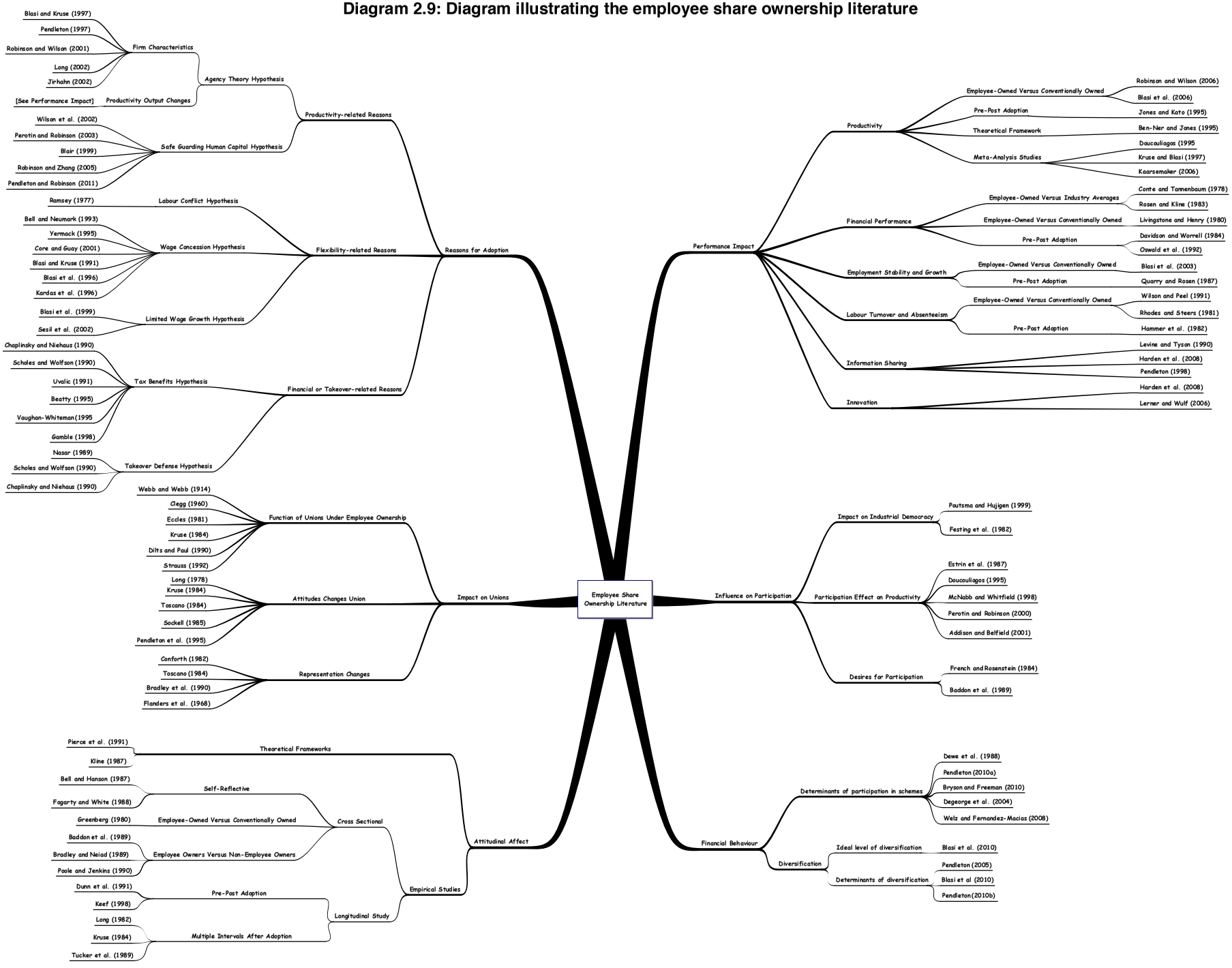
2.8 The Identified Gap

To conclude, the academic literature on financial participation has grown into an extensive body of research which overall has enhanced our understanding about how and why profit sharing and employee share ownership schemes have come to existence and their impact on the modern enterprise. Yet it is apparent when reviewing the literature in its entirety that there are still many gaps in our knowledge about company share plans. The key question from a research perspective is where are the most important shortfalls that need attention? It is the conclusion of this literature review that the biggest gaps relate to financial decision making within schemes, because to date the majority of studies have concentrated on answering firm level research questions, such as reasons for adoption, unionisation and performance impact, rather than focusing on the employees. It might further be argued that literature relating to the attitudinal effect and the influence on participation also answers firm level questions by using employee level data, given that it links attitudes to firm level performance. With this in mind, few studies have focused exclusively on workers with the exception of a small number of studies described in the latter part of this literature review, that have began the process of exploring financial behaviour and decision making in employee share schemes, and thus this is where the biggest gaps exist.

In recent years, there have been attempts to develop this literature, as a number of studies have been published looking directly at employee share ownership schemes and decisions made. However, this analysis is very much in its infancy, meaning that much of the research conducted thus far is broadly exploratory rather than explanatory or critical in nature. A key example of this is the fact that these early studies have focused on the more conventional economic variables used to explain wealth accumulation behaviour, such as social-demographic determinants and employment related attributes to measure their effect on participation and contribution levels (e.g. Degeorge et al., 2004; Pendleton, 2005; Pendleton, 2010; Bryson and Freeman, 2010). As was discussed within the first chapter, it could be argued that these studies are comparable to early research on 401 (k) plans, which also began by investigating many of the same determinants to assess their impact on participation and investment decisions (e.g. Papke, 1995; Yakoboski and VanDerhei, 1996; Bassett, 1998).

Given the similarities between the employee share ownership literature and research on 401 (k) plans, the more developed 401 (k) literature could be seen as a possible indicator of how the future research on employee share ownership might develop in the coming years. With this point of reference in mind, the majority of studies published in the last decade or so on the subject of 401 (k) investment behaviour have critically analysed the decisions made by participants in their defined contribution retirement plans. As described previously, there appears to be some emerging signs that the employee share ownership literature is also progressing in a similar manner.

Diagram 2.9: Diagram illustrating the employee share ownership literature



Chapter 3

Methodology - Overview

3.1 Introduction

The purpose of this following chapter is to offer an introduction to the methodology. By consequence, the discussion presented in this section will offer the reader with a broad overview of the key fundamental methodological principles and approaches that underpin this thesis. As a consequence, this chapter will leave more detailed methodological discussions on the identification of specific variables and how these variables will be operationalised to the subsequent chapters. In addition to providing a broad overview of the research design, a secondary objective of this chapter is to offer a detailed justification on why specific methodological approaches have been chosen. This explanation should be particularly insightful to the reader in situations where there exists an inherent level of subjectivity over the most appropriate methodological approach to adopt.

The chapter will be structured in the following way, it will begin by restating the thesis' broader research aims and then the specific research questions that have been identified through the review of the literature. Subsequently to reiterating the main research aims and questions, which are the foundation for the methodology, this chapter will then proceed to provide a reflective description of the philosophical perspective that this thesis is built upon in the pursuit attaining knowledge. This will include a discussion of the inherent epistemological implications and biases that are likely to arise from adopting such an approach to research. Upon completing this early discussion, the chapter will then outline the intended research approach, including providing the reader with a strategical overview of how the study was conducted, supported by a justification for why a survey methodology was considered to be the most appropriate method to investigate the research questions. This will be followed by an explanation on why data were collected from the Save As You Earn employee share ownership scheme, rather than from one of the other equally important company share plans operated in the United Kingdom. This section will also include a brief explanation of how this data was collected, including the research partnership with a leading share plan administrator. On a closely related subject, this chapter will then proceed to provide specific details on the methods used to collect data, including sampling methods and sample sizes. The penultimate section of this chapter will consider potential ethical concerns that could arise from this research. Finally, this chapter will conclude by recognising that no research particular methodology is completely flawless, and by consequence the chapter will close with a reflective critique of the proposed methodology to draw attention to some of the known limitations, included so that the results from this research are not misinterpreted in the subsequent data analysis chapters of this thesis.

3.2 Statement of the Research Aims

i) *The primary research aim of this thesis is to make a significant contribution to the existing employee share ownership literature, with a particular focus on contributing to the emerging strand of research which focuses on the investment behaviour and financial decision-making of scheme participants in their broad-based employee stock ownership plans.*

ii) *A secondary research aim of this thesis is to add to the body of empirical evidence that has attempted to explore workplace based investments and savings schemes in the United Kingdom. By consequence, this study shall seek to build upon a niche area of the economic and human resource management literature which has sought to better understand how workplace based investment schemes influence the wealth accumulation of an employee.*

iii) *In addition to these two central aims, a third research objective of this study is to complement the wider economic literature on financial behaviour and decision making, by better understanding how employee stock ownership plans fit into the economic life cycle of the average worker.*

3.3 Statement of the Research Questions

i) *What key factors influence how much a scheme participant in Save As You Earn chooses to allocate into the savings plan of their scheme?*

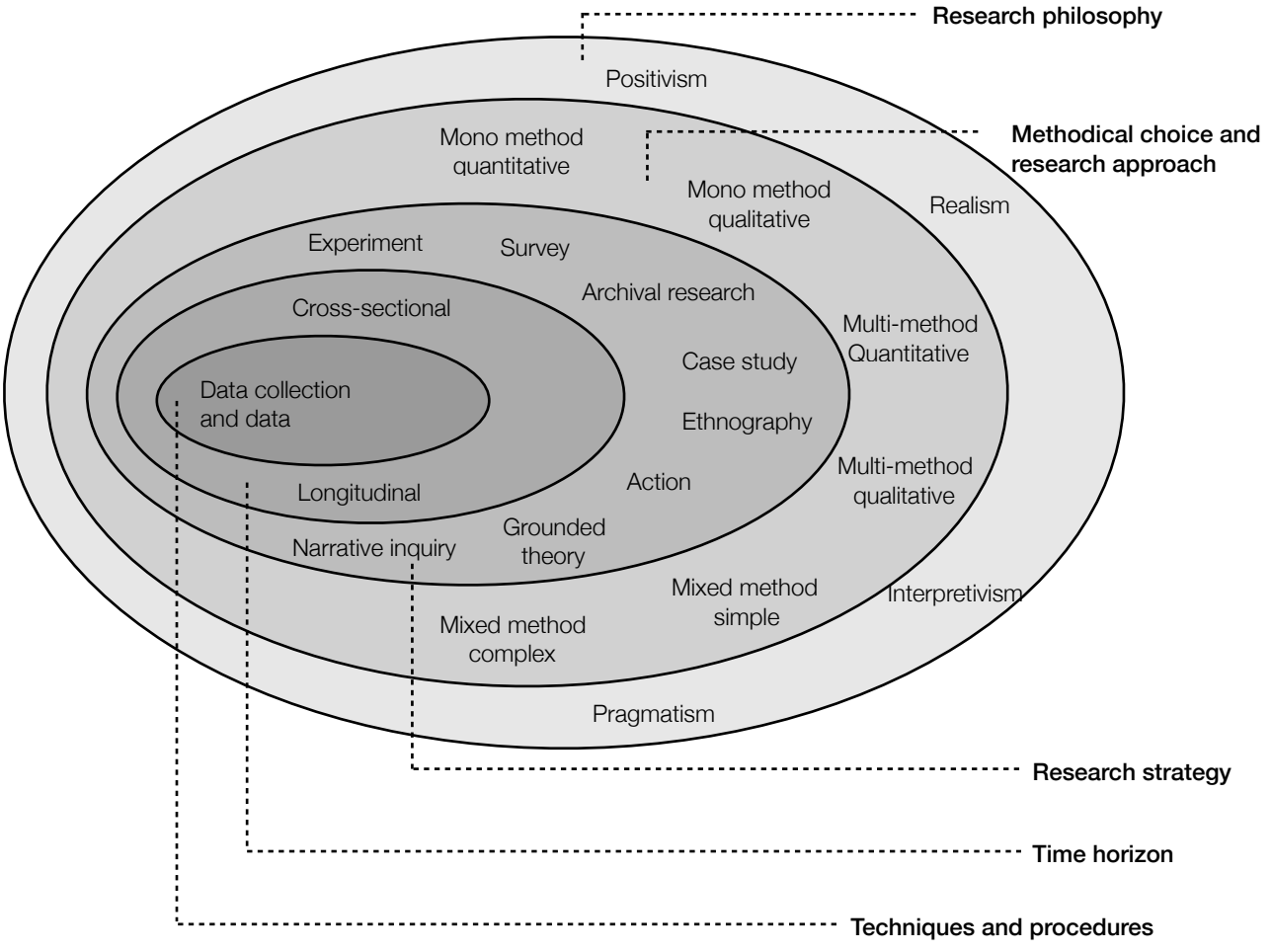
ii) *What key factors distinguish scheme participants who choose to concentrate a high proportion of their total monthly savings wealth into their Save As You Earn scheme from those who choose to allocate a lower percentage of their total monthly savings wealth?*

iii) *As the savings plan of a Save As You Earn scheme enters maturity, what key factors influence a scheme participant's decision to exercise his or her share option and purchase the shares, or alternatively, liquidate their savings contract and take the cash?*

3.4 Research Philosophy

It is conventional when conducting an extended piece of research to offer a review of the key underlying ontological and epistemological assumptions in the research that is being conducted (Bryman and Bell, 2007). The value of conducting this process early in the research design is to help ensure that any and all biases inherent to a particular perspective are understood and minimised when analysing the research findings (Babbie, 2010). With the potential advantages of reviewing the key philosophical assumptions understood and appreciated, the next step is to determine the appropriate paradigm which is most consistent with the research aims. Discussing how best to approach this, Proctor (1998) states that for a study to be considered credible and robust it is vital to achieve a complete alignment between the aims of the study, the proposed research questions, the research approach, the research strategy, the methods of analysis and then how the data is interpreted which must all be underpinned by a consistent philosophy. Elaborating on why this is important, Saunders et al. (2007) offer their research onion (see diagram 3.1) to illustrate the interconnectedness between the key elements and the need for uniformity, using the metaphor of peeling back the layers of an onion to highlight the potential implications of poor research design and how without achieving a high level of consistency in the research design this leads to spurious results and this in turn will bring into question the validity of any produced findings.

Diagram 3.1: Diagram illustrating the research onion by Saunders et al. (2007)



In the pursuit of consistency and beginning with the research philosophy, Smith (1998, pp. 46) provides a definition of positivism by describing it as a philosophical position which advocates that '*things can be studied as hard facts and the relationship between these facts can be established as scientific laws. For positivists, such laws have the status of truth and social objects can be studied in much the same way as natural objects*'. In contrast to positivism is an interpretivist philosophical outlook, which as Blaikie (1993) highlights is applicable to all forms of science, but is perhaps a research philosophy most commonly applied within the social sciences, because the subject matter under investigation does not necessarily have fixed properties and has the potential to experience events through various senses which is not usually the case within the natural sciences, therefore interpretivists believe it is important to recognise this difference when conducting research (Blaikie, 1993). By consequence, the interpretivist viewpoint maintains that the social world is a subjective reality, which is constructed and often re-constructed through different experiences, memories and expectations, and therefore the key objective of the researcher when choosing a methodology is to do their best to capture an accurate representation of these experiences, memories and expectations in their investigation.

With the two main research philosophical positions better understood, the natural question which arises from this discussion is which perspective is most appropriate for the study being undertaken here? One potential opinion is to adopt an interpretivism outlook has some considerable appeal because this perspective is perhaps most commonly associated with a form of research which wishes better understanding the subject of observation specifically from their own point of view (Blaikie, 1993; Saunders et al., 2007). However, the interpretivist viewpoint also conflicts with what the central research objectives of this study, which is to compare a range of factors against one another to determine which are most influential for a scheme participant's investment behaviour and financial decision-making within employee stock ownership plans. The alternative to a interpretivism is a positivistic outlook, which is based upon the premise that reality is objective, measurable and therefore inherently exists beyond the social actors experiences, memories and expectations. As a consequence, a positivistic philosophical viewpoint is the research philosophy which is most consistent with the proposed research objectives and research questions of this study and shall therefore be applied throughout the remainder of this thesis.

3.5 Research Approach

With the research questions and most relevant research philosophy identified, consideration will now be given to the most appropriate research approach capable of answering the research questions proposed previously. This topic of how to approach selecting the most appropriate research approach was discussed in a textbook by McCall and Bobko (1990), who suggested that the most appropriate research approach should be driven by the overall purpose of the study in terms of its contribution to the literature. More specifically, McCall and Bobko argue that a quantitative approach is often suitable when the research aims to be theory testing rather than theory building. Developing upon this point, they say that quantitative research is most commonly found when a piece of research seeks to compare two or more variables. In contrast, McCall and Bobko suggest that a qualitative research approach will often be adopted where the research is theory building, using data captured based upon experiences, memories and expectations to drive a grounded inductive approach to develop a conceptual model or to describe a given phenomenon. Based upon this description and the aims of this study, a quantitative research approach appears to be the most relevant.

The second basis for conducting a quantitative study is that this investigation demands a large sample of the population being observed, and quantitative studies are normally considered to be the most appropriate method for attaining large sample sizes (Bryman and Bell, 2007). A large sample size is important to this study so that valid inferences and generalisations can be made about the impact of financial decision-making and investment behaviour in employee ownership schemes. More specifically, the advantages of a quantitative research approach is that it means that all participants' responses are standardised, which is vital for a study that aims to compare the factors which are influencing financial behaviour, as the general limited power of comparability is a generally accepted weakness of a qualitative research approach (Smith, 1998).

A final basis for pursuing a quantitative rather than qualitative research approach is that it holds the strongest consistency with the positivist philosophical position. As discussed in the previous section, positivism advocates that knowledge is derived from empirical observations of an objective reality, and for this reason a this research philosophy is often considered to be synonymous with a quantitative research approach (Blaikie, 1993; Saunders et al., 2007; Easterby-Smith et al., 2008). Therefore, following Proctor's (1998) recommendation of pursuing consistency throughout the research design process, a quantitive research approach is proposed because it is consistent with the proposed research questions and philosophy. More specifically, this study shall create knowledge through applying univariate, bivariate and multivariate statistical analysis techniques to analyse the investment behaviour and financial decision-making of scheme participants in broad-based employee stock ownership plans.

3.6 Research Strategy

Building upon the previous discussion which proposed the research approach to be applied to this study, this next section will give a justification for the chosen research strategy. The challenge of selecting a research strategy for the investigation into the investment behaviour and financial decision-making of scheme participants in broad-based employee stock ownership plans is that there is a range of potentially applicable research strategies which could yield data capable of answering the research questions, such as field experiments, surveys, simulations, reviews, action research, case studies and/or an ethnographic study. Discussing this issue, Galliers (1991) identifies that there exist at least fourteen commonly used research strategies that are frequently adopted to answer a variety of research questions across the social sciences.

Given the number of potential research strategies which can be chosen, the discussion presented here will not attempt to discuss each that has not been chosen, but shall instead focus upon why a survey research strategy has been deemed the most appropriate methodology to answer the research questions as proposed within the literature review. More specifically, a survey approach has been proposed because this research strategy allows for the capturing of quantitative numeric descriptions of trends, attitudes, or opinions, while allowing for the targeting of a specific sample group (Bryman and Bell, 2007). Developing from this reasoning, a survey research strategy is proposed because it best supports the answering of the proposed research questions. Finally, returning to the point made by Proctor (1998) regarding achieving consistency within the research design process, as Galliers' (1991) taxonomy highlights, a survey research strategy is consistent with a positivist philosophical position while also complementing the desire for a quantitative research approach.

3.7 Time Horizon

With the objective of investigating the proposed research questions, some consideration must be given to the required time horizon needed to make sufficient observations of the phenomenon under investigation (McCall and Bobko, 1990). On the subject of deciding the most appropriate time horizon, Bryman and Bell (2007) proposed that this methodological decision should be based upon how best to capture the phenomenon at the heart of the research. More specifically, if the phenomenon can be captured through a snapshot in time this facilitates the opportunity for a cross sectional study. Alternatively, if the objective of the research is to observe an ongoing phenomenon, particularly where the research seeks to observe changes over time, then a longitudinal study is most appropriate.

Based upon Bryman and Bell's (2007) conditions for determining the most appropriate time horizon, it is proposed that this study shall be based upon a cross-sectional study. To elaborate on this point, a cross-sectional study can adequately achieve the research objectives of this investigation, as the main purpose of this study is to empirically determine the key factors which influence financial decisions made by scheme participants in their employees stock ownership plans which can be achieved based upon a 'snap shot'. While a longitudinal panel survey would certainly be advantageous and insightful, there are a number of practical factors which make this time horizon impractical. For example, a key practical disadvantage of conducting a longitudinal study from a research perspective is that it is highly time intensive, on the basis that it requires data collection to be conducted at fixed periods over a number of time intervals before results can be fully analysed (Babbie, 2010). While a longitudinal study may offer some interesting insights, the lengthy nature of this approach is not justified because the research questions are sufficiently answered using a cross sectional approach. A further practical disadvantage of conducting a longitudinal study is that contact details must be gathered and held so that respondents can be contacted in future. However, as discussed earlier, the survey was disseminated by passing a hyperlink to employees printed on a flyer, meaning that contact details remain unknown to the researchers and therefore follow up surveys are not possible and by consequence this further rules out the possibility of conducting a longitudinal study.

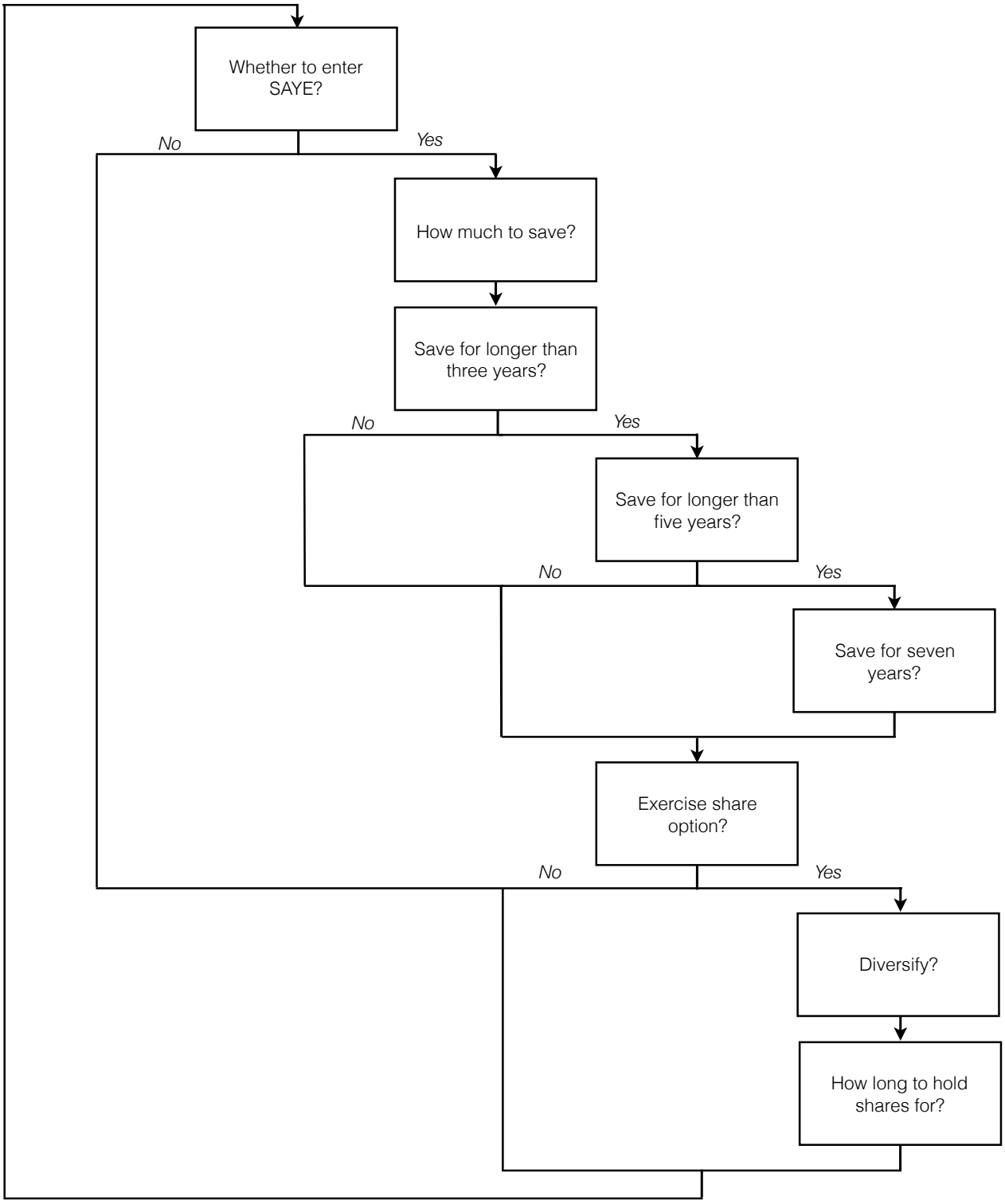
3.8 Data

3.8.1 What specific data was collected?

The research questions require that data be collected which capture the varying financial decisions of scheme participants in employee stock ownership plans. In the United Kingdom there are four main share plans operated by Her Majesty's Revenue and Customs. These are Save As You Earn (SAYE), Share Incentive Plan (SIP), Enterprise Management Incentive (EMI) and Company Share Option Plans (CSOPs). While each of these share ownership schemes are important and worthy of investigation, this study intends to focus exclusively on the financial behaviour of participants within the SAYE share save scheme. This particular share ownership scheme allows employees to save any amount between £5 and £250 (although the maximum has since changed to £500) over a three, five and seven year period, with a bonus and interest gained on amounts saved. In addition to these benefits, the plan also includes a non-obligational opportunity to buy shares at a price fixed from the date when the savings contract commenced, commonly offered to the employee with a 20% discount on the then share price. The scheme includes a share option which means that scheme participants are placed in the rather unique position of partaking in an investment opportunity that allows the individual to first see if their investment is in the money before deciding whether to acquire shares in the investment. This is because the participating employee is not obligated to exercise their share option, and as a result, the plan participants can simply choose to liquidate their tax-free savings and take the cash at the end of their savings period.

The most apparent alternative to observing the financial decision-making and investment behaviour of participants in Save As You Earn, at least with regards to the various schemes offered in the United Kingdom, is to observe those participants in the closely related tax incentivised scheme known as a Share Incentive Plan. The reason why this scheme was rejected as being the primary focus of the empirical investigation conducted in this thesis is because this particular company share plan allows each respective employer to set up the plan in one of four different ways with regards to how employees are offered the opportunity to acquire shares, including free shares, partnership shares, matching shares and dividend shares. The problem from a research perspective is that by offering a number of different methods of acquisition it introduces undesirable heterogeneity into the dataset with regards to a participant's financial decision-making and investment behaviour. While it is possible to control for these different approaches to acquisition, Share Incentive Plan participants are from a behavioural stance passively buying shares on a monthly basis. The comparable advantage of gathering data regarding participation in Save As You Earn schemes is that employees can only acquire shares through one singular approach when the share option enters maturity, which means that the choice architecture remains consistent for all scheme participants. In addition to this advantage, Save As You Earn arguably offers a more structured opportunity to observe the financial behaviour of scheme participants, because contained within the choice architecture of Save As You Earn are multiple mandatory decision points (see diagram 3.1).

Diagram 3.2: Diagram illustrating the choice architecture of Save As You Earn



In addition to Save As You Earn and Share Incentive Plan, there are also other employee stock ownership plans which are operated in the United Kingdom and could be considered equally important for research. While both schemes are of interest and would undoubtably add to the literature, the two other forms also suffer from the same limitations as previously discussed with regards to a Share Incentive Plan's limitations when pursuing the research questions of this particular study, in that they each have a relatively flat choice architecture. Furthermore, an Enterprise Management Incentive scheme, like a Share Incentive Plan, is malleable in the sense that it has the potential to be set up and offered to participants in a range of different ways as long as it is within the restrictions set by Her Majesty's Revenue and Customs. By consequence, an Enterprise Management Incentive scheme will often differ amongst employers, which once again limits the possibility of comparing the financial decision-making of large groups of scheme participants, particularly when attempting to make important generalisations about the key factors influencing investment behaviour.

Finally, a Company Share Option Plan suffers from similar limitations with regards to its ability to support the answering of the research questions. More specifically, this scheme is not normally offered as a broad-based scheme and instead is most commonly invitation only and is often used as part of a remuneration package for senior managers and company directors. By consequence, a Company Share Option Plan, like a Share Incentive Plan and an Enterprise Management Incentive plan, has limitations with regards to comparability from a research perspective when attempting to observe and make generalisations about investment behaviour and financial decision-making across a large number of scheme participants.

3.8.2 How was the data collected?

The data used in this study were collected in conjunction with one of the leading providers in the administration of broad-based and executive level employee stock ownership plans in the United Kingdom. The collaborative research relationship with this share plan administrator which facilitated access to the users of employee stock ownership plans was established by Prof. Andrew Pendleton and Prof. Andrew Robinson, and the relationship was formalised as part of an application to the Economic Social Research Council (ESRC) for a PhD Studentship which funded the research in this thesis.

In terms of how data was collected, the share plan administrator played a key role by disseminating a paper flyer containing information about the study, as well as information advertising a prize draw for the opportunity to win an iPad which asked respondents to type in a hyperlink to an online survey. The survey was then operated through the online survey website Survey Monkey. The survey was structured to include core questions asked to all respondents and a series of tailored questions based upon the decisions made at maturity.

3.9 Sample Size

The online survey achieved a total of four thousand five hundred and ninety responses from a combination of two hundred and ten companies. While the number of collected responses is known, given the method by which the survey was distributed, which as already described, was distributed in partnership with a share plan administrator and many of the clients which it supports in the daily running of the schemes. Based upon this partnership, a paper flyer was then disseminated to employees that included information about the survey and a hyperlink printed on it to the online survey. By consequence, given how the survey was disseminated to the respondents, it is not possible to compute an accurate response rate.

While the survey achieved four thousand five hundred and ninety responses, it is important to note that this was the number of responses achieved prior to conducting the process of cleaning the dataset. To ensure that the subsequent statistical analysis is robust, those responses which might be considered outliers were removed. With this objective in mind, the most notable potential sampling issue which could influence the results of this study is the existence of a high level of variance in relation to the number of responses obtained per company, where the quantity of responses achieved per company was shown to range from one response per company to six hundred and twelve responses per company. A low level of responses from a single employer has the potential to introduce spurious results into the study on the basis that at least some of the financial behaviour might be isolated to factors which are exclusive to a single employer. A decision was therefore made to remove possible outliers by excluding those responses from the dataset from companies that provided fewer than one hundred responses, which left a remaining sample of two thousand and fifty one reliably completed responses from a total of ten separate companies (shown in Table 3.3).

Table: 3.3 Table illustrating the response reductions in cleaning the dataset for analysis

	Companies	**Employees**
The original dataset prior to be cleaned up for statistical analysis which included a high variance in responses per company	210	4,590
Less responses with fewer than a hundred responses from a single employer	(200)	(2,539)
Dataset with a hundred or more responses per company	10	2,051

3.10 Ethical Considerations

In the last few decades, research in the social sciences has become increasingly concerned with ensuring that academic research is conducted with the highest moral integrity, which beyond the ethical advantages, also ensures that any produced research findings are publishable, trustworthy and valid (Bryman and Bell, 2007). Based upon these benefits, this next section will discuss the ethical considerations of this study.

As a starting point, Weathington et al. (2010) contend that the first and the most basic ethical requirement of any study involving human subjects is to gain informed consent from all those that participate. This point is elaborated on by Drew et al. (2008) who discussed this topic from a legal perspective and described the concept of informed consent to be built upon three pillars: capacity, information and voluntariness. Beginning with capacity, this relates to ensuring that all individuals participating in the study understand the nature and consequences of providing consent to the researcher. By consequence, there are a number of prerequisites that ensure that a subject has the capacity to consent, the first of which is the participant's age, on the basis that children are regarded as not being old enough to make informed decisions about participating and therefore any studies involving children must seek their legal guardians to provide informed consent on behalf of the child. Likewise individuals with diminished mental capacity are also protected. With awareness of this particular issue, these two vulnerable groups were not be participating in this study, therefore the capacity to consent shall be determined through information and voluntariness. To assure that the former is achieved, those who were offered the opportunity to participate in this study were provided with a summarised description of the study's aims (see Appendix). Likewise, voluntariness was achieved through taking care that potential subjects did not feel coerced or otherwise pressured into participating in the study.

In addition to informed consent, Weathington et al. (2010) recommend that researchers give careful consideration to the potential hazards that could be inflicted on a subject as a result of participating in a study, whether this be physical, emotional, social or psychological harm. Historically there have been occasions, particularly in fields of medical science and psychology, where participation in a study has caused harm and where ethical principles have been seriously violated in the name of science (Bryman and Bell, 2007; Babbie, 2010). This considered, the subject matter of this investigation and the fact that it is based upon an online survey means that participants will not be subject to any direct harm, likewise there are unlikely to be instances where a respondent might feel some sort of social or emotional distress through participating in the study.

In addition to the researcher themselves, the research institution which facilitates the research also holds a legal responsibility and duty of care to participants. With this objective in mind, a request was made by Prof. Andrew Pendleton and Prof. Andrew Robinson to the Economics, Law, Management, Politics and Sociology Ethics Committee at the University of York, with the research approach and survey being granted ethical approval by the committee in September 2012.

This issue has been discussed in more detail in a book on research methods by Babbie (2010), who identifies two important approaches that are commonly implemented by researchers to ensure that personal information is protected, the two key factors being confidentiality and anonymity. Looking beyond the confidentiality of data, ensuring participants' anonymity is another important part of any modern study. This was partly achieved by the simple fact that respondents' names, date of births and addresses were not collected within the questionnaire. A further measure taken to ensure anonymity is that data is only displayed within this thesis in aggregated form across ten companies, meaning even particular employees which might have a unique identification number can be exchanged for where names and addresses would previously exist as a means of distinguishing between respondents. Likewise, company names will not be disclosed in the reporting stage if a situation also arises where companies need to be distinguished between each other, so in this particular case it is proposed that an anonymous lettering system will be implemented (e.g. Company A, Company B).

Chapter 4

Methodology - Identification of Hypotheses for Investigation

4.1 Introduction

In the pursuit of conducting a detailed study with the overall objective of identifying which key factors influence a scheme participant's savings behaviour within broad-based employee share ownership schemes, this next chapter builds upon the literature review by collating a number of the known factors that have so far been documented to have had an influence on savings behaviour, which in turn will complement the methodology by offering a series of hypotheses for empirical investigation. With this objective in mind, this forthcoming chapter will seek to review not only the literature relating directly to employee share ownership, but will also rely on the evidence offered by the much more established 401 (k) literature. Adding theoretical and empirical substantiation, this chapter will also discuss relevant research from the wider body of economic literature on wealth accumulation. The basis for the inclusion of the latter literature when identifying hypotheses is because the overall discussion can benefit from the fact that the topics of household consumption and wealth accumulation is amongst the most extensively examined and theoretically developed topics in the field of economics. The word '*economics*' is itself derived from this analysis, as directly translated means *'laws of the household*', from the ancient Greek for *oikos* (*house, household or family*) and *nomos* (*law or rules*).

The presented chapter will be structured in the following way: it shall begin by reviewing a range of socio-demographic factors that have previously been shown to influence savings behaviour and decision-making. This discussion will then proceed to employment-related attributes. These initial two categories benefit from the richest body of available past research, with both gaining attention not only within the wider economic literature, but have also been much explored within the 401 (k) literature and more recently within the sub-strand of the employee share ownership literature that has explored savings behaviour and financial decision-making. Upon completing this initial discussion, the next category of hypotheses will relate to a scheme participant's motives for joining a company share plan, which inspired by Klein (1987) will review three common motives. Continuing on from this topic, the discussion will then proceed towards four latent variables for investigation that will seek to capture a scheme participant's attitude towards their employer and job. Risk preferences are identified next for investigation, where a justification will be offered for why different forms of risk preferences need to be assessed within this study. Upon completing this section the penultimate group of hypotheses proposed shall relate to the perceptions and predictions of past and future share price movements. The chapter will conclude by offering a justification for why the emerging discussion on financial education is worthy of investigation to determine its potential impact on savings behaviour.

4.2 Conceptual Framework

The conceptual framework adopted in this thesis is based upon the bounded rationality paradigm of rational expectations that was identified and developed by Simon (1957), who broadly argues that individuals do seek to be utility maximisers but they are also limited by the information they have available to them, and must also rely on their past experiences, understandings and knowledge as well as being limited by a range of cognitive, social and emotional constraints of their minds and the finite time available to make a decision. The reason why this study proposes adopting this particular paradigm as the conceptual underpinning of this thesis is that it is the most accurate representation of how people make financial decisions based upon the evidence available from past studies, particularly those relating to defined contribution plans with the greatest emphasis placed upon the more established 401(k) literature. More specifically, the majority of studies that have been published in the last decade or so in this literature, have began to critically analyse the financial decisions which participants have made in their 401 (k) retirement plans and often document sub-optimal decision-making (e.g. Benartzi, 2001; Madrian and Shea, 2000; Huberman, 2001; Benartzi and Thalter, 2001; Meulbroek, 2002). The reoccurring conclusion of much of this literature is that 401 (k) plan participants have an unfortunate propensity to make make decisions which goes against normative models of utility maximisation. As a result, many of the findings on this subject to date, broadly conflict with the expectations of neo-classical rationality that has existed in post-war economic with regards to how an economic agent are expected to act, particularly with regards to utility maximisation, and by consequence, much of this 401 (k) literature has since become synonymous with contemporary research within the fields of behavioural economics.

4.3 Contribution Beyond The 401(k) Literature

Many of the explanatory variables put forward for investigation within this chapter take their inspiration from a wider body of economic literature that has already begun to investigate a range of explanatory variables to determine their potential impact on financial decision-making. The challenge for this study is that when attempting to establish a set of hypotheses for empirical testing is that the existing literature is limited because there is only a small number of studies which have so far sought to explore financial behaviour in compare share plans. This study therefore follows the same approach adopted by Pendleton (2010a) and relies heavily on 401 (k) investment behaviour literature to provide a theoretical starting point for further empirical investigation.

The reason why this study reinvestigates a number of variables which have previously been explored elsewhere in the 401(k) literature relates to the fact that share ownership schemes are a fundamentally distinct type of investment vehicle to the 401(k) plan. The 401(k) plan is for example a retirement account and there is little evidence to suggest that the majority of employee in company share plans use it to accumulate retirement wealth. Beyond this more apparent difference, the underlying choice architecture of a 401 (k) plan is dissimilar, most notably because within a company share plan you can only invest in your employer, whereas within a 401(k) plan a participant can choose to invest across a wide number of companies and asset types.

4.4 Socio-demographic Determinants

4.4.1 Income

Beginning with the socio-demographic determinant of income, this specific factor is unequivocally the most theoretically discussed and analysed variable in the whole of the economic literature on wealth accumulation. Widely recognised to influence savings behaviour, this variable is essential to each and every theory on the subject. For example, Keynes (1936) proposed that marginal propensity to save is naturally derived from the marginal propensity to consume in relation to how income affects both. Developing upon Keynes' earlier work, Friedman (1957) went on to publish his now famous permanent income hypothesis. This is theory which broadly puts forward the idea that income should be sub-divided into one of two key categories: permanent and transitory. The former is an appropriation of a person's total life time expected earnings, where it is argued that an individual makes a rational calculation about their total possible life time earnings, then spends and saves appropriately. The latter, transitory income, is defined to be the difference between permanent income and any further additional income received through windfall gains that are not foreseeable. The permanent income hypothesis broadly postulates that consumption behaviour differs depending on these two types of income. The model predicts that changes in transitory income should have little discernible influence on the marginal propensity to consume, whereas any major changes in permanent income are foreseen to have a significant impact on consumption, and consequently on an individual's level of savings.

The relevance of the permanent income hypothesis to the presented discussion arises from its key theoretical conjectures, because a key premise of the theory is built upon the suggestion that those individuals on lower incomes have an increased propensity to consume, and as a result have a smaller allocable amount they can hold back for savings as a proportion of their total income. While there is evidently a strong relationship between a person's income and their level of consumption, the link is also found to often diminish through each marginal increase in income as the propensity to consume becomes less and less induced by necessity, and more likely to result from spending on luxury goods and services (commonly termed conspicuous consumption). In short, traditional economic theory predicts that those individuals fortunate enough to be on higher incomes have a greater allocable amount available for savings, which has led many economists to the hypothesis that wealthier individuals not only have higher levels of savings, but are also anticipated to hold a more diverse range of investments from which to spread this increased wealth amongst.

In addition to this more normative argument, a number of other researchers in the area of wealth accumulation have put forward related explanations of a more practical nature for why those on a lower income choose to use fewer savings and investment products. One contention is for example that people with lower incomes are more likely to have liquidity constraints, and therefore are more likely to avoid any form of savings and investment that requires their savings to be held for a fixed period because their wealth would be 'tied up'.

In addition to these arguments, some commentators have suggested that tax benefits for participating might be another explanation for why those on higher incomes are most likely to participate and save more in defined contribution plans. This is because in many countries policymakers have implemented tax incentives to encourage savings in both retirement accounts and company share plans. With these benefits in mind, Pendleton (2010a) discussed the possibility that higher income workers choose to participate in Save As You Earn schemes because they may have already exceeded their annual tax free savings allowances elsewhere (e.g. Individual Savings Accounts). A similar type of reasoning has also been presented within the defined contribution pension plan literature, where scholars such as Bassett et al. (1998) have highlighted that because 401 (k) plans allow scheme participants the opportunity to make saving contributions into their plans before income tax deductions are taken, workers on higher tax bands benefit the most from the tax benefits of contributing more into 401 (k) plans. A strong link between income, participation and contributions is well documented throughout the 401 (k) literature (e.g. Andrews, 1992; Papke, 1995; Munnell et al., 2001).

With regards to research specific to the influence of income in the employee share ownership literature, one of the earliest academics to conduct research in this area was Degeorge et al. (2004), who looked at a range of determinants when attempting to understand why workers were choosing to join and pay into a company share ownership scheme that was being implemented in France. In addition to including a measure for an employee's current income, this study also included an independent variable for pre-existing financial wealth. What the paper concluded was that both variables were amongst the strongest predictors of participation and contribution levels into an employee stock ownership plan. In research akin to this conducted in the UK, Pendleton (2010a) looked at participation and contribution levels in broad-based employee ownership schemes and found that a scheme participant's income was amongst the strongest predictors.

Therefore in summary, the importance of income is well established within the wider economic literature, the 401 (k) literature as well as within the employee share ownership literature. Given the strength of the evidence, the following three hypotheses have been identified for investigation within this study:

H1a: *Scheme participants with higher incomes will place more into the savings plan of Save As You Earn.*

H1b: *The concentration of total monthly savings allocation placed into Save As You Earn will be lower for scheme participants on higher incomes.*

H1c: *The decision to purchase shares at the point of maturity will be positively linked to a scheme participant's income.*

4.4.2 Age

The second variable identified for empirical investigation within this study is a scheme participant's age. This particular socio-demographic factor is supported by a highly developed body of macroeconomic theory. For example, the relationship between age and savings can be explained by the income life cycle hypothesis of Modigliani and Brumberg (1954), or alternatively the permanent income hypothesis of Friedman (1957). These two well known and established models are underpinned by a number of similar assumptions in relation to age, savings and consumption. The first of these is the conjecture that every person makes a rational calculation about their total possible accumulation of wealth over their working life, then spends and saves appropriately. A second overlapping expectation is the premise that a person's consumption remains broadly constant throughout their whole lives, suggesting that they spend the same in pre-retirement as they do in post-retirement. Based upon these conjectures, both models predict that wealth accumulation shall be positive in a person's working years and negative in their post-retirement years, at which point those individuals advancing in age are anticipated to begin a natural process of disinvestment and liquidating their accumulated assets with the intent of enjoying the same level of consumption they had pre-retirement. Alternatively expressed, normative economic models on wealth accumulation predict that the average person's savings profile will peak in the years prior to retirement, which means that when savings and age are plotted on a graph on opposing axes, an individual's wealth accumulation profile is expected to present itself as a hump shape.

While many economists have often challenged these models as being overly simplistic, such as ignoring the impact of having a family on the life cycle or the desire to bequeath wealth (Kotlikoff and Summers, 1981), it is still important to note that as a conceptualisation both these frameworks remain central to the way many economists and other social scientists think about how a person accumulates and consumes their wealth. The evidence base supports these theories, for example Gourinchas and Parker (2002) documented the existence of a hump-shaped savings profile. After adjusting for variables such as family size and economic growth, their findings displayed a significantly skewed wealth profile towards a person's mid-life. As a result, what this study found was that the average person's wealth increases progressively from their early twenties through to their mid-forties, with an average peak of wealth at age forty-five. A similar age-to-savings profile can be seen in many other papers, for example, Fernández-Villaverde and Krueger (2002) also identified a similar savings profile but this paper placed the peak of wealth slightly later in life.

A number of additional theories have been offered as explanations for what causes this phenomenon. One potential explanation is that workers' incomes are often lower earlier on in their careers, but will rise steadily with each step up the career ladder. In addition, the wealth accumulation profile of adults in their twenties and thirties is anticipated to be slower due to having young families, and this is important because the cost of raising a young children is documented to delay wealth accumulation (Attanasio and Browning, 1995).

In addition to these justifications of a more practical economic nature, there are also behavioural factors which explain why an individuals' savings profile initially begins slowly, but increases significantly in the latter part of their working years. It has been argued in early economic literature, for example, that people are imperfect in their financial behaviour because they are influenced by inter-temporal factors such as self control and foresight (Rae, 1834; Fisher, 1930). In recent years there has been a re-emergence of academic discussion of a similar ilk, where behavioural economists have coined the term hyperbolic discounting to describe the finding that economic agents often put a much greater utility on a lesser current rewards received today than on deferred rewards of a greater value received at a point in the future (O'Donaghue and Rabin, 1999).

Turning towards the 401 (k) literature, a wide array of studies have gathered data on participants' age and observed it in relation to wealth accumulation in defined contribution retirement plans. One example of such a study was offered by Kusko et al. (1998), who conducted analysis on a large sample of 401 (k) participants in the years between 1988-1991. In this study they found that both participation and contribution levels were strongly positively correlated with age. More specifically, this study showed that participation levels and contributions increased progressively with age, but would then enter a period of significant decline in the years prior to participants' retirement. This finding has been shown to reoccur throughout much of the 401 (k) empirical literature (e.g. Madrian and Shea, 2001; Huberman et al., 2003).

Finally and most relevantly, the determinant of age has been documented in a small number of recent papers in the employee share ownership literature. One such study by Degeorge et al. (2004) found that there was a strong positive relationship between an economic agent's age profile and their participation and contribution levels into the observed company share plans. In a later study, Pendleton (2010a) predicted and found a hump-shaped savings profile with regards to both participation and contributions within the Save As You Earn savings plan.

On the basis that age is consistently found to be an important determinant of wealth accumulation throughout much of the wider economic literature, the 401 (k) and existing employee share ownership literature, the following hypotheses have been identified for investigation:

H2a: *The level of savings placed into Save As You Earn will follow a hump shaped age profile and will be highest for those scheme participants in their mid-to-late forties.*

H2b: *The concentration of total monthly savings allocation placed into Save As You Earn will be lower for scheme participants in their mid-to-late forties.*

H2c: *The decision to purchase shares will follow a hump shaped age profile and will be highest for those scheme participants in their mid-to-late forties*

4.4.3 Gender

While the determinants of income and age are by far the most commonly examined socio-demographic factors within the wealth accumulation literature, the impact of gender has still gained considerable attention. The most prominent research question which has reoccured in much of this literature has been to empirically test whether there is any discernible differences between the genders in terms of their financial decision-making. This also has been pursued as a topic of interest in many different strands of social science research. For example, national statistics do provide some indication that females are more risk adverse than males, with females found to be less likely to get caught speeding or handling drugs (Stoltenberg et al., 2008). In research akin to this, Hersch (1996) looked at risk preferences in relation to personal behaviour and found that males are more likely to take up higher risk habits such as smoking and not wearing a seat belt when driving.

The economic literature has likewise examined gender differences in relation to wealth accumulation, where a number of studies have shown that there are significant deviations in the patterns of savings behaviour between males and females, with a common approach being to conduct experiments based upon abstract gambles looking for potential gender divergence in financial behaviour. Studies of this nature have produced mixed findings overall but do point towards females preferring safer gambles than males (e.g. Levin et al., 1988; Hartog et al., 2002; Holt and Laury, 2002).

There are a number of economists who reject the validity of laboratory experimental studies as being a robust way to differentiate between differences in behaviour and decision-making between males and females. One common argument against laboratory studies more generally has been that they are unable to accurately mimic the real world on the simple basis that they are nearly always based upon offering small rewards to those who participate in the study (Guala, 2005). Likewise, another common argument against the adoption of laboratory style experimental approaches when comparing gender differences is that the sample population which is included in the majority of the existing literature misrepresents society. This is because the sample population used in many of these is selected from a limited participant pool, most common of which is university students. It is therefore suggested that laboratory studies findings are often skewed towards capturing the financial behaviour of only young adults and therefore misrepresent the population as a whole (Sears, 1986).

While these methodological concerns are justified, it is important to note that alternative approaches have yielded comparable results, because a number of asset and wealth studies have documented findings which appear to suggest that females are more risk adverse. Furthermore, arguably a greater weighting must be placed upon this evidence, on the basis that is derived from real life observations of behaviour between the genders. It is important to note that research finings in this area are also mixed. However, on balance this literature suggests that females generally prefer safer investments than males (Hinz et al., 1997; Jianakoplos and Bernasek, 1998; Suden and Surette, 1998).

One reason to be cautious when interpreting differences in investment behaviour between the genders is that such variations could conceivably arise simply because of known inequalities in earnings. More specifically, females earn less on average than males in many countries, which will in turn alter their investment behaviour. With this in mind, a number of papers have attempted to statistically control for income divergences with the purpose of re-examining the same research question, and after controlling for income, Blau and Kahn (2000) found that females on average still prefer safer investments.

Next turning to the 401 (k) literature, a study by Humerman et al. (2003) found that female employees are more likely to participate in a retirement scheme, but would on average contribute less into their plans. Furthermore, a divergence between the genders in terms of 401 (k) participation was also shown to widen further down the income scales in this study. In related research akin to this, a later study by Huberman et al. (2007) found that females were more likely to join a 401 (k) plan, but unlike in the previous study, the researchers also documented that contributions were higher from female workers.

Differences between the genders in terms of participation and contributions has also been mixed within the employee share ownership literature. For example, Degeorge et al. (2004) found that female workers were 5% more likely to participate in an employee share ownership scheme. This finding was later supported by Pendleton (2010a), whose study found that female employees were the most likely to join Save As You Earn, but on average would contribute less. As mentioned, these findings are not consistent throughout the literature, for example, Welz and Fernández-Macías (2008) documented that males were almost twice as likely to participate in employee share ownership schemes than females. Likewise, Bryson and Freeman (2010) also found that participation and contribution levels were higher amongst male scheme participants.

While the empirical findings may not be completely consistent throughout the literature, the following three hypotheses have been identified, putting the greatest weighting on Pendleton (2010a), as this study exclusively examines scheme participants in Save As You Earn:

H3a: *The level of savings placed into Save As You Earn will be higher amongst female scheme participants.*

H3b: *The concentration of total monthly savings allocation placed into Save As You Earn will be lower amongst female scheme participants.*

H3c: *The decision to purchase shares at the point of maturity will be highest amongst male scheme participants.*

4.4.4 Household size

The number of children a person has within their family has been identified as the penultimate socio-demographic factor required to be included within this study. Currently this independent variable has not been explored anywhere else within the existing empirical research on the subject of employee share ownership, however there is a strong argument from the wider economic literature that family size may in many cases have a significant influence on a person's wealth accumulation. Interestingly, the subject of dependents was largely omitted from much of the early theoretical economic literature on consumption and savings. More specifically, the original version of Modigliani and Brumberg's (1954) economic life cycle hypothesis conjectured that individuals conduct a process of accumulating wealth in their working years pre-retirement, with the purpose of enjoying the same level of consumption post-retirement. It did not factor in the potential desire to bequeath wealth to children through some form of inheritance.

A small number of empirical studies in the wider economic literature have also explored the effects of children on wealth accumulation and retirement planning. In one such study, Scholz et al. (2006) conducted a study which investigated a range of different independent variables to examine optimal savings decision-making based upon Modigliani and Brumberg's economic life cycle hypothesis. This study found that there was a negative relationship between number of children and savings. In similar research on retirement behaviour also conducted in the United States, Bassett et al. (1998) looked specifically at 401 (k) defined contribution plans and amongst other observations recorded an independent variable for the number of children to assess its impact on the dependent variables of participation, contributions, withdrawals and reallocation. This study concluded that children did not have a direct influence on participation rates in 401 (k) plans, but it did influence lump-sum withdrawals from plans, where the evidence indicated that workers with children were six percent more likely to make a withdrawal.

On the basis that no study to date within the employee share ownership literature has included a measure for household size, the following three hypotheses have been identified with to the objective of providing answers to the proposed research questions:

H4a: *Scheme participants with a larger household size will choose to place less into the savings plan of Save As You Earn.*

H4b: *The concentration of total monthly savings allocation placed into Save As You Earn will be higher for those with a larger household size.*

H4c: *The decision to purchase shares at the point of maturity will be positively linked for scheme participants with a smaller household size.*

4.5 Employment-Related Attributes

4.5.1 Part-time / full-time

Part-time employment has been shown to impact retirement wealth in the 401(k) literature, where a number of empirical studies in the United States have presented empirical evidence that contracted hours do have a significant impact on the participation levels in this particular type of defined contribution retirement account. Once again, the theoretical underpinnings for why this happens is open to interpretation, for example, one explanation has been that companies are more likely to offer full time employees retirement accounts (US Bureau of Labor Statistics, 1993). However, this particular finding was contradicted by Buchmueller (1999), who conducted research into companies which offered a significant proportion of their workforce part-time contracts and found a positive link between part-time workers and the uptake of benefits, including 401(k) plans. In a related study, Springstead and Wilson (2000) examined the influence of part-time employment in relation to 401(k) investment behaviour and found that 67% of full-time workers participated in 401(k) plans as compared to 39% of part-time employees.

A number of empirical studies within the employee share ownership literature have recorded an independent variable for part-time workers to observe its effects on the dependent variables for participation and contributions in broad-based company share plans. One of the earliest studies to conduct analysis in this area, research by Welz and Fernández-Macías (2008), indicated that full-time employees were almost twice as likely to join a share scheme as part-time workers. This findings was contradicted in a paper by Pendleton (2010a), who found that part-time employment had no effect on either participation or contribution levels.

Given that the evidence base is mixed both within the 401 (k) and employee share ownership literature, the following three hypotheses have been identified for investigation within this study:

H5a: *It is anticipated that scheme participants on part-time contracts will choose to place less into the savings plan of Save As You Earn.*

H5b: *It is anticipated that the concentration of savings allocation placed into Save As You Earn will be higher for scheme participants on part-time contracts.*

H5c: *It is anticipated that the decision to purchase shares at the point of maturity will be lower for scheme participants on part-time contracts*

4.6 Motives For Joining

4.6.1 Intrinsic motives

As previously described within the literature review, Klein (1987) published what has now become a much discussed article in the employee share ownership literature entitled '*Employee stock ownership and employee attitudes: a test of three models*'. The major contribution of this paper to this particular area of research was the offering of a framework that classifies employees' motives for joining an employee share ownership scheme into three separate but not necessarily mutually exclusive forms of satisfaction that arises from share ownership. The first of these she described as intrinsic, which is the proposition that some workers may choose to purchase shares in their employer because they like the feeling of being a part-proprietor in the business where they work. This was the suggestion of Tannenbaum (1983), who highlighted that seeing oneself as a shareholder can be more ego enhancing than seeing oneself as form of employed labour, and thus offers a form of satisfaction.

While many compelling arguments have been put forward for why employees may obtain intrinsic forms of satisfaction from holding a stake in their employer (e.g. Tannenbaum, 1983; Rhodes and Steers 1981), the attitudinal strand of the employee share ownership literature has collectively received mixed results when attempting to measure its specific impact on how it changes the attitudes of employees towards their employer. More specifically, some studies have offered evidence which appears to support the assertion that employees who own part of their employer are obtaining an intrinsic form of satisfaction from being an employee owner, which can be commonly found in those studies which have collected data based upon a self reflective approach (e.g. Fogarty and White, 1988).

Based upon the existing literature and the fact that intrinsic forms of satisfaction have so far not been explored in the specific strand of employee share ownership literature which focuses on financial decision-making, the following three hypotheses have been identified for investigation:

H6a: *Intrinsic motives for joining the scheme will have a positive impact on the amount of contributions placed into the savings plan of Save As You Earn.*

H6b: *The concentration of savings allocation placed into Save As You Earn will be higher for those scheme participants with intrinsic motives for joining the scheme.*

H6c: *The decision to purchase shares at the point of maturity will be higher for those scheme participants with intrinsic motives for joining the scheme.*

4.6.2 Instrumental motives

The second form of motivation proposed from Klein's (1987) three factor model is instrumental motivation, which is the proposition that employees gain a sense of fulfilment not from the direct act of owning shares but instead from the indirect benefits which arise from an employee holding a stake in their employer. For example, it is proposed that instrumental satisfaction could arise from increased involvement in decision-making, from the employer offering employees better communication of company information or perhaps because employees gain greater control over their day to day tasks or general job role. As a consequence, many studies in the attitudinal literature seek to explore participation as a moderating factor which leads employees to attain improvements in their attitudes towards their employer or job.

When viewing the attitudinal strand of the employee share ownership as a collective body of research, a number of studies have documented important links between participation and control in generating a positive attitudinal change towards the job or employer (Long, 1978; Kruse, 1984; Buchko, 1993; Pendleton et al., 1998). This point was expressed by Pendleton (2001), who in reviewing this literature asserted: "*the suggestion that participation in decision-making is an essential accompaniment of share ownership is to bring about attitudinal change has been supported in study after study*" (p.158).

With regards to the strand of the employee share ownership literature which has looked specifically at the financial decision-making of scheme participants, so far few studies have included a measure for instrumental motives to determine how this may influence savings and investment behaviour. In one that has, Pendleton (2005) included a variable to research which key factors influence participants to either sell or keep their shares after purchasing them through an employee share ownership scheme. What this study found was that employees were more likely to keep shares if they revealed within the survey that they had control desires for entering into the scheme.

Based upon the existing literature, there is sufficient evidence to empirically investigate whether the desire to obtain greater involvement or control in their employer may influence scheme participant's savings behaviour, therefore the following hypotheses have been identified for investigation:

H7a: *Instrumental motives for joining the scheme will have a positive impact on the amount of contributions placed into the savings plan of Save As You Earn.*

H7b: *The concentration of savings allocation placed into Save As You Earn will be higher for those scheme participants with instrumental motives for joining the scheme.*

H7c: *The decision to purchase shares at the point of maturity will be higher for those scheme participants with instrumental motives for joining the scheme.*

4.6.3 Extrinsic motives

The final form of motivation identified within Klein's (1987) three factor model is extrinsic satisfaction, which is the proposition that employees who own shares in their employer primary because they get a form of fulfilment from the potential opportunity to make a financial gain. As a consequence, the third factor in Kline's model implies that the majority of employee shareholders are for all intents and purposes the same as conventional shareholders in their motives and see their holding in their employer primarily as an investment. The attitudinal strand of the employee share ownership literature has produced a number of studies which support this claim and highlight that employees are in the schemes because they want to make money rather than because they have any strong desire to become a shareholder or to attain more involvement in the company (French and Rosenstein, 1984; French, 1987; Baddon et al., 1989). This was the finding of Dewe et al. (1988) in research which looked specifically at Save As You Earn, who concluded that those employees that perceived the scheme to be financially beneficial were the most likely to participate.

With regards to the employee share ownership literature looking specifically at financial behaviour, Pendleton (2010a) included a measure in his study to capture extrinsic motives and found it to be amongst the strongest indicators of participation and contributions. It was therefore a key conclusion of this particular paper that the majority of employees participating in Save As You Earn are doing so because of the potential financial benefits that arise from having a tax incentives savings plan linked to a share option. It is important to note that these findings are not unanimous throughout this strand of the literature. In the discussion section of a paper by Caramelli and Carberry (2014), for example, they questioned this specific finding when contrasting it with their own research looking at which employees choose to hold shares.

While the debate within the employee share ownership literature is likely to remain on going regarding what are the majority of employees' primary motives for joining a company share plan, there is sufficient evidence to suggest that extrinsic motives may offer insights that support the answering of the research questions, therefore the following hypotheses have been identified for investigation:

H8a: *Extrinsic motives for joining the scheme will have a positive impact on the amount of contributions placed into the savings plan of Save As You Earn.*

H8b: *The concentration of savings allocation placed into Save As You Earn will be higher for those scheme participants with extrinsic motives for joining the scheme.*

H8c: *The decision to purchase shares at the point of maturity will be higher for those scheme participants with extrinsic motives for joining the scheme.*

4.7 Emotional Affiliation Towards the Employer and Job

4.7.1 Reciprocity

Developing upon the previous areas of analysis, the subject of attitudes towards the employer and job are the fourth category of explanatory variables identified for empirical investigation within this study as they have the potential to offer valuable insights that support the answering of the research questions. The first variable which is put forward relates to the still relatively novel concept of reciprocity and gift-exchange, which has been gaining increasing attention within many different fields of social science over the years. In a seminal paper, Akerlof (1982) was one of the first scholars to popularise the subject of gift exchange within the field of economics by broadly arguing that an individual's level of effort at work is not rooted in the size of their pay cheque but on the perceived fairness of their wage. In summary, the importance of this paper for labour economics is that it demonstrated that may be in some cases optimal for employers to pay their workforce more than the market-clearing wage as it can lead to employees working harder.

Within research specific to employee share ownership, one of the first to discuss company share plans was a NIESR discussion paper by Bryson and Freeman (2014). What they highlighted is that due to the tax benefits from participating in an employee stock ownership plan combined with the fact that many large listed firms offer discounts to purchase shares and in certain schemes also provide employees with free shares, employees who participate in stock ownership may regard doing so as akin to a 'gift' from their employer. Returning to the underlying theory presented by Akerlof (1982), the paper by Bryson and Freeman (2014) argues that greater sense of social identity with their employer and colleagues leads to increases in productivity from those employees participating within a share plan.

On the basis that the subject of gift exchange and reciprocity has so far not been explored within the financial decision-making strand of the employee share ownership literature, the following three hypotheses have been developed in pursuit of answering the research questions:

H9a: *An increased sense of reciprocity will have a positive impact on the amount of contributions placed into the savings plan of Save As You Earn.*

H9b: *The concentration of savings allocation placed into Save As You Earn will be lower for scheme participants with an increased sense of reciprocity.*

H9c: *The decision to purchase shares at the point of maturity will be higher for scheme participants with an increased sense of reciprocity.*

4.7.2 Job Satisfaction

Job satisfaction is the second form of emotional affiliation towards the employer and job which has been identified for investigation within this study. While this particular latent attitudinal variable has so far never been directly explored in relation to the financial behaviour and decision-making of scheme participants within their employee stock ownership plan, there is evidence within the attitudinal strand of the employee share ownership literature and wider human resource management literature on why job satisfaction may have an important impact. As would be the expectation, the wider human resource management literature has commonly identified a link between increased levels of job satisfaction and positive attitudes towards the employer, a point expressed by Locke (1976, p.1304), who defined job satisfaction as: "*a pleasurable or positive emotional state resulting from the appraisal of one's job or job experience*s".

As described within the literature review, a key strand of the employee share ownership literature has sought to identify whether participation within an employee stock ownership plan is linked to any positive attitudinal changes, particular as this in turn may act as a mediating factor improving employee performance. With researchers looking to capture attitudinal changes, one method of measurement has been job satisfaction. In a study published by Buchko (1993) for example, this research chose to included a measure for job satisfaction as well as a number of other variables when seeking to explain the effects of employee stock ownership plans on the labour turnover of a business. What this study concluded was that participating within an employee stock ownership plan increased an employee's level of job satisfaction and this in turn reduced an employee's desire to leave a company.

With the objective of providing new insights to the financial decision-making of scheme participants that have so far never been explored elsewhere within the employee share ownership literature, the following three hypotheses have been identified for empirical investigation:

H10a: *An increased sense of job satisfaction will have a positive impact on the amount of contributions placed into the savings plan of Save As You Earn.*

H10b: *The concentration of savings allocation placed into Save As You Earn will be higher for scheme participants with an increased sense of job satisfaction.*

H10c: *The decision to purchase shares at the point of maturity will be higher for scheme participants with an increased sense of job satisfaction.*

4.7.3 Organisational Commitment

The third attitudinal factor towards the job and employer identified as a further variable required for investigation is the level of organisational commitment a worker has towards their employer, which studies within both strands of the defined contribution literature have shown to have a discernible impact on savings behaviour. There are two closely linked hypotheses for why organisational commitment might have this particular effect. The first of these argues that those workers who have high levels of organisational commitment will have an increased desire and therefore propensity to participate within a defined contribution plan offered within the workplace because they hold positive attitudes towards their employer. The alternative hypothesis argues that workers develop a positive attitude towards their employer as a consequence of joining the scheme, and therefore organisational commitment is a by-product rather than a cause of savings behaviour.

In terms of the available empirical analysis to support this, the evidence base is mixed. While some papers within the 401(k) literature have published evidence that positive levels of organisational commitment are linked to higher contributions and investment concentration into 401 (k) plans (e.g. Mitchell and Utkus, 2003; Cohen, 2009), there are also a number of studies which document the opposite. For example, in one of the seminal studies to explore the investment concentration problem in 401(k) asset selection, Benartzi (2001) found that high levels of organisational commitment actually made workers less likely to place their retirement wealth into their employer. A negative relationship between organisational commitment and savings behaviour has also been documented within the employee share ownership literature. For example, Dewe et al. (1988) explored organisational commitment towards the employer and concluded that increased levels of organisational commitment did not translate into an increased desire by the worker to join the company share plan. In a later study also looking at Save As You Earn schemes, Pendleton (2010a) drew a similar conclusion in relation to organisational commitment, where his study also found a negative link between participation and contribution levels and the specific measure adopted to capture organisational commitment.

Based upon these findings this variable has been identified for investigation, with the following hypotheses put forward by drawing upon the findings of Pendleton (2010a):

H11a: *An increased sense of organisational commitment will have a positive impact on the amount of contributions placed into the savings plan of Save As You Earn.*

H11b: *The concentration of total monthly savings allocation placed into Save As You Earn will be higher for scheme participants with an increased sense of organisational commitment.*

H11c: *The decision to purchase shares at the point of maturity will be higher for scheme participants with an increased sense of organisational commitment.*

4.7.4 Familiarity

The final attitudinal factor towards the job and employer that has been identified for investigation relates to a heuristic bias which broadly contends that investors have an increased propensity to invest in what they know. This phenomenon is much discussed in the context of the '*equity home bias puzzle*' in the finance literature, which is the well documented finding that the majority of wealth invested by individuals and institutions is invested domestically within the country where they hold residence. This stands in contrast to the expectation of modern portfolio theory, which argues that utility maximising individuals should spread their wealth into domestic and non-domestic assets to lower the proportion of systematic risk which is specific to each country (Solnik, 1974). In contrast to these expectations, French and Porteba (1991) documented that in the five largest stock markets there exists a home bias of 92.2% in the United States, 95.7% in Japan, 92% in the United Kingdom, 79% in Germany and finally 89.4% in France. In a larger study of a similar nature, Chan et al. (2005) explored forty-eight countries and documented a home bias in every single one.

A familiarity bias has been investigated within the 401(k) literature in a different context but based upon the same underlying principle of investors choosing to place their money in what they know. More specifically, Huberman (2001) found that individuals had an increased propensity to choose stocks of companies which were registered in their local area, a phenomenon which he attributed to familiarity. Furthermore, survey research by John Hancock Financial Services (1999) found that workers felt more familiar with the stock of their employer and perceived it to be a safer investment than a mutual fund. In research akin to this, Benartzi (2001) also noted that there exists a positive link between familiarity and an employee's perception of the perceived safety of their employer as a potential investment.

The familiarity bias has so far not been formally investigated within the employee share ownership literature, however the phenomenon was discussed by Pendleton (2005) as a potential explanation for a worker's decision to participate and contribute into a company share plan. Given that it has so far not been explored, the following three hypotheses have been identified to investigate for a familiarity bias:

H12a: *An increased sense of familiarity towards the employer will have a positive impact on the amount of contributions placed into the savings plan of Save As You Earn.*

H12b: *The concentration of savings allocation placed into Save As You Earn will be higher for scheme participants with an increased sense of familiarity towards the employer.*

H12c: *The decision to purchase shares at the point of maturity will be higher for scheme participants with an increased sense of familiarity towards the employer.*

4.8 Risk Preferences

4.8.1 General Risk Preferences

In neo-classical theory, it is a widely accepted principle that an economic agent cannot fully judge an asset's return without first having comparable knowledge of the associated levels of risk (Christoffersen, 2012). As a subject area, the economic analysis on decision-making under uncertainty has emerged into a major field within economics in the past century. One of the earliest major contributors on this subject was Knight (1921), who made an important distinction by describing risk in terms of measurable certainty and measurable uncertainty. This conceptualisation went on to epitomise the normative perspective of risk within rational expectation model, which has broadly seen the intertwining of decision and probability theory. One of the first books to strictly set out the mathematical parameters of expected utility theory was offered by Von Neumann and Morgenstern (1947), who used lottery gambles to detail expected utility theory and offered the axioms of utility maximisation. The notation that risk is objective, measurable and constant to all economic agents is a key cornerstone of economic theory of finance and is critical for pricing assets and diversifying portfolios.

Notwithstanding the fact that risk preferences can change, it is also accepted that within a large sample (such as a workforce) there exists a static spectrum of individuals with different proclivities towards risk, spanning those who might be defined as risk-takers through to risk-neutral and risk adverse individuals. For example, laboratory studies of risk preferences have shown systematic differences across socio-demographic groups including age, gender and race (e.g. Levin et al., 1988; Barskey et al., 1997; Byrnes et al., 1999). The fact that reoccurring patterns of risk behaviour have been documented provides some indication that risk preferences are for the most part relatively stable. It is therefore acceptable for researchers to measure risk as a potential predictor of savings behaviour and decision-making.

Based upon the evidence base reviewed within this section, the following three hypotheses have been identified for investigation within this study:

H13a: *Scheme participants who are more risk adverse will have a negative impact on the amount of contributions placed into the savings plan of Save As You Earn.*

H13b: *The concentration of savings allocation placed into Save As You Earn will be lower for scheme participants who are more risk adverse.*

H13c: *It is anticipated that the decision to purchase shares at the point of maturity will be lower for those scheme participants who are more risk adverse.*

4.8.1 Investment Risk Aversion

Within the 401 (k) literature, a wide number of studies have recorded a variable for risk preferences to assess how it might impact a worker's investment behaviour and asset selection. In one such study, Hewitt Associates (1993) looked at pension allocations and found that workers often favoured guaranteed investment contracts (GIC), a form of investment commonly offered by life insurance companies that offer yields that are lower but fixed as compared with variable rates of savings accounts and government backed securities. More specifically, this study found that when looking at the behaviour of all participants within their dataset an average of 47% of 401 (k) contributions had been allocated into GICs and this would indicate that most people in the United States are relatively risk adverse with their retirement wealth.

In addition to this available literature on investment decision making in defined contribution plans, a number of studies within the employee share ownership literature have also sought to explore risk preferences as a determinant of participation and contribution levels in company share plans. One of the earliest studies to conduct analysis in this area was offered by Dewe et al. (1988), who surveyed a large sample of SAYE scheme participants in the United Kingdom and found that workers had mixed perceptions about the levels of risks involved within employee share ownership. A study which arguably more comprehensively explored risk preferences was put forward by Degeorge et al. (2004). This paper investigated a scheme which offered workers the option of choosing between one of four plans, each offering a different level of associated return and risk. What this study concluded was that workers are broadly risk adverse, with those workers who perceived employee share ownership to be low risk having an increased propensity to participate and contribute into an employer offered share plan. In a final paper to explore the impact of risk preferences, Pendleton (2010a) measured risk aversion through a worker's response to the following survey question: "*I believe that participation in employee share ownership schemes can only be regarded as worthwhile when there is no risk involved!*" What he subsequently found was that there existed a positive link between those who agreed with this statement and their decision to join and contribute into a company share plan.

Based upon the evidence base reviewed within this section, the following three hypotheses have been identified for investigation within this study:

H14a: *Scheme participants who are more risk adverse when investing will have a negative impact on the amount of contributions placed into the savings plan of Save As You Earn.*

H14b: *The concentration of savings allocation placed into Save As You Earn will be lower for scheme participants who are more risk adverse when investing.*

H14c: *It is anticipated that the decision to purchase shares at the point of maturity will be lower for those scheme participants who are more risk adverse when investing.*

4.8.3 Financial Literacy

A final variable to be included within this category is a measure for financial literacy in the context of risk. This concept is still only emerging within the economic literature and while it is a topic of interest to practitioners, there is still only a limited number of empirical studies which have actually published evidence on this subject. The reason that this subject has caught the attention of economists is because how can people be expected to be perfect utility maximisers if they do not understand basic economic principles. This has led to a small body of research which has sought to understand if varying levels of financial knowledge might alter savings behaviour. In one such study, Van Rooij et al. (2011) presented evidence that shows that individuals with low levels of financial literacy are much less likely to participate in the stock market than those with increased levels of financial literature. Research by Lusardi and Tufano (2009) shows that individuals with lower levels of financial literacy were much more likely to get themselves into a position of over-indebtedness.

In research akin to this within the 401 (k) literature, Van Rooij et al. (2012) created a financial literacy test to show that a scheme participants level of financial knowledge had a clear impact on the level of retirement planning. Furthermore within the context of risk and perhaps most relevant to the discussion presented here, a number of studies within the 401 (k) literature have sought to test respondents' understanding about diversification when investing within their employer. One of the first studies of this nature was by John Hancock Financial Services (1999), which went on to document the phenomenon that many individuals participating within defined contribution retirement accounts believe that their own employer's stock was safer than a mutual fund. This finding has since been replicated by Benartzi (2001) and a number of other researchers looking at 401 (k) investment behaviour, each of which have documented that a significant proportion of employees are of the belief that their employer is a safer investment than a diversified portfolio. These results show that there a number of people who do not hold an intuitive understanding of the basic principle of diversification which is advocated in modern portfolio theory (e.g. Markowitz, 1952).

H15a: *It is anticipated that scheme participants with greater levels of financial literacy will choose to contribute more into the savings plan of Save As You Earn.*

H15b: *The concentration of savings allocation placed into Save As You Earn will be lower for those scheme participants with greater levels of financial literacy.*

H15c: *The decision to purchase shares at the point of maturity will be higher for those scheme participants with greater levels of financial literacy.*

4.9 Share Price Movements

4.9.1 Check share price regularly

The next three variables will look at share price movements and will attempt to see if these factors are able to explain, or at least partially explain the investment behaviour of scheme participants in employee share ownership schemes. The first of these will look at the impact of checking the share price and whether this is able to offer insight that could provide answers to the three research questions. With regards to this variable there is a causality issue because there a close link between how much a scheme participant checks the share price and what they are doing within the scheme. More specifically, it is reasonable to expect that scheme participants with greater amounts invested in Save As You Earn are more likely to check the share price with greater regularity.

With regards to what happens at the point when the scheme enters maturity, Kahneman and Tversky (1979) put forward prospect theory which demonstrated that investors typically feel the pain of financial losses much greater than the pleasure felt from financial gains of a proportional similar size. Since this seminal paper, others have worked on the concept of regret aversion and have connected it to selling assets at a loss and holding assets for shorter periods rather than riding out a dip in the market when an asset underperforms (e.g. Shefrin and Statman, 1985; Benartzi and Thaler, 1995). Based upon this literature, it might be suggested that those scheme participants which observe the employer's share price with the greatest regularity are doing so because of emotional factor such as anxiety and fear, to might therefore be suggested that by not exercising the share option to purchase shares a scheme participant can avoid uncertainty and potential regret and for this reason they might therefore be the likely to purchase shares.

Based upon the evidence base reviewed within this section, the following three hypotheses have been identified for investigation within this study:

H16a: *It is anticipated that scheme participants with more invested in Save As You Earn will check the share price more regularly.*

H16b: *It is anticipated with concentration of total monthly savings in Save As You Earn will check the share price more regularly*

H16c: *It is anticipated that scheme participants which check the share price most regularly will be the least likely to purchase share*

4.9.2 Perception that the company's share price exceeded the market in the previous year

To complete this chapter, this proceeding section will turn its attention towards the operationalisation of a number of heuristic biases which emerging research from the fields of behavioural economics has shown can systemically impact an economic agent's financial decision-making.

The first factor identified in the previous chapter and put forward for further investigation is based upon a phenomenon documented in the 401(k) literature which appears to indicate that workers are excessively extrapolating the past returns of their employer as the potential basis for choosing to join their share plan. This behavioural bias was first documented by Benartzi (2001), who presented findings that many workers in the United States were choosing to concentrate a significant proportion of their 401(k) retirement wealth in the assets of their employer when the past returns remain largely positive in the years previously, even against other well performing stocks. With awareness of this, the previous chapter discussed and put forward the hypothesis that this behavioural bias might also extended to other forms of defined contribution plans, and it was therefore conjectured that some workers might be excessively extrapolating the past returns of their employer as the basis for their decision to participate and contribute into a company share plan.

With the objective of providing new insights to the financial decision-making of scheme participants that have so far never been explored elsewhere within the employee share ownership literature, the following three hypotheses have been identified for empirical investigation

H17a: *It is anticipated that scheme participants which perceive their employer's share price to have performed well in the past will choose to contribute higher amounts into the savings plan of Save As You Earn.*

H17b: *It is anticipated that the concentration of savings allocation placed into Save As You Earn will be higher for those which scheme participants which perceive their employer's share price to have performed well in the past.*

H17c: *It is anticipated that the decision to purchase shares at the point of maturity will be higher amongst those scheme participants which perceive their employer's share price to have performed well in the past. .*

4.10 Financial Education

4.10.1 Received Financial Education From A Current Or Previous Employer

The final variable put forward for investigation within this study is financial education. While this subject has created a lot of discussion amongst practitioners, there is surprisingly little empirical research on the subject. With regards to what available literature there is, Bernheim et al. (2001) offered what is the most robust evidence to date on the impacts of financial education, in a study which looked at its offering during secondary education. The data used within this study was made possible because the researchers exploited a number of variations in the implementation of financial education in the curriculum of secondary schools between 1964 and 1983. The paper presents evidence that the introduction of financial education in schools led to a significant increase in the savings and wealth accumulation of its recipients later on within their lives.

One of the few studies to explore financial education in the context of the 401 (k) investment behaviour was a paper by Bernheim and Garrett (2003), which presented evidence that financial education offered in the workplace also altered participation and contribution levels placed into 401 (k) investment retirement accounts. As a control, the researchers gathered data on assets and liabilities held, rates of savings, earnings, income, pension coverage, employment status, gender, marital status, age, ethnic group, education, and household size. What the evidence of the study indicated is that the offering of financial education in the workplace has a strong positive effect on 401 (k) participation and contribution levels. Interestingly the findings of the study also indicated that financial education offered in the workplace also had an effect on the spouses of the recipients, which suggests that financial education has a positive transference effect not only for the recipients of the financial education themselves but also those close to them.

On the basis that no study has so far explored the effects of financial education offered in the workplace within the employee share ownership literature, the following three hypotheses have been identified for investigation with predictions drawn from other sections of the literature:

H19a: *It is anticipated that scheme participants who have received financial education in the workplace shall place higher amounts into the savings plan of Save As You Earn.*

H19b: *It is anticipated that the concentration of savings allocation placed into Save As You Earn will be lower for scheme participants who have received financial education in the workplace.*

H19c: *It is anticipated that the decision to purchase shares at the point of maturity will be higher amongst those scheme participants who have received financial education in the workplace.*

Chapter 5

Data Analysis I - Savings Plan Contributions

5.1 Introduction

Beginning the first of three data analysis chapters, this opening section will focus specifically on conducting analysis on the subject of contributions, with the objective of generating greater knowledge about the specific factors which alter how much a scheme participant in Save As You Earn places into their savings plan. More specifically, this section shall begin its discussion by reviewing a range of determinants already explored by past studies that have sought to generate a greater level of knowledge about the financial behaviour of employee share scheme participants. Consequently, this will offer the opportunity to re-examine past variables and test whether these same factors remain consistent within this study, while also offering the benefit of controls when proceeding towards this thesis' main contribution to the literature which is to explore a range of factors not yet investigated anywhere else in the available published research on the subject.

In terms of the chapter's layout, the discussion shall begin by exploring socio-demographic factors, the set of variables most commonly investigated to measure savings behaviour in the employee share ownership and wider economic literature on wealth accumulation. Upon completing this initial review of the survey data, the next set of factors to be examined relates to part-time employment status. This will be preceded by an empirical investigation into a common area of debate within the employee ownership literature by testing whether scheme participants are motivated by intrinsic, instrumental or extrinsic satisfaction with the goal of understanding how this might effect a scheme participant's savings plan contributions.

The chapter will then proceed to explore a range of variables designed to assess an employee's emotional affiliation towards their employment, where this chapter will proceed to offer insights by testing measurements for job satisfaction, organisational commitment, familiarity and a sense of reciprocity towards the employer. In addition to this area of inquiry, the chapter will also analyse data on scheme participants' risk preferences to see if this alters the level of savings placed into their plans. The chapter will offer a further new addition to the literature by observing if an employee's perception of the share price movements to observe how this particular factor might alters how much a scheme participant choses to place into their Save As You Earn scheme. To conclude the investigation being conducted within this chapter, a measure was included within the survey to capture whether a scheme participant has received financial education by either the current or past employer to determine its impact on how much a scheme participant subsequently chooses to place within their savings plan on a monthly basis.

5.2 Approach to Data Analysis

Seeking to answer the first research question as was identified within the literature review, nineteen separate hypotheses have been put forward to better understand which key factor effect how much scheme participant chooses to put into their savings plan each month. In pursuit of providing a method to testing these hypotheses, this chapter shall include three approaches relating to univariate analysis, bivariate statistical analysis and multivariate statistical analysis. The discussion put forward in the reminder of this chapter is structured around discussing these nineteen variables based upon these three different types of statistical approaches.

The reason why univariate and bivariate analysis have been included in this chapter is because these approaches display characteristics about the data beyond what can be gained by focusing exclusively on multivariate analysis, and therefore by offering such approaches there is the opportunity for additional insights. Notwithstanding these benefits, the primary focus of the discussion presented within this chapter is based upon multivariate statistical analysis because this approach to data analysis facilities the possibility of hypothesis testing. More specifically, given that the fourth chapter of this thesis put forwards a relatively large number of hypotheses for testing on the simple basis that this study is exploratory, with there existing only once comparable study. A key methodological decision has been taken not to follow a strict parsimonious approach when conducting multivariate analysis and therefore generating a regression model, this is because the regression will not be used for predictive purposes but will rather be implemented to either accept or reject a series of hypotheses in pursuit of providing answers to the original research question.

While a linear regression may initially seem an appropriate method to answer the research question, the structure of Save As You Earn makes finding an appropriate econometric method more challenging. More specifically, based upon when the survey was conducted, the minimum a scheme participant could save the scheme was £5 a month and and maximum contribution amount of £250 a month. This has the effect of censoring the dataset with lower and upper limit, because there be those scheme participants which are willing to place a higher proportion of savings into the scheme, but are stopped by the regulations set by HMRC. A linear regression for this reason is not the most appropriate econometric method because there will be both right and/or left censoring with the dataset. It is for this reason that a Tobit regression has been adopted because this form of regression model is specifically designed to for his purpose. (see table 5.1 for a reminder on how to interpret a Tobit regression model). To offer more depth to the analysis in this chapter, the nineteen explanatory variables were entered to create seven separate regression models based upon socio-demographic determinants, employment-related attributes, motives for joining, emotional affiliation towards the employer and job, risk preferences and finally financial education (shown in Table 5.2)

Table 5.1.1: Key components of a Tobit regression model

Ceof.	This is the regression coefficient
Standard Errors	This is the standard error for the coefficient when held constant.
LR chi2	his is the Likelihood Ratio (LR) Chi-Square test
df	This is column lists for the degrees of freedom for each variable.
Sig.	This is the Wald chi-square test that tests the null hypothesis that the constant equals 0.
Alpha	Commonly set at either 0.050, 0.010 or 0.001
Pseudo R2	This is McFadden's pseudo R-squared

Table 5.1.2: Overview of the seven separate models entered into the regression model

Model 1	Socio-demographic Determinants	Income, Age, Gender, Household Size.
Model 2	Employment-related Attributes	Income, Age, Gender Household Size, Part-time/Full-time.
Model 3	Motives For Joining	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic.
Model 4	Emotional Affiliation Towards The Employer and Job	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic, Reciprocity, Job Satisfaction, Organisational Commitment, Familiarity.
Model 5	Risk Preferences	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic, Reciprocity, Job Satisfaction, Organisational Commitment, Familiarity, Self Perception Of Risk Preference, Self Perception Of Investment Risk Aversion, Financial Literacy.
Model 6	Perceived Share Price Movements	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic, Reciprocity, Job Satisfaction, Organisational Commitment, Familiarity, Self Perception Of Risk Preference, Self Perception Of Investment Risk Aversion, Financial Literacy, Check Share Price Regularly, Share Price Exceeded The Share Price Market In The Previous Year, Share Price Was Falling When Entered Into Scheme.
Model 7	Financial Education	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic, Reciprocity, Job Satisfaction, Organisational Commitment, Familiarity, Self Perception Of Risk Preference, Self Perception Of Investment Risk Aversion, Financial Literacy, Check Share Price Regularly, Share Price Exceeded The Market In The Previous Year, Share Price Was Falling When Entered Into Scheme, Financial Education.

5.3 Socio-demographic Determinants

5.3.1 Income

Beginning the empirical analysis in this chapter with the social demographic determinant of income. This variable was operationalised for the purpose of statistical examination using a set of dummy variables encoded one to thirteen for the following income categories: £1 - £4,999; £5,000 - £9,999; £10,000 - £14,999; £15,000 - £19,999; £20,000 - £24,999; £25,000 - £29,999; £30,000 - £39,999; £40,000 - £49,999; £50,000 - £59,999; £60,000 - £69,999; £70,000 - £79,999; £80,000 - £89,999; £90,000 or above. The importance of income on a scheme participant's contributions is firstly signalled by the descriptive statistics, where monthly savings plan contributions are shown to increase incrementally with income (shown in Table 5.2). In addition, there is a notable divergence between those scheme participants in the lowest income category (£1 - £4,999), who place an average of £57.47 into their scheme and those of the highest income (£90,000+) who allocate a mean average of £219.48 into their savings plan every month.

Next turning attention to the evidence provided by deeper statistical techniques, which reveals that income was shown to be the variable most strongly correlated with savings plan contributions out of all the factors explored within this study based upon a very strong positive correlation of 0.523 at a probability level of 0.000 (shown in Table 10.1). The use of a Tobit regression also identifies income to be a strong predictor of saving plan contributions based upon a positive coefficient of 19.149, which is significant at a probability level of 0.000 (shown in Table 10.22 and based upon model 7). Based upon the alpha adopted, it is possible to reject the null hypothesis in relation to H1a within a 99.9% confidence interval, which offers strong confirmation that those: '*scheme participants with higher incomes will place more into the savings plan of Save As You Earn.*'.

Table 5.2: Descriptive statistics between income and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	£1 - £4,999	£57.47	£40	58.32	5.3%	5.3%
2	£5,000 - £9,999	£77.89	£50	73.33	11.5%	16.8%
3	£10,000 - £14,999	£84.85	£50	75.61	9.7%	26.5%
4	£15,000 - £19,999	£93.18	£69	75.23	12.4%	38.9%
5	£20,000 - £24,999	£125.62	£100	85.37	10.7%	49.6%
6	£25,000 - £29,999	£126.55	£100	80.73	8.9%	58.5%
7	£30,000 - £39,999	£165.87	£175	79.14	13.3%	71.8%
8	£40,000 - £49,999	£175.48	£194	74.01	9.7%	81.4%
9	£50,000 - £59,999	£179.98	£208.5	79.60	6.7%	88.1%
10	£60,000 - £69,999	£199.63	£250	68.84	3.7%	91.7%
11	£70,000 - £79,999	£202.65	£250	72.83	1.8%	93.6%
12	£80,000 - £89,999	£212.88	£250	62.61	1.8%	95.3%
13	£90,000+	£219.48	£250	56.63	4.7%	100%

5.3.2 Age

The independent variable for age was operationalised through a series of dummy variables encoded one through to six for each of the following age categories: 16-24, 25-34, 35-44, 45-54, 55-64, 65 and over. Beginning this time with the deeper statistical techniques, the survey data identified a relatively strong positive Pearson correlation of 0.218 between a scheme participant's age and the level of savings placed into the plans, significant at a probability level of 0.000 (shown in Table 10.1). Age is found to have a moderately sized positive effect on saving plan contribution by the Tobit regression analysis, shown by a standardised coefficient (β) 0.063, which is further supported by being significant at a probability level of 0.006 (shown in Table 7.10).

There is sufficient reason to speculate that the relationship between age and savings is not anticipated to be linear, but instead humped shaped. It is the expectation of traditional theories on savings, most notably that of Modigliani and Brumberg's (1954) income life cycle hypothesis, that an economic agent's wealth accumulation will often peak before retirement. It is for this reason that the age categories are shown separately in the regression. A significant number of studies have since emerged seeking to empirically test these theoretical predictions and have gone on to document a hump shaped savings profile when plotted against a person's age (e.g. Gourinchas and Parker, 2002; Fernández-Villaverde and Krueger, 2002). A similar hump shaped pattern can be seen in this study by reviewing the descriptive statistics, with contributions peaking for those scheme participants who fall into the age category of 45 - 54 (shown in Table 5.3). This is important because this particular age range is broadly consistent with the peak of wealth accumulation of past studies on the subject, including the two papers previously cited. Turning attention to logistic regression, where the inclusion of an independent variable for each of the five age categories was not shown to be significant (shown in Table 10.22 and based upon model 7), which on this basis means that it is not possible to reject the null hypothesis relating to H2a that a scheme participant's age has no effect on the decision to purchase shares at maturity.

Table 5.3: Descriptive statistics between age and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	16 - 24	65.41	40.00	65.55	7.4%	7.4%
2	25 - 34	112.07	97.50	83.38	21.6%	29%
3	35 - 44	140.50	140	88.65	30.5%	59.5%
4	45 - 54	155.06	150	87.60	28.6%	88.1%
5	55 - 64	139.60	125	88.48	11.2%	99.3%
6	65 and over	92.25	72.50	75.89	0.7%	100%

5.3.3 Gender

To measure the impact of gender on savings plan contributions, a dummy variable was adopted with male scheme participants encoded as 1 and female participants as 2. The descriptive statistics provide an early indication that gender does have a discernible impact on the amount which scheme participants choose to place into their savings plan. Based upon this form of analysis, males appear to be placing higher amounts into their plans than their female counterparts, with men placing an average of £145.01 into their savings scheme, compared to the average female survey respondent who places an average of £116.15 (shown in Table 5.4). These early interpretations are supported by deeper statistical analysis, where for example a negative link between the variables was identified based upon a correlation of -0.161, significant at a probability level of 0.000 (shown in Table 10.1). Based upon the way in which males and females were encoded, the Pearson correlation also points towards men placing higher amounts into their Save As You Earn scheme.

Given the known impact of income on contribution rates, caution must be taken when observing these descriptive statistics in isolation without controlling for income. There is an extensive body of literature in the area of gender wage inequality in the workplace, with many empirical studies finding a known 'glass ceiling' problem, which is the reoccurring and well known finding that men are more likely to progress further within their careers and therefore earn more than the average woman (Cohen, 1971; Frank, 1978). An empirical finding which is also consistent in the survey data of this study, with the average female respondent falling into the £15,000 to £19,999 income category and the average male into the £25,000 to £29,999. By consequence, the initial finding that males are contributing a greater amount into their Save As You Earn schemes may not be reflective of saving behaviour and therefore could be spurious given the possible exogenous impact which income is known to have on wealth. Alternatively expressed, what this particular finding may potentially indicate is not a gender difference in savings behaviour but rather an income effect which arises because males in the survey data on average earn more than their female counterparts. Treating these early findings with a level of circumspection appears to be well founded after conducting a Tobit regression, which produced a positive coefficient of 12.958 significant at a probability level of 0.023 (shown in Table 10.22 and based upon model 7). Based upon this form of analysis, it is possible to reject the null hypothesis relating to H3a because gender is shown to have an impact, although contrary to the original prediction which stated that: '*the level of savings placed into Save As You Earn will be higher amongst male scheme participants',* the regression reveals that female scheme participants are actually more likely to contribute higher amounts into their savings plan.

Table 5.4: Descriptive statistics between gender and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Coding	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Male	£145.01	£140	87.78	57.7%	57.7%
2	Female	£116.15	£100	87.46	42.3%	100%

5.3.4 Household Size

The forth socio-demographic variable included in this study for empirical investigation is household size. This variable was operationalised by requesting in the survey that an integer be offered to the following question: *'How many people reside in your household?'* The offered response by the survey respondent was then used to measure a scheme participant's household size, and subsequently its impact on savings plan contributions.

Beginning with the descriptive statistics, the survey data indicates that the average household in this study has 3 people (3.03 ≈ 3) residing within it. Savings plan contributions are shown to be the highest for those scheme participants who are part of a household size of five, where it was found that this sub-group of respondents allocated an average of £145.45 per month into the savings plan of their Save As You Earn scheme (shown in Table 5.5). Conversely, the savings plan contribution rate was lowest for those scheme participants with a household size of seven, where the survey data shows that this household size allocated an average of £90.20 per month into their Save As You Earn scheme.

With regards to household size and the deeper statistical analysis, the survey data identifies a negative Pearson correlation between household size and contributions, although at -0.003 it can be concluded that the relationship between these variables are negligible and far from being significant at a probability level of 0.899 (shown in Table 10.1). Based upon these results, household size is shown to be the weakest socio-demographic determinant in this study to be linked to savings contributions. The importance of household size is further brought into question after the use of a Tobit regression, where the independent variable for household size was shown to have a relatively weak negative impact on the dependent based upon a coefficient of -1.978, although this relationship was shown not to be statistically significant based upon a probability level of 0.340 (shown in Table 10.22 and based upon model 7). Given that the probability level is greater than 0.050 it is not possible to reject the null hypothesis relating to H4a that would otherwise suggest that the independent variable for household size has no effect on the dependent variable for savings plan contributions.

Table 5.5: Descriptive statistics between household size and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	1	127.57	103	89.61	9.5%	9.5%
2	2	134.71	112.50	87.21	30.9%	40.4%
3	3	123.81	100	88.34	21.4%	61.8%
4	4	139.65	130	89.07	28.3%	90.2%
5	5	145.45	130	94.85	7.2%	97.4%
6	6	105.29	80	81.75	2.3%	99.7%
7	7	90.20	100.00	32.58	0.3%	100%

5.4. Employment-Related Attributes

5.4.1 Part-time/Full-time Status

Turning attention to part-time/full-time employment status, this variable was operationalised for the purpose of analysis through using a dummy, with part-time scheme participants encoded as a 1 and full-time scheme participants encoded as a 2. As might be the expectation, the descriptive statistics offer an early indication that the contribution rates are on average higher amongst those in full-time employment than those in part-time employment. More specifically, the survey data identified that the mean average contribution rate for part-time workers was £94.27 per month compared to an average of £145.51 for those scheme participants in full-time employment (shown in Table 5.6).

Looking beyond the descriptive statistics, the survey data indicates a positive relationship of 0.247 between full-time status and contributions based upon a Pearson correlation, statistically significant at a probability level of 0.000 (shown in Table 10.2). Next turning to the linear regression, part-time status is shown to be the weakest predictor of savings plan contributions in this category of variables relating to a respondent's employment attributes, where the regression identified a negative coefficient of -29.127 for the relationship between the independent variable of part-time/full-time status on the dependent variable of savings contributions, a relationship significant at a probability level of 0.000 (shown in Table 10.22 and based upon model 7). This finding therefore suggests, contradictory to both previous forms of statistical analysis, that scheme participants employed on a full-time contract are actually less likely to contribute more into their Save As You Earn savings plan each month. Based upon the inclusion of an alpha at 0.001 it is therefore possible to reject the null hypothesis relating to H5a within a 99.9% confidence interval, and therefore this regression analysis offers evidence in direct contradiction to the original prediction that: *'scheme participants on part-time contracts will choose to place less into the savings plan of Save As You Earn',* but nevertheless this analysis shows that part-time/full-time employment status does have an effect on savings plan contributions.

Table 5.6: Descriptive statistics between part-time/full-time status and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Part-time	£94.27	57.00	85.13	24.2%	24.2%
2	Full-time	£145.51	142.50	86.53	75.8%	100%

5.5. Motives For Joining

5.5.1 Intrinsic Motives

The next set of variables to be explored in this study shall seek to measure the underlying motives behind why a respondent selected to participate in Save As You Earn, which has been included in the study with the direct intention of testing whether a scheme participant's motives behind why they joined Save As You Earn are potentially linked to the amount they choose to save each month within this specific share ownership scheme. The concept of intrinsic motivation is described by Klein (1987) to be the potential from of satisfaction that would potentially arise from the simple act of a shareholder becoming a part-owner in the company of their employment. To test intrinsic motivation, the following statement was included in the survey to capture data on this variable: '[I] *Wanted to become a shareholder in the company*'. To operationalise this variable, the five following responses were included in the survey: '*Strongly Disagree*', '*Disagree*', '*No Opinion*', '*Agree*' and '*Strongly Agree*' encoded from one through to five.

There is an early indication within the descriptive statistics that intrinsic motives for participating may have an impact on contributions, however perhaps unexpectedly, the survey data indicates that increased levels of intrinsic motivation actually lowers contributions into the savings plan. More specifically, the survey data revealed that those who responded with '*Strongly Agree*' to the above statement placed a mean average of £120.03 into their savings plan every month. This can be contrasted with an average of £149.41 per month for those who selected the response '*Strongly Disagree*' (shown in Table 5.7). Proceeding with the deeper statistical analysis, the survey data identified a moderately sized negative Pearson correlation at -0.093 between intrinsic motivation and saving plan contributions, a finding which is significant at a probability level of 0.000 (shown in Table 10.3). Next turning attention to the evidence offered by a Tobit regression, where a strong positive coefficient at 6.938 was calculated between the variables which was shown to just be within range of being statistically significant based upon a probability level of 0.050 (shown in Table 10.22 and based upon model 7). Given this finding, it is possible to reject the null hypothesis and offer robust statistical evidence within a 99.9% confidence interval in support of H6a that: '*intrinsic motives for joining the scheme will have a positive impact on the amount of contributions placed into Save As You Earn.'.*

Table 5.7: Descriptive statistics between intrinsic motivation and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly Disagree	£149.47	150	88.74	13.3%	13.3%
2	Disagree	£130.83	117	87.63	25.2%	38.5%
3	No Opinion	£136.33	125	89.66	33%	71.5%
4	Agree	£117,64	100	85.36	18.6%	90.1%
5	Strongly Agree	£120.03	100	91.81	9.9%	100%

5.5.2 Instrumental Motives

The second independent variable to be included in this section will continue its investigation into an employee's motives for choosing to participate in Save As You Earn, where instrumental satisfaction from Klein's (1987) three factor model will now be explored to determine its impact on savings plan contributions. With this objective in mind, the following survey questions were included in the study to capture this data: '*Wanted to feel part of the company*', '*Wanted to express my support for the company*', '*I felt I owed it to the company*' and '*Wanted to become more involved in the company*'. The variable was then made measurable by asking respondents to state how much they agreed with the statements based upon a five point Likert scale of: '*Strongly Disagree'*, '*Disagree*', '*No Opinion*' '*Agree*' and '*Strongly Agree*', which was operationalised by encoding each response from one through to five in the same order.

To generate the descriptive statistics into something more understandable, the combined responses were compiled back into the five distinguishable categories based upon their average responses to the statements. After conducting this process, the descriptive statistics point towards instrumental motivation having an important impact on Save As You Earn savings plan contributions, which was shown to increase incrementally with each level of agreement on the five point Likert scale. In fact there was a substantial divergence in the level of contributions identified between the extremes, with those most commonly selecting '*Strongly Disagree*' placing an average of £80 into their savings plan compared with £148.05 for those which '*Strongly Agree'* (shown in Table 5.8). The use of deeper statistical techniques would further suggest that instrumental motivation holds a close link with savings plan contributions, where a negative Pearson correlation was identified at -0.149, shown to be significant at a probability level of 0.000 (shown in Table 10.3). Interestingly these findings are further supported after conducting a Tobit regression, which produced a negative coefficient of -12.143, suggesting that instrumental motives actually have the effect of decreasing a participant's savings contributions. Furthermore, this interpretation is substantiated through being statistically significant at a probability level of 0.005 (shown in Table 10.22 and based upon model 7). Using the Tobit regression, it is possible to reject the null hypothesis relating to H7a, which predicted that *'instrumental motives for joining the scheme will have a positive impact on the amount of contributions placed into Save As You Earn'.*

Table 5.8: Descriptive statistics between instrumental motivation and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly Disagree	£80	£80	28.28	0.1%	0.1%
2	Disagree	£94.16	£60	79.85	1.9%	2%
3	No Opinion	£103.34	£62.5	87.42	10.3%	12.3%
4	Agree	£125.60	£100	88.11	47.7%	60%
5	Strongly Agree	£148.05	£150	87.83	40%	100%

5.5.3 Extrinsic Motives

The final independent variable to be explored within Klein's (1987) three factor model is extrinsic motives, which was included in this study with the intention of determining whether there is a statistical link between those scheme participants who have higher levels of extrinsic motivation for participating in Save As You Earn and the amount which they contribute into their savings plan. To measure extrinsic motivation within the survey, respondents were asked to state their agreement based upon a five point Likert scale to the following statements: '*Wanted to potentially make a good financial return', 'Tax efficient way to save',* '*Wanted to save regularly*', *'To benefit from expected increase in share price', 'Wanted to get some of what I had put into the company back'* and finally *'Offer was too good to refuse*'. Consequently, the following responses were included in the survey: '*Strongly Disagree'*, '*Disagree*', '*No Opinion*', '*Agree*' and '*Strongly Agree*', and were then operationalised through being encoded one to five in this order for the purpose of measurement.

The descriptive statistics provide an early indication that increased levels of '*Extrinsic Motives*' are linked to higher levels of savings plan contributions. More specifically, after compiling the results from the survey back into the same response structure, the survey data indicated that those scheme participants who on average responded to the six statements with '*Strongly Disagree*' and '*Disagree*' placed £106.25 and £47.12 respectively into their savings plan. This compares with a mean average contribution level of £129.77 and £147.13 for those scheme participants who most commonly selected '*Agree*' and '*Strongly Agree*' (shown in Table 5.9). As might be the expectation based upon these findings, a positive Pearson correlation was identified at 0.161 between the variables, which is supported through being statistically significant at a probability level of 0.000 (shown in Table 10.3). The use of a Tobit regression also demonstrates the importance of this particular independent variable which was shown to have a particularly strong positive effect on savings plan contribution. through a coefficient of 22.066, which was shown to be statistically significant at a probability level of 0.000 (shown in Table 10.22 and based upon model 7). What these findings indicate is that it is not possible to reject the null hypothesis relating to H8a within a 95% confidence interval because the regression coefficient is not statistically different from zero based upon the likelihood ratio Chi-Square test.

Table 5.9: Descriptive statistics between extrinsic motivation and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly Disagree	£106.25	£112.5	42.70	0.2	0.2
2	Disagree	£47.12	£50	34.32	0.5	0.7
3	No Opinion	£106.55	£79	86.87	13.6	14.3
4	Agree	£129.77	£100	88.53	55.2	69.6
5	Strongly Agree	£147.13	£150	87.52	30.4	100

5.6 Emotional Affiliation To Employer/Job

5.6.1 Reciprocity

The first variable to be included within this category of latent factors is designed to capture a respondent's emotional affiliation towards their employer. This subject remains a novel area of analysis in the organisational psychology literature as well as within the employee share ownership literature, where to date it has so far only been explored in one working paper by Bryson et al. (2014). With regards to how reciprocity was operationalised for the purpose of analysis within this thesis, the survey included five separate questions designed to capture this particular latent variable. The first survey question was designed to capture a respondent's sense of obligation to their employer. The second question was placed in the survey to determine whether respondent's see their colleagues as family. The third survey question was included to capture a respondent's desire to be helpful to the employer. The fourth survey question was designed to gain data on their need to give something back and a final question and a final fifth question is an inverse of the latter, implemented to control for the potential erroneous responses. As with the other three latent variables included in this study to capture emotional affiliation towards the employer, the measure used for reciprocity was operationalised using a five point Likert encoded from one to five.

The descriptive statistics provide an early indication that reciprocity has a limited impact on contributions, with the average contribution rate for those who most consistently strongly disagreed with the positively worded questions and strongly agreed with the negatively worded equivalent put £156.31 into their savings plans, compared to those who strongly agreed with the positively worded questions and disagreed with the negatively worded equivalent who put a £153.54 into their Save As You Earn savings plan (shown in Table 5.10). A negative correlation of -0.073 was identified between the measurements for reciprocity and contributions, statistically significant at a probability level of 0.002 (shown in Table 10.4). The results of the Tobit regression model produced a positive coefficient of 6.481 which would suggest that increased levels of reciprocity actually has the effect of increasing contributions, although this finding was not significant based upon a probability level of 0.083 (shown in Table 10.22 and based upon model 7). It is therefore not possible to reliably reject the null hypothesis in relation to H9a that a sense of reciprocity towards the employer has no effect on savings plan contributions.

Table 5.10: Descriptive statistics between reciprocity and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly disagree	£156.31	£150	88.32	6.6%	6.6%
2	Slightly disagree	£138.82	£125	90.60	33.3%	39.9%
3	Neither agree or disagree	£125.41	£100	87.06	48.1%	88%
4	Slightly agree	£130.24	£100	87.56	11.3%	99.3%
5	Strongly agree	£153.54	£150	75.80	0.7%	100%

5.6.2 Job Satisfaction

A latent variable has been included in this study to explore how job satisfaction impacts contributions, which was operationalised using two questions from the Cammann et al.'s (1979) Michigan Organizational Assessment Questionnaire of Job Satisfaction based upon a five point Likert scale. The first of these questions asked survey respondents to offer their level of agreement to the statement: '*In general, I like working here*' and second statement which asked: '*All in all, I am satisfied with my job*'. To operationalise the variable repossess were then encoded from one through to five: '*Strongly Disagree*', '*Slightly Disagree*', '*Neither Agree or Disagree*' '*Slightly Agree*' and '*Strongly Agree*'. To test the reliability of this scale, factor analysis was adopted which calculated a Cronbach Alpha of 0.839, which is suggestive of consistency of responses.

The descriptive statistics would suggest that job satisfaction has a very limited impact on savings plan contributions based upon the limited disparity between the average savings level of those who strongly disagreed with the positively worded questions and strongly agreed with the negatively worded survey questions designed to measure job satisfaction. More specifically, the survey data indicates that those who on average strongly disagreed with positively worded questions placed a mean average of £127.62 into their savings plan, compared with £126.55 for those who generally strongly agreed with the positive worded questions and disagreed with the negative questions (shown in Table 5.11). A negligible relationship between job satisfaction and contributions was found to be only slightly positive at 0.012, which suggests a very weak relationship which was calculated to be far from being statistically significant at a probability level of 0.607 (shown in Table 10.4). In addition, as an independent variable within a Tobit regression, the inclusion of a measure for job satisfaction was shown to be a moderate negative predictor of savings plan contributions based upon a coefficient of -3.746, although these findings need to be treated with particular caution as they were far out of range of being significant based upon a probability level of 0.520 (shown in Table 10.22 and based upon model 7). While this coefficient alludes to the potential impact of job satisfaction on savings plan contributions, because the probability level of 0.146 is in excess of 0.050 based upon an alpha set at the same amount, it is not possible to reject the null hypothesis relating to H10a within a 95% confidence interval.

Table 5.11: Table illustrating the descriptive statistics between job satisfaction and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly disagree	£121.82	£100	95.61	0.9%	0.9%
2	Slightly disagree	£132.35	£117	88.91	6.6%	7.5%
3	Neither agree or disagree	£113.62	£100	85.33	17.7%	25.2%
4	Slightly agree	£137.21	£125	88.99	56.6%	81.9%
5	Strongly agree	£138.54	£125	89.01	18.1%	100%

5.6.3 Organisational Commitment

In addition to job satisfaction, a second latent variable has been included in this study in the form of organisational commitment, which has been entered into the study to measure how an individual's psychological attachment to their employer subsequently impacts the amount which they decide to place into their savings plan. To operationalise this variable, a nine point measurement for organisational commitment was adopted based upon Cook and Wall (1980), where respondents were asked to reply to the questions using a five point Likert scale, which was encoded one through to five for each of the following: '*Strongly Disagree*', '*Slightly Disagree*', '*Neither Agree or Disagree*' '*Slightly Agree*' and '*Strongly Agree*'.

Beginning with the descriptive statistics, the mean average contribution rate for those which responded consistently with '*Strongly Disagree*' to the positively worded questions and repeatedly selected '*Strongly Agree'* to the negatively worded questions chose to place a mean average contribution rate of £135.74 per month into their Save As You Earn savings plan. This compares with those participants who responded with '*Strongly Agree*' to the positively worded questions and then consistently '*Strongly Disagree*' to the negatively worded, which instead placed £132.41 per month into their share plans (shown in Table 5.12). Such a small difference between the extremes is suggestive of a weak relationship between contributions and organisational commitment. This interpretation is further supported after conducting deeper statistical analysis, where a weak positive Pearson correlation was identified within the survey data at 0.035, although it should further be noted that the relationship between these variables was not significant based upon a probability level of 0.135 (shown in Table 10.4). This finding is supported after conducting a Tobit regression, where organisational commitment is also shown to have a weak positive effect on saving plan contributions based upon a coefficient of 0.339. However, it is not possible to reject the null hypothesis relating to H11a because this particular relationship was far from being significant based upon a probability level of 0.937 (shown in Table 10.22 and based upon model 7).

Table 5.12: Table illustrating the descriptive statistics between organisational commitment and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly disagree	£121.82	£100	95.61	0.9%	0.9%
2	Slightly disagree	£132.35	£117	88.91	6.6%	7.5%
3	Neither agree or disagree	£113.62	£100	85.33	17.7%	25.2%
4	Slightly agree	£137.21	£125	88.99	56.6%	81.9%
5	Strongly agree	£138.54	£125	89.01	18.1%	100%

5.6.4 Familiarity

The final latent variable to be explored in this section regarding emotional affiliation and employment will test whether familiarity towards the employer has any notable impact on savings plan contributions. This variable was measured through the inclusion of the following question: '*I feel I know this company really well'*, where respondents were then asked based upon a five point Likert scale whether they '*Strongly Disagree*', '*Slightly Disagree*', '*Neither Agree or Disagree*', '*Slightly Agree*' or '*Strongly Agree*' with the previous statement. To operationalise the variable so that it is measurable by statistical analysis, each response was encoded one through to five in the same order as previously presented.

The descriptive statistics provide an early indication that familiarity has at the very least a slight impact on contributions when comparing the two extremes in possible responses: '*Strongly Disagree*' and '*Strongly Agree*', where the mean average monthly contribution rate was £121.82 and £138.54 respectively (shown in Table 5.13). It should further be noted that the average contribution rate for the conjoining responses that separate these two extremes was not found to increase incrementally. Instead the average contribution rate was shown to be higher for those who disagreed with the statement than for those who had '*No opinion*' on the matter. It is therefore to be expected that only a relatively weak positive Pearson correlation was identified at 0.068 between the variables, shown to be statistically significant at a probability level of 0.004 (shown in Table 10.4). Finally, the use of a Tobit regression identified that this independent variable for familiarity has only a weak negative effect on the dependent variable for savings plan contributions based upon a coefficient of -0.463, although this relationship was not shown to be significant based upon a probability level of 0.892 and therefore it is not possible to reject the null hypothesis relating to H12a (shown in Table 10.22 and based upon model 7).

Table 5.13: Table illustrating the descriptive statistics between familiarity and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly disagree	£121.82	£100	95.61	0.9%	0.9%
2	Slightly disagree	£132.35	£117	88.91	6.6%	7.5%
3	Neither agree or disagree	£113.62	£100	85.33	17.7%	25.2%
4	Slightly agree	£137.21	£125	88.99	56.6%	81.9%
5	Strongly agree	£138.54	£125	89.01	18.1%	100%

5.7 Risk Preferences

5.7.1 Self Perception Of Risk Preference

This next section will review risk preferences, the first measure of which is designed to capture data on a respondent's self perception of their own risk tolerance, captured through the following survey question: *'Are you a person who is fully prepared to take risks or do you try to avoid taking risks?'.* This variable was then operationalised by asking respondents to place themselves on an eleven-point scale, which was encoded for statistical testing in the same order as presented within the question.

Beginning with the descriptive statistics, the average contribution rate for those respondents who identified themselves to be on the lowest rung of the risk scale placed a mean average of £97.43 into their plans, this contrasts with an average monthly contribution rate of £145.03 for those positioning themselves on the highest point of the scale and therefore indicating that they are fully prepared to take risks (shown in Table 5.14). In terms of the deeper statistical relationships, a positive correlation of 0.121 was identified between the variables, found to be statistically significant at a probability level of 0.000 (shown in Table 10.5). As an independent variable with a Tobit regression, the inclusion of a self perceived risk preference was shown to have only a weak positive effect on the dependent variable of contributions by a coefficient of 1.057, although these findings were not shown to be significant based upon a probability level of 0.373 (shown in Table 10.22 and based upon model 7). We are therefore unable to reject the null hypothesis relating to H13a, and as a consequence, it is not possible to confirm whether a scheme participant's self perception of their own risk preference has a discernible statistical impact on the level of monthly wealth directed into the savings plan of Save As You Earn.

Table 5.14: Table illustrating the descriptive statistics between self perception of risk preference and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
0	0 (Unwilling to take risks)	£97.43	£72.5	79.39	6.2%	6.2%
1	1	£103.31	£80	81.68	4.4%	10.6%
2	2	£141.23	£101.5	89.87	9.4%	20%
3	3	£124.80	£140	85.77	12.9%	32.9%
4	4	£127.41	£100	88.43	9.9%	42.8%
5	5	£144.51	£108.33	88.43	18.8%	61.6%
6	6	£145.51	£149.5	91.15	15.7%	77.3%
7	7	£148.46	£150	85.92	12.9%	90.2%
8	8	£150.95	£150	95.81	4.2%	94.4%
9	9	£118.04	£122.50	97.96	1.4%	95.8%
10	10 (Fully prepared to take risk)	£145.03	£125	82.28	4.2%	100%

5.7.2 Self Perception Of Investment Risk Aversion

The second measure of risk preference to be included in this study was to quantify a respondent's own perception of how risk adverse they are when investing, a measure which was captured through the inclusion of the following question within the survey: '*How far do you agree that it is better to play safe with your savings even if investing in higher risk investments might make you more money?'.* This independent variable was then operationalised through the use of a five point Likert scale, where respondents were asked to state whether they '*Strongly Disagree*' encoded as a 1, '*Disagree*' encoded as a 2, '*No Opinion*' encoded as a 3, '*Agree*' encoded as a 4 and '*Strongly Agree*' encoded as a 5.

The descriptive statistics provide an early indication that risk aversion does have an impact on a scheme participant's savings plan contributions based upon the survey data finding a mean average of £163.20 was placed into the savings plan for those who stated that they '*Strongly Disagree*' with the investment question, which compares to £115.70 per month for those who '*Strongly Agree*' with the question (shown in Table 5.15). In addition, a moderate to strong negative Pearson correlation of -0.125 was identified between a scheme participant's self perception of their own investment risk aversion and their level of savings plan contributions, a statistical relationship which was shown to be significant at a probability level of 0.000 (shown in Table 10.5). Interestingly, the importance of investment risk aversion is brought into question after conducting a Tobit regression on the survey data, as this produced only a relatively weak negative coefficient calculated at -1.906. In addition to this relationship being relatively weak, a further level of scepticism needs to be directed at this line of the regression model because it is not possible to reject the null hypothesis relating to H14a as the relationship was not shown to be significant at a probability level of 0.513 (shown in Table 10.22 and based upon model 7).

Table 5.15: Table illustrating the descriptive statistics between self perception of investment risk aversion and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly Disagree	£163.2	£197	93.50	1.5%	1.5%
2	Disagree	£161.37	£100	88.24	16.1%	17.6%
3	No Opinion	£114.53	£100	87.35	14.4%	31.9%
4	Agree	£132.86	£120	86.92	53.9%	85.8%
5	Strongly Agree	£115.7	£100	88.17	14.2%	100%

5.7.3 Financial Literacy

The final variable to be recorded in this section was included with the objective of measuring how contribution levels might change based upon a respondent's level of financial literacy. To this end the following question inspired by Benartzi (2001) was placed into the survey: '*Would you say owning shares in your company is less risky, more risky, or has the same level of risk as an investment fund with many different companies?*'. To operationalise this variable for statistical analysis, the responses *'Don't know' 'About the same risk'* and *'Less risky'* were encoded as a 0, while the correct answer of '*More risky'* was encoded as a 1.

There is an early indication within the descriptive statistics of the potential importance of this variable, which is highlighted through the notable discrepancy between the average monthly savings of each response. More specifically, those who answered the question correctly placed a mean average of £182.73 into the plan each month. This compares to £124.61 for those who answered the question incorrectly and £90.44 for those which stated that they did not know the answer (shown in Table 5.16). These findings are also supported by deeper analysis, with a positive Pearson correlation being identified at 0.222 between those who answered the question correctly and the amount placed into the savings plan. In terms of the statistical powers, the link was statistically significant at a probability level of 0.000 (shown in Table 10.5). The use of a Tobit regression also identified that knowing the correct answer to this financial literacy question to be a strong positive predictor of savings plan contributions based upon a coefficient of 21.780, a relationship which was shown to be significant based upon a probability level of 0.005 ((shown in Table 10.22 and based upon model 7). The use of a regression therefore allows us to reject the null hypothesis relating to H15a within a 99.9% confidence interval and offers strong statistical evidence in support of the prediction that: *'scheme participants with greater levels of financial literacy will choose to contribute a higher amount into the savings plan of Save As You Earn each month'.*

Table 5.16: Table illustrating the descriptive statistics between financial literacy and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
0	Less risky	£135.04	124	86.74	32.8%	32.8%
1	More risky	£182.73	200	79.42	13.3%	46.1%
0	About the same risk	£128.08	100	88.55	39.7%	85.8%
0	Don't know	£90.44	52.08	78.08	14.2%	100%

5.8 Share Price Movements

5.8.1 Check share price regularly

The first question relating to share price movements was designed to capture the relationship between how often a scheme participant checks their employer's share price and the amount they choose to place into the savings plan of their scheme. This data was captured through the proceeding question: '*How often do you check how the company share price is doing*?'. This variable was then subsequently operationalised through the following eight possible responses: '*Daily*', '*At least weekly*', '*At least monthly*', '*At least quarterly*', '*At least twice a year*', '*At least once a year*', '*Less than once a year*' and '*Never',* encoded one through to eight in the same order.

The potential importance of this variable is initially alluded to through the descriptive statistics based upon the fact that contributions increase incrementally with the regularity of how often the share price is checked. This is perhaps best demonstrated by comparing the two extremes, with those checking the share price '*Daily*' being found to place a mean average of £168.39 per month into their savings plan compared with £60.47 for those respondents who stated in the survey that they '*Never'* checked the share price (shown in Table 5.17). As might be the expectation based upon these findings, a strong negative correlation was identified at -0.397, significant at a probability level of 0.000 (shown in Table 10.6). Consequently, the findings might be interpreted as meaning that scheme participants with the highest amounts invested were the most likely to check the share price of their employer with the greatest regularity. The use of a Tobit regression model also supports the findings of the two previous forms of statistical analysis, where the importance of this independent variable is demonstrated by a negative -9.869 coefficient. This relationship was shown to be significant at a probability level of 0.000 (shown in Table 10.22 and based upon model 7) and therefore this form of statistical analysis offers strong evidence in support of H16a, which stated the prediction that: *"those scheme participants which have greater amounts invested in Save As You Earn on a monthly basis will check the share price more regularly'.*

Table 5.17: Table illustrating the descriptive statistics between the regularity of checking the share price and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Daily	£168.39	£194	81.44	21.4%	21.4%
2	At least weekly	£156.47	£156.68	85.73	24.2%	45.4%
3	At least monthly	£134.24	£125	84.57	18%	63.4%
4	At least quarterly	£125.69	£100	85.51	10.5%	73.8%
5	At least twice a year	£113.92	£80	88.00	4.2%	78%
6	At least once a year	£106.14	£60	86.55	5%	83%
7	Less than once a year	£82.67	£68	71.27	3.8%	86.8%
8	Never	£60.47	£40	62.23	13.2%	100%

5.8.2 Perception that the company's share price exceeded the market in the previous year

A further independent variable was included in the study to determine whether there is any identifiable link between the amount a scheme participant chooses to place into their savings plan and their perception of how the employer performed against the market in the previous year. With the objective of capturing this data, the following survey question was included in the study: '*How has the share price of your company performed in relation to the stock market as a whole over the last year?*'. To make the variable measurable for analysis, the following responses were included in the study: '*Over 10% better*', '*5-10% better*', 'Up to 5% better', '*The same*', '*Up to 5% worse*' '*5-10% worse*', '*Over 10% worse*' and the optional response '*Don't know*'. The dataset was then restructured for the purpose of analysis, this was done by removing those which responded '*Don't know*' from the study, while the remaining seven responses were compressed into two separate groups distinguishing between those that believed that the company performed worse or the same against the market in the previous year encoded as a 0 and those which thought it performed better encoded as a 1.

The descriptive statistics point towards savings plan contributions being higher for those scheme participants who perceived their company's share price to have exceeded the market in the previous year. More specifically, the survey data found that respondents who believed that the share price did not exceed the market placed a mean average of £127.56 per month into their savings plans, which contrast with savings plan contributions of £143.15 for those survey respondents who were of the view that their employer's share price had outperformed the market in the previous year (shown in Table 5.18). In terms of the deeper statistical analysis, a negative Pearson correlation was calculated between the variables at -0.112, which was found to be statistically significant at a probability level of 0.000 (shown in Table 10.6). The use of a Tobit regression does however contradict these findings and instead implies that this particular independent variable had a negative effect on contributions, as shown by a coefficient of -10.803 (shown in Table 10.22 and based upon model 7). Furthermore, based upon a probability level of 0.000, it is possible to reject the null hypothesis relating to H17a, which supports within a 99.9% confidence interval that the following prediction is correct: '*scheme participants which perceived that their employer's share price had exceeded the market in the past year will place a greater amount into their Save As You Earn savings plan each month*'.

Table 5.18: Table illustrating the descriptive statistics between the perception that the company's share price exceeded the market in the previous year and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
0	Did not exceed	£127.56	£100	89.03	70.9%	70.9%
1	Exceeded	£143.15	£138	87.38	29.1%	100%

5.8.3 Perception that the company's share price was falling when they entered into SAYE

The last measurement to be included in this section is a variable to record a scheme participant's memory/perception of whether their employer's share price was falling when they entered into the share scheme. The survey included a question worded: '*When you joined SHARESAVE most recently was the company's share price…*', which was then proceeded by the following optional responses: '*Rising steeply*', '*Rising a bit*', '*More or less stable*', '*Falling a bit*', '*Falling steeply*', 'and finally the answer of '*Don't know*'. To operationalise this variable, the latter two responses were removed from the data set, while the remaining responses were encoded one through to five in the same order as presented.

Starting with the descriptive statistics, the survey data points towards contributions being slightly higher at £153.49 per month for those scheme participants who responded that the share price was '*Falling a bit*' when they entered into Save As You Earn. Likewise, the sub-group of respondents who stated that the share price was '*Falling steeply*' were identified to have a mean average contribution rate of £149.21 per month. This compares with average contributions of £136.51 and £139.31 respectively for those who responded in the survey that the share price was '*Rising a bit*' and '*Rising steeply*'. The descriptive statistics when viewed collectively appear to suggest that the perception that the share price was falling has a relatively small impact on the amount placed into the savings contract(shown in Table 5.19). The the survey data therefore is interestingly contradicted by a strong negative correlation which was calculated at -0.202 between these two sets of variables, a relationship which was shown to be statistically significant at a probability level of 0.000 (shown in Table 10.6). However more consistently with the descriptive statistics, the inclusion of a Tobit regression found that a falling share price is shown to be a weak negative predictor of contributions based upon a coefficient of -1.142. However, it is not possible to reject the null hypothesis relating to H18a because the relationship was not significant based upon a probability level of 0.678 (shown in Table 10.22 and based upon model 7).

Table 5.19: Table illustrating the descriptive statistics between perception that the company's share price was falling and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Rising steeply	£139.31	£127.5	88.58	5.6%	5.6%
2	Rising a bit	£136.51	£120	86.24	28.4%	34%
3	More or less stable	£144.59	£150	90.15	25.7%	59.6%
4	Falling a bit	£153.49	£150	84.00	15.8%	75.4%
5	Falling steeply	£149.21	£150	84.00	5.1%	80.5%
Removed	Can't remember	£108.76	£80	88.14	6.4%	86.9%
Removed	Don't know	£74	£50	73.33	13.1%	100%

5.9 Financial Education

5.9.1 Received Financial Education From A Current Or Previous Employer

The final variable to be explored in this chapter is a measure for financial education, which has been included in the study with the objective of researching whether financial education by either the current or previous employer has any discernible impact on the amount which a scheme participant allocates into their savings plan. With this objective on capturing the impact of financial education, two questions were included in the survey. More specifically, the survey asked respondents to acknowledge whether they had received financial education from a previous employer and a second equivalent survey question asking respondents whether they had received financial education from their current employer. The variable was then operationalised using a binomial dummy approach, with those answering '*No*' to both questions encoded as a 0, and those answering '*Yes*' to either question (e.g. having received financial education from either their current or past employer) being made quantifiable through being encoded with a 1.

Beginning with the descriptive statistics, there is an early indication based upon this form of analysis that financial education does alter how much a scheme participant allocates into their savings plan every month. More specifically, the survey data found that the sub-group of respondents who had not received financial education from either their past or current employer placed a mean average of £125.49 into Save As You Earn, which contrasts with £152.54 every month for those scheme participants that had received financial education (shown in Table 5.20). Regarding the use of deeper statistical techniques, a relatively strong positive Pearson correlation was identified between the variables used to measure financial education and contributions at 0.132, a link which is given further statistical credence through being significant at a probability level of 0.000 (shown in Table 10.7). Given the order in which the variables were encoded, these results would suggest that financial education by either the past or current employer does increase savings plan contributions. These results are further confirmed after conducting a Tobit regression based upon a weak to moderate positive coefficient of 4.794, although these results are open to statistical error based upon a probability level of 0.409 (shown in Table 10.22 and based upon model 7). It is therefore not possible to reject the null hypothesis relating to H19a regarding whether the offering of financial education has no effect effect on the amount of monthly savings a scheme participant chooses to place into their savings contract.

Table 5.20: Table illustrating the descriptive statistics between financial education and savings plan contributions

Variables		Average Contributions Per Month			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
0	No	£125.49	£100	87.90466	25%	75%
1	Yes	£152.54	£150	88.08969	75%	100%

5.10 Summarised Findings

In pursuit of answering the first proposed research question of this thesis regarding which specific explanatory variables are best able to explain how much savings a scheme participant chooses to place within their Save As You Earn plan each month, this study documents that a scheme participant's income is by far the strongest predictor of their savings plan contributions. More specifically, the use of univariate, bivariate and multivariate analysis each independently support the hypothesis, which proposed that those scheme participants on higher incomes will place more into their savings plan each month than those on lower incomes. This finding was anticipated because there exists a vast body of economic research of both a theoretical and empirical nature that has sought to link income to wealth accumulation (e.g. Keynes, 1936; Friedman, 1957; Feldstine, 1974; Deaton, 1991). The importance of income is also well recognised within empirical research specific to defined contribution plans, beginning with the 401 (k) literature, where the importance of income has repeatedly been shown to have a very strong influence on the level of wealth placed in the retirement account (e.g. Papke, 1995; Bassett, 1995; Kuskoe et al., 1998). Furthermore, with regards to the existing literature specific to employee share ownership, currently to date there exists only three studies that have so far observed a scheme participant income as a potential indicator of their savings plan contributions. With regards to these studies, the findings of this study is completely consistent on the importance of income (i.e Degeorge et al. 2004; Pendleton, 2010a; Bryson and Freeman, 2010) and therefore the empirical evidence offered by this first hypothesis helps reaffirm the existing evidence base.

Turning attention next to a scheme participant's age, which is the second explanatory variable put forward for investigation with the objective of answering the first research question. Second only to income, a scheme participant's age is shown by the survey data to have a strong influence on savings plan contributions, The income life cycle hypothesis of Modigliani and Brumberg's (1954) predicts that an individuals wealth accumulation will often begin slowly, but will then often peak in the few years prior to a person's retirement. Beyond the theoretical expectations, there are numerous empirical studies within the wider economics literature that have also documented that an individual's wealth accumulation should follow a theoretically expected humped shaped age to savings profile, as is the expectation of this normative model (e.g. Gourinchas and Parker, 2002; Fernández-Villaverde and Krueger, 2002). Drawing upon this body of evidence with the object of answering the first proposed research question, the hypothesis was identified for empirical investigation within this study upon the prediction that the level of savings placed into Save As You Earn will follow a humped shaped age profile. Both the descriptive statistics and regression support this hypothesis. Furthermore this particular research ending is also consistent with the existing literature, because both Degeorge et al. (2004) and Pendleton (2010a) documented a humped shaped age to savings wealth profile when observing a scheme participant's saving plan contributions within each of their respective studies.

The third category of variables identified for investigation within this study was a scheme participant's motives for choosing to enter into a share plan, each of which were shown within this chapter to be important. This particular investigation was structured based upon Kline (1987) three factor model, with separate measures included for intrinsic, instrumental and extrinsic motives. Beginning with intrinsic motives, this was tested against the hypothesis (*H6a*) that those scheme participants which hold an ownership desires for participating will choose to place higher amounts into the savings plan of Save As You Earn each month. The results of this study support that intrinsic motives for participation are an indicator of how much a participant chooses to put into their saving plan. This particular research finding is supportive of Fogarty and White, (1988), who argued the employees do have intrinsic motives for entering into an employee stock ownership scheme and for this very reason may seek out where possible a large stake in their employer.

The second motives for participation included in the study was a measures for instrumental desires, which is based upon the proposition that some scheme participants are choosing to enter into an employee stock ownership plan because they seeking greater involvement within the company. This variable was therefore tested against the hypothesis (H7a) that scheme participants with increased levels of instrumental motives for participating in Save As You Earn would choose to place higher amounts into their savings plan each month. While instrumental motives were shown to have a strong effect in this study, the actual findings run opposite to the hypothesis and unexpectedly put less into their Save as You Earn each month. Interestingly this was also the finding of Pendleton (2010a) who found a weak negative relationship with saving plan contributions, although his study found the variable not to be significant. While what causes this finding is unclear, but it could be that control orientations are fulfilled by holding a proportionally smaller stake in the company.

The final form of motives for participation observed in this chapter based upon Kline's (1987) three factor model was extrinsic motivation and this was tested against the hypothesis (*H8a*) that scheme participants with extrinsic motives for participating in Save As You Earn will choose to place a higher amounts into their plan. This hypothesis was strongly supported after conducting statistical analysis, with the independent variable used to capture extrinsic motives shown to be one of the strongest predictors of contributions within this chapter. This particular results reaffirms the findings of past studies such as Dewe et al. (1988) and Pendleton (2010a), who both also documented that financial expectations are why most employees enter into a company share plan. Furthermore, Pendleton also documented a strong positive link between extrinsic desires and contributions. The only study within the literature to conclude differently was a paper by Caramelli and Carberry (2014). One may question if the difference in findings can be explained by the fact that this latter study is based upon a different type of employee share ownership scheme. More specifically, this study as with Dewe et al. (1988) and Pendleton (2010a) gathered data in relation to Save As You Earn, whereas Caramelli and Carberry (2014) observed a company share plan operated in France

A penultimate variable shown to be important influence in this study is financial literacy which is a novel finding in the employee share ownership literature because no past study has included a measure for this variable. The findings of this study therefore build upon those which have more recently done research on the subject of financial literacy. For example, this find is consistent with Rooij et al. (2011) who also presented evidence that shows that individuals with low levels of financial literacy are much less likely to participate in the stock market.

The final finding produced in this chapter is perhaps the least interesting, which is the find that those employees which have the most invested in Save As You Earn are also those which observe the share price with the greatest frequency. While the finding does not add much to research on investment behaviour it is important to remember that much of human resource management literature does think of employees share ownership schemes in the context of agency theory and describes them to be a mechanism for aligning the objectives of a workforce with the goals of the company by making them think like shareholders (e.g. Jones and Kato, 1995; Kruse, 1996; McNabb and Whitefild, 1998; Sensil et al., 2002).

Chapter 6

Data Analysis II - Concentration of Savings Allocation

6.1 Introduction

This sixth chapter of the thesis will conduct empirical analysis across a range of variables to generate a better understanding of those specific factors which affect the concentration of savings wealth allocated into Save As You Earn as a proportion of a scheme participant's total monthly savings. With this objective in mind, the chapter will examine a number of variables that have been explored elsewhere in the available research, as well as making a number of unique contributions to the literature by furthering the existing knowledge through the inclusion of additional factors that have not yet been explored. In many respects the discussion in this chapter provides a bridge between the previous chapter which sought to recognise those variables that influence savings plan contributions and the next chapter, which shall identify those factors which influence the key decision(s) at the point of maturity regarding whether to acquire shares. In summary, this will facilitate the opportunity to develop a profile of those scheme participants who are concentrating the majority of their savings wealth in Save As You Earn, and whether these same individuals are acquiring and subsequently holding on to their shares purchased through the scheme.

The chapter shall be structured to mirror that of the previous, beginning its empirical review by exploring socio-demographic factors to determine whether the same specific determinants found to be important in the previous chapter on savings plan contributions are also shown to influence the concentration of savings allocation into Save As You Earn as a proportion of total monthly savings wealth. This initial discussion will be succeeded by reviewing the impact of part-time/full-time status to determine its potential impact on the concentration of savings directed into Save As You Earn each month.

After this initial discussion, the discussion is followed up by a range of latent variables designed to assess an employee's emotional affiliation towards their employer, where four separate measurements will be explored in this section for organisational commitment, loyalty, familiarity and sense of reciprocity towards the employer, as well as looking at a participant's intrinsic, instrumental and extrinsic motivation for participating in the scheme. The chapter will offer a further new addition to the literature by observing if an employee's perception of the share price movements to observe how this particular factor might alters how much a scheme participant choses to place into their Save As You Earn scheme. To conclude the investigation being conducted within this chapter, a measure was included within the survey to capture whether a scheme participant has received financial education by either the current or past employer to determine its impact on how much a scheme participant subsequently chooses to concentrate within their savings plan on a monthly basis..

6.2 Approach to Data Analysis

Seeking to answer the second research question as was identified within the literature review, nineteen separate hypotheses were put forward in the fourth chapter of this thesis designed to better understand: '*what key factors distinguish scheme participants who choose to concentrate a high proportion of their total monthly savings wealth into their Save As You Earn scheme from those who choose to allocate a lower percentage of their total monthly savings wealth*?'.' In pursuit of providing a method to testing these hypotheses, this chapter shall include three approaches relating to univariate analysis, bivariate statistical analysis and multivariate statistical analysis. The discussion put forward in the reminder of this chapter is structured around discussing these nineteen variables based upon the three statistical approaches.

The reason why univariate and bivariate analysis have been included in this chapter is because these approaches display characteristics about the data beyond what can be gained by focusing exclusively on multivariate analysis, and therefore by offering such approaches there is the opportunity for additional insights. Notwithstanding these benefits, the primary focus of the discussion presented within this chapter is based upon multivariate statistical analysis because this approach to data analysis facilities the possibility of hypothesis testing. More specifically, given that the fourth chapter of this thesis put forwards a relatively large number of hypotheses for testing on the simple basis that this study is exploratory, with there existing only once comparable study. A key methodological decision has been taken not to follow a strict parsimonious approach when conducting multivariate analysis and therefore generating a regression model, this is because the regression will not be used for predictive purposes but will rather be implemented to either accept or reject a series of hypotheses in pursuit of providing answers to the original research question.

While a linear regression may initially seem an appropriate method to answer the research question, the structure of Save As You Earn makes finding an appropriate econometric method more challenging. More specifically, based upon when the survey was conducted, the minimum a scheme participant could save the scheme was £5 a month and and maximum contribution amount of £250 a month. This has the effect of censoring the dataset with lower and upper limit, because there be those scheme participants which are willing to place a higher proportion of savings into the scheme, but are stopped by the regulations set by HMRC. A liner regression for this reason is not the most appropriate econometric method because there will be both right and/or left censoring with the dataset. It is for this reason that a Tobit regression has been adopted because this form of regression model is specifically designed to for his purpose. (see table 6.1 for a reminder on how to interpret a Tobit regression model). To offer more depth to the analysis in this chapter, the nineteen explanatory variables were entered to create seven separate regression models based upon socio-demographic determinants, employment-related attributes, motives for joining, emotional affiliation towards the employer and job, risk preferences and financial education (shown in Table 6.2).

Table 6.1.1: Key components of a Tobit regression model

Ceof.	This is the regression coefficient
Standard Errors	This is the standard error for the coefficient when held constant.
LR chi2	his is the Likelihood Ratio (LR) Chi-Square test
df	This is column lists for the degrees of freedom for each variable.
Sig.	This is the Wald chi-square test that tests the null hypothesis that the constant equals 0.
Alpha	Commonly set at either 0.050, 0.010 or 0.001
Pseudo R2	This is McFadden's pseudo R-squared

Table 6.1.2: Overview of the seven separate models entered into the regression model

Model 1	Socio-demographic Determinants	Income, Age, Gender, Household Size.
Model 2	Employment-related Attributes	Income, Age, Gender Household Size, Part-time/Full-time.
Model 3	Motives For Joining	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic.
Model 4	Emotional Affiliation Towards The Employer and Job	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic, Reciprocity, Job Satisfaction, Organisational Commitment, Familiarity.
Model 5	Risk Preferences	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic, Reciprocity, Job Satisfaction, Organisational Commitment, Familiarity, Self Perception Of Risk Preference, Self Perception Of Investment Risk Aversion, Financial Literacy.
Model 6	Perceived Share Price Movements	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic, Reciprocity, Job Satisfaction, Organisational Commitment, Familiarity, Self Perception Of Risk Preference, Self Perception Of Investment Risk Aversion, Financial Literacy, Check Share Price Regularly, Share Price Exceeded The Share Price Market In The Previous Year, Share Price Was Falling When Entered Into Scheme.
Model 7	Financial Education	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic, Reciprocity, Job Satisfaction, Organisational Commitment, Familiarity, Self Perception Of Risk Preference, Self Perception Of Investment Risk Aversion, Financial Literacy, Check Share Price Regularly, Share Price Exceeded The Market In The Previous Year, Share Price Was Falling When Entered Into Scheme, Financial Education.

6.3 Socio-demographic Determinants

6.3.1 Income

The first variable to be reviewed in this chapter shall be the socio-demographic determinant of income. Data for this variable was captured in the survey by asking respondents to state their income based upon the following categories: *'£1 - £4,999', '£5,000 - £9,999', '£10,000 - £14,999', '£15,000 - £19,999', £20,000 - £24,999', '£25,000 - £29,999', '£30,000 - £39,999', '£40,000 - £49,999', '£50,000 - £59,999', '£60,000 - £69,999', '£70,000 - £79,999', '£80,000 - £89,999' '£90,000 or above'*, which were then encoded one to thirteen in the same order.

Beginning with the descriptive statistics, the survey data reveals that those respondents who fall into the lowest income sub-group (£1 - £4,999) were found to allocate a mean average of 78.19% of their total monthly savings into Save As You Earn, this contrasts with a concentration rate of 36.43% for those scheme participants who indicated in the survey that they were in the highest category (£90,000 or above) (shown in Table 6.2). The importance of income on diversification is also identified by a very strong negative Pearson correlation at -0.314 which is significant at a probability level of 0.000 (shown in Table 10.8). Likewise, the use of a Tobit regression also finds that increases in income lead to a lower concentration wealth being placed into the savings plan based upon a negative coefficient of -5.588, significant at a probability level of 0.000 (shown in Table 10.23 and based upon model 7). It is therefore possible to reject the null hypothesis based upon a 99.9% confidence interval and therefore these results offer compelling evidence in support of the H1b, which predicted that: *'the concentration of total monthly savings allocation placed into Save As You Earn will be lower for scheme participants on higher incomes.'.*

Table 6.2 Table illustrating the descriptive statistics between income and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	£1 - £4,999	78.19%	100%	32.56	5.3%	5.3%
2	£5,000 - £9,999	78.78%	100%	32.56	11.5%	16.8%
3	£10,000 - £14,999	71.98%	100%	33.46	9.7%	26.5%
4	£15,000 - £19,999	75.55%	100%	31.85	12.4%	38.9%
5	£20,000 - £24,999	69.16%	88.24%	33.68	10.7%	49.6%
6	£25,000 - £29,999	66.12%	60.26%	33.43	8.9%	58.5%
7	£30,000 - £39,999	67.75%	71.43%	31.36	13.3%	71.8%
8	£40,000 - £49,999	55.13%	45.45%	31.96	9.7%	81.4%
9	£50,000 - £59,999	52.36%	40.68%	34.45	6.7%	88.1%
10	£60,000 - £69,999	48.49%	35.9%	32.75	3.7%	91.7%
11	£70,000 - £79,999	49.78%	35.9%	33.80	1.8%	93.6%
12	£80,000 - £89,999	53.88%	40%	34.99	1.8%	95.3%
13	£90,000+	36.43%	20%	32.51	4.7%	100%

6.3.2 Age

The second socio-demographic factor to be investigated in this section is a scheme participant's age, which will be reviewed using both descriptive statistics and deeper statistical techniques to analyse whether a respondent's age may account for, or at the very least partially account for, why some individuals participating in Save As You Earn have chosen to concentrate a higher percentage of their monthly savings wealth into this scheme as a proportion of their total monthly savings wealth across all forms of savings and investment products. To attain the data required to conduct this analysis, respondents were asked to signal their age by placing themselves into one of the following six age categories: '*16-24*' encoded as a 1, '*25-34*' as a 2, '*35-44*' as a 3, '*45-54*' as a 4, '*55-64*' as a 5 and '*65 and over*' as a 6.

The descriptive statistics on initial inspection suggest that a scheme participant's age has only a moderate impact on the amount of monthly savings concentrated into Save As You Earn, or at least that could be the interpretation when observing the average concentration rate between the youngest and oldest age categories, where the survey data reveals that there exists only a relatively small 6.4% divergence (shown in Table 6.3). Interestingly, the survey data also shows that monthly savings are most diversified for the two sub-groups aged between 35 - 44 and 45 - 54, which coincidentally is the age categories when wealth accumulation is predicted to peak by economists, therefore these findings are supportive of traditional economic theories on savings behaviour, in particular Modigliani and Brumberg's (1954) income life cycle hypothesis.

Analysing the survey data using deeper statistical techniques, a moderately sized negative Pearson correlation was calculated between these two sets of variables at -0.074, significant at a probability level of 0.002 (shown in Table 10.8). The use of a Tobit regression suggests that a scheme participant's age does not influence the dependent variable for the concentration of savings allocation, as each measurement for the five age categories was shown not to be statistically significant (shown in Table 10.23 and based upon model 7). Based upon these finding it is therefore not possible to reject the null hypothesis relating to H2b, which would otherwise suggest that a scheme participant's age has no effect on the concentration of savings allocation.

Table 6.3 Table illustrating the descriptive statistics between age and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	16 - 24	80.32%	100%	31.41	7.4%	7.4%
2	25 - 34	67.40%	77.61%	34.35	21.6%	29%
3	35 - 44	63.03%	60.00%	34.77	30.5%	59.5%
4	45 - 54	64.64%	66.66%	31.41	28.6%	88.1%
5	55 - 64	65.89%	71.42%	35.17	11.2%	99.3%
6	65 and over	73.92%	88.46%	31.56	0.7%	100%

6.3.3 Gender

Gender is the third socio-demographic factor to be reviewed with the objective of identifying whether this particular variable might explain why some scheme participants choose to place a higher concentration of their monthly savings into Save As You Earn. To capture the data on a respondent's gender, those who participated in the survey were asked to state their sex, which was then made quantifiable for the purpose of statistical analysis by encoding '*male*' as a 0 and '*female*' was encoded as a 1.

The descriptive statistics provide an early indication that gender does have a recognisable impact on the percentage of monthly savings a participant in Save As You Earn choses to concentrate into their savings plan. In particular, the survey data identifies that male participants choose to allocate a mean average of 62.08% of their total monthly savings wealth into the savings plan of their Save As you Earn, which compares to female scheme participants who place on average 72.02% of their total monthly savings into this particular scheme (shown in Table 6.4). The importance of this socio-demographic factor is further endorsed by conducting deeper statistical analysis, where the variable for gender is supported by a strong positive Pearson correlation at 0.131, shown to be significant at a probability level of 0.000 (shown in Table 10.8). In addition to this, after running the survey data through a Tobit regression it returned a coefficient of -2.128, which is therefore suggestive of a moderately sized negative link between the measure used for gender and the proportion to which scheme participants concentrate their total monthly savings wealth between Save As You Earn and other forms of savings. This finding would therefore suggest that females are more likely to concentrate a higher proportion of their total monthly savings wealth into Save As You Earn, although these results should be treated with caution when making further interpretations as the relationship was not statistically significant based upon a probability level of at 0.553 (shown in Table 10.23 and based upon model 7). What this finding indicates is that it is not possible to reject the null hypothesis relating to H3b because the regression coefficient is not statistically different from zero based upon the likelihood ratio Chi-Square test and an alpha of 0.050.

Table 6.4 Table illustrating the descriptive statistics between gender and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Coding	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
0	Male	62.08%	55.56%	34.89	57.7%	57.7%
1	Female	72.02%	100%	33.05	42.3%	100%

6.3.4 Household size

The final socio-demographic factor to be empirically discussed in this section of the study will review the survey data to understand whether there is a relationship between the number of people who reside in a scheme participant's household and the proportion of savings allocated into Save As You Earn as a percentage of a scheme participant's total monthly savings wealth. To capture data on a respondent's household size, the following question was asked to respondents in the survey: *'How many people reside in your household?,* which was then operationalised by encoding the responses equal to the number offered.

The survey data identifies that the sub-group of respondents with only one person residing in their household distributed a mean average of 67.98% of their total monthly savings wealth into Save As You Earn (shown in Table 6.5). In contrast, scheme participants with a household size of six allocated an average of 77.84% of their total monthly savings into this particular employee share scheme. The descriptive statistics also divulge that the concentration rate is lowest for the sub-group of respondents with a household size of two, which on average allocate 63.05% of their total monthly savings into Save As You Earn. Viewing the descriptive collectively, there is a distinct pattern identifiable but given the concentration rate of the last two responses, the survey data does allude to the possibility that scheme participants with larger households concentrate a higher percentage of their total monthly savings wealth into Save As You Earn. In terms of the deeper statistical analysis, a relatively weak positive correlation was identified at 0.043 between these two sets of variables, although this relationship is out of range of being significant at 0.075 (shown in Table 10.8). Next turning attention to the use of a Tobit regression, which identifies that household size has a moderately sized positive effect on concentration of savings allocation based upon a coefficient of 2.900, a relationship was shown to be statistically significant at a probability level of 0.020 (shown in Table 10.23 and based upon model 7) Based upon this particular finding, it is possible to reliably reject the null hypothesis relating to H4b, which subsequently supports the original prediction identified in chapter four that: '*the concentration of total monthly savings allocation placed into Save As You Earn will be higher for those with a larger household size.*'.

Table 6.5 Table illustrating the descriptive statistics between household size and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	1	67.98%	80.65%	34.35	9.5%	9.5%
2	2	63.05%	63.05%	35.04	30.9%	40.4%
3	3	67.88%	67.88%	34.98	21.4%	61.8%
4	4	66.41%	66.41%	33.68	28.3%	90.2%
5	5	67.17%	75.94%	34.83	7.2%	97.4%
6	6	77.84%	100%	32.90	2.3%	99.7%
7	7+	72.46%	100%	40.00	0.3%	100%

6.4 Employment-related Attributes

6.4.1 Full-time / Part-time Status

The first and only employment related factor to be investigated in this section empirically explores to what extent the variations in part-time and full-time employment status between respondents might impact the percentage of monthly savings wealth concentrated into Save As You Earn as a proportion of a scheme participant's total monthly savings wealth. To acquire the necessary data required to conduct this analysis, respondents were asked: '*Is your job: part-time or full-time?*'. Based upon the answer to this survey question, a binomial dummy variable was created to quantify these two responses with part-time workers encoded as a 0, and full-time workers encoded as a 1.

The descriptive statistics offer an early insight that the number of hours worked does indeed have a notable impact on the concentration of total savings allocation directed into Save As You Earn on a monthly basis, which is suggested by the fact that the survey data identified that part-time respondents direct an average of 76.23% of their total monthly savings into Save As You Earn, compared with a mean average rate of 62.90% for those respondents working full-time (shown in Table 6.6). The use of deeper statistical techniques also supports the conclusion that part-time/full-time does have a recognisable impact on the way in which participants choose to appropriate their total monthly savings between Save As You Earn and other forms of investment. A negative correlation was identified at -0.164 between the variable for part-time/full-time status and the variable for concentration of savings allocation, a statistical relationship at a probability level of 0.000 (shown in Table 10.9). Based upon how these variables were encoded, a negative correlation indicates that part-time respondents are the scheme participants most likely to concentrate the majority of their total monthly wealth into Save As You Earn. In addition to this form of analysis, running the data through a Tobit regression contradicts the correlation, and instead suggests that this particular independent variable had a positive effect on the dependent variable as can be observed by a positive coefficient of 2.690. However, it is not possible to reject the null hypothesis relating to H5b because this line of the regression model was shown not to be significant at a probability level of 0.559 (shown in Table 10.23 and based upon model 7).

Table 6.6: Table illustrating the descriptive statistics between full-time/part-time employment status and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
0	Part-time	76.06%	100%	32.58	24.2%	24.2%
1	Full-time	62.9%	55.56%	34.45	75.8%	100%

6.5 Motives For Joining

6.5.1 Intrinsic motives

This forthcoming section will explore a scheme participant's motives for participating in Save As You Earn, which shall be empirically investigated with the direct intention of developing a greater understanding about how a scheme participant's motives for participating in this share ownership scheme might influence flow of monthly savings wealth directed into Save As You Earn as a proportion of a scheme participant's total savings wealth. Beginning with intrinsic motivation in Klein's (1987) three factor model, the data for this variable was captured through the inclusion of the following statement in the survey: '*Wanted to become a shareholder in the company*'. To operationalise the variable, respondents were asked to state their level of agreement to this statement based upon a five point Likert scale, with the following responses offered to respondents: '*Strongly Disagree'*, '*Disagree*', '*No Opinion*', '*Agree*' and '*Strongly Agree*', which was then operationalised for the purpose of statistical analysis using a set of dummy variables encoded one to five in this order.

Starting with the descriptive statistics, this preliminary form of empirical analysis offers the insight that intrinsic motivation does influence the proportion of total monthly savings wealth directed into Save As You Earn. More specifically, the survey data identified that those which '*Disagree*' with the statement chose to allocate a mean average of 76.29% of their total monthly savings into their Save As You Earn, which contrasts with 64.27% for those scheme participants who responded to the statement with '*Strongly Agree*' (shown in Table 6.7). Regarding the use of deeper statistical analysis, the survey data identified a weak positive correlation of 0.004 between the variables, a relationship which is out of range of being significant at a probability level of 0.587 (shown in Table 10.10). Finally, the use of a Tobit regression also reveals a negative relationship between intrinsic motives and the concentration of savings allocation, which is shown by a negative coefficient of -1.976. However, this final form of analysis was out of range of being significant based upon a probability level of 0.342 and therefore it is not possible based upon this statistical analysis to reject the null hypothesis relating to H6b (shown in Table 10.23 and based upon model 7)

Table 6.7: Table illustrating the descriptive statistics between intrinsic motivation and the diversification of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly Disagree	N/A*	N/A*	N/A*	0.1%	0.1%
2	Disagree	76.29%	100%	36.37	1.9%	2%
3	No Opinion	71.55%	100%	33.51	10.3%	12.3%
4	Agree	66.68%	71.43%	34.12	47.7%	60%
5	Strongly Agree	64.27%	66.67%	34.66	40%	100%

6.5.2 Instrumental motives

Continuing the investigation into Klein's (1987) three factor model, where the statistical evidence for instrumental motivation shall now be empirically reviewed to understand if this particular factor might have an influence on whether scheme participants in Save As You Earn concentrate the majority of their monthly wealth accumulation into the savings plan of this scheme or choose to locate a higher amount of their savings elsewhere. To attain the relevant data to conduct this analysis, respondents were asked to state the level of agreement to the following statements designed to capture instrumental motives: '*Wanted to feel part of the company*', '*Wanted to express my support for the company*', '*I felt I owed it to the company*' and the last response '*Wanted to become more involved in the company*'. Based upon a five point Likert scale, respondents were asked to state their level of agreement with either '*Strongly Disagree'*, '*Disagree*', '*No Opinion*', '*Agree*' and '*Strongly Agree*', from one through to five in the same order as presented.

Beginning with the evidence put forward by the descriptive statistics, this form of analysis offers the insight that instrumental motivation may have an observable impact on the level to which scheme participants choose to spread their monthly wealth between Save As You Earn and other forms of savings and investments. More specifically, after conducting the process of compiling the responses back into the five identifiable strands based upon the average responses to the statements, a notable disparity between the two extremes can be observed within the descriptive statistics. The survey data reveals that the sub-group of respondents who selected '*Strongly Disagree'* to the statements most commonly had an average concentration rate of 64.43%, which compares with 73.41% for those which selected '*Strongly Agree'* on average to the five statements (shown in Table 6.8). Next observing the deeper statistics, the link between instrumental motivation and the concentration of savings allocation was shown to have a weak positive Pearson correlation identified at 0.033, however these findings were not statistically significant at a probability level of 0.146 (shown in Table 10.10). While the use of a Tobit regression with an independent variable designed to capture instrumental motives has only a weak positive effect on the concentration of savings allocation based upon a coefficient of 0.880, significant at a probability level of 0.734 (shown in Table 6.24). However, based upon this probability level it is not possible to reliably reject the null hypothesis relating to H7b (shown in Table 10.23 and based upon model 7).

Table 6.8: Table illustrating the descriptive statistics between instrumental motivation and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly Disagree	64.43%	66.67%	35.34	16%	16%
2	Disagree	65.64%	71.43%	34.35	35.7%	51.7%
3	No Opinion	68.88%	84.77%	33.77	30.3%	82%
4	Agree	63.90%	61.25%	34.25	14.1%	96%
5	Strongly Agree	73.41%	100%	34.20	4%	100%

6.5.3 Extrinsic motives

To complete the empirical investigation into Klein's (1987) three factor model, the review will now turn its attention to the influence of extrinsic motivation on the concentration of savings allocated into Save As You Earn as a proportion of a scheme participant's total monthly savings wealth. To measure extrinsic motivation, respondents were asked to state their agreement to the following statements: '*Wanted to potentially make a good financial return', 'Tax efficient way to save', 'Offer was too good to refuse*', '*To benefit from expected increase in share price',* '*Wanted to save regularly*', *'Wanted to get some of what I had put into the company back*'. To operationalise this variable, a five point Likert scale was implemented with: '*Strongly Disagree'* encoded as a 1, '*Disagree*' encoded as a 2, '*No Opinion*' encoded as a 3, '*Agree*' encoded as a 4 and the final responses of '*Strongly Agree*' encoded as a 5.

The preliminary results of the descriptive statistics indicate that extrinsic satisfaction does not have an important impact on the percentage of a scheme participant's total monthly savings placed into Save as You Earn. Based upon this more primitive form of analysis, there appears to be no identifiable pattern after averaging the responses to the six statements. What can be seen from the survey data is that the average concentration allocation rate is lowest at 55.56% for those which on average selected '*Strongly Disagree*' to the statements, while the concentration rate was highest at 65.60% for those that '*Strongly Agree*'. This divergence is suggestive of a relationship between the variables however the conjoining responses (*e.g. disagree, no opinion and agree*) does not alter incrementally or in a linear manner (shown in Table 6.9). In terms of deeper statistical analysis the study identifies a weak negative link between the variables based upon a correlation of -0.061, which was shown to be significant at a probability level of 0.006 (shown in Table 10.10). The use of a Tobit regression also supports the two previous forms of statistical analysis, suggesting that extrinsic motivation only has a negative impact on the level of monthly wealth placed into the savings plan of Save as You Earn, as shown by a coefficient of -4.394. Based upon a probability level calculated at 0.678 arising from an alpha of 0.050, it is therefore not possible to reliably reject the null hypothesis relating to H8b (shown in Table 10.23 and based upon model 7).

Table 6.9: Table illustrating the descriptive statistics between extrinsic motivation and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly Disagree	55.56%	50%	41.94	0.3%	0.3%
2	Slightly Disagree	72.21%	100%	44.85	0.6%	0.9%
3	No Opinion	70.21%	100%	34.96	13.6%	14.3%
4	Slightly Agree	65.63%	66.67%	34.22	55.2%	69.6%
5	Strongly Agree	65.60%	71.43%	34.25	30.4%	100%

6.6 Emotional Affiliation To Employer/Job

6.6.1 Reciprocity

This forthcoming set of variables will explore a scheme participant's emotional affiliation towards their employer and job with the objective of empirically investigating whether varying forms of psychological association towards job and employer might alter the flow of a scheme participant's overall monthly savings directed into Save As You Earn. With this objective in mind, the first variable in this category to be observed relates to the subject of reciprocity; a strand of research which has been gaining increasing attention in the behavioural economic and within the organisational psychological literature under the wider theme of gift exchange. To capture data on the latent variable, five questions were placed in the survey beginning with a measure designed to capture a scheme participant's sense of obligation towards their employer, a second observing whether they looked at colleagues as family, a third question measuring a respondent's desire to be helpful to their employer, a forth focusing on a scheme participant's eagerness to give something back and a negative equivalent of this latter question to control for erroneous responses.

The descriptive statistics offer an early suggestion that a sense of reciprocity does not have a major impact on the concentration of savings allocation placed into Save As You Earn by scheme participants. More specifically, a review of the survey data shows that there exists no identifiable pattern between the various responses with regards to the percentage of wealth placed in this employee ownership scheme as a proportion of a scheme participant's total monthly savings (shown in Table 6.10). Interestingly, the adoption of deeper statistical techniques appears to contradict the descriptive statistics, where a positive correlation was found at 0.013 although this relationship was shown to be far out of range of being significant at 0.575 (shown in Table 10.11). The use of a Tobit regression also identifies a strong negative relationship, where this form of analysis points towards a moderate to strong link between these two sets of variables as is shown by a coefficient of -3.184. However, it is not possible to reject the null hypothesis relating to H9b because this line of the regression model is open to error because the relationship was not significant as can be observed by a probability level of 0.152 (shown in Table 10.23 and based upon model 7).

Table 6.10: Table illustrating the descriptive statistics between reciprocity and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly Disagree	64.82%	66.05%	35.97	6.6%	6.6%
2	Slightly Disagree	65.27%	71.43%	35.35	33.3%	39.9%
3	Neither Agree or Disagree	66.81%	71.27%	33.60	48.1%	88%
4	Slightly Agree	66.57%	74.85%	34.55	11.3%	99.3%
5	Strongly Agree	63.84%	62.5%	31.94	0.7%	100%

6.6.2 Organisational Commitment

The second area of analysis in this section shall relate to the subject of organisational commitment, which will be empirically explored to determine whether this form of emotional attachment to the employer may have any discernible impact on how scheme participants choose to spread their wealth between the savings plan of Save As You Earn and other investment products every month. To measure organisational commitment, a nine point version of *The British Organizational Commitment Scale* by Cook and Wall (1980) which includes six positively worded questions and three negatively worded equivalent statements which were placed into the survey. This established framework for measuring organisational commitment was subsequently operationalised by asking respondents within the survey to state their level of agreement using a five point Likert Scale based upon: '*Strongly Disagree*', '*Slightly Disagree*', '*Neither Agree or Disagree*', '*Slightly Agree*' and '*Strongly Agree*' which was then encoded one to five in the same order as presented.

The descriptive statistics offer the preliminary insight that organisational commitment may not have a major impact on the percentage of monthly wealth placed into Save As You Earn as a proportion of total savings, on the basis that the survey data shows that those scheme participants who responded on average to the positively worded statements with '*Strongly Disagree*' and to the negatively worded statements with '*Strongly Agree'* concentrated an average of 47.85% of their total monthly savings wealth into Save As You Earn. In contrast, those which responded on average to the positively worded statements with '*Strongly Agree*' and to the negative equivalents with '*Strongly Disagree*' placed an average of 67.47% of their total monthly savings into this scheme (shown in Table 6.11). The use of deeper analysis in the form of a correlation finds a weak positive 0.024 relationship, However, these results were not shown to be significant based upon a probability level of 0.302 (shown in Table 10.11). Likewise, the use of a Tobit regression also points towards organisational commitment having a moderate to strong positive influence on the concentration savings rate shown by a coefficient of 5.807. This finding suggests that increased levels of organisational commitment leads to a notably higher proportion of monthly savings being directed into Save As You Earn. However, based upon the inclusion of an alpha at 0.050, it is not possible to reject the null hypothesis relating to H10b based upon a probability level of 0.090 (shown in Table 10.23 and based upon model 7)).

Table 6.11: Table illustrating the descriptive statistics between organisational commitment and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly Disagree	47.85%	31.82%	35.46	0.5%	0.5%
2	Slightly Disagree	73.72%	100%	35.46	2.4%	2.9%
3	Neither Agree or Disagree	70.71%	100%	34.62	19.8%	22.7%
4	Slightly Agree	63.77%	60%	34.19	56.2%	78.9%
5	Strongly Agree	67.47%	67.47%	34.51	21.1%	100%

6.6.3 Job Satisfaction

Job satisfaction is the third factor to be reviewed in this category, where the empirical discussion will continue its exploration into how different types of emotional affiliation towards the employer might alter the proportion of monthly savings placed into Save As You Earn as a percentage of total monthly savings wealth. To measure job satisfaction, a variable was created using the established framework by Cammann et al. (1979) based on what is commonly known as the Michigan Organizational Assessment Questionnaire of Job Satisfaction. Respondents were asked to state their level of agreement to the statements based upon a five point Likert scale, and the variable was then operationalised through encoding '*Strongly Disagree*' as a 1, '*Slightly Disagree*' as a 2, '*Neither Agree or Disagree*' as a 3, '*Slightly Agree*' as a 4 and '*Strongly Agree*' as a 5.

Beginning with the descriptive statistics, where there appears to be no discernible pattern in the summarised results after compiling the average survey responses from the Michigan Organisational Assessment Questionnaire of Job Satisfaction back into the key five points of the Likert scale (shown in Table 6.12). A similar conclusion can be drawn after conducting deeper statistical analysis on the survey data, as is shown by identifying a very weak negative Pearson correlation at -0.024, although this was not significant based upon a probability level of 0.300 (shown in Table 10.11). These two previous forms of analysis are also supported by the results from the Tobit regression, which finds that job satisfaction has a moderately sized negative effect on the dependent variable for concentration of savings allocation, as can be observed by a coefficient of -2.563. However, while the coefficient is consistent with the two previous forms of analysis, this relationship was not shown to be statistically significant based upon a probability level of 0.308 and therefore we are unable to reject the null hypothesis relating to H11b (shown in Table 10.23 and based upon model 7).

Table 6.12: Table illustrating the descriptive statistics between job satisfaction and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly Disagree	62.62%	80.77	39.58	1.6%	1.6%
2	Slightly Disagree	72.38%	100%	33.73	5.5%	7.1%
3	Neither Agree or Disagree	67.79%	83.33	34.76	15%	22.1%
4	Slightly Agree	64.39%	62.5%	34.55	55.5%	77.7%
5	Strongly Agree	67.78%	75.96%	33.74	22.3%	100%

6.6.4 Familiarity

To conclude the investigation into a scheme participant's emotional affiliation towards their employer, the study will now turn its attention to empirically analysing whether increased levels of familiarity towards the employer have any identifiable influence on the percentage of monthly wealth allocated into Save As You Earn as a proportion of their total monthly savings. To capture data on this latent variable, respondents in the survey were asked to state their level of agreement to the following statement: '*I feel I know this company really well'.* To operationalise this variable so that it could be measured, respondents were asked to offer their opinion based upon a five point Likert scale with '*Strongly Disagree*' encoded as a 1, '*Slightly Disagree*' encoded as a 2, '*Neither Agree or Disagree*' encoded as a 3, '*Slightly Agree*' encoded as a 4 and the final possible response '*Strongly Agree*' encoded as a 5.

The descriptive statistics offer an early indication that familiarity does have a moderate influence on the percentage of total monthly savings wealth directed into the Save As You Earn by scheme participants. This is shown through comparing the two extremes, where the survey data identified that those which responded with '*Strongly Disagree*' placed an average of 72.38% of their total monthly savings wealth into Save As You Earn, while in contrast the average concentration rate was 64.88% for those which responded with '*Strongly Agree'* (shown in Table 6.13). While descriptive analysis points towards the concentration rate being higher for those which disagreed, the adoption of deeper statistical analysis techniques interestingly does invert the identified relationship by calculating a negative Pearson correlation at -0.054, supported by being significant at a probability level of 0.020 (shown in Table 10.11). This finding is further supported after conducting a Tobit regression, where the inclusion of an independent variable for familiarity produced a coefficient of -2.518 against the dependent variable used to measure the proportion of wealth directed into Save As You Earn on a monthly basis. However, this finding is open to error because the link between these two variables is not significant as shown by a probability level of 0.732 (shown in Table 10.23 and based upon model 7). It is therefore not possible given that the probability level exceeds 0.050 to reject the null hypothesis relating to H12b, which as a consequence means it is not possible to conclusively say whether there exists a reliable link between a sense of familiarity towards the employer and the concentration of savings allocation directed into Save As You Earn.

Table 6.13: Table illustrating the descriptive statistics between familiarity and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly Disagree	72.38%	100%	39.79	0.9%	0.9%
2	Slightly Disagree	66.88%	80.46%	35.41	6.6%	7.5%
3	Neither Agree or Disagree	70.95%	100%	34.71	17.7%	25.2%
4	Slightly Agree	64.75%	62.5%	33.97	56.6%	81.9%
5	Strongly Agree	64.88%	66.67%	34.80	18.1%	100%

6.7 Risk Preferences

6.7.1 Self Perception Of Risk Preference

The chapter will now turn its attention to reviewing a scheme participant's general risk preferences, where this section of the chapter will begin by reviewing a respondent's self perception of their own risk tolerance to statistically understand whether a scheme participant's self perception of their own risk preference might alter the level of savings directed into Save As You Earn as a proportion of a participants total monthly savings wealth. To obtain the relevant data required to conduct this empirical analysis, the survey included the following question: *'Are you a person who is fully prepared to take risks or do you try to avoid taking risks?',* with respondents asked to place themselves on an eleven-point scale, which was then subsequently encoded for the purpose of statistical analysis based upon the the same number as the answer offered.

Starting with a comparison of the two extremes, the descriptive statistics reveals that the mean average concentration savings rate was 78.30% for those respondents who classify themselves to be 0 on the scale (*e.g. Unwilling to take risks*), while those which identify themselves to be a 10 (*e.g. fully prepared to take risk*) allocated an average of 63.05% of their total monthly wealth into Save As You Earn. It should be further noted however that the decrease in the concentration rate is not perfectly incremental or linear through the scale. (shown in Table 6.14). Consistent with the descriptives, a relatively strong negative Pearson correlation of -0.116 was identified between the variables, a relationship which was given further credence by being significant at a probability level of 0.000 (shown in Table 10.12). A scheme participant's general risk preference has a relatively weak to moderate negative impact on the percentage of monthly savings wealth directed into Save As You Earn which is shown through a coefficient of -1.020. However, this relationship was not shown to be significant based upon a probability level of 0.158 and therefore we are unable to reject the null hypothesis relating to H13b (shown in Table 10.23 and based upon model 7).

Table 6.14: Table illustrating the descriptive statistics between self perception of risk preference and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
0	0 (Unwilling to take risks)	78.30%	100%	32.12	6.2.%	6.2%
1	1	80.95%	100%	30.64	4.4%	10.6%
2	2	66.80%	71.42%	34.34	9.4%	20%
3	3	65.48%	62.96%	34.24	12.9%	32.9%
4	4	65.48%	62.96%	34.41	9.9%	42.8%
5	5	67.32%	71.43%	33.42	18.8%	61.6%
6	6	59.46%	50%	34.76	15.7%	77.3%
7	7	59.76%	50%	34.76	12.9%	90.2%
8	8	63.63%	100%	34.75	4.2%	94.4%
9	9	74.78%	100%	34.27	1.4%	95.8%
10	10 (fully prepared to take risk)	63.05%	66.67%	36.36	4.2%	100%

6.7.2 Self perception of investment risk aversion

In a closely related alternative to the previous variable, a separate survey question was included in the study to capture data on a scheme participant's self perception of their level of risk aversion when investing. To capture the relevant data required to conduct this analysis, the following question was included in the survey: '*How far do you agree that it is better to play safe with your savings even if investing in higher risk investments might make you more money?',* where this risk aversion variable was then operationalised using a five point Likert scale with the subsequent responses encoded one to five in the same order as presented below: '*Strongly Disagree*', '*Disagree*', '*No Opinion*', '*Agree*' and '*Strongly Agree*'.

The descriptive statistics offers the first possible insight that a scheme participant's investment risk aversion may have a discernible impact on the level of savings wealth concentrated into Save As You Earn as a proportion of their total monthly savings wealth across all investments. More specifically, the level of investment was shown to broadly increase incrementally (although not perfectly) with a respondent's level of agreement to the statement that was designed to capture a respondent's self perception of their investment risk aversion (shown in Table 6.15). The adoption of deeper statistical techniques offers further insights, where a positive correlation was calculated at 0.093 and also shown to be statistically significant at a probability level of 0.000 (shown in Table 10.12). The use of a Tobit regression also suggests that this particular independent variable has a weak positive impact on the dependent variable as shown by coefficient of 0.570, although this relationship was shown not to be statistically significant based upon a probability level of 0.740 (shown in Table 10.23 and based upon model 7). Given that the fact that the probability level is in excess of 0.050, it is not possible to reject the null hypothesis created in relation to H14b which would otherwise suggest that a scheme participant's self perception of risk aversion has no effect on the concentration of savings allocation.

Table 6.15: Table illustrating the descriptive statistics between the self perception of risk aversion and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Strongly Disagree	53.02%	46.06%	37.15	1.5%	1.5%
2	Disagree	59.73%	50%	34.39	16.1%	17.6%
3	No Opinion	67.92%	78.28%	34.14	14.4%	31.9%
4	Agree	66.64%	71.42%	34.15	53.9%	85.8%
5	Strongly Agree	70.44%	100%	34.39	14.2%	100%

6.7.3 Financial Literacy

To conclude this section on the subject of risk preference, a final last variable inspired by Benartzi's (2001) financial literacy question was included in the survey, that asked: '*Would you say owning shares in your company is less risky, more risky, or has the same level of risk as an investment fund with many different companies?*'. To operationalise this variable, those which responded with either *'Don't know',* or the two incorrect answers *(About the same risk* and *Less risky)* were encoded as a 0, while the correct answer to the financial literacy test (*More risky)* was encoded as a 1.

The importance of financial literacy and its potential interaction on the concentration of total monthly savings wealth allocated into Save As You Earn is firstly highlighted by the descriptive statistics, on the basis that the sub-group of respondents who answered the question correctly (*More risky)* had the least concentrated proportion of their savings wealth placed into Save As You Earn with an average concentration rate of 52.53% of their monthly savings allocated into this specific scheme as a proportion of their total monthly savings wealth (shown in Table 6.16). The use of deeper statistical analysis also alludes to the importance of this particular explanatory variable, where a negative correlation was calculated at -0.128 and found to be significant at a probability level of 0.000 (shown in Table 10.12). Furthermore, running the survey data through a Tobit regression also points towards financial literacy having a moderate to strong influence on a scheme participant's concentration of total monthly savings allocation directed into Save As You Earn, as can be seen by a negative coefficient of -8.871. Furthermore, the relationship between this independent variable on the dependent variable is found to be statistically different from zero and is within a probability level of 0.039 at a 99.9% confidence interval (shown in Table 10.23 and based upon model 7) We can therefore reject the null hypothesis and offer strong evidence in support of H15b, which stated the prediction that: '*The concentration of savings allocation placed into Save As You Earn will be lower for those scheme participants with greater levels of financial literacy*.'

Table 6.16: Table illustrating the descriptive statistics between financial literacy and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
0	Less risky	63.29%	60%	34.61	34.1%	34.1%
1	More risky	52.53%	44.44%	34.13	16.4%	50.4%
0	About the same risk	61,17%	55.56%	35.05	37.7%	88.1%
0	Don't know	73.10%	100%	33.82	11.9%	100%

6.8 Perceived Share Price Movements

6.8.1 Regularity of checking the share price

This next section will review a range of variables constructed around investigating a scheme participant's predictions and perceptions of share price movements, the first of which will seek to measure the regularity with which a scheme participant reviews the share price of their employer to determine whether this might be linked to the proportion of total monthly savings placed into Save As You Earn. To obtain the relevant data required to conduct this analysis, the following survey question was included: '*How often do you check how the company share price is doing?*'. This was accompanied by the eight responses: '*Daily*', '*At least weekly*', '*At least monthly'*, '*At least quarterly*', '*At least twice a year*', '*At least once a year*', '*Less than once a year*' and the answer '*Never*', made quantifiable through being encoded one to eight in the order presented.

The descriptive statistics offer an early indication of the existence of a moderate link between the regularity with which a scheme participant checks the share price and the concentration of total monthly savings wealth distributed into the Save As You Earn scheme. While the descriptives do not show a perfect incremental increase with each optional response, a general identifiable pattern can be observed that the level of concentration appears to increase with the regularity with which a scheme participant observes the share price of their employer (shown in Table 6.7). The association between these variables is also supported by deeper statistical analysis, where a strong positive correlation was identified at 0.132, shown to be significant at a probability level of 0.000 (shown in Table 10.13). The use of a Tobit regression shows that this particular independent variable relating to the regularity by which scheme participants check the share price of their employer has only a relatively weak positive impact on the dependent variable based upon a coefficient of 0.429. However, this latter form of statistically analysis is open to error, as the relationship is not shown to be significant based upon a probability level of 0.550 (shown in Table 10.24 and based upon model 7). As a consequence, it is not possible within a 95% confidence interval to reliably reject the null hypothesis relating to H16b (shown in Table 10.23 and based upon model 7).

Table 6.17: Table illustrating the descriptive statistics between checking the share price and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
1	Daily	59.13%	50%	34.85	21.2%	21.2%
2	At least weekly	65.76%	66.66%	33.14	24,2%	45.4%
3	At least monthly	64.93%	62.5%	34.02	18%	63.4%
4	At least quarterly	69.73%	100%	34.06	10.5%	73.8%
5	At least twice a year	65.48%	61.53%	34.30	4.2%	78.0%
6	At least once a year	67.67%	73.56%	34.18	5%	83%
7	Less than once a year	68.81%	100%	36.34	3.8%	86.3%
8	Never	76.34%	100%	34.14	13.2%	100%

6.8.2 Perception that the company's share price exceeded the market in the previous year

The second variable to be included in this section of the study will observe a scheme participant's perception of whether they believed their employer's share price had exceeded the market in the previous year, which has been included in the study with the intention of understanding whether this factor might be linked to the percentage of savings concentrated into Save As You Earn on a monthly basis. To attain the necessary data to conduct this analysis, the survey asked respondents: '*How has the share price of your company performed in relation to the stock market as a whole over the last year?*'. This question was then accompanied by the following optional responses: '*Over 10% better*', '*5-10% better*', 'Up to 5% better', '*The same*', '*Up to 5% worse*', '*5-10% worse*', '*Over 10% worse*' and the final response '*Don't know*'. To operationalise the variable, those respondents who answered with latter response of '*Don't know*' were removed from the dataset, while the remaining seven other possible responses were separated to create a binomial variable.

Beginning with the descriptive statistics, this form of analysis suggests that there might be a weak to moderately sized link between the perception that the company's share price exceeded the market in the previous year and the percentage of a participant's total monthly savings wealth concentrated into Save As You Earn. More specifically, after conducting the process of splitting the dataset between the respondents who felt that their employer's share price had exceeded the market in the previous year from those which felt it had not, a divergence could be identified, with those believing the share price exceeded the market in the previous year were found to be concentrating an average of 61.52% of their total monthly savings into Save As You Earn, while those that felt it had not exceeded the market were found to allocate an average savings rate of 68.52% (shown in Table 6.18). As might be the expectation given the descriptive statistics, a negative Pearson correlation was identified at -0.002 between the variables, which was shown to be significant at a probability level of 0.000 (shown in Table 10.13). Likewise the inclusion of this independent variable had a relatively weak influence on the dependent variable, shown by a very weak negative standardised coefficient (β) of -0.002 which was shown to be significant at a probability level of 0.000 (shown in Table 10.23 and based upon model 7). It is therefore possible to reject the null hypothesis relating to H17b, which predicts that: *'scheme participants which perceived that their employer's share price had exceeded the market in the past year will place a higher concentration of their total monthly savings into their Save As You Earn savings plan each month'.*

Table 6.18: Table illustrating the descriptive statistics between the perception that the company's share price exceeded the market in the previous year and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
0	Did not exceed	68.20%	77.35%	33.71	70.9%	70.9%
1	Exceeded	61.52%	55.56%	35.65	29.1%	100%

6.8.3 Perception that the company's share price was falling when they entered into SAYE

The final variable to be empirically explored in this section will investigate whether there is any relationship between the proportion of wealth concentrated into Save As You Earn as a percentage of their total monthly savings and the employer's share price movements just prior to the period when they entered into the scheme. To attain the data required to conduct this analysis, the survey asked respondents: '*When you joined SHARESAVE most recently was the company's share price…*', with the following responses: '*Rising steeply*', '*Rising a bit*', '*More or less stable*', 'Falling a bit', '*Falling steeply*', '*Can't remember*' and '*Don't know*'. These responses were then made quantifiable through encoding each response from one to five in this order.

Observing the descriptive statistics and the two extremes, the subgroup of respondents who selected '*Rising steeply*' to this survey question allocated a mean average rate of 62.82% of their total monthly savings wealth into Save As You Earn, compared to a concentration rate of 70.42% for the subgroup of respondents which answered with '*Falling steeply*'. While a 7.6% divergence might be suggestive of this variable's importance, subsequently observing the conjoining responses between the two extremes offers no distinguishable pattern and therefore would suggest a falling share price does not effect investment concentration(shown in Table 6.19). The use of deeper statistical techniques arguably offers clearer evidence that a falling share price when a scheme participant enters into Save As You Earn is statistically linked to the percentage of wealth concentrated into Save As You Earn. This is firstly shown by a strong positive correlation calculated at 0.113 which is further supported through being significant at a probability level of 0.000 (shown in Table 10.13). Likewise, as an independent variable, the perception that the share price was falling when entering the scheme was shown to have a positive effect on the dependent variable, as shown by a coefficient of 2.125. However, it is not possible to reject the null hypothesis relating to H18b because this relationship was shown not to be statistically significant based upon a probability level of 0.191 (shown in Table 10.23 and based upon model 7).

Table 6.19: Table illustrating the descriptive statistics between perception that the company's share price was falling and the concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumlative Percentage
1	Rising steeply	62.82%	57.78%	35.75	5.6%	5.6%
2	Rising a bit	64.93%	62.5%	34.10	28.4%	34%
3	More or less stable	63.38%	62.5%	34.27	25.7%	59.6%
4	Falling a bit	63.05%	58.33%	33.68	15.8%	75.4%
5	Falling steeply	70.42%	100%	32.95	5.1%	80.5%
Removed	Can't remember	63.85%	55.55%	35.90	6.4%	86.9%
Removed	Don't know	78.85%	100%	32.59	13.1%	100%

6.9 Financial Education

6.9.1 Received financial education from a current or previous employer

The final variable to be analysed is financial education, and in doing so concludes the empirical investigation conducted and presented in this chapter which overall has sought to better understand those specific factors that effect the percentage of monthly savings concentrated into a Save As You Earn scheme. To capture the data on this last variable, two separate but related survey questions were included in the study, the first of which asked respondents to disclose whether they had received financial education from a past employer and a second inquiring if financial education had been offered at any point from their current employer. The variable was then operationalised using a pair of binomial dummy variables, with those respondents answering '*No*' to both survey questions encoded as a 0, and those which answered '*Yes*' to receiving financial education from either their current or past employer entered as a 1.

The descriptive statistics provide an early indicator that receiving financial education does impact the level of savings allocated into Save As You Earn as a proportion of a participant's total monthly savings wealth. More specifically, this more preliminary form of analysis highlights that the sub-group of respondents who have not received financial education from their past employer or current employer concentrated an average of 68.72% of their total monthly savings wealth into Save As You Earn, which compares with a mean average of 58.71% for those scheme participants who have received financial education from either their past or current employer (shown in Table 6.20). Regarding the deeper statistical techniques, as might be the expectation given the descriptive statistics, where a strong negative Pearson correlation was identified at -0.126 and was shown to be statistically significant at a probability level of 0.000 (shown in Table 10.14). The use of a Tobit regression calculated a strong negative coefficient at -11.368 based upon an alpha of 0.001, which was shown to be significant at a probability level of 0.001 (shown in Table 10.23 and based upon model 7). We can therefore conclude based on a 99.9% confidence interval that the regression coefficient is statistically different from zero, which is compelling evidence in support of H19b which stated that: '*it is predicted that the concentration of savings allocation placed into Save As You Earn will be lower for scheme participants who have received financial education in the workplace'.*

Table 6.20: Table illustrating the descriptive statistics between financial education and concentration of savings allocation

Variables		Average concentration of savings allocation			Percentage	
Variable Code	Variable Label	Mean	Median	Standard Deviation	Percentage	Cumulative Percentage
0	No	68.72%	88.65%	34.22	75%	75%
1	Yes	58.71%	50%	33.90	25%	100%

6.10 Summarised Findings

The basis for the inclusion of this sixth chapter within the thesis has been to narrow down the list of nineteen explanatory factors hypothesised within the fourth chapter which may potentially have an influence on the diversification of monthly savings directed into Save As You Earn as a percentage of total monthly savings. As previously mentioned, this is an underdeveloped area of research within the employee share ownership literature and to date there exists only one other study which directly seeks to measure a number of potential variables to understand what factors influence an employee to concentrate more or less of their wealth within a company share plan (i.e Pendleton, 2010b). As a consequence, this chapter makes an important contribution to the existing academic literature by reinvestigating the same variables included in this prior study, as well as seeking to make a more unique contribution to the existing literature by exploring a number of important explanatory factors that have so far not been explored anywhere else.

Beginning with a scheme participant's income, this explanatory factor was shown to have the single biggest influence on the level of savings directed into Save As You Earn as a proportion of their total monthly wealth put away across all forms of savings and investment. While in principle there is no reason why those on lower incomes should not choose to place the exact same level of diversification of their total monthly savings wealth in Save As You Earn proportional to how much they earn, the indication from these finding appears to be that those scheme participants with less to invest choose to concentrate their wealth in fewer places. Interestingly this study produces findings which are not consistent with Pendleton (2010b), as his study showed that concentration increased with income and that being a high earner relatively to lower earners increases the probability of investment concentration by twenty percent. A difference between Pendleton's study and the research findings presented within this thesis may also be accounted for by the differences in methodologies, as both measure investment concentration in two different ways. While this study looks at diversification as the flow of savings on a monthly basis, Pendleton's study focuses upon the diversification of assets.

Looking beyond income, a second socio-demographic relating to household size was shown to have an important influence on how much a scheme participant chooses to concentrate in Save As You Earn as proportion of their total monthly savings across all forms of savings and investment. While past there exist no past study in the in the employee share ownership literature has explored this variable, however this finding is consistent wth Scholz et al. (2006) who found that 401(k) contributions is negatively linked to household size in their study. There appears to be clear evidence, as described in the economic literature that at least early in life the cost of rising a family can have a negative effect on wealth accumulation. What is perhaps particularly concerning about this finding is that is suggest that those with larger households, many of which are likely to be families, are concentrating what savings they do have in once place and would therefore be the ones to lost the most if they were subsequently to purchase shares and something was to happen to the employer.

The penultimate variable identified within this section to influence the concentration of savings allocation directed into Save As You Earn is financially literacy. This is a important and unique finding within the employee share ownership literature because no other study within the financial decision-making strand of this research has included a measure for a scheme participant's financial literacy. This presented finding is also consistent with the wider 401 (k) literature, as was the inspiration for this inclusion of this variable in the first place and also where the survey question was included from. (e.g. John Hancock Financial Services, 1999; Benartzi, 2001). While this finding may not be conclusive evidence of the importance of financial literacy, the fact this finding was revealed does strengthen the argument for further research to be conducted on the the subject of financial literacy within the employee share ownership literature.

The final variable identified to be important in this chapter also happens to be the most important finding, because this chapter produces strong evidence that financial education does in fact help prevent individuals from concentrating a large proportion of their monthly savings wealth exclusively in their employer. This is therefore strongly suggestive that concept of diversification is being applied. This is an important finding not only within the employee share ownership literature because not past study has documented the impacts of financial education but also to the wider economic literature because the evidence base which actual shows financial education to work is surprisingly limited. The value of this partially findings lies in the fact that very little information has previously been collected on the effects of financial education, because many of the major asset and wealth studies do not include sections to gather data on whether a respondent have at point in the past been a recipient of workplace financial education programme

Chapter 7

Data Analysis III - Decision At Maturity

7.1 Introduction

This seventh chapter of the thesis will turn its attention to empirically reviewing the survey data with the specific aim of identifying those specific factors shown to be most influential to a scheme participant's investment behaviour when the Save As You Earn scheme enters maturity and the participant is offered the option to either purchase shares in their employer or otherwise liquidate their savings plan and take the cash. In consequence, the following discussion makes an important contribution to the available academic literature because no past study within the employee share ownership literature has sought yet to explore the specific factors which influence a scheme participant's decision-making when faced with the decision of whether to acquire shares or take the cash at the end of their company share plan. More specifically, the empirical discussion offered in this chapter will be structured following the same approach as presented in the previous two chapters, where each variable will be reviewed using univariate, bivariate and multivariate analysis to identify whether it has a discernible impact on the decision to either acquire shares or liquidate the savings plan.

In terms of how the empirical discussion shall be presented in the remainder of this chapter, the impact of socio-demographic factors shall be explored first, followed by part or full-time employment status. The empirical discussion will then move towards reviewing four variables designed to capture an employee's affinity towards their employer, including reciprocity, organisational commitment, job satisfaction and familiarity. This will be followed by a scheme participant's motives for joining, which will be tested based upon Klein's (1987) three factor model, therefore exploring intrinsic, instrumental and extrinsic motives for participating in the scheme to explore how this influences decisions at maturity. The discussion will then build upon these previous factors by exploring the impact of risk preferences, where three closely related but separate variables shall be included in the study to measure a respondent's risk preferences. Upon completing the review of this category of variables, the empirical discussion will then turn its attention to a penultimate group of variables which are anticipated to be amongst the most important determinants of decisions at maturity, where this section will explore a scheme participant's perception and prediction of past and future share price movements to determine how this variable has altered the decision to either purchase shares in the employer or liquidate the scheme and take the cash. As with the previous two chapters, the final discussion presented within this chapter will be concluded by reviewing the survey using various data analysis techniques to reveal what impact the offering of financial education by either the current or past employer has had on a scheme participant's investment behaviour and their decision to purchase shares or take the cash at the point of their scheme's maturity.

7.2 Approach to Data Analysis

The fourth chapter of this thesis put forward nineteen separate hypotheses offered with the objective of answering the third research question identified from literature review, which seeks to better understand: '*what key factors influence a scheme participant's decision to exercise their share option and purchase the shares, or alternatively, liquidate their savings contract and take the cash?*' Seeking to directly answer this question, three statistical approaches are adopted to analyse survey data relating to univariate analysis, bivariate analysis and multivariate analysis and each of these approaches are discussed in the reminder of this chapter structured as being nineteen separate explanatory variables that are put forward for empirical investigation.

While univariate analysis and bivariate statistical analysis have their merits and add to the discussion, a key part of the methodology of this thesis is focused on the evidence offered by multivariate statistical analysis. This thesis does not seek to focus on a regression model with strong predictive power, the approach of this study is to use the regression model as a method of hypothesis testing. Given that this study seeks to be more exploratory than explanatory on the basis that the literature in this area is very limited within no comparable study, the benefit of including more explanatory variables simply outweighs the negative and a choice has been taken to sacrifice degrees of freedom within the regression at the cost of effect magnitudes which might otherwise be achieved if the regression model was to follow a strict parsimonious approach rejecting each of the predictor variables that otherwise did not add significantly to the model.

With regards to the specific econometric model adopted within this chapter, a binary logistic regression model was adopted because of the binary nature of the research question and required dependent variable. More specifically, given that the research question of this chapter seeks to predict a binary outcome regarding whether a scheme participant at the end of their savings plan selected to purchase shares in their employer or not, the econometric options are narrowed down to either a Probit or logistic regression model, on the basis that the dependent variable has taken a categorical form. The latter has been adopted in this study and a reminder of how to interpret a logistic regression is offered in Table 7.1.

Seeking to offer the reader with additional information beyond the inclusion of a single regression model, separate models have been created to offer further insights. While conventionally regression models are structured upon the existing literature and incorporate past findings to take into consideration known relationships, coefficient signs and effect magnitudes, the existing literature is so limited that such an approach to model construction is not feasible. Given this shortfall in supporting evidence for this purpose, the approach adopted in this chapter has been to group the variables into seven categories based upon the variable type and then entered into the regression model separately. The seven models put forward for empirical investigation are socio-demographic determinants, employment-related attributes, motives for joining, emotional affiliation towards the employer and job, risk preferences and financial education (shown in Table 7.2).

Table 7.1.1: Key components of a Tobit regression model

B	This is the coefficient for the constant (intercept) in the null model.
Standard Errors	This is the standard error for the coefficient when held constant.
Exp b / Odds Ratio	This is the exponentiation of the B coefficient, which is also known as the odds ratio.
Wald Chi-square Test	This is the degrees of freedom for the Wald chi-square test.
df	This is column lists for the degrees of freedom for each variable.
Sig.	This is the Wald chi-square test that tests the null hypothesis that the constant equals 0.
Alpha	Commonly set at either 0.050, 0.010 or 0.001
Cox & Snell R Square	A pseudo equivalent of R^2
Nagelkerke R Square	A pseudo equivalent of R^2

Table 7.1.2: Overview of the seven separate models entered into the regression model

Model	Variable Category	Independent Variables Included In The Model
Model 1	Socio-demographic Determinants	Income, Age, Gender, Household Size.
Model 2	Employment-related Attributes	Income, Age, Gender Household Size, Part-time/Full-time.
Model 3	Motives For Joining	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic.
Model 4	Emotional Affiliation To Employer/Job	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic, Reciprocity, Job Satisfaction, Organisational Commitment, Familiarity.
Model 5	Risk Preferences	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic, Reciprocity, Job Satisfaction, Organisational Commitment, Familiarity, Self Perception Of Risk Preference, Self Perception Of Investment Risk Aversion, Financial Literacy.
Model 6	Perceived Share Price Movements	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic, Reciprocity, Job Satisfaction, Organisational Commitment, Familiarity, Self Perception Of Risk Preference, Self Perception Of Investment Risk Aversion, Financial Literacy, Check Share Price Regularly, Share Price Exceeded The Share Price Market In The Previous Year, Share Price Was Falling When Entered Into Scheme.
Model 7	Financial Education	Income, Age, Gender Household Size, Part-time/Full-time, Intrinsic, Instrumental, Extrinsic, Reciprocity, Job Satisfaction, Organisational Commitment, Familiarity, Self Perception Of Risk Preference, Self Perception Of Investment Risk Aversion, Financial Literacy, Check Share Price Regularly, Share Price Exceeded The Market In The Previous Year, Share Price Was Falling When Entered Into Scheme, Financial Education.

7.3 Socio-demographic Determinants

7.3.1 Income

Beginning with the socio-demographic determinant of income, respondents were asked to state their gross earnings by placing themselves into one of thirteen income categories: *'£1 - £4,999', '£5,000 - £9,999', '£10,000 - £14,999', £15,000 - £19,999', £20,000 - £24,999', '£25,000 - £29,999', '£30,000 - £39,999', '£40,000 - £49,999', '£50,000 - £59,999', '£60,000 - £69,999', '£70,000 - £79,999', '£80,000 - £89,999', '£90,000 or above'*, encoded from zero to twelve for the purpose of statistical analysis.

The descriptive statistics reveal that the sub-group of scheme participants in the highest income category (*i.e. £90,000+*) are the most likely to purchase shares at maturity. Interestingly, however, those respondents shown to be in the lowest income category (*i.e. £1 - £4,999)* are not the least likely to purchase shares, which the survey data reveals is instead the '*£10,000 - £14,999*' income category. Given that these income categories are below the minimum wage in the United Kingdom, it can be deduced that these categories are part-time employees. While the descriptives are not conclusive, there is an observable pattern towards higher incomes increasing the propensity to purchase shares at the end of their savings plan (shown in Table 7.2). A similar conclusion can be drawn after conducting bivariate analysis, where a moderately sized positive correlation was identified at 0.111, shown to be significant at a probability level of 0.000 (shown in Table 10.15). Interestingly these findings are not reaffirmed after conducting a logistic regression, which produced an Exp(B) of 1.028 which was not statistically significant at a probability level of 0.405 (shown in Table 10.24 and based upon model 7). What these findings indicate is that it is not possible to reject the null hypothesis relating to H1c within a 95% confidence interval because the regression coefficient is not statistically different from zero based upon the likelihood ratio Chi-Square test as has been calculated for this particular regression model.

Table 7.2: Table illustrating the descriptive statistics between income and the decision to purchase shares at maturity

Variable Code	Variable Label	Mean	Percentage	Cumulative Percentage
0	£1 - £4,999	0.6364	3.2%	3.2%
1	£5,000 - £9,999	0.6437	8.8%	12%
2	£10,000 - £14,999	0.4479	7.2%	19.2%
3	£15,000 - £19,999	0.4479	8.7%	28%
4	£20,000 - £24,999	0.5484	9.3%	37.3%
5	£25,000 - £29,999	0.5930	9.2%	46.5%
6	£30,000 - £39,999	0.5866	15.3%	61.8%
7	£40,000 - £49,999	0.4773	11.3%	73.1%
8	£50,000 - £59,999	0.7320	8.7%	81.8%
9	£60,000 - £69,999	0.7320	5.7%	87.5%
10	£70,000 - £79,999	0.5333	2.9%	90.4%
11	£80,000 - £89,999	0.7667	2.4%	92.8%
12	£90,000+	0.7746	7.2%	100%

7.3.2 Age

The second socio-demographic determinant to be empirically analysed is a scheme participant's age, which has been included in the study with the objective of understanding whether this variable has a discernible impact on a scheme participant's investment decision-making when faced with a share option and the decision of whether to purchase shares in the employer or take the cash. To operationalise this variable for statistical analysis, respondents of the survey were asked to state their age by placing themselves into one of six age categories: *16-24'*, '*25-34*', '*35-44*', '*45-54*', '*55-64*' and '*65 and over*', which for the purpose of making it measurable was subsequently encoded with a set of dummy variables in the same order .

Starting with analysis of the descriptive statistics, the survey data points towards a scheme participant's age having a moderate influence on their investment behaviour at the point of the savings plan's maturity. More specifically, the sub-group of respondents who placed themselves into the youngest age category (*16 - 24)* were the least likely to purchase shares, where the data reveals that 50% of this sub-group purchased shares. This can be contrasted with the oldest sub-group (*65 and over),* where 71.4% purchased shares at maturity. While a comparison of the two extremes alludes to age having an important impact on financial decision-making, observing the conjoining age categories between the extremes does not reveal a clear incremental increase (shown in Table 7.3). Looking beyond the descriptive statistics, a weak positive Pearson correlation was identified between the two variables at 0.032, although this relationship was shown to be far out of range of being significant based upon a probability level of 0.312 (shown in Table 10.15). Turning attention towards the logistic regression, where the inclusion of an independent variable for each of the five age categories was not shown to be significant (shown in Table 10.24 and based upon model 7) which on this basis means that it is not possible to reject the null hypothesis relating to H2c that a scheme participant's age has no effect on the decision to purchase shares at maturity.

Table 7.3: Table illustrating the descriptive statistics between age and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
0	16 - 24	0.5000	0.5%	0.5%
1	25 - 34	0.5714	16.9%	17.4%
2	35 - 44	0.5702	35.8%	53.2%
3	45 - 54	0.6427	32.3%	85.5%
4	55 - 64	0.5752	13.9%	99.4%
5	65 and over	0.7143	0.6%	100%

7.3.3 Gender

Gender is the third socio-demographic variable to be included in the study for empirical analysis, which has been implemented to investigate whether there are any discernible differences in the investment behaviour between male and female scheme participants when a Save As You Earn saving scheme matures. With the intention of observing which gender is most likely to purchase shares, a question was included in the survey which asked respondents to state whether they were '*female*' or '*male*'. This question was then operationalised using a binomial variable, with male scheme participants made quantifiable as a 0 and their female counterparts as a 1.

Initial inspection of the descriptive statistics point towards a higher percentage of males purchasing shares at the point of maturity than females, therefore indicating that gender does influence investment behaviour. More precisely, the survey data identifies that 60.3% of male scheme participants selected to purchase shares at the end of their savings plan compared to only 58.7% of female scheme participants (shown in Table 7.4). While the descriptive statistics might be suggestive of a gender difference in terms of investment behaviour, the disparity is small and may arise as the sample is not large enough to allow for further regression to the mean. A similar conclusion can be drawn after conducting a correlation, which identified a weak negative relationship calculated at -0.019, however this relationship was not significant based upon a probability level of 0.538 (shown in Table 10.15). Interestingly, a logistic regression was conducted that produced an Exp(B) of 1.287, which instead suggests that female workers are more likely to purchase shares at the end of their plan, however this specific finding must be treated with caution as the model was shown to far out of range of being significant based upon a probability level of 0.146 ((shown in Table 10.24 and based upon model 7). What these findings reveal is that while this coefficient may allude to the potential impact of this independent variable on the dependent variable, the probability level of 0.146 means that it is not possible to reliably reject the null hypothesis relating to H3c that gender has no effect on the decision to purchase shares at maturity.

Table 7.4: Table illustrating the descriptive statistics between gender and the decision to purchase shares at maturity

Variable Coding	Variable Label	Mean	Purchasing average (mean)	Cumulative Percentage
0	Male	0.6028	59.1%	59.1%
1	Female	0.5870	40.9%	100%

7.3.4 Household size

To complete this first section reviewing socio-demographic determinants, a fourth variable was created to investigate whether the number of people residing in a scheme participants's household may have a discernible effect on whether a scheme participant chooses to liquidate their plan or purchase shares in their employer. This socio-demographic variable was operationalised through the inclusion of the following survey question: '*How many people reside in your household*?', with the number offered used to measure household size, and responses of seven or higher collated together.

Beginning with a more rudimentary form of statistical analysis based upon the descriptive statistics, where no apparent pattern was identifiable. More specifically, when observing the contrast between the extremes (*i.e. 1 and 7*) the survey data reveals a relatively small 1.78% divergence in terms of the percentage of respondents purchasing shares between the smallest and largest households. Furthermore, the responses between the extremes do not show any incremental change (shown in Table 7.5). Looking beyond the descriptive statistics, a weak positive relationship between the variables was illustrated after using deeper statistical techniques, firstly shown by a Pearson correlation calculated at 0.009. However, this relationship was shown not to be significant based upon a probability level of 0.768 (shown in Table 10.15). In addition to using bivariate analysis, the adoption of multivariate analysis reveals a weak to moderate negative impact between household size and the decision to purchase shares as demonstrated by an Exp(B) of 1.046, which suggests that those with larger households are more likely to purchase shares when the savings plan of Save As You Earn enters maturity. However, this finding is also open to statistical error because the relationship was shown not to be significant based upon a probability level of 0.478 (shown in Table 10.24 and based upon model 7). As a consequence, it is not possible to reject the null hypothesis relating to H4c and therefore we cannot reliably confirm whether household size has an impact on the decision to purchase shares at maturity based upon this form of analysis.

Table 7.5: Table illustrating the descriptive statistics between household size and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
1	1	0.5155	9.1%	9.1%
2	2	0.6302	29.6%	38.7%
3	3	0.5721	20.9%	59.6%
4	4	0.5791	31.9%	91.5%
5	5	0.5791	7.0%	98.5%
6	6	0.6842	1.3%	99.9%
7	7+	0.5333	0.1%	100%

7.4. Employment-related Attributes

7.4.1 Full-time / Part-time Status

Part-time/full-time hours employment status included in the study as the only employment-related attribute to investigate whether this factor might alter a scheme participant's financial decision-making when faced with a share option and the decision to either purchase shares in their employer or alternatively liquidate their scheme and take the cash from the savings when the plan enters maturity. With this specific objective in mind, the following question was placed into the survey to support this analysis: '*Is your job: part-time or full-time?*'. If survey respondents disclosed that they were employed under a part-time contract they were encoded as a 0, while full-time workers were quantified for statistical purposes as a 1.

Beginning with the descriptive statistics, perhaps unexpectedly the survey data reveals that 61.79% of survey respondents who indicated that they were part-time chose to purchase shares in their employer, which can be contrasted with 58.76% of those purchasing shares which are employed on full time contracts (shown in Table 7.6). As might be the expectation given the descriptive statistics, a negative Pearson correlation was identified at -0.025 between these two sets of variables. This relationship remains open to statistical error because this form of analysis was not significant based upon a probability level of 0.114 (shown in Table 10.16). Turning our attention next to the logistic regression, which also supports that those in full-time employment have a lower propensity to purchase shares at maturity, with the model suggesting that it almost halves a scheme participant's likelihood of purchasing shares at the end of their savings plan, as shown by an Exp(B) of 0.764, although this particular relationship was not statistically significant based upon a probability level of 0.256 (shown in Table 10.24 and based upon model 7). We are therefore unable to reject the null hypothesis relating to H5c, and as a consequence, it is not possible to confirm within a 95% confidence interval whether full-time/part-time employment status has an impact on the decision to purchase shares at the point of the scheme's maturity.

Table 7.6: Table illustrating the descriptive statistics between part-time/full-time employment status and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
0	Part-time	0.6179	20.5%	20.5%
1	Full-time	0.5876	79.5%	100%

7.5. Motives for Joining

7.5.1 Intrinsic motives

Mirroring the two earlier chapters, this next section will seek to explore Klein's (1987) three factor model, where this time the framework will be included within the study to investigate whether different types of motives for participating in an employee share ownership scheme might subsequently lead to a divergence in investment behaviour when the savings plan comes to an end. The first type of motivation to be explored in this section will capture data on those scheme participants who have intrinsic motives for participating in Save As You Earn. To attain this data, the survey included the following question: '*Wanted to become a shareholder in the company*'. To operationalise the variable so that it could be captured by statistical analysis, respondents were offered a five point Likert scale based upon: '*Strongly Disagree'*, '*Disagree*', '*No Opinion*', '*Agree*' and '*Strongly Agree*', which was then made measurable using a set of five dummy variables.

The descriptive statistics offer the preliminary insight that intrinsic motivation does have a notable influence on a scheme participants investment behaviour with regards to the likelihood of purchasing shares at the end of their Save as You Earn savings plan. This conclusion can be drawn by firstly observing the two extremes, as the survey data reveals that 41.2% of respondents who selected '*Disagree*' to the statement selected to purchase shares in their employer at the point when their plan entered maturity. This figure can be contrasted with the pool of respondents who selected *'Strongly Agree'* to the same question, with the data revealing that 62.6% of these respondents decided to purchase shares at the end of their scheme's savings plan (shown in Table 7.7). Looking beyond the descriptive statistics to deeper statistical techniques, where a moderately sized positive correlation was identified at 0.075, which was supported by being significant at a probability level of 0.012 (shown in Table 10.17). Furthermore, these findings are also supported after placing an independent variable for intrinsic motivation into a logistical regression model, which subsequently calculated a strong Exp(B) of 1.520. This calculation suggests that employees with intrinsic motives are substantially more likely to purchase shares at the end of their Save As You Earn savings plan, a relationship which is significant at a probability level of 0.000 (shown in Table 10.24 and based upon model 7)). It is therefore possible to reject the null hypothesis and offer robust statistical evidence within a 99.9% confidence interval in support of H6c that: '*the decision to purchase shares at the point of maturity will be higher for those scheme participants with intrinsic motives for joining the scheme'.*

Table 7.7: Table illustrating the descriptive statistics between intrinsic motivation and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
1	Strongly Disagree	N/A*	0.1%	0.1%
2	Disagree	0.4118	1.7%	1.8%
3	No Opinion	0.4706	9.6%	11.5%
4	Agree	0.5977	45.5%	57%
5	Strongly Agree	0.6263	43%	100%

7.5.2 Instrumental motives

The second form of motivation to be empirically investigated within Klein's (1987) three factor model is instrumental satisfaction, which will be observed to determine its impact on a scheme participant's decision to either liquidate their plan and take the cash or purchase shares at the end of their Save As You Earn scheme. To gather the required data, four statements were placed into the survey with the specific objective of capturing instrumental motives for participating in the scheme, which were as follows: '*Wanted to feel part of the company*', '*Wanted to express my support for the company*', '*I felt I owed it to the company*' and the last statement '*Wanted to become more involved in the company*'. To operationalise this latent variable for statistical analysis, those responding to the survey were asked to state their level of agreement based upon a five point Likert scale, with the respondents offered the options: '*Strongly Disagree'*, '*Disagree*', '*No Opinion*', '*Agree*' and '*Strongly Agree*' to acknowledge how much they agreed or disagreed with each of the statements.

Beginning with the descriptive statistics, this rudimentary form of statistical analysis offers an early sign that scheme participants with an instrumental motivation for participating in an employee share ownership scheme do not appear to be more likely to either purchase shares in the employer or liquidate their plan at maturity. More specifically, a comparison of the two extremes reveals only a small 0.87% difference in terms of those purchasing shares at the end of the savings plan, between the sub-group of respondents who selected '*Strongly Disagree*' on average and those selecting '*Strongly Agree*' on average to each of the statements. (shown in Table 7.8). In addition to this form of analysis, a weak negative Pearson correlation was identified at -0.040 between these two sets of variables, yet were as calculated to be far from being significant based upon a probability level of 0.177 (shown in Table 10.17). Likewise, placing an independent variable for instrumental motives into a logistic regression produced a Exp(B) of 0.632, which would suggest that feelings of instrumental satisfaction towards the employer decreases the propensity to purchase shares. This relationship is supported by being statistically significant at a probability level of 0.001 (shown in Table 10.24and based upon model 7). Based upon the alpha adopted, it is therefore possible to reject the null hypothesis within a 99.9% confidence interval, which in consequence offers compelling evidence in support of H7c, which stated that: '*the decision to purchase shares at the point of maturity will be higher for those scheme participants with instrumental motives for joining the scheme*'.

Table 7.8: Table illustrating the descriptive statistics between instrumental motivation and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
1	Strongly Disagree	0.6000	18.6%	18.6%
2	Disagree	0.5820	38.7%	57.4%
3	No Opinion	0.5982	28.9%	86.3%
4	Agree	0.6204	12%	98.3%
5	Strongly Agree	0.6087	1.7%	100%

7.5.3 Extrinsic motives

To conclude the investigation into Klein's (1987) three factor model, a variable for extrinsic motivation was included in the study to better understand whether a particularly strong desire for the potential financial benefits of participating in an employee ownership scheme might subsequently lead to specific investment decisions at maturity when the savings plan comes to an end and the scheme participant must choose whether to purchase shares or liquidate the plan and take the cash. To operationalise a latent variable for extrinsic motivation, survey respondents were asked within the survey to state their level of agreement to the five following statements: '*Wanted to potentially make a good financial return', 'Tax efficient way to save', 'Offer was too good to refuse*', '*To benefit from expected increase in share price', 'Wanted to save regularly*' and *'Wanted to get some of what I had put into the company back*'. This was then followed by a five point Likert scale with: '*Strongly Disagree'* encoded as a 1, '*Disagree*' as a 2, '*No Opinion*' as a 3, '*Agree*' as a 4 and '*Strongly Agree*' as a 5.

Observing the descriptive statistics first, a clear pattern can be observed towards those respondents who either agreed or strongly agreed with the five statements having an increased propensity to purchase shares when the Save As You Earn enters maturity. This is demonstrated clearly when comparing the two extremes, where the survey data reveals that only 33.3% of the respondents who on average selected '*Strongly Disagree'* to the five statements chose to purchase shares at the end of their plan, which can be contrasted with 61.9% for the pool of respondents who on average selected '*Strongly Agree'* to the same set of five statements (shown in Table 7.9). Next observing the relationship between the variables for extrinsic motivation and the decision at maturity within a Pearson correlation, where a weak to moderately sized positive relationship was calculated at 0.050, although this relationship was not significant as shown by a probability level of 0.091 (shown in Table 10.17). Interestingly, in contradiction to the previous forms of analysis, when placed into a logistic regression model as an independent variable for extrinsic motivation was shown to marginally reduce the likelihood of a scheme participant purchasing shares, as is shown by a Exp(B) of 0.943. However, this particular finding is out of range of being statistically significant based upon a probability level of 0.656 and therefore it is not possible to reject the null hypothesis relating to H8c that extrinsic motives have no effect on the decision to purchase shares at maturity (shown in Table 10.24 and based upon model 7).

Table 7.9: Table illustrating the descriptive statistics between extrinsic motivation and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
1	Strongly Disagree	0.3333	0.6%	0.6%
2	Disagree	0.5000	0.1%	0.7%
3	No Opinion	0.5208	12.6%	13.3%
4	Agree	0.6058	53.9%	67.2%
5	Strongly Agree	0.6187	32.8%	100%

7.6 Emotional Affiliation To Employer/Job

7.6.1 Reciprocity

The next category of variables to be explored in this chapter seek to empirically investigate how a scheme participant's emotional affiliation towards their employer and job may subsequently influence their investment behaviour at the end of their Save As You Earn savings plan. Beginning with a sense of reciprocity, this particular latent variable was captured through the inclusion of five questions in the survey, the first was designed to measure whether a respondent holds a strong sense of obligation towards their employer. Following this was a second question attaining whether a respondent perceives their colleagues to be like family. The third survey question seeks to measure whether a respondent has a desire to be helpful to their employer, followed by a fourth looking at whether the respondent has a strong eagerness to give something back and a final survey question inverting the previous, placed into the survey to control for erroneous responses. To further operationalise this variable, each statement was followed up with a five point Likert scale, with '*Strongly Disagree*' encoded as a 1, '*Disagree*' as a 2, '*No Opinion*' as a 3, '*Agree*' as a 4 and the final optional response of '*Strongly Agree* ' encoded as a 5.

In terms of the descriptives, the survey data reveals a strong indication that those which on average selected '*Agree*' or '*Strongly Agree*' to the four positively worded questions and '*Disagree*' or '*Strongly Disagree*' to the negatively worded equivalent had an increased propensity to purchase shares at the end of their plan (shown in Table 7.10). Interestingly, while a sense of reciprocity was shown to be a predictor of purchasing shares within the descriptives statistics, evidence of such a link was not repeated after conducting a Pearson correlation. More specifically, a weak positive relationship was calculated between these two sets of variables at 0.014 and open to error after being found to be out of range of being statistically significant at a probability level of 0.639 (shown in Table 10.18). Interestingly within a logistic regression, the independent variable for reciprocity was shown to have a weak positive influence on the decision to purchase shares based upon an Exp(B) of 1.177. However, once again the relationship was also not found to be significant, this time at a probability level of 0.144 (shown in Table 10.24 and based upon model 7). It is therefore not possible to reliably reject the null hypothesis relating to H9c within the range of an 95% confidence interval that a scheme participant's sense of reciprocity has no effect on their decision to purchase shares as the savings plan of Save As You Earn enters maturity.

Table 7.10: Table illustrating the descriptive statistics between reciprocity and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
1	Strongly Disagree	0.6182	8.6%	8.6%
2	Disagree	0.5531	34.2%	42.8%
3	No Opinion	0.5270	46.2%	90%
4	Agree	0.7727	9.1%	99.1%
5	Strongly Agree	0.8000	0.9%	100%

7.6.2 Organisational Commitment

Continuing the investigation into how differing forms of emotional affiliation towards the employer and job may influence a scheme participant's investment behaviour when the Save As You Earn scheme enters maturity, the next variable to be included in the study will seek to observe how varying levels of commitment to their organisation may alter the propensity to acquire shares in the employer or liquidate the plan and take the cash. To capture data on organisational commitment, *The British Organizational Commitment Scale by* Cook and Wall (1980) was adopted, with the nine point version placed into the survey. To operationalise the variable further, each of the nine statements were then followed up with a five point Likert scale based upon: '*Strongly Disagree*', '*Disagree*', '*No Opinion*', '*Agree'* and finally '*Strongly Agree*', with each response made measurable through being encoded from one through to five within the dataset. The use of factor analysis looking for unidimensional response produced a Cronbach Alpha of 0.839.

Observing the descriptive statistics first, which when viewed in isolation offers no clearly observable pattern between increased or decreased levels of organisational commitment and the decision to purchase shares at the end of the savings plan. Interestingly, however, the descriptive statistics do allude to a notable contradiction between those respondents who selected on average '*Disagree*' and '*Strongly Disagree*' to the statements with only 25% of the latter purchasing shares in the employer compared to 78.8% of the former (shown in Table 7.11). Looking beyond the descriptive statistics, a weak to moderate negative correlation was identified at -0.019 between these two sets of variables. However, this statistical relationship was shown not to be significant based upon a probability level of 0.539 (shown in Table 11.18). While the descriptive statistics appear inconclusive, the use of bivariate analysis offer the indication that organisational commitment has only a weak effect on the a scheme participant's decision to purchase shares, multivariate analysis in the form of a logistic regression produced a Exp(B) of 1.007, which interestingly suggests that increased levels of organisational commitment actually very marginally increases the likelihood of a scheme participant purchasing shares at the plan's maturity. However, this relationship was shown not to be statistically significant based upon a probability level of 0.969 and therefore it is not possible to reliably reject the null hypothesis relating to H10c that organisational commitment has no effect on the decision to purchase shares at maturity ((shown in Table 10.24 and based upon model 7).

Table 7.11: Table illustrating the descriptive statistics between organisational commitment and the decision to purchase shares at the scheme's maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
1	Strongly Disagree	0.2500	0.7%	0.7%
2	Disagree	0.7879	5.1%	5.8%
3	No Opinion	0.5545	15.6%	21.4%
4	Agree	0.5622	57.6%	78.9%
5	Strongly Agree	0.5588	21.1%	100%

7.6.3 Job Satisfaction

The third variable to be included in this section will investigate whether there is any discernible link between increased or decreased levels of job satisfaction and a scheme participant's financial decision-making at the end of the Save As You Earn savings plan. To create a latent variable for job satisfaction, the established scale for measuring job satisfaction known as the *Michigan Organizational Assessment Questionnaire of Job Satisfaction* by Cammann et al. (1979) was placed into the survey to measure the effect of this variable. To operationalise the variable further, each of the statements within the scale were followed up with a five point Likert scale, with the responses made measurable by encoding '*Strongly Disagree*' as a 1, '*Disagree*' as a 2, '*No Opinion*' as a 3, '*Agree*' as a 4 and '*Strongly Agree*' as a 5.

Observing the descriptive statistics, this more basic form of statistical analysis provides the first possible insight that a scheme participant's varying level of job satisfaction does not have a substantial impact on their investment behaviour to either purchase shares in the employer or liquidate the savings plan and take the cash. More specifically, this conclusion can be drawn from the fact that the survey data identifies that the pool of respondents who on average selected '*No Opinion*' to each of the statements were found to be the most likely to acquire a stake in the employer, with 66.5% purchasing shares at the end of their Save As You Earn scheme (shown in Table 7.12). Interestingly, while the descriptive statistics allude to job satisfaction not being influential, the use of bivariate analysis does find a weak to moderate negative Pearson correlation as calculated at -0.054, a statistical relationship which was shown to be out of range of being significant at a probability level of 0.083 (shown in Table 10.18). Finally, the influence of job satisfaction can also be observed through multivariate analysis, with the impact calculated at Exp(B) of 0.799, suggesting that increased levels of job satisfaction marginally decreases a scheme participants propensity to purchase shares at the end of their Save As You Earn savings plan. However, this particular finding is open to statistical error as the relationship was found to be out of range of being significant based upon a probability level of 0.067 ((shown in Table 10.24 and based upon model 7). Based upon these findings there is a strong indication that the independent variable for job satisfaction has an effect on the concentration of savings allocation directed into Save As You Earn. However, because there remains the possibility of this particular independent variable obtaining the chi-square outside of a 95% confidence interval, it is therefore not possible to reject the null hypothesis relating to H11c.

Table 7.12: Table illustrating the descriptive statistics between job satisfaction and and the decision to purchase shares at the scheme's maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
1	Strongly Disagree	0.5455	3.2%	3.2%
2	Disagree	0.6061	5.0%	8.2%
3	No Opinion	0.6647	11.5%	19.7%
4	Agree	0.5688	58.3%	78.1%
5	Strongly Agree	0.5390	21.9%	100%

7.6.4 Familiarity

To conclude the empirical investigation being conducted in this section, the final variable will seek to assess how increased levels of familiarity with the employer might affect a participant's investment behaviour when the Save As You Earn savings scheme comes to an end. To capture a respondent's sense of familiarity, the survey included the following statement '*I feel I know this company really well*', with respondents asked to state how much they agreed with the offered statement based upon: '*Strongly Disagree*', '*Disagree*', '*No Opinion*', '*Agree*' and the final response option of '*Strongly Agree*', made measurable for the purposes of statistical analysis through being encoded from one to five within the dataset.

Beginning with the descriptive statistics, where this form of analysis does not offer a clear diagnosis in terms of how a sense of familiarity impacts the decision to purchase shares at the end of their savings plan. More specifically, the data reveals that of the sub-groups of respondents who either selected '*Strongly Disagree*' or '*Strongly Agree*' to the statement, 71.4% and 62.9% respectively chose to purchase shares at the end of their Save As You Earn savings plan. This compares with 51.3% and 54.8% respectively for the pools of respondents who selected '*Disagree' and 'Agree'* to the statement (shown in Table 7.13). As might be the expectation given these findings, a near neutral correlation was identified at 0.001. However, this relationship cannot reliably be confirmed as it was shown not to be significant based upon a probability level of 0.976 (shown in Table 10.18). Interestingly, while no relationship was identified by bivariate analysis, the subsequent adoption of multivariate analysis in the form of a logistic regression supports the previous form of statistical analysis by identifying a weak Exp(B) of 1.034, suggesting that a sense of familiarity marginally increases a scheme participant's propensity to purchase shares at the end of their savings plan. However, this finding was shown not to be significant based upon a probability level of 0.738, which means that it is not possible to reject the null hypothesis relating to H12c that familiarity has no effect on the dependent variable (shown in Table 10.24 and based upon model 7).

Table 7.13: Table illustrating the descriptive statistics between familiarity and the decision to purchase shares at the scheme's maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
1	Strongly Disagree	0.7143	1%	1.0%
2	Disagree	0.5135	5.7%	6.7%
3	No Opinion	0.5859	15.5%	22.3%
4	Agree	0.5483	58.1%	80.4%
5	Strongly Agree	0.6299	19.6%	100%

7.7 Risk Preferences

7.7.1 Self perception of risk preference

This next section will explore three closely related but importantly separate measures for capturing a scheme participant's risk preferences, with the first seeking to understand whether a scheme participant's self perception of their own general risk preference might in any way be linked to the investment decision they proceed to make when their plan matures and they must choose between the cash and purchasing shares. To capture the required data, respondents of the survey were asked to place themselves on an eleven point scale, with 0 being '*Unwilling to take risks'* and 10 being *'Fully prepared to take risk'.*

The descriptive statistics demonstrate a distinct pattern towards the decision to purchase shares at the end of the Save As You Earn scheme and those respondents who placed themselves higher on the risk scale. More specifically, 48.4% of the pool of respondents who identified themselves to be a 0 (*Unwilling to take risks*) on the risk scale selected to purchase shares at the end of their savings plan, which can be contrasted with 78.4% of respondents purchasing shares which identified themselves to be a 10 on the scale (*Fully prepared to take risk*). Furthermore, while not perfectly linear, a broad incremental increase can be observed between the two extremes (shown in Table 7.14). Looking beyond the descriptives to deeper statistical techniques, where a strong positive Pearson correlation was identified at 0.155, significant at a probability level of 0.000 (shown in Table 10.19). Interestingly, while these two previous forms of statistical analysis point towards the importance of this variable capturing self perception of risk preference, as an independent variable within a logistic regression this form of analysis suggests that this particular measure of risk preference has a close to neutral impact on a scheme participant's decision to purchase shares at the end of their savings plan, as shown by an Exp(B) of 1.032. However, this line of logistic regression was shown not to be significant based upon a probability level of 0.394 and therefore eject the null hypothesis relating to H13c (shown in Table 10.24 and based upon model 7).

Table 7.14: Table illustrating the descriptive statistics between self perception of risk preference and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
0	0 (Unwilling to take risks)	0.4844	6.5%	6.5%
1	1	0.5435	4.7%	11.3%
2	2	0.5481	9.6%	20.9%
3	3	0.5115	12%	32.9%
4	4	0.4902	9.8%	42.7%
5	5	0.5789	19.6%	62.2%
6	6	0.6209	16.3%	78.5%
7	7	0.7234	13.9%	92.4%
8	8	0.7778	4%	96.4%
9	9	0.7778	0.7%	97.2%
10	10 (Fully prepared to take risk)	0.7838	2.8%	100%

7.7.2 Self Perception Of Investment Risk Aversion

The second measure for risk preference to be included in this study for empirical investigation seeks to explore whether those scheme participants with varying levels of risk aversion when investing may or may not be more likely to make specific financial decisions at the end of their savings plans when faced with a share option and the decision of whether or not to purchase shares in the employer or liquidate the savings plan for the cash. To capture this specific data, the following question was placed into the survey: '*How far do you agree that it is better to play safe with your savings even if investing in higher risk investments might make you more money?', proceeded by the following responses*: '*Strongly Disagree*', '*Disagree*', '*No Opinion*', '*Agree*' and '*Strongly Agree*'. To operationalise this variable for further analysis, this Likert scale was then subsequently made quantifiable within the dataset by encoding each of the five responses with separate dummy variables.

Beginning with the descriptive statistics, this initial form of empirical analysis points towards investment risk aversion lowering the likelihood of scheme participants purchasing shares at the end of their savings plan. More specifically, the survey data reveals that 88.9% of respondents who selected '*Strongly Disagree*' to the statement designed to capture a scheme participant's risk aversion when investing chose to purchase shares at the end of their savings plan, which compares with 52.4% of survey respondents choosing to purchase shares which strongly agreed with the same statement (shown in Table 7.15). Looking beyond this form of empirical analysis towards deeper statistical techniques, a strong negative Pearson correlation was calculated at -0.131 between these two sets of variables, with this relationship shown to be significant at a probability level of 0.000 (shown in Table 10.19). Finally, the inclusion of an independent variable measuring a scheme participant's risk aversion when investing was placed into a logistic regression model to test its effect on a dependent variable, which calculated at Exp(B) of 0.862. This finding would suggest that increased levels of risk aversion has the effect of decreasing a scheme participant's likelihood of purchasing shares. However, this relationship was not shown to be significant based upon a probability level of 0.095 and therefore it is not possible within a 95% confidence interval to reject the null hypothesis relating to H14c that investment risk aversion has no effect on the dependent variable relating to the decision to purchase shares at maturity (shown in Table 10.24 and based upon model 7).

Table 7.15: Table illustrating the descriptive statistics between self perception of investment risk aversion and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
0	Strongly Disagree	0.8889	1.3%	1.3%
1	Disagree	0.7080	17.1%	18.4%
2	No Opinion	0.5385	14.1%	32.5%
3	Agree	0.5411	54.3%	86.9%
4	Strongly Agree	0.5238	13.1%	100%

7.7.3 Financial Literacy

To conclude the empirical investigation being offered in this section, a final variable was included in the survey to better understand whether increased levels of financial literacy in the context of risk have the potential to alter a scheme participant's investment decision-making at the end of their Save As You Earn savings plan. To capture data on a respondent's financial literacy, a further survey question was placed within the survey based upon an earlier test of financial literacy which was originally posed within the 401 (k) literature by Benartzi (2001), asking survey respondents to consider and answer what they believed to be the correct answer to the following survey question rooted in the concept of diversification: '*Would you say owning shares in your company is less risky, more risky, or has the same level of risk as an investment fund with many different companies?*'. Finally, to make this specific variable measurable, the dataset was subsequently encoded so that '*Don't know*', '*About the same risk*', '*Less risky*' were encoded as a 0 and the correct answer to the financial literacy question being '*More risky'* was subsequently encoded as a 1.

Starting with the descriptive statistics, this more elementary form of statistical analysis hints towards a scheme participant's financial literacy having an impact on their financial behaviour, at least in the context of risk. More specifically, the data reveals that while 67.2% of survey respondents who answered the question correctly chose to purchase shares at the end of their savings plan, only 54.6% of respondents chose to purchase shares which answered the financial literacy question incorrectly or did not know the answer (shown in Table 7.16). Looking beyond the descriptive statistics toward deeper statistical analysis techniques, where a positive Pearson correlation was calculated at 0.099, a relationship which was shown to be statistically significant at a probability level of 0.001 (shown in Table 10.19). The use of a logistic regression provides further support of the importance of financial literacy as an independent variable, as shown by a Exp(B) of 1.441, which appears to further confirm that increased levels of financial literacy improves the likelihood of a scheme participant choosing to purchase shares at the end of their Save As You Earn savings plan. However, this final form of analysis was not shown to be significant based upon a probability level of 0.075 and therefore it is not possible to reject the null hypothesis relating to H15c and the suggestion that financial literacy has no effect on the dependent variable relating to the decision to purchase shares at maturity(shown in Table 10.24 and based upon model 7)).

Table 7.16: Table illustrating the descriptive statistics between financial literacy and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
1	More risky	0.6723	17.8%	17.8%
0	Less risky			
0	About the same risk	0.5456	82.2%	100%
0	Don't know			

7.8 Perceived Share Price Movements

7.8.1 Check share price regularly

This next section will investigate a number of closely related but separate variables regarding past perceptions and future predictions about share price movements. The first variable to be included in the study will investigate how often a respondent reviews their employer share price. To attain the relevant data required to conduct this analysis, the following survey question was included: '*How often do you check how the company share price is doing?*'. This was accompanied by the eight responses: '*Daily*', '*At least weekly*', '*At least monthly'*, '*At least quarterly*', '*At least twice a year*', '*At least once a year*', '*Less than once a year*' and the answer '*Never*', made quantifiable through being encoded one to eight in the order presented.

The descriptive statistics interestingly suggest that the regularity with which scheme participants check the share price of their employer does have an impact on the decision to purchase shares at the end of the plan. What the survey data reveals is that those which check the share price most often, stating daily in the survey, were the same sub-group of scheme participants most likely to purchase shares at the point of maturity (78.3%). In contrast, the survey data reveals that the scheme participants least likely to purchase shares were those which stated that they never checked the share price, where within this pool of respondents only 26.7% were found to purchase shares at the point of maturity. While there may well exist a substantial difference between the extremes, it is worth further noting however that the percentage of respondents purchasing shares in a perfectly linear and incremental manner between the response options (shown in Table 7.17). Looking beyond the descriptives, a strongly negative correlation was calculated at -0.251 and this was significant at a probability level of 0.000 (shown in Table 10.20). Likewise, checking the share price regularly is indicated to decreases the propensity to purchase shares at the end of the scheme after conducting a logistic regression, as shown by a Exp(B) of 0.777, a relationship which is significant at a probability level of 0.000 (shown in Table 10.24 and based upon model 7). Based upon these findings it is possible to reject the null hypothesis relating to H16c within a 99.9% confidence interval and therefore these results appear to confirm the expectation that the: '*decision to purchase shares at the point of maturity will be lower for those scheme participants which check the share price more regularly*'.

Table 7.17: Table illustrating the descriptive statistics between checking the share price and the decision to purchase shares at the scheme's maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
1	Daily	0.7831	28.2%	28.2%
2	At least weekly	0.6146	28.9%	57.1%
3	At least monthly	0.5083	18.2%	75.3%
4	At least quarterly	0.3676	10.9%	86.2%
5	At least twice a year	0.2500	3.2%	89.4%
6	At least once a year	0.2143	4.2%	93.6%
7	Less than once a year	0.3846	1.9%	95.5%
8	Never	0.2667	4.5%	100%

7.8.2 Perception that the company's share price exceeded the market in the previous year

The second variable to be presented within this section observing the impact of a scheme participant's perceptions and predictions of how share price movements influence investment behaviour at maturity will seek to better understand whether the perception that the employer's share price had exceeded the market in the previous year might influence a scheme participant's investment behaviour when their savings plan enters maturity. To acquire data on a respondent's perception of how their employer's share price had performed relative to the market in the previous year, a question was included in the survey which asked: '*How has the share price of your company performed in relation to the stock market as a whole over the last year?*'. The question was then followed up by these optional responses: '*Over 10% better*', '*5-10% better*', '*Up to 5% better'*, '*The same*', '*Up to 5% worse*', '*5-10% worse*', '*Over 10% worse*' and '*Don't know*'. To clean the dataset up further for analysis, those responding with '*Don't know*' were removed, while the remaining responses were split and made quantifiable using a set of binomial variables. More specifically, those which responded to the survey question suggesting that their employer's share price had stayed the same or worsened within the previous year were encoded as a 0 and those which responded that it had exceeded the market were encoded as a 1.

Beginning with the descriptive statistics, this more rudimentary form of statistical analysis alludes to the possibility that those scheme participant's which hold the perception that their company's share price had exceeded the market in the previous year are more likely to purchase shares at the end of their savings plan. More specifically, the survey data reveals that 68.6% of respondents who were of the perception that the share price had exceeded the market selected to purchase shares, compared with 51.5% which felt it had not exceeded the market (shown in Table 7.18). Looking beyond the descriptive statistics towards bivariate analysis, a moderately sized positive correlation was calculated at 0.050, a relationship which was shown not to be statistically significant based upon a probability level of 0.098 (shown in Table 10.20). While finally, the use of a logistic regression to explore the impact of the perception that the company's share price had exceeded the market in the previous year was shown to reduce the propensity of participant's purchasing shares at the end of the savings plan by almost half, as is shown by an Exp(B) of 1.077. While this coefficient may appear to be suggestive of this particular independent variable having an effect, however this relationship was shown not to be significant at a probability level of 0.310. It is therefore not possible to reject the null hypothesis within a 95% confidence interval that the share price exceeded the market in the previous year has no effect on the dependent variable relating to the decision to purchases shares at maturity ((shown in Table 10.24 and based upon model 7).

Table 7.18: Table illustrating the descriptive statistics between the perception that the company's share price exceeded the market in the previous year and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
0	Did not exceed	0.5155	68.6%	68.6%
1	Exceeded	0.6863	31.4%	100%

7.8.3 Perception that the company's share price was falling when they entered into SAYE

The last variable to be reviewed in this section will empirically investigate the impact of a scheme participant's perception that their employer's share price was falling when they chose to enter their savings plan, which was captured through the inclusion of the following question in the survey: '*When you joined SHARESAVE most recently was the company's share price…*'. This survey question was then proceeded by the following seven responses options: *'Rising steeply*', '*Rising a bit*', '*More or less stable*', 'Falling a bit', '*Falling steeply*', '*Can't remember*' and '*Don't know*'. To operationalise this variable further, the first five response options were made quantifiable using dummy variables, while the final two responses were removed from the dataset.

The descriptive statistics offer the first possible indicator that a falling employer's share price upon entering into the scheme does in fact lower a scheme participant's propensity to purchase shares at maturity. More specifically, the survey data reveals that when comparing the two extremes, 82.5% of survey respondents which stated within the survey that the employer's share price was *'Rising steeply*' selected to purchase shares at the end of their scheme, which compares with only 22.2% choosing to purchase shares which stated that their employer's share price was '*Falling steeply*' at the point when they entered into their Save As You Earn scheme (shown in Table 7.19). Substantiating this initial form of analysis further using more advanced statistical techniques, a strong negative Pearson correlation was calculated at -0.194, a relationship which is supported by being significant at a probability level of 0.000 (shown in Table 10.20). While placing an independent variable for the perception that the employer's share price was falling when they entered into Save As You Earn scheme into a logistic regression produced an Exp(B) of 0.672, which therefore suggests that a falling share price when entering into the scheme notably increases the likelihood of a scheme participant purchasing shares in the employer when their savings plan enters maturity, a relationship which is statistically significant at a probability level of 0.000 (shown in Table 10.24 and based upon model 7). Based upon the inclusion of an alpha at 0.001 it is therefore possible to reject the null hypothesis relating to H18c within a 99.9% confidence interval and therefore in doing so support the prediction that the scheme participant's: *'decision to purchase shares at the point of maturity will be higher if the employer's share price was rising when they entered into the scheme'*

Table 7.19: Table illustrating the descriptive statistics between perception that the company's share price was falling and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
1	Rising steeply	0.8250	6.0%	6.0%
2	Rising a bit	0.6533	30.3%	36.3%
3	More or less stable	0.6396	29.8%	66.0%
4	Falling a bit	0.3556	20%	86.1%
5	Falling steeply	0.2222	4.2%	90.3%
Removed	Can't remember	0.7037	4.1%	94.3%
Removed	Don't know	0.4167	5.7%	100%

7.9 Financial Education

7.9.1 Received financial education from a current or past employer

To conclude the empirical investigation being conducted in this chapter which has overall sought to better understand the key factors influencing a scheme participant's investment behaviour as their Save As You Earn savings plan matures, the final variable to be observed will measure whether a scheme participant has ever been in receipt of financial education from either a current or previous employer. To capture this particular information, two separate questions were placed into the survey, the first of which asked respondents to disclose whether they had at any point received financial education from any of their past employers and a second inquiring if they had received financial education from their current employer. To make the variable measurable for analysis, a binomial dummy was used with those that have never received financial education from either their current or past employer encoded as a 0 and those which have encoded as a 1.

With regards to the influence of financial education on a scheme participant's investment behaviour, the descriptive statistics would suggest that receiving financial education from either a past or current employer does have an impact on the financial decision to purchase shares when the SAYE savings plan matures. More precisely, the data illustrates that 70.5% of survey respondents who acknowledge that they had received financial education also purchased shares at the scheme's maturity. This can be contrasted with only 54.5% purchasing shares which stated that they had never received financial education from a current or past employer (shown in Table 7.20). Adding further support to the importance of financial education as a factor influencing the investment decision to purchase shares in the employer at the point of maturity, the use of deeper statistical techniques also identifies that financial education has a discernible impact on the decision to purchase shares at the savings plan's maturity. This is firstly shown by a relatively strong positive Pearson correlation of 0.146 between those scheme participants who received financial education from either a past or current employer and the decision to purchase shares, a relationship which is given statistical credence by being found to be significant at a probability level of 0.000 (shown in Table 10.21). The use of a logistic regression produced a Exp(B) of 1.959, which suggests that financial education nearly doubles the likelihood of a scheme participant purchasing shares when their Save As You Earn scheme enters maturity. Furthermore, this prediction is statistically significant at a probability level of 0.000 (shown in Table 10.24 and based upon model 7) and therefore offers strong evidence in support of H19c, which stated the prediction that the: *'decision to purchase shares at the point of maturity will be higher amongst those scheme participants who have received financial education in the workplace'.*

Table 7.20: Table illustrating the descriptive statistics between financial education and the decision to purchase shares at maturity

Variable Code	Variable Label	Purchasing average (mean)	Percentage	Cumulative Percentage
0	No	0.5452	72.4%	72.4%
1	Yes	0.7049	27.6%	100%

7.10 Summarised Findings

This seventh chapter of the thesis is offered with the intention of generating greater knowledge about the specific factors which are most influential on a scheme participant's investment decision-making at the end of their Save As You Earn scheme when faced with the opportunity to purchase shares in the employer or liquidate the savings plan and take the cash. As previously stated, this is a novel area of research because to date there currently exist no comparable empirical study within the employee share ownership literature which has directly sought to explore this particular research question.

Beginning with the explanatory factor within this chapter which arguably makes the single most important contribution to the academic literature is the finding that scheme participants which have been in receipt of financial education from their current or past employer are shown to be almost twice as likely to purchase shares. The reason why this finding makes an important contribution to the academic literature, is firstly because there exists no past empirical study within the employee share ownership literature that has observed the influence of financial education on a scheme participant's investment behaviour. Secondly, looking beyond this body of research and onto the wider economic literature, there has been growing interest in financial education. While this topic has generated significant discussion, there is surprisingly little empirical evidence on the outcomes of offering financial education and what is available has produced mixed findings thus far (Von Gaudecker, 2015). This study makes a major contribution by offering compelling evidence that financial education does in fact alter an individuals's investment behaviour, and as a consequence, these findings would suggest that financial education could be implemented as a public policy intervention to encourage more employees owning shares.

Turning the attention to a second independent variable shown to be influential, where the inclusion of a measure for intrinsic motivation desire based upon Klein (1987) was revealed by the survey data to make scheme participants over 50% more likely to purchase shares in their employer when their Save As You Earn savings plan enters maturity and the scheme participants are faced with the share option to purchase shares. What this finding essentially implies is that those scheme participants which want to become shareholders in the company of their employment have an increased propensity to purchase shares when offered the opportunity. While this finding is not particularly ground-breaking, it could be contended that it adds additional support to the overall robustness of the presented model because it is intuitively consistent with expectations.

A third variable shown by the logistic regression analysis to have a statistically reliable influence on a scheme participants decision to purchase shares at maturity is instrumental motives for joining the share scheme. Interestingly, instrumental motives for joining the share schemes was shown to have a strong negative effect on the decision to acquire shares, with the regression coefficient suggesting that those scheme participants which exhibited instrumental motives are nearly 45% less likely to purchase shares at the end of their savings plan. What has caused this unexpected finding is unclear. However, there is a well established strand of the employee

share ownership literature which argues that financial participation schemes must be interlocked with opportunities for participation if the offering of a share plan is to generate positive attitudes towards the employer (e.g. Kruse, 1984; Buchko, 1992;, Pérotin and Robinson, 2000). In addition to this potential explanation, an alternative argument which could be made for this finding is that the act of participating in the savings plan element of this share scheme is sufficient to generate a sense of physiological ownership and that a participant with a control orientation does not feel the need to attain actual ownership.

A fourth explanatory variable revealed by survey data to impact investment behaviour is the perception that the employer's share price was rising when entering onto the scheme, which was shown by multivariate statistical analysis to have a negative effect on the decision to purchase shares. This particular finding is arguably consistent with rational expectation theory and the principle of utility maximisation, because this scheme is essentially a share option combined with a defined contribution plan, and the option is locked against the share price when the scheme participant entered into the scheme for a fixed period until the point of options' maturity minus any discounts offered. Furthermore, it is also important to remember that this variable was included in the survey to capture the general trajectory of the share price, on the basis that data was not available to capture the actual share price movements between a scheme participant entering into Save As You Earn and their savings plan subsequently maturing. While this method is a crude approach to measuring share price movements over a period of time, it could be argued that asking a question about the general trajectory does provide the required insight and this finding is consistent with expectations, because a rising share price at the start of the scheme does mean that the option is more likely to be '*out of the money*'.

The final explanatory variable shown to have a reliable effect the dependent variable relating to the decision to purchase shares was the regularity with which a participant's check the share price of their employer. More precisely, what the survey data revealed through the use of a logistic regression is that scheme participants which check the share price more regularly are in fact the least likely to purchase shares at the plan's maturity. While the underlying reason for this finding is unclear and therefore open to speculation, there is an established body of research in the behaviour economic and finance literature on the subject of the anxiety that an investor can feel from the market price fluctuations of an asset. This literature recognises that investors are human and therefore subject to emotions such as fear, regret and anxiety which might mean that an investors behaviour differs from what might be expected under neo-classical models based upon perfect utility maximisation.

Chapter 8

Conclusion

8.1 Introduction

The final chapter of this thesis will conclude by offering not only a summary of the research findings, but will also outline to the reader how the evidence presented within this study offers a unique and significant contribution to our existing knowledge about those specific factors which are most influential on the investment behaviour and financial decision-making of scheme participants in broad-based employee stock ownership plans. A further objective of this conclusion chapter is to offer a reflective review written with the intention of synthesising some of the many innate issues and implications that arise in the process of conducting a piece of research. This will include an assessment of the limitations, as well as a candid disclosure to the reader about how the research questions which were actually pursued within this thesis differ from those which were originally intended. This discussion is particularly pertinent because one of the central findings of this thesis is that financial literacy and financial education are at certain key decision points highly influential on participant's investment behaviour. An account of the researcher's own unsuccessful attempt at data gathering in this area will be offered to the reader with the objective of creating greater awareness about the challenges of data gathering in what can be a commercially sensitive area for many employers, and by consequence, this has limited access to data so far beyond the scope explored within this study. Given the fact that financial education is something which an employer can offer to potentially improve the financial wellbeing of its workforce, this chapter will conclude by highlighting the important need for further research in this area.

With regards to how this chapter shall be structured, it shall begin by summarising to the reader how each of the three data chapters independently makes an important and unique contribution to academic knowledge about employee share ownership schemes, particularly to the specific strand of the literature which has developed within the past decade or so focusing upon the financial decision-making of scheme participants. Upon completing this initial discussion, the next section of the chapter will summarise the key research results, and therefore the purpose behind this section is to offer the reader a synopsis of the most pertinent findings. The next section shall discuss the limitations, which recognises that no methodology is perfect and this must be taken into consideration when analysing the results. As previously mentioned and central to this discussion, a disclosure will be given to the fact that the research questions which were actually pursued within this study are different from those originally planned and this discussion shall lead into some considerations for future research. To conclude the chapter and overall thesis, a closing statement will be offered to the reader to provide some final thoughts about how this research makes an important contribution in a wider context.

8.2 Academic Contribution Of Thesis

8.2.1 Summary of Overall Academic Contribution

The academic contribution of this thesis, in its broadest terms, has been to add to an emerging strand of research that has sought to better understand those specific factors which are most influential on the savings behaviour of scheme participants in broad-based company share plans. The body of academic research on this particular subject is comprised of only a small number of studies, which encompasses in total less than a dozen publicly available working papers or published peer-reviewed articles which directly investigate a diverse range of important research questions regarding the financial decision-making of employees which have chosen to place their wealth in a company share plan offered by their employer. As mentioned, this stands in stark contrast to the closely related 401(k) literature which also investigates defined contribution plans but in the context of the tax incentivised retirement schemes in the United States. The 401(k) literature has in excess of hundred empirical studies in investigating the financial behaviour of scheme participants, many of which have led to important insights about how the general public save and invest in preparation for retirement. It is observing these two strands of closely related economic literature that perhaps best and most simply demonstrates the major gaps in our existing knowledge about the specific factors which are most influential on the savings behaviour and decision-making of scheme participants in broad-based employee stock ownership plans.

It could further be contended that there is a social contribution within this thesis that goes beyond the academic process of filling a knowledge gap within existing literature, because as a consequence of the movement away from defined benefit plans and further liberalisations in the pension market which includes legislation allowing for the removal of funds prior to retirement with fewer tax disincentives. It is for these reasons there is growing need for research which looks directly at the savings behaviour of the general public (Byrne, 2004). The wider social and political context for this research therefore includes concerns about overly-indebtedness and inadequate personal savings and concern about low levels of financial literacy.

While this thesis does not directly attempt to investigate whether those surveyed are overly-indebted, are under-prepared for their retirement or have made investment decisions which in the past have seen them lose a significant proportion of their hard earned savings; this study does indicate that at various key points within the choice architecture of Save As You Earn, the measurement for financial literacy and financial education are shown to be influential on scheme participants' investment behaviour. This is arguably the most important finding presented in this thesis, because while other additional factors are shown to be more influential on behaviour, many of these additional factors are simply unchangeable by the employees themselves, by the employer or otherwise by policy-makers. This includes key factors such as a participant's age, income, household income and gender. Furthermore, each of these three stakeholders are at the mercy of the markets when it comes to the employer's share price movements, and likewise, employers and policy-makers can only effect latent factors in limited ways, such as a scheme participant's motives for joining their company share plan.

8.2.2 Data chapter 5 - Savings Plan Contributions

The first data chapter presented within this thesis makes a unique contribution to the academic literature by exploring a number of independent variables which have so far never been investigated elsewhere within the employee share ownership literature. In particular, this first data chapter makes a significant academic contribution to a specific sub-strand of the empirical literature which has emerged within the past decade or so and has sought to investigate the investment behaviour of scheme participants within their employee stock ownership plans. New variables explored include financial literacy, perceptions and predictions of share price movements, and finally, a variable exploring whether scheme participants have been in receipt of financial education.

In addition to exploring a number of new independent variables, this first data chapter makes a significant contribution to the available literature by re-investigating a number of variables already explored elsewhere within the existing published research on employee share schemes. As shall be described within the literature review, the sub-strand of the employee share ownership literature which has already begun to explore savings plan contributions is still in its infancy, as it currently consists of only three published studies and one working paper (i.e. Degeorge et al., 2004; Welz and Fernández-Macías, 2008; Pendleton, 2010a; Bryson and Freeman, 2010). Given that the body of research is small, the act of re-investigating independent variables is in itself an academic contribution to the literature, because it adds to the overall evidence base, reaffirming and in other cases refuting the factors most influential on savings plan contributions.

8.2.3 Data chapter 6 - Concentration of Savings Allocation

The second data chapter makes arguably an even more significant and unique contribution to the employee share ownership literature by choosing to empirically explore the concentration of savings allocation. This is because as things stand, only one other study has conducted analysis in this area, with Pendleton (2010b) being the first to explore a dependent variable measuring how much scheme participants choose to invest within their employee stock ownership plans as a percentage of their total monthly savings wealth.

It is a fundamental and central argument of this data chapter that conducting a detailed empirical investigation into the concentration of savings allocation is actually of more social and academic importance than research into savings plan contributions. This is on the basis that concentration of savings allocation is more revealing of how much employees are concentrating the flow of their monthly savings wealth into a company share plan as a proportion of their total monthly savings wealth across all forms of investment. Therefore the data presented within this chapter is of particular social value because there is a major concern which arose from within the 401 (k) literature that many workers do have an increased proclivity to invest within their employer (e.g. Benartzi, 2001; Huberman, 2001; Mitchell and Utkus, 2003). The importance of the second data chapter within this thesis is that it builds upon earlier research by Pendleton (2010b) through investigating new variables that help create greater knowledge about what factors precipitate employees to overly-invest within their employer.

8.2.4 Chapter 7 - Decision at Maturity

The third data chapter builds upon the former data chapters by investigating which variables are most influential on a scheme participant's investment behaviour and financial decision-making when the share option element of their employee share ownership plan enters maturity. By conducting empirical analysis in this area, the final data chapter presented within this thesis makes arguably the most significant and unique contribution to the employee share ownership literature, on the simple basis that no past study has so far conducted a detailed empirical investigation to explore which factors are most influential on a scheme participant's decision at maturity. The third data chapter therefore fills a major knowledge gap in the academic literature.

Why the literature has so far not explored a dependent variable for decisions at maturity is unclear, however it can be speculated with some degree of accuracy that the reason for why academic attention has so far not been directed at this subject is simply because the employee share ownership literature is still in its infancy. Research that has been conducted thus far has so far focused almost exclusively on the factors which influence participation levels and savings plan contributions (i.e. Degeorge et al., 2004; Welz and Fernández-Macías, 2008; Pendleton, 2010a; Bryson and Freeman, 2010). In addition to this area of analysis, there are only two further empirical studies: With one further study exploring which factors are most influential on whether employees choose to keep or sell their shares after purchasing at the a employee share option maturity (i.e. Pendleton, 2005) and a second empirical study investigating which specific variables are most influential on the concentration of savings allocation a scheme participant chooses to place into their share plans as a percentage of their total monthly savings wealth (i.e. Pendleton, 2010b).

Given that the empirical literature is still very small, being composed of only a few published studies, it can be speculated that the central reason why the spotlight of academic attention has so far not been directed at empirically investigating which factors are most influential on a scheme participant's decision at maturity thus far, is because the biggest driver is anticipated to be the employer's share price and whether the share option is '*in the money*' or '*out of the money*' at the point of maturity. The emergence of additional research outside of the employee share ownership literature highlights that this might be an oversight, because in the short period since much of this empirical literature which is looking at the savings behaviour of scheme participants was published, there has been an emergence of empirical research documenting that a number of factors beyond what has so far been investigated also affects behaviour, with financial literacy being shown to affect stock market participation (Van Rooij et al., 2011) as well as retirement planning (Van Rooij et al., 2012). Therefore, the last data chapter within this thesis makes a significant and unique academic contribution because it is the first empirical study within the employee share ownership literature to empirically investigate a dependent variable for decisions at maturity, while also making an important contribution to the literature by investigating a number of independent variables that have only been shown in recent years to be important to an individual's investment behaviour.

8.3 Limitations

This next section of the conclusion chapter will offer a reflective critique of the research limitation, which will be offered to the reader as a reminder that no research design process is perfect, and by consequence, some of the key findings presented within this thesis are perceptible to a number of limitations which may influence the results and therefore some caution must be taken when interpreting the findings. The primary objective of this section consequently is to make the reader salient towards each of the key known limitations, so that the research findings presented within the three main data analysis are not misinterpreted when making important and potentially far reaching generalisations about those factors most influential on the investment behaviour of scheme participants in broad-based employee stock ownership plans.

Beginning with the first and most apparent limitation of this study, which is to recognise that there is the potential for a self-selection response bias based upon the method of distributing the survey to respondents. A self-selection response bias is considered to arise when not all subjects invited to participate within a given study subsequently choose to do so, and therefore a '*self-selection*' problem arises because the sample pool is indirectly decided upon by the participants as a collective rather than selection by the researcher. This can by consequence mean that the sample population from which generalisations are subsequently drawn from is made only about those which agreed to participate in the survey. The reason why a self-selection response bias is considered a research limitation is that the sample pool may not be representative of the total population, on the basis that one or more characteristics are specific to the sample population which agreed to participate in the study and this may otherwise leads to a misrepresentation of the sample (Armstrong and Overton, 1977). While some researchers attempt to calculate the magnitude of the bias using the response rate, the method of dissemination of this survey which was based on handing out a paper flyer, means that such an exercise would be fruitless because it is not possible to compute an accurate response rate.

A second closely related limitation, and one that has the potential to proliferate the limitation discussed previously is that by offering a reward to respondents for participation, it is possible that the findings of this study are prejudiced towards a sample pool of respondents with one or more characteristics that makes them more likely to participate in a survey which specifically offers an incentive. The reason why an incentive was offered is that it has long been known that the most effective way to increase response rates to a questionnaire is to either offer an incentive to participate or repeatedly contact non-respondents requesting them to complete the survey (Kanuk and Berenson, 1975). The latter was not possible because the survey was disseminated by a paper flyer and therefore access to information on non-respondents was not possible. The biggest concern specific to this research conducted, is that there is a measure included within the study conducted looking at scheme participants motives for joining the schemes, and the offering of an incentive to participate within the survey might mean that the sample pool has a higher percentage of respondents with extrinsic desires.

8.4 Implications for Policy and Practice

8.4.1 Implications for Public Policy

In addition to the academic contribution of this study, the empirical evidence offered within this thesis has the potential to influence public policy in the future. This is because the subject of financial participatory compensation practices has re-emerged on the political agenda in recent years, with a number of high-profile political speeches and policy statements being which publicly advocate their support for more workers owing a stake in their employer within British industry (ee.g. Clegg, 2012; Nuttall, 2012; Swindson, 2012; Maude, 2012; Osborne, 2012). While political interest in employee ownership and employee share ownership by policy-markers over the years has tended to fluctuate, the reality is that such speeches are nothing new and this is simply the latest chapter in a long history of support from government for the use of schemes where employees have the opportunity to hold a greater stake in the company of their employment.

While a number of initiatives have been developed by policymakers over the years to encourage employee ownership schemes, to date the the primary method implemented by government has been to use legislation and tax concessions (Uvalic, 1991; Vaughan-Whiteman, 1995). While some academics have openly questioned the value of tax concessions in prompting ownership, such as Gordon and Pound (1990), others commentators on the same subject have been strongly supportive of tax incentives as a policy method of prompting both employee ownership and employee share ownership (e.g. Pendleton, 2001). A further reason for the growth of employee owned firms since the 1980s, is as Poole (1989) described, because of a sustained period of what he terms as 'favourable conjectures', as he recognises that in addition to the legislation implemented in that period, there was also a recognisable shift in ideological sentiment which promoted the workforce purchasing shares in public companies that underwent privatisation.

Adapting Poole's (1989) perspective to the present day, it could be contented that we have once again entered into a period of 'favourable conjectures', this time generated by the most recent financial crisis, because since this period there has been increasing public perception that many modern corporations have lost their moral and social direction (Mayer, 2013). It it is perhaps for this reason that growing number of political speeches and policy statements have advocated the introduction of participatory schemes under the pretext of 'responsible capitalism', suggesting that a greater number of employee owners would have the effect of creating greater long-term stability within the economy. Furthermore, government sponsored academic research has produced empirical evidence to back this claim, which documents that employee owned firms are more resilient and stable during turbulent economic times than the conventional shareholder-owned firm (Lampel et al., 2014). The key contribution of this thesis with the potential to influence public policy is the clear finding that offering financial education in the workplace does lead employees not only to diversify their wealth better but also to acquire shares at the end of an opinion based employee stock ownership plan.

8.4.2 Implications for Practice

In January 2001, shares in Enron Corporation traded at more than $80 a share, a year later this same stock was worth less than $0.70. It is estimated that during this period, the average employees' 401(k) plan held 61% of its assets in Enron's securities (Purcell, 2002). Prior to the accounting scandal, policymakers were discussing Enron as a model company and the ideal model of shared capitalism and at the same point the company's management had been openly encouraging staff to place their retirement wealth in Enron's stock (Elkind and McLean, 2004). Why did so many employees jeopardised their financial own security and place a significant proportion of their wealth in one single asset? Unfortunately, this type of investment concentration is not isolated to the workforce of Enron, it is a widely observed phenomenon. For example, Benartzi (2001) estimates that around one third of assets of employees in large companies are held in their employer's stock, with some extremes as high as 90%. A later paper by Liang and Weisbenner (2002) looked at discretionary contributions and discovered that many employees were willing to contribute a further 20% towards company stock beyond the matched amount. While a further study by Mitchell and Utkus (2003) published findings that indicated that over five million employees were placing 60% or more of their 401(k) wealth in their employer. These findings appear to indicate that investment concentration is based upon a lack of financial understanding regarding the risks of holding a poorly diversified portfolio. This issue was discussed by Pendleton (2006), who acknowledges that '*industrial relations literature on employee stock ownership plans has barely considered the issue of portfolio concentration despite the obvious dangers that company stock plans will encourage employees to make poor investment choices*' (p4).

Since the demise of Enron and Worldcom, and other such infamous corporate disaster, there appears to be at least the emergence of an awareness in government, academia and broader society that financial participatory schemes are not a complete panacea for all corporate and economics ills, and that employees holding a stake in their employer can have a dark side.r. While participatory firms have been associated with many benefits at both a corporate and employee level, the evidence from the 401 (k) literature is that these economic benefits can come on some occasions at the cost of employees jeopardising their own financial security (e.g. Benartzi, 2001; Liang and Weisbenner, 2002; Mitchell and Utkus, 2003). The contribution offered by this thesis in terms of its implication for practice is to offer evidence that such a trade off between the commercial benefits of operating an employee stock ownership scheme and the potentially negative impact on those employees end up taking up a poorly diversified portfolio need not be the case. What the empirical evidence of this study reveals is that the combination of both employee stock ownership scheme and financial education offered in the workplace does not only firstly encourage employees to actually purchase shares and therefore hold a stake in the employer, but it also puts forward compelling evidence that it stimulates employees to diversify their wealth better and avoid the problem of a lack of diversification when concentrating wealth in one single asset if an unforeseen event was to happen to their employer.

8.5 Additional Disclosures

8.4.1 Revisions to the original research questions

The first disclosure to be offered to the reader is that the research questions that were actually explored within this thesis are materially different from the research questions that were originally intended for investigation. While there is a significant level of overlap between the research questions originally proposed and those actually investigated within this thesis, as mentioned previously, the intention had been to concentrate a greater level of attention at exploring how varying levels of financial literacy and financial education might influence the investment behaviour of scheme participants in broad-based employee stock ownership plans.

While these factors were explored within this study, the scope is more limited and therefore much greater caution must be taken when making generalisations about how these factors influence scheme participants' financial-decision-making at certain key decision points within the choice architecture of Save As You Earn. While the research findings presented within this study are more limited in this area than was originally proposed, the results presented within this thesis are still sufficiently robust to offer a compelling source of evidence in support of the importance of financial literacy and financial education, and therefore offers a strong basis for proposing further analysis in this area.

8.4.2 Source of data

A second significant disclosure to be made to the reader is that the survey data used within this thesis was collected by Professor Andrew Pendleton and Professor Andrew Robinson, who established a collaborative partnership with a leading share plan administrator to attain access to employers and subsequently its employees. It is therefore important to declare to the reader that the survey presented here was not designed by the author of this doctoral thesis, and therefore recognition cannot be taken for this part of the process.

While a separate survey was designed and built for investigation, each attempt at disseminating this intended survey was unsuccessful, with many employers citing commercial or labour sensitivities that prevented them from being able to pass on the proposed survey to their workforce. As previously mentioned in more detail, the original research questions proposed for study had a much greater focus towards exploring financial literacy, and by consequence the survey created was much more orientated towards conducting an investigation into financial literacy and included an eight question test to capture data on participants' level of financial knowledge. With regards to how certain sensitivities prevented dissemination, beginning with those commercial in nature, a number of share scheme managers highlighted that it would have a detrimental impact on their business if it became public that even as small proportion of their workforce had a low level of financial literacy, either because their business relates directly to financial services (*e.g. banking, insurance, brokerage, investment management*) or because it otherwise undermines the professionalism of their business in front of their key shareholder groups (*e.g. shareholders, suppliers, customers, etc*).

8.6 Considerations for Future Research

The penultimate section of this chapter will propose a number of considerations for future research. This discussion is offered because good research will often ask as many questions as it is able to answer by uncovering findings that lead to new avenues of research. The first consideration for future research elates to the integrated subjects of financial literacy and financial education, two topics which have been gaining increasing academic, social and political attention in recent years, precipitated at least in part by the continuing movement in almost all developed economies away from defined benefit plans to the use of defined contribution plans as the primary method by which most people working today are preparing for their financial retirement. A reoccurring finding in this study is that financial education and financial literacy does have a strong impact on the financial behaviour on a scheme participant. A weakness of this study is that only limited measures were used to capture both these concepts, with the restraining being that this study sought to explore a wide range of potential explanatory variables to investigate the research questions. The challenge of survey research is that there is only a limited number of survey question possible to be as Given that this study was exploratory in nature, the opportunity exists for a future study to build upon the insight offered in this thesis and construct a study which is less about breadth and can instead focus upon depth.

A second consideration for future research is the need for a better understanding about how enrolment within an employee stock ownership plan influences a workforces wealth accumulation over their full economic life and explore whether the offering of such schemes leads scheme participants to save more monthly savings beyond the amount of wealth they would have accumulated had they not entered into a company share plan. Alternatively expressed, it remains unknown whether employee stock ownership plans make participants save a greater amount or whether it simply leads to financial displacement, with workers placing the equivalent proportion of their savings into a company share plan than they would have otherwise directed into other forms of savings devices e.g. Interest Savings Account. While there is no detailed study in this area, there is a preliminary industry study presented by McConville et al. (2012) which supports that employee share ownership schemes may in fact have a positive impact on the financial wellbeing of a workforce. More specifically, this study included a survey question which asked employees to state what they might have done with the equivalent level of savings had they not placed their money into a company share plan. Based upon their survey data, the industry report concluded: *"employees believed that had they not been exposed to employee share ownership in the company they work for, they would probably not have invested elsewhere or bought shares on the open market"* (p.p. 6). This interesting finding also opens the question of whether employee share schemes might encourage different behaviour in the future, for example, does the offering of such scheme mean that past participants are more likely to purchase the shares of other companies on the stock market?

Appendix

Your SHARESAVE plan

1. When did you join SHARESAVE for the first time?

Enter year

2. How many times have you joined a SHARESAVE plan?

- ○ Only this once
- ○ Twice
- ○ Three times
- ○ Four - five times
- ○ Six - ten times
- ○ More than ten times

3. How much do you currently save in total each week or month in SHARESAVE?

*4. Do you make this saving each week or each month?

- ○ Each week
- ○ Each month

5. What proportion of your friends at work participate in the SHARESAVE plan?

- ○ All
- ○ Almost all
- ○ Most
- ○ About half
- ○ Some
- ○ A few
- ○ None
- ○ Don't know

When your SHARESAVE account matures

＊1. Have you ever had a SHARESAVE maturity? This is when the savings contract comes to an end and you have to decide what to do with your savings.

- ○ Yes
- ○ No

SHARESAVE maturities

1. How many times have you had a SHARESAVE maturity?

Enter number

2. To the nearest year, how many years ago was your most recent SHARESAVE maturity?

Enter number of years

3. Thinking of the most recent maturity, what did you do?

- ○ Took all the cash from the savings contract
- ○ Used the cash to exercise the SHARESAVE share options and convert into shares
- ○ Extended the savings period to 7 years
- ○ Bought some shares and took some cash
- ○ Can't remember

What did you do with your shares?

***1. Have you sold any of the company shares you acquired at this time?**

- ○ Yes
- ○ No

If you have sold company shares you acquired through SHARESAVE

1. How many of the shares you acquired at the last maturity have you sold?

- ○ All of them
- ○ Most of them
- ○ About half of them
- ○ Some of them
- ○ A few of them

2. When did you sell them?

- ○ Immediately on acquiring them
- ○ Within a few weeks of acquiring them
- ○ Within a year of acquiring them
- ○ Within a couple of years of acquiring them
- ○ Between three to five years of acquiring them
- ○ After five years

3. When you last sold shares that had been acquired through SHARESAVE, how important were the following considerations?

	Extremely Important	Important	Somewhat Important	Not Important	Not Important At All
To get the highest possible price/favourable share price relative to grant price	○	○	○	○	○
To invest in a product that had potentially higher returns	○	○	○	○	○
Anxiety that the shares were about to fall in value	○	○	○	○	○
Needed the money for general living expenses	○	○	○	○	○
Needed the money for a particular reason	○	○	○	○	○

Your other savings

How much do you typically save each month, including any contributions to a private pension, in addition to your SHARESAVE contributions?

Please Enter (£)

If your only regular savings are in SHARESAVE

How far do you agree with the following statements?

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
SHARESAVE is the easiest way to save so all my savings go into that	○	○	○	○	○
I can't afford to save any more than what I currently put into SHARESAVE	○	○	○	○	○
SHARESAVE provides better returns than most other forms of saving	○	○	○	○	○
My overall level of savings, including my SHARESAVE contributions, is about right for my future needs	○	○	○	○	○
I haven't got round to making other types of saving	○	○	○	○	○
SHARESAVE is less risky than most other forms of saving	○	○	○	○	○
Thinking about personal finances is boring	○	○	○	○	○
I trust the SHARESAVE operator with my money more than other financial institutions	○	○	○	○	○
I don't think that saving is that important	○	○	○	○	○

If your only regular savings are in SHARESAVE

How far do you agree with the following statements?

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
SHARESAVE is the easiest way to save so all my savings go into that	○	○	○	○	○
I can't afford to save any more than what I currently put into SHARESAVE	○	○	○	○	○
SHARESAVE provides better returns than most other forms of saving	○	○	○	○	○
My overall level of savings, including my SHARESAVE contributions, is about right for my future needs	○	○	○	○	○
I haven't got round to making other types of saving	○	○	○	○	○
SHARESAVE is less risky than most other forms of saving	○	○	○	○	○
Thinking about personal finances is boring	○	○	○	○	○
I trust the SHARESAVE operator with my money more than other financial institutions	○	○	○	○	○
I don't think that saving is that important	○	○	○	○	○

About company shares

What is the approximate current value of your shares in the company?

Please enter (£)

Approximately how much of your current TOTAL savings and investments by value (excluding the value of your house and company pension if you have them) are in shares of the company you work for?

- ○ Less than 5%
- ○ 5-24%
- ○ 25-49%
- ○ 50-74%
- ○ 75-100%
- ○ Don't know

The value of company shares

1. How often do you check how the company share price is doing?

- ○ Daily
- ○ At least weekly
- ○ At least monthly
- ○ At least quarterly
- ○ At least twice a year
- ○ At least once a year
- ○ Less than once a year
- ○ Never

2. To the best of your knowledge what changes in the company's share price

	Up by over 10%	Up by 5-10%	Up by up to 5%	No change	Down by up to 5%	Down by 5-10%	Down by over 10%	Don't know
Took place in the last year?	○	○	○	○	○	○	○	○
Are likely in the coming year?	○	○	○	○	○	○	○	○

3. To the best of your knowledge what changes in the general level of share prices

	Up by over 10%	Up by 5-10%	Up by up to 5%	More or less unchanged	Down by up to 5%	Down by 5-10%	Down by over 10%	Don't know
Took place in the last year?	○	○	○	○	○	○	○	○
Are likely to take place this coming year?	○	○	○	○	○	○	○	○

4. How has the share price of your company performed in relation to the stock market as a whole over the last year?

- ○ Over 10 % better
- ○ 5-10% better
- ○ Up to 5% better
- ○ The same
- ○ Up to 5% worse
- ○ 5-10% worse
- ○ Over 10% worse
- ○ Don’t know

5. When you joined SHARESAVE most recently was the company’s share price

- ○ Rising steeply
- ○ Rising a bit
- ○ More or less stable
- ○ Falling a bit
- ○ Falling steeply
- ○ Can’t remember
- ○ Don’t know

Your views on SHARESAVE

How far do you agree with the following statements? Score on a scale from Strongly Disagree to Strongly Agree (please note this scale is in the opposite order to those in the rest of the questionnaire).

	Strongly Disagree	Disagree	No opinion	Agree	Strongly Agree
Being in the SHARESAVE scheme makes me want to give something back to the company	○	○	○	○	○
The company expects more of me because it has provided a SHARESAVE scheme	○	○	○	○	○
The SHARESAVE scheme makes me feel part of a 'family' at work	○	○	○	○	○
I work harder because I am in SHARESAVE	○	○	○	○	○
Being in the SHARESAVE scheme does not make me want to do anything more for the company	○	○	○	○	○
I feel I have an obligation to be helpful to the management of the company because it has provided the SHARESAVE opportunity	○	○	○	○	○
SHARESAVE is not a good investment when stock market prices are stagnant	○	○	○	○	○
Being in the SHARESAVE scheme makes me want to be more helpful to other employees	○	○	○	○	○
I am more careful and conscientious in my work because I have taken part in SHARESAVE	○	○	○	○	○
Because of SHARESAVE I would be reluctant to change employers	○	○	○	○	○
SHARESAVE rewards employees for the investments in time, energy and skills they make with the company	○	○	○	○	○

Your views on risk

1. Are you a person who is fully prepared to take risks or do you try to avoid taking risks?

	0 unwilling to take risks	1	2	3	4	5	6	7	8	9	10 fully prepared to take risks
Please Rate	○	○	○	○	○	○	○	○	○	○	○

2. How far do you agree that it is better to play safe with your savings even if investing in higher risk investments might make you more money?

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Please Rate	○	○	○	○	○

3. Would you say owning shares in your company is less risky, more risky, or has the same level of risk as an investment fund with many different companies' shares?

- ○ Less risky
- ○ About the same risk
- ○ More risky
- ○ Don't know

Opportunities to develop your knowledge of personal finances

***1. Have you ever received any financial education from your current employer? (Financial education is provision of information and guidance to improve your general understanding and knowledge of personal finances, such as savings and investments)**

- ○ Yes
- ○ No

Opportunities to develop your knowledge of personal finances

＊2. Have you ever received any financial education from your previous employer? (Financial education is provision of information and guidance to improve your general understanding and knowledge of personal finances, such as savings and investments)

- ○ Yes
- ○ No

Some final questions on SHARESAVE

1. How far do you look ahead when considering your SHARESAVE share options and possible future share price of your company shares?

- ○ More than ten years
- ○ From five to up to ten years
- ○ From two to up to five years
- ○ From one to up to two years
- ○ Up to one year
- ○ From three months to a year
- ○ Up to three months

2. Please indicate how far you agree with the following statements about SHARESAVE and you

	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
I tend to see my SHARESAVE plan separately from my other savings and investments	○	○	○	○	○
I see my SHARESAVE savings as more valuable than an equivalent amount in cash	○	○	○	○	○
When I decide how much to save in SHARESAVE I tend not to think about my other savings and investments	○	○	○	○	○
I would be willing to save more in a SHARESAVE plan if the maximum allowable contribution was increased to £450	○	○	○	○	○
The bonus rate is irrelevant to my decision to invest in SHARESAVE	○	○	○	○	○

3. Do you participate in any share ownership schemes operated by your employer other than SHARESAVE?

- ○ Yes
- ○ No
- ○ Not applicable: company does not operate other schemes

Your views about your job

How far do you agree with the following statements?

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
In general, I like working here	○	○	○	○	○
To know that my own work had made a contribution to the good of the company would please me.	○	○	○	○	○
I am proud to tell people which company I work for	○	○	○	○	○
I feel I can trust people in the company	○	○	○	○	○
I feel I know this company really well	○	○	○	○	○
I feel part of the company	○	○	○	○	○
All in all, I am satisfied with my job	○	○	○	○	○
When some workers are not putting much effort into their jobs other workers should encourage them to increase it	○	○	○	○	○
I see myself working for this company for the foreseeable future	○	○	○	○	○
I like to feel I am making some effort not just for myself but for the company as well	○	○	○	○	○
As long as I am doing a good job poor performance by others does not matter much to me.	○	○	○	○	○

About You

This final section asks for information about you as a person. We are not prying into your personal circumstances - most surveys ask for this information to see if different types of people have different views. We cannot identify you from the information you give us.

1. Your Gender

- ○ Male
- ○ Female

2. How old are you?

- ○ 16-24
- ○ 25-34
- ○ 35-44
- ○ 45-54
- ○ 55-64
- ○ 65 and over

3. How long have you worked for this company?

Enter Years

4. Is your job

- ○ Part-time
- ○ Full-time

5. How much do you get paid each year before tax for your job in the company?

- ○ £1 - £4,999
- ○ £5,000 - £9,999
- ○ £10,000 - £14,999
- ○ £15,000 - £19,999
- ○ £20,000 – £24,999
- ○ £25,000 - £29,999
- ○ £30,000 - £39,999
- ○ £40,000 - £49,999
- ○ £50,000 - £59,999
- ○ £60,000 - £69,999
- ○ £70,000 - £79,999
- ○ £80,000 - £89,999
- ○ £90,000 or above

6. How would you describe your job?

- ○ Management or senior official
- ○ Professional
- ○ Associate professional or technical
- ○ Administrative or secretarial
- ○ Skilled trade
- ○ Caring, leisure or personal service
- ○ Sales or customer service
- ○ Process, plant and machine operative or driver
- ○ Routine unskilled

7. Which of the following educational qualifications do you have? Tick all that apply

- ☐ O-Level/GCSE/School Certificate, CSE, SCE
- ☐ A-Level/Higher School Certification, SCE Highers
- ☐ University or college degree
- ☐ Apprenticeship or similar vocational qualification

8. How many people reside in your household?

Enter number

9. Which of the categories below represents the total income of your household from all sources before tax?

- ○ £1 - £4,999
- ○ £5,000 - £9,999
- ○ £10,000 - £14,999
- ○ £15,000 - £19,999
- ○ £20,000 – £24,999
- ○ £25,000 - £29,999
- ○ £30,000 - £39,999
- ○ £40,000 - £49,999
- ○ £50,000 - £59,999
- ○ £60,000 - £69,999
- ○ £70,000 - £79,999
- ○ £80,000 - £89,999
- ○ £90,000 - £99,999
- ○ £100,000 or above

THE END

THANK YOU

Thank you for completing the survey. We really appreciate the time you have taken to complete it. The information you have provided will be really useful.

Press the DONE button to submit the survey.

When you submit the survey you will be directed to new page where you can enter the Prize Draw. Entry to the Draw is entirely voluntary, and you can choose not to enter by closing the Prize Draw web page after submitting the survey.

Appendix B: Correlation Tables

B.1 Saving Plan Contributions

B.1.1 Socio-demographic Determinants

Table 10.1: Correlation table between savings plan contributions and socio-demographic factors

Pearson Correlation	Contributions	Income	Age	Gender	Household size
Contributions	**1.000**	0.523**	0.218**	-0.161**	-0.003
Income	0.523**	**1.000**	0.182**	-0.373**	-0.001
Age	0.218**	0.182**	**1.000**	0.010	-0.084**
Gender	-0.161**	-0.373**	0.010	**1.000**	-0.050*
Household size	-0.003	-0.001	-0.084**	-0.050*	**1.000**
Sig (2-tailed)	Contributions	Income	Age	Gender	Household size
Contributions	**.**	0.000	0.000	0.000	0.899
Income	0.000	**.**	0.000	0.000	0.976
Age	0.000	0.000	**.**	0.677	0.000
Gender	0.000	0.000	0.677	**.**	0.036
Household size	0.899	0.976	0.000	0.036	**.**

** - Correlation is significant at the 0.01 level (2-tailed)

* - Correlation is significant at the 0.05 level (2-tailed)

Table 10.2 Correlation table between savings plan contributions and employment attributes

B.1.2 Employment Attributes

Pearson Correlation	Contributions	Part-time / Full-time
Contributions	**1.000**	0.247**
Part-time/Full-time	0.247**	**1.000**
Sig. (2-tailed)	Contributions	Part-time / Full-time
Contributions	**.**	0.000
Part-time/Full-time	0.000	**.**

** - Correlation is significant at the 0.01 level (2-tailed)

B.1.3 Motives for Joining

Table 10.3 Tables illustrating Pearson correlation and significance between savings plan contributions and motives for joining

Pearson Correlation	Contributions	Intrinsic	Instrumental	Extrinsic
Contributions	**1.000**	-0.093**	-0.149**	0.161**
Intrinsic	-0.093**	**1.000**	0.792**	0.265**
Instrumental	-0.149**	0.792**	**1.000**	0.253**
Extrinsic	0.161**	0.265**	0.253**	**1.000**
Sig. (2-tailed)	Contributions	Intrinsic	Instrumental	Extrinsic
Contributions	**.**	0.000	0.000	0.000
Intrinsic	0.000	.	0.000	0.000
Instrumental	0.000	0.000	**.**	0.000
Extrinsic	0.000	0.000	0.000	**.**

** - Correlation is significant at the 0.01 level (2-tailed)

B.1.4 Emotional Affiliation To Job/Employer

Table 10.4 Tables illustrating Pearson correlation and significance between savings plan contributions and emotional affiliation towards job/employer

Pearson Correlation	Contributions	Reciprocity	Job Satisfaction	Organisational Commitment	Familiarity
Contributions	**1.000**	-0.073**	0.012	0.035	0.068**
Reciprocity	-0.073**	**1.000**	0.253**	0.308**	0.134**
Job Satisfaction	0.012	0.253**	**1.000**	0.749**	0.373**
Organisational Commitment	0.035	0.308**	0.749**	**1.000**	0.496**
Familiarity	0.068**	0.134**	0.373**	0.496**	**1.000**
Sig. (2-tailed)	Contributions	Reciprocity	Job Satisfaction	Organisational Commitment	Familiarity
Contributions	.	0.002	0.607	0.135	0.004
Reciprocity	0.002	.	0.000	0.000	0.000
Job Satisfaction	0.607	0.000	.	0.000	0.000
Organisational Commitment	0.135	0.000	0.000	.	0.000
Familiarity	0.004	0.000	0.000	0.000	.

** - Correlation is significant at the 0.01 level (2-tailed)

B.1.5 Risk Preferences

Table 10.5 Tables illustrating Pearson correlation and significance between savings plan contributions and risk preferences

Pearson Correlation	Contributions	Self Perception Of Own Risk Preference	Self Perception Of Own Risk Aversion	Financial Literacy
Contributions	**1.000**	0.121**	-0.125**	0.222**
Self Perception Of Own Risk Preference	0.121**	**1.000**	-0.476**	0.095**
Self Perception Of Own Risk Aversion	-0.125**	-0.476**	**1.000**	-0.123**
Financial Literacy	0.222**	0.095**	-0.123**	**1.000**
Sig. (2-tailed)	Contributions	Self Perception Of Own Risk Preference	Self Perception Of Own Risk Aversion	Financial Literacy
Contributions	**.**	0.000	0.000	0.000
Self Perception Of Own Risk Preference	0.000	**.**	0.000	0.000
Self Perception Of Own Risk Aversion	0.000	0.000	**.**	0.000
Financial Literacy	0.000	0.000	0.000	**.**

** - Correlation is significant at the 0.01 level (2-tailed)

B.1.6 Perceived Share Price Movements

Table 10.6 Tables illustrating Pearson correlation and significance between savings plan contributions and share price perceptions and predictions

Pearson Correlation	Contributions	Check share price regularly	**Perception that the company's share price exceeded the market in the previous year**	Perception that the company's share price was falling when entering into SAYE
Contributions	**1.000**	-0.397**	-0.112**	-0.202**
Check share price regularly	-0.397**	**1.000**	0.010	0.423**
Perception that the company's share price exceeded the market in the previous year	-0.112**	0.010	**1.000**	-0.083**
Perception that the company's share price was falling when entering into SAYE	-0.202**	0.423**	-0.083**	**1.000**
Significance (2-tailed)	Contributions	Check share price regularly	**Perception that the company's share price exceeded the market in the previous year**	Perception that the company's share price was falling when entering into SAYE
Contributions	**.**	0.000	0.000	0.000
Check share price regularly	0.000	**.**	0.671	0.000
Perception that the company's share price exceeded the market in the previous year	0.000	0.671	**.**	0.000
Perception that the company's share price was falling when entering into SAYE	0.000	0.000	0.000	**.**

** - Correlation is significant at the 0.01 level (2-tailed)

B.1.7 Financial Education

Table 10.7 Tables illustrating Pearson correlation and significance between contributions and financial education

Pearson Correlation	Contributions	Received financial education from current or previous employer
Contributions	**1.000**	0.132**
Received financial education from current or previous employer	0.132**	**1.000**
Sig. (2-tailed)	Contributions	Received financial education from current or previous employer
Contributions	.	0.000
Received financial education from current or previous employer	0.000	.

** - Correlation is significant at the 0.01 level (2-tailed)

B.2 Concentration of Savings Allocation

10.2.1 Socio-demographic Determinants

Table 10.8 Tables illustrating Pearson correlation and significance between concentration of savings allocation and socio-demographic factors

Pearson Correlation	Concentration of Savings Allocation	Income	Age	Gender	Household size
Concentration of Savings Allocation	**1.000**	-0.314**	-0.074**	0.131**	0.043
Income	-0.314**	**1.000**	0.181**	-0.374**	-0.002
Age	-0.074**	0.181**	**1.000**	0.009	-0.084**
Gender	0.131**	-0.374**	0.009	**1.000**	-0.049*
Household size	0.043	-0.002	-0.084**	-0.049*	**1.000**
Sig (2-tailed)	Concentration of Savings Allocation	Income	Age	Gender	Household size
Concentration of Savings Allocation	**.**	0.000	0.002	0.000	0.075
Income	0.000	**.**	0.000	0.000	0.944
Age	0.002	0.000	**.**	0.694	0.000
Gender	0.000	0.000	0.694	**.**	0.039
Household size	0.075	0.944	0.000	0.039	**.**

** - Correlation is significant at the 0.01 level (2-tailed)

* - Correlation is significant at the 0.05 level (2-tailed)

B.2.2 Employment Attributes

Table 11.9 Tables illustrating Pearson correlation and significance between the concentration of savings allocation and employment attributes

Pearson Correlation	Concentration of Savings Allocation	Part-time / Full-time
Concentration of Savings Allocation	**1.000**	-0.164**
Part-time/Full-time	-0.164**	**1.000**
Sig (2-tailed)	Concentration of Savings Allocation	Part-time / Full-time
Concentration of Savings Allocation	**.**	0.000
Part-time/Full-time	0.000	**.**

** - Correlation is significant at the 0.01 level (2-tailed)

B.2.3 Motives for Joining

Table 10.10 Tables illustrating Pearson correlation and significance between concentration of savings allocation and motives for joining

Pearson Correlation	Concentration of Savings Allocation	Intrinsic	Instrumental	Extrinsic
Concentration of Savings Allocation	**1.000**	0.004	0.033	-0.061**
Intrinsic	0.004	**1.000**	0.790**	0.268**
Instrumental	0.033	0.790**	**1.000**	0.252**
Extrinsic	-0.061**	0.268**	0.252**	**1.000**
Sig. (2-tailed)	Concentration of Savings Allocation	Intrinsic	Instrumental	Extrinsic
Concentration of Savings Allocation	**.**	0.857	0.146	0.006
Intrinsic	0.857	.	0.000	0.000
Instrumental	0.146	0.000	**.**	0.000
Extrinsic	0.006	0.000	0.000	**.**

** - Correlation is significant at the 0.01 level (2-tailed)

B.2.4 Emotional Affiliation To Job/Employer

Table 10.11 Tables illustrating Pearson correlation and significance between concentration of savings allocation and emotional affiliation towards the job/employer

Pearson Correlation	Concentration Of Savings Allocation	Reciprocity	Job Satisfaction	Organisational Commitment	Familiarity
Concentration Of Savings Allocation	**1.000**	0.013	-0.024	0.024	0.054*
Reciprocity	0.013	**1.000**	0.252**	0.308**	0.136**
Job Satisfaction	-0.024	0.252**	**1.000**	0.749	0.376
Organisational Commitment	0.024	0.308**	0.750**	**1.000**	0.494
Familiarity	-0.054*	0.136**	0.375**	0.494	**1.000**
Sig. (2-tailed)	Concentration Of Savings Allocation	Reciprocity	Job Satisfaction	Organisational Commitment	Familiarity
Concentration Of Savings Allocation	**.**	0.575	0.300	0.302	0.020
Reciprocity	0.575	**.**	0.000	0.000	0.000
Job Satisfaction	0.300	0.000	**.**	0.000	0.000
Organisational Commitment	0.302	0.000	0.000	**.**	0.000
Familiarity	0.020	0.000	0.000	0.000	**.**

** - Correlation is significant at the 0.01 level (2-tailed)

* - Correlation is significant at the 0.05 level (2-tailed)

B.2.5 Risk Preferences

Table 10.12 Tables illustrating Pearson correlation and significance between concentration of savings allocation and risk preferences

Pearson Correlation	Concentration of Savings Allocation	Self Perception Of Own Risk Preference	Self Perception Of Own Risk Aversion	Financial Literacy
Concentration of Savings Allocation	**1.000**	-0.116**	0.093**	-0.128**
Self Perception Of Own Risk Preference	-0.116**	**1.000**	-0.476**	0.096**
Self Perception Of Own Risk Aversion	0.093**	-0.476**	**1.000**	-0.124**
Financial Literacy	-0.128**	0.096**	-0.124**	**1.000**
Sig (2-tailed)	Concentration of Savings Allocation	Self Perception Of Own Risk Preference	Self Perception Of Own Risk Aversion	Financial Literacy
Concentration of Savings Allocation	**.**	0.000	0.000	0.000
Self Perception Of Own Risk Preference	0.000	**.**	0.000	0.000
Self Perception Of Own Risk Aversion	0.000	0.000	**.**	0.000
Financial Literacy	0.000	0.000	0.000	**.**

** - Correlation is significant at the 0.01 level (2-tailed)

B.2.6 Perceived Share Price Movements

Table 10.13 Tables illustrating Pearson correlation and significance between share price perceptions and predictions and the concentration of savings allocation

Pearson Correlation	Concentration of savings allocation	Check share price regularly	Perception that the company's share price exceeded the market in the previous year	Perception that the company's share price was falling when they entered into SAYE
Concentration of savings allocation	**1.000**	0.132**	—0.002	0.113**
Check share price regularly	0.132**	**1.000**	0.009	0.423**
Perception that the company's share price exceeded the market in the previous year	-0.002	0.009	**1.000**	-0.084**
Perception that the company's share price was falling when they entered into SAYE	0.113**	0.423**	-0.084**	**1.000**
Significance (2-tailed)	Concentration of savings allocation	Check share price regularly	Perception that the company's share price exceeded the market in the previous year	Perception that the company's share price was falling when they entered into SAYE
Concentration of savings allocation	**.**	0.000	0.000	0.000
Check share price regularly	0.000	**.**	0.000	0.000
Perception that the company's share price exceeded the market in the previous year	0.000	0.000	**.**	0.000
Perception that the company's share price was falling when they entered into SAYE	0.000	0.000	0.000	**.**

** - Correlation is significant at the 0.01 level (2-tailed)

B.2.7 Financial Education

Table 10.14 Tables illustrating Pearson correlation and significance between concentration of savings allocation and financial education

Pearson Correlation	Concentration of Savings Allocation	Received Financial Education From Current or Past Employer
Concentration of Savings Allocation	**1.000**	-0.126**
Received Financial Education From Current or Past Employer	-0.126**	**1.000**
Sig. (2-tailed)	Concentration of Savings Allocation	Received Financial Education From Current or Past Employer
Concentration of Savings Allocation	.	0.000
Received Financial Education From Current or Past Employer	0.000	.

** - Correlation is significant at the 0.01 level (2-tailed)

B.3 Decision At Maturity

B.3.1 Socio-demographic Determinants

Table 10.15: Tables illustrating Pearson correlation and significance between employment attributes and the decision to purchase shares at maturity

Pearson Correlation	Purchased shares	Income	Age	Gender	Household size
Purchased shares	**1.000**	0.111**	0.032	-0.019	0.009
Income	0.111**	**1.000**	-0.028	-0.424**	0.075*
Age	0.032	-0.028	**1.000**	0.013	-0.064*
Gender	-0.019	-0.424**	0.013	**1.000**	-0.059
Household size	0.009	0.075*	-0.064*	-0.059	**1.000**
Sig (2-tailed)	Purchased shares	Income	Age	Gender	Household size
Purchased shares	.	0.000	0.312	0.538	0.768
Income	0.000	.	0.375	0.000	0.018
Age	0.312	0.375	.	0.678	0.042
Gender	0.538	0.000	0.678	.	0.061
Household size	0.768	0.018	0.042	0.061	.

** - Correlation is significant at the 0.01 level (2-tailed)

* - Correlation is significant at the 0.05 level (2-tailed)

B.3.2 Employment Attributes

Table 10.16: Tables illustrating Pearson correlation and significance between employment attributes and the decision to purchase shares at maturity

Pearson Correlation	Purchased shares	Part-time / full-time
Purchased shares	**1.000**	-0.025
Part-time/Full-time	-0.025	**1.000**
Sig. (2-tailed)	Purchased shares	Part-time / full-time
Purchased shares	.	0.422
Part-time/Full-time	0.422	.

B.3.3 Motives for Joining

Table 10.17 Tables illustrating Pearson correlation and significance between the decision to purchase shares at maturity and the motives within Klein's (1987) three factor model

Pearson Correlation	Purchased shares	Intrinsic	Instrumental	Extrinsic
Purchased shares	**1.000**	0.075*	-0.040	0.050
Intrinsic	0.075*	**1.000**	0.768**	0.240**
Instrumental	-0.040	0.768**	**1.000**	0.236**
Extrinsic	0.050	0.240**	0.236**	**1.000**
Sig. (2-tailed)	Purchased shares	Intrinsic	Instrumental	Extrinsic
Purchased shares	.	0.012	0.177	0.091
Intrinsic	0.012	.	0.000	0.000
Instrumental	0.177	0.000	.	0.000
Extrinsic	0.091	0.000	0.000	.

** - Correlation is significant at the 0.01 level (2-tailed)

* - Correlation is significant at the 0.05 level (2-tailed)

B.3.4 Emotional Affiliation To Job/Employer

Table 10.18: Tables illustrating Pearson correlation and significance between risk preferences and emotional affiliation towards the job/employer

Pearson Correlation	Purchased shares	Reciprocity	Job satisfaction	Organisational commitment	Familiarity
Purchased shares	**1.000**	0.014	-0.054	-0.019	0.001
Reciprocity	0.014	**1.000**	0.243**	0.316**	0.137**
Job satisfaction	-0.054	0.243**	**1.000**	0.744**	0.332**
Organisational commitment	-0.019	0.316**	0.744**	**1.000**	0.470**
Familiarity	0.001	0.137**	0.332**	0.470**	**1.000**
Sig. (2-tailed)	Purchased shares	Reciprocity	Job satisfaction	Organisational commitment	Familiarity
Purchased shares	.	0.639	0.083	0.539	0.976
Reciprocity	0.639	.	0.000	0.000	0.000
Job satisfaction	0.083	0.000	.	0.000	0.000
Organisational commitment	0.539	0.000	0.000	.	0.000
Familiarity	0.976	0.000	0.000	0.000	.

** - Correlation is significant at the 0.01 level (2-tailed)

B.3.5 Risk Preferences

Table 10.19: Tables illustrating Pearson correlation and significance between the decision to purchase shares at maturity and risk preferences

Pearson Correlation	Purchased shares	Self perception of own risk preference	Self Perception of own risk aversion	Financial literacy
Purchased shares	**1.000**	0.157**	-0.131**	0.099**
Self Perception of own risk preference	0.157**	**1.000**	-0.476**	0.104**
Self perception of own risk aversion	-0.131**	-0.496**	**1.000**	-0.112**
Financial literacy	0.099**	0.104**	-0.112**	**1.000**
Sig (2-tailed)	Purchased shares	Self perception of own risk preference	Self perception of own risk aversion	Financial literacy
Purchased shares	.	0.000	0.000	0.001
Self Perception of own risk preference	0.000	.	0.000	0.000
Self perception of own risk aversion	0.000	0.000	.	0.000
Financial literacy	0.001	0.000	0.000	.

** - Correlation is significant at the 0.01 level (2-tailed)

B.3.6 Perceived Share Price Movements

Table 10.20 Tables illustrating Pearson correlation and significance between the decision to purchase shares at maturity and share price perceptions

Pearson Correlation	Purchased shares	Check share price regularly	Perception that the company's share price exceeded the market in the previous year	Perception that the company's share price was falling when they entered into SAYE
Purchased shares	**1.000**	-0.251**	0.050	-0.194**
Check share price regularly	-0.251**	**1.000**	-0.042	0.093**
Perception that the company's share price exceeded the market in the previous year	0.050	-0.042	**1.000**	-0.204**
Perception that the company's share price was falling when they entered into SAYE	-0.194**	0.093**	-0.204**	**1.000**
Sig (2-tailed)	Purchased shares	Check share price regularly	Perception that the company's share price exceeded the market in the previous year	Perception that the company's share price was falling when they entered into SAYE
Purchased shares	.	0.000	0.098	0.000
Check share price regularly	0.000	.	0.170	0.002
Perception that the company's share price exceeded the market in the previous year	0.098	0.170	.	0.000
Perception that the company's share price was falling when they entered into SAYE	0.000	0.002	0.000	.

** - Correlation is significant at the 0.01 level (2-tailed)

B.3.7 Financial Education

Table 11.21 Tables illustrating Pearson correlation and significance between the decision to purchase shares at maturity and financial education

Pearson Correlation	Purchased shares	Received financial education from current or past employer
Purchased shares	**1.000**	0.146**
Received financial education from current or past employer	0.146**	**1.000**
Sig (2-tailed)	Purchased shares	Received financial education from current or past employer
Purchased shares	.	0.000
Received financial education from current or past employer	0.000	.

** - Correlation is significant at the 0.01 level (2-tailed)

Appendix C Regression Tables

C.1 Savings Plan Contributions

Table 10.22: Table illustrating each of the models within the Tobit regression run to identify which factors are most influential on saving plan contributions

Model 1	**Number of obs**		1,755	**Prob > chi2**		0.0000
	LR chi2(8)		588.29	**Pseudo R2**		0.0354
	Log likelihood		-8025.4895			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	20.32138	0.9724913	20.9	0.000	18.41401	22.22875
Age						
25 - 34	5.741341	10.23362	0.56	0.575	-14.33009	25.81278
35 - 44	14.48091	10.14989	1.43	0.154	-5.426302	34.38813
45 - 54	36.23889	10.22342	3.54	0.000	16.18747	56.29032
55 - 64	42.07196	11.53513	3.65	0.000	19.44784	64.69608
65 and over	38.70397	31.40115	1.23	0.218	-22.88383	100.2918
Gender	8.673965	5.380434	1.61	0.107	-1.878803	19.22673
Household size	1.6888	2.018979	0.84	0.403	-2.271069	5.64867
Constant	-5.897328	14.7444	-0.4	0.689	-34.81585	23.02119
Sigma	98.11301	2.09863	93.99692	102.2291		
Model 2	**Number of obs**		1,717	**Prob > chi2**		0.0000
	LR chi2(9)		579.52	**Pseudo R2**		0.0356
	Log likelihood		-7846.7425			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	22.49244	1.160544	19.38	0.000	20.2162	24.76867
Age						
25 - 34	9.310273	10.49701	0.89	0.375	-11.27808	29.89863
35 - 44	14.04944	10.33257	1.36	0.174	-6.216386	34.31526
45 - 54	34.67382	10.39867	3.33	0.001	14.27834	55.0693
55 - 64	38.90161	11.72835	3.32	0.001	15.89817	61.90505
65 and over	28.52964	31.55522	0.9	0.366	-33.36131	90.42059
Gender	4.604872	5.591225	0.82	0.41	-6.361499	15.57124
Household size	0.254138	2.065746	0.12	0.902	-3.797521	4.305797
Employment-related	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	-28.46651	7.669514	-3.71	0.000	-43.50914	-13.42388
Constant	42.19804	19.63686	2.15	0.032	3.683214	80.71286
Sigma	98.19301	2.123788	94.02751	102.3585		

Model 3	**Number of obs**		1,702	**Prob > chi2**		0.0000
	LR chi2(12)		629.28	**Pseudo R2**		0.0390
	Log likelihood		-7746.3175			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	21.6921	1.173399	18.49	0.000	19.39063	23.99357
Age						
25 - 34	5.126087	10.3566	0.49	0.621	-15.18701	25.43919
35 - 44	10.136	10.19869	0.99	0.320	-9.867388	30.13939
45 - 54	34.16387	10.25796	3.33	0.001	14.04423	54.2835
55 - 64	36.72223	11.55412	3.18	0.002	14.06034	59.38412
65 and over	36.15951	31.01003	1.17	0.244	-24.6626	96.98162
Gender	4.075786	5.542549	0.74	0.462	-6.795195	14.94677
Household size	0.238324	2.047344	0.12	0.907	-3.777272	4.25392
Employment-related	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	-29.42465	7.590753	-3.88	0.000	-44.31291	-14.53638
Motives for participation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Intrinsic	3.683695	3.509753	1.05	0.294	-3.200225	10.56762
Instrumental	-10.79095	4.062752	-2.66	0.008	-18.7595	-2.822391
Extrinsic	29.17562	4.370579	6.68	0.000	20.60331	37.74794
Constant	-53.30728	25.36877	-2.1	0.036	-103.0648	-3.549769
Sigma	96.51595	2.096165	92.4046	100.6273		
Model 4	**Number of obs**		1,645	**Prob > chi2**		0.0000
	LR chi2 (16)		605.97	**Pseudo R2**		0.0390
	Log likelihood		-7458.6407			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	22.12043	1.215291	18.2	0.000	19.73673	24.50413
Age						
25 - 34	5.557472	10.78243	0.52	0.606	-15.59141	26.70636
35 - 44	7.789995	10.5971	0.74	0.462	-12.99538	28.57537
45 - 54	32.59732	10.66287	3.06	0.002	11.68294	53.5117

55 - 64	37.8284	11.95873	3.16	0.002	14.37229	61.2845
65 and over	40.14069	32.67416	1.23	0.219	-23.9471	104.2285
Gender	4.828525	5.702025	0.85	0.397	-6.355548	16.0126
Household size	-0.2773361	2.120541	-0.13	0.896	-4.43661	3.881938
Employment-related	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	-29.72338	7.783108	-3.82	0.000	-44.98933	-14.45742
Motives for participation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Intrinsic	3.958687	3.614969	1.1	0.274	-3.13179	11.04916
Instrumental	-11.68666	4.452247	-2.62	0.009	-20.41939	-2.953924
Extrinsic	29.18419	4.502192	6.48	0.000	20.35349	38.01488
Emotional affiliation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Reciprocity	5.480372	3.792097	1.45	0.149	-1.957529	12.91827
Job satisfaction	-5.130073	5.994368	-0.86	0.392	-16.88755	6.627409
Orgnaisiational Commitment	1.530393	4.415924	0.35	0.729	-7.131095	10.19188
Familiarity	1.353582	3.502666	0.39	0.699	-5.516622	8.223786
Constant	-57.53187	28.5252	-2.02	0.044	-113.4818	-1.581932
Sigma	96.90608	2.147875	92.6932	101.119		
Model 5	**Number of obs**		1,610	**Prob > chi2**		0,0000
	LR chi2(19)		623.38	**Pseudo R2**		0.0411
	Log likelihood		-7270.5859			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	20.79621	1.261775	16.48	0.000	18.3213	23.27113
Age	12.70032	10.89612	1.17	0.244	-8.671936	34.07258
25 - 34	16.51604	10.76957	1.53	0.125	-4.608002	37.64009
35 - 44	40.69076	10.84123	3.75	0.000	19.42616	61.95535
45 - 54	47.19222	12.17498	3.88	0.000	23.31153	71.07292
55 - 64	42.06847	32.44416	1.3	0.195	-21.56933	105.7063
Gender	6.832594	5.831601	1.17	0.242	-4.605836	18.27102
Household size	-1.375559	2.140192	-0.64	0.520	-5.573452	2.822333
Employment-related	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	-27.96423	7.876573	-3.55	0.000	-43.41379	-12.51468

Motives for participation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Intrinsic	5.592145	3.657019	1.53	0.126	-1.580938	12.76523
Instrumental	-12.23002	4.49692	-2.72	0.007	-21.05053	-3.409509
Extrinsic	27.18511	4.515508	6.02	0.000	18.32814	36.04208
Emotional affiliation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Reciprocity	6.616154	3.846333	1.72	0.086	-0.9282588	14.16057
Job satisfaction	-4.376919	6.018435	-0.73	0.467	-16.18182	7.427978
Orgnaisiational Commitment	0.8026391	4.425646	0.18	0.856	-7.878071	9.483349
Familiarity	1.80155	3.516096	0.51	0.608	-5.095119	8.698218
Risk preferences	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Self Perception Of Own Risk Preference	2.036592	1.221217	1.67	0.096	-0.3587724	4.431956
Self Perception Of Own Risk Aversion	-3.890267	3.003526	-1.3	0.195	-9.781552	2.001018
Financial Literacy	28.54523	8.063322	3.54	0.000	12.72937	44.36108
Constant	-87.56225	33.42663	-2.62	0.009	-153.1271	-21.99738
Sigma	96.098	2.155392	91.87029	100.3257		
Model 6	**Number of obs**		1,597	**Prob > chi2**		0.0000
	LR chi2(22)		711.80	**Pseudo R2**		0.0473
	Log likelihood		-7160.9653			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	19.2213	1.232192	15.6	0.000	16.80439	21.63821
Age						
25 - 34	1.02816	10.64181	0.1	0.923	-19.84544	21.90176
35 - 44	2.970258	10.53409	0.28	0.778	-17.69205	23.63256
45 - 54	24.81022	10.62814	2.33	0.020	3.963434	45.657
55 - 64	28.50198	11.93536	2.39	0.017	5.091117	51.91285
65 and over	23.1914	31.32496	0.74	0.459	-38.25162	84.63442
Gender	13.08513	5.701231	2.3	0.022	1.902329	24.26793
Household size	-2.030668	2.072663	-0.98	0.327	-6.096137	2.034802
Employment-related	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	-29.58668	7.614658	-3.89	0.000	-44.52262	-14.65075

Motives for participation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Intrinsic	6.936657	3.539659	1.96	0.050	-0.0062821	13.8796
Instrumental	-12.23152	4.357063	-2.81	0.005	-20.77778	-3.685267
Extrinsic	22.03442	4.42749	4.98	0.000	13.35003	30.71882
Emotional affiliation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Reciprocity	6.427921	3.736475	1.72	0.086	-0.9010671	13.75691
Job satisfaction	-3.382343	5.804952	-0.58	0.560	-14.76859	8.003904
Orgnaisiational Commitment	0.2428153	4.280505	0.06	0.955	-8.153274	8.638904
Familiarity	-0.3796132	3.405449	-0.11	0.911	-7.059304	6.300078
Risk preferences	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Self Perception Of Own Risk Preference	1.077401	1.186064	0.91	0.364	-1.249029	3.403831
Self Perception Of Own Risk Aversion	-1.968722	2.91459	-0.68	0.499	-7.685606	3.748162
Financial Literacy	21.86122	7.805087	2.8	0.005	6.55176	37.17067
Share price movements	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Check share price regularly	-9.959136	1.153549	-8.63	0.000	-12.22179	-7.696482
Perception that the company's share price exceeded the market	-10.97795	2.668908	-4.11	0.000	-16.21294	-5.742965
Perception that the company's share price was falling when they entered	-1.160097	2.749905	-0.42	0.673	-6.553957	4.233764
Constant	18.46712	35.10961	0.53	0.599	-50.39937	87.3336
Sigma	92.50587	2.083498	88.41915	96.5926		
Model 7	**Number of obs**		1,597	**Prob > chi2**		0.000
	LR chi2(23)		712.48	**Pseudo R2**		0.0474
	Log likelihood		-7160.6247			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	19.1494	1.235156	15.5	0.000	16.72668	21.57213
Age						
25 - 34	0.8733495	10.64245	0.08	0.935	-20.00151	21.74821
35 - 44	2.67533	10.53947	0.25	0.800	-17.99756	23.34822
45 - 54	24.77008	10.62715	2.33	0.020	3.925217	45.61495
55 - 64	28.56331	11.93469	2.39	0.017	5.153753	51.97288
65 and over	22.24592	31.33798	0.71	0.478	-39.22267	83.7145
Gender	12.95778	5.702855	2.27	0.023	1.771787	24.14377
Household size	-1.978293	2.073431	-0.95	0.340	-6.04527	2.088685

Employment-related	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	-29.17525	7.629157	-3.82	0.000	-44.13963	-14.21087
Motives for participation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Intrinsic	6.937875	3.539139	1.96	0.050	-0.0040476	13.8798
Instrumental	-12.14251	4.357841	-2.79	0.005	-20.69029	-3.594727
Extrinsic	22.06554	4.427304	4.98	0.000	13.3815	30.74957
Emotional affiliation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Reciprocity	6.48086	3.736854	1.73	0.083	-0.8488748	13.8106
Job satisfaction	-3.746762	5.82102	-0.64	0.520	-15.16453	7.671007
Orgnaisiational Commitment	0.3387463	4.281551	0.08	0.937	-8.059397	8.736889
Familiarity	-0.4632812	3.406691	-0.14	0.892	-7.145411	6.218848
Risk preferences	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Self Perception Of Own Risk Preference	1.056909	1.186213	0.89	0.373	-1.269815	3.383633
Self Perception Of Own Risk Aversion	-1.905606	2.915463	-0.65	0.513	-7.624206	3.812994
Financial Literacy	21.78004	7.805316	2.79	0.005	6.47013	37.08995
Share price movements	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Check share price regularly	-9.868675	1.158517	-8.52	0.000	-12.14107	-7.596275
Perception that the company's share price exceeded the market	-10.80289	2.677233	-4.04	0.000	-16.05421	-5.551572
Perception that the company's share price was falling when they entered	-1.141697	2.749579	-0.42	0.678	-6.534921	4.251527
Financial education	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Financial education	4.794437	5.810308	0.83	0.409	-6.602321	16.1912
Constant	17.2578	35.13654	0.49	0.623	-51.66154	86.17715
Sigma	92.49298	2.083138	88.40696	96.5	92.49298	

C.2 Concentration of Savings Allocation

Table 10.23: Table illustrating each of the models within the Tobit regression run to identify which factors are most influential on the concentration of savings allocation

Model 1	**Number of obs**		1,753	**Prob > chi2**		0.000
	LR chi2(8)		182.42	**Pseudo R2**		0.155
	Log likelihood		-5796.0254			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	-5.576055	0.5257001	-10.61	0.000	-6.607123	-4.544987
Age						
25 - 34	-11.70054	6.47562	-1.81	0.071	-24.40133	1.000248
35 - 44	-13.31722	6.395453	-2.08	0.037	-25.86077	-0.7736565
45 - 54	-10.43161	6.452864	-1.62	0.106	-23.08777	2.224547
55 - 64	-14.02642	7.120691	-1.97	0.049	-27.99241	-0.0604379
65 and over	-12.93117	19.07473	-0.68	0.498	-50.34289	24.48056
Gender	3.081601	3.111476	0.99	0.322	-3.021013	9.184215
Household size	2.259261	1.176119	1.92	0.055	-0.0474899	4.566013
Constant	116.614	8.876016	13.14	0.000	99.20521	134.0227
Sigma	54.14064	1.396929	51.40081	56.88047		
Model 2	**Number of obs**		1,715	**Prob > chi2**		**0.000**
	LR chi2(9)		182.02	**Pseudo R2**		0.0158
	Log likelihood		-5667.4272			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	-5.95765	0.6100182	-9.77	0.000	-7.154112	-4.761187
Age						
25 - 34	-15.09352	6.672231	-2.26	0.024	-28.18014	-2.0069
35 - 44	-15.87619	6.539523	-2.43	0.015	-28.70252	-3.049857
45 - 54	-11.73268	6.587581	-1.78	0.075	-24.65327	1.187911
55 - 64	-15.66411	7.259216	-2.16	0.031	-29.90202	-1.426212
65 and over	-13.55232	19.11463	-0.71	0.478	-51.04291	23.93827
Gender	3.308939	3.228534	1.02	0.306	-3.023363	9.641242
Household size	2.435643	1.201274	2.03	0.043	0.079517	4.791769
Employment-related	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	5.314766	4.473944	1.19	0.235	-3.460228	14.08976
Constant	110.6811	11.7812	9.39	0.000	87.57394	133.7882
Sigma	54.06641	1.410502	51.29991	56.8329		

Model 3	**Number of obs**		1,700	**Prob > chi2**		0.0000
	LR chi2(12)		187.92	**Pseudo R2**		0.0165
	Log likelihood		-5597.6141			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	-6.14089	0.6308983	-9.73	0.000	-7.378315	-4.903464
Age						
25 - 34	-14.23376	6.703548	-2.12	0.034	-27.3819	-1.08562
35 - 44	-15.24836	6.574447	-2.32	0.020	-28.14329	-2.353438
45 - 54	-11.05148	6.62336	-1.67	0.095	-24.04234	1.93938
55 - 64	-15.32232	7.286119	-2.1	0.036	-29.61309	-1.031537
65 and over	-16.05168	19.16617	-0.84	0.402	-53.64364	21.54029
Gender	2.387606	3.260537	0.73	0.464	-4.007514	8.782726
Household size	2.63855	1.21324	2.17	0.030	0.2589364	5.018164
Employment-related	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	5.440238	4.50541	1.21	0.227	-3.39654	14.27702
Motives for participation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Intrinsic	-2.134849	2.03025	-1.05	0.293	-6.116921	1.847223
Instrumental	0.1243803	2.376635	0.05	0.958	-4.53708	4.785841
Extrinsic	-3.693412	2.602817	-1.42	0.156	-8.798501	1.411676
Constant	132.938	15.53731	8.56	0.000	102.4636	163.4124
Sigma	54.11946	1.421502	51.33136	56.90755		
Model 4	**Number of obs**		1,643	**Prob > chi2**		0.0000
	LR chi2 (16)		189.74	**Pseudo R2**		0.0172
	Log likelihood		-5423.9657			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	-6.516258	0.6495176	-10.03	0.000	-7.790237	-5.242279
Age						
25 - 34	-11.93569	6.879929	-1.73	0.083	-25.43014	1.558766
35 - 44	-12.75919	6.733892	-1.89	0.058	-25.96721	0.4488179
45 - 54	-8.785519	6.787603	-1.29	0.196	-22.09888	4.527842

55 - 64	-13.40773	7.441799	-1.8	0.072	-28.00425	1.188782
65 and over	-19.64663	19.69254	-1	0.319	-58.27204	18.97878
Gender	-0.3960359	3.317021	-0.12	0.905	-6.902118	6.110046
Household size	2.613468	1.242673	2.1	0.036	0.1760605	5.050876
Employment-related	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	6.010069	4.569455	1.32	0.189	-2.952565	14.9727
Motives for participation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Intrinsic	-2.080876	2.069336	-1.01	0.315	-6.13972	1.977968
Instrumental	1.136131	2.580494	0.44	0.660	-3.925309	6.197571
Extrinsic	-4.251306	2.6538	-1.6	0.109	-9.456531	0.9539195
Emotional affiliation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Reciprocity	-3.512313	2.196203	-1.6	0.110	-7.819996	0.7953695
Job satisfaction	4.740315	3.417534	1.39	0.166	-1.962916	11.44355
Orgnaisiational Commitment	-1.503417	2.516841	-0.6	0.550	-6.440008	3.433174
Familiarity	-2.4762	2.039891	-1.21	0.225	-6.47729	1.52489
Constant	141.948	17.13235	8.29	0.000	108.3442	175.5518
Sigma	53.79235	1.432905	50.98182	56.60289		
Model 5	**Number of obs**		1,608	**Prob > chi2**		0.0000
	LR chi2(19)		199.31	**Pseudo R2**		0.0183
	Log likelihood		-5333.2562			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	-5.754139	0.6740876	-8.54	0.000	-7.076334	-4.431944
Age						
25 - 34	-12.57769	6.921966	-1.82	0.069	-26.15484	0.9994571
35 - 44	-14.6534	6.804166	-2.15	0.031	-27.99949	-1.307316
45 - 54	-9.909351	6.865068	-1.44	0.149	-23.37489	3.556193
55 - 64	-15.70157	7.539904	-2.08	0.037	-30.49078	-0.9123659
Gender	-1.998245	3.379957	-0.59	0.554	-8.627889	4.631399
Household size	2.683727	1.246879	2.15	0.032	0.2380261	5.129427
Employment-related	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	3.003364	4.604791	0.65	0.514	-6.02874	12.03547

Motives for participation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Intrinsic	-1.946893	2.078614	-0.94	0.349	-6.024007	2.130222
Instrumental	0.9145441	2.591203	0.35	0.724	-4.167991	5.99708
Extrinsic	-4.556387	2.651646	-1.72	0.086	-9.75748	0.6447058
Emotional affiliation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Reciprocity	-3.470395	2.215271	-1.57	0.117	-7.815556	0.8747651
Job satisfaction	4.533776	3.418412	1.33	0.185	-2.171296	11.23885
Orgnaisiational Commitment	-1.800024	2.513624	-0.72	0.474	-6.730391	3.130343
Familiarity	-2.714096	2.042006	-1.33	0.184	-6.719406	1.291214
Risk preferences	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Self Perception Of Own Risk Preference	-2.714096	2.042006	-1.33	0.184	-6.719406	1.291214
Self Perception Of Own Risk Aversion	-1.16138	0.7207169	-1.61	0.107	-2.575036	0.2522757
Financial Literacy	1.118091	1.708867	0.65	0.513	-2.23378	4.469962
Constant	162.54	19.87605	8.18	0.000	123.5539	201.526
Sigma	53.25398	1.426153	50.45664	56.05132		
Model 6	**Number of obs**		1,595	**Prob > chi2**		0.0000
	LR chi2(22)		203.20	**Pseudo R2**		0.0189
	Log likelihood		-5287.7972			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	-5.797775	0.6851324	-8.46	0.000	-7.141644	-4.453907
Age						
25 - 34	-11.07327	6.993222	-1.58	0.114	-24.79028	2.643752
35 - 44	-13.25439	6.881189	-1.93	0.054	-26.75166	0.2428798
45 - 54	-8.279073	6.960054	-1.19	0.234	-21.93103	5.372887
55 - 64	-14.0643	7.643434	-1.84	0.066	-29.05669	0.9280893
65 and over	-18.04626	19.66051	-0.92	0.359	-56.60983	20.51731
Gender	-2.493875	3.42384	-0.73	0.466	-9.209645	4.221895
Household size	3.006411	1.25396	2.4	0.017	0.5468022	5.466019
Employment-related	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	3.763794	4.615093	0.82	0.415	-5.288588	12.81618

Motives for participation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Intrinsic	-1.947143	2.085459	-0.93	0.351	-6.037714	2.143429
Instrumental	1.015984	2.602825	0.39	0.696	-4.089388	6.121356
Extrinsic	-4.290765	2.691154	-1.59	0.111	-9.569392	0.9878617
Emotional affiliation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Reciprocity	-3.022855	2.228813	-1.36	0.175	-7.394611	1.348902
Job satisfaction	4.884296	3.426493	1.43	0.154	-1.836679	11.60527
Orgnaisiational Commitment	-2.317202	2.524649	-0.92	0.359	-7.269233	2.63483
Familiarity	-2.780325	2.050955	-1.36	0.175	-6.803218	1.242567
Risk preferences	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Self Perception Of Own Risk Preference	-1.071468	0.7249638	-1.48	0.140	-2.493465	0.3505294
Self Perception Of Own Risk Aversion	0.715773	1.719637	0.42	0.677	-2.657249	4.088795
Financial Literacy	-8.937785	4.316629	-2.07	0.039	-17.40474	-0.4708324
Share price movements	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Check share price regularly	0.6753218	0.7174795	0.94	0.347	-0.731995	2.082639
Perception that the company's share price exceeded the market	1.786031	1.537634	1.16	0.246	-1.229998	4.802059
Perception that the company's share price was falling when they entered into	2.207131	1.629846	1.35	0.176	-0.9897685	5.40403
Constant	145.9888	21.48904	6.79	0.000	103.8386	188.1389
Sigma	53.1455	1.429014	50.34253	55.94847		
Model 7	**Number of obs**		1,595	**Prob > chi2**		0.0000
	LR chi2(23)		214.69	**Pseudo R2**		0.0199
	Log likelihood		-5282.0512			
Socio-demographic	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Income	-5.588147	0.6843283	-8.17	0.000	-6.93044	-4.245855
Age						
25 - 34	-10.64441	6.964812	-1.53	0.127	-24.30571	3.016892
35 - 44	-12.64512	6.853871	-1.84	0.065	-26.08881	0.7985675
45 - 54	-8.2725	6.930113	-1.19	0.233	-21.86574	5.320737
55 - 64	-14.19822	7.610746	-1.87	0.062	-29.1265	0.7300641
65 and over	-16.0362	19.56496	-0.82	0.413	-54.41236	22.33996
Gender	-2.128244	3.410647	-0.62	0.533	-8.818141	4.561653
Household size	2.900491	1.248828	2.32	0.02	0.4509469	5.350035

Employment-related	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	2.690054	4.606878	0.58	0.559	-6.346219	11.72633
Motives for participation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Intrinsic	-1.975781	2.077078	-0.95	0.342	-6.049915	2.098354
Instrumental	0.8802282	2.592847	0.34	0.734	-4.205574	5.96603
Extrinsic	-4.393907	2.680653	-1.64	0.101	-9.651939	0.8641246
Emotional affiliation	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Reciprocity	-3.184464	2.221096	-1.43	0.152	-7.541086	1.172158
Job satisfaction	5.807196	3.424044	1.7	0.090	-0.9089784	12.52337
Orgnaisiational Commitment	-2.562892	2.515035	-1.02	0.308	-7.496069	2.370284
Familiarity	-2.517584	2.04435	-1.23	0.218	-6.527524	1.492356
Risk preferences	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Self Perception Of Own Risk Preference	-1.019646	0.7221885	-1.41	0.158	-2.4362	0.396908
Self Perception Of Own Risk Aversion	0.5696253	1.713246	0.33	0.740	-2.790862	3.930112
Financial Literacy	-8.87117	4.298414	-2.06	0.039	-17.3024	-0.4399427
Share price movements	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Check share price regularly	0.4292679	0.7178424	0.6	0.55	-0.9787615	1.837297
Perception that the company's share price exceeded the market	1.310327	1.53686	0.85	0.394	-1.704184	4.324838
Perception that the company's share price was falling when they entered	2.124512	1.624037	1.31	0.191	-1.060995	5.31002
Financial education	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.**	**Interval]**
Financial education	-11.36837	3.348741	-3.39	0.001	-17.93684	-4.799901
Constant	148.8642	21.42435	6.95	0.000	106.8409	190.8876
Sigma	52.90773	1.422151	50.11821	55.69724		

C.3 Decision At Maturity

Table 10.24: Table illustrating each of the models within the Logistic regression run to identify which factors are most influential on the decision at maturity

Socio-demographic	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Income	1.070668	0.0250331	2.92	0.003	1.022711	1.120874
Age						
25 - 34	0.9295264	0.7304263	-0.09	0.926	0.1992432	4.336506
35 - 44	0.8994496	0.6986639	-0.14	0.891	0.1962413	4.122524
45 - 54	1.185819	0.9212813	0.22	0.826	0.2586467	5.436634
55 - 64	0.9596462	0.7535986	-0.05	0.958	0.2059078	4.472491
65 and over	1.691239	1.965723	0.45	0.651	0.1733227	16.50268
Gender	1.124547	0.1629641	0.81	0.418	0.8464967	1.493928
Household size	1.000119	0.0552579	0	0.998	0.8974733	1.114504
Constant	0.8699109	0.7270153	-0.17	0.868	0.1690813	4.475628
Model 2	**Number of obs**		1,040	**Prob > chi2**		0.0173
	LR chi2(9)		20.11	**Pseudo R2**		0.0145
	Log likelihood		-680.96437			
Socio-demographic	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Income	1.109515	0.0306419	3.76	0	1.051055	1.171228
Age						
25 - 34	0.9692536	0.7639234	-0.04	0.968	0.2068033	4.542734
35 - 44	0.9026695	0.7025921	-0.13	0.895	0.1963345	4.150121
45 - 54	1.147413	0.8932579	0.18	0.86	0.2494949	5.276888
55 - 64	0.9140219	0.7196431	-0.11	0.909	0.1953324	4.276996
65 and over	1.450274	1.693135	0.32	0.75	0.147132	14.29528
Gender	1.048948	0.1573376	0.32	0.75	0.7817667	1.407441
Household size	0.9712798	0.0550609	-0.51	0.607	0.8691416	1.085421
Employment-related	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	0.6026376	0.127839	-2.39	0.017	0.3976388	0.9133215
Constant	2.08634	1.917643	0.8	0.424	0.3443579	12.64039

Model 3	**Number of obs**		1,030	**Prob > chi2**		0.0000
	LR chi2(12)		42.93	**Pseudo R2**		0.0313
	Log likelihood		-663.78083			
Socio-demographic	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Income	1.098691	0.031516	3.28	0.001	1.038626	1.162231
Age						
25 - 34	0.9799775	0.7953339	-0.02	0.98	0.1997076	4.808809
35 - 44	0.9829948	0.7882121	-0.02	0.983	0.2041819	4.732441
45 - 54	1.242381	0.9964209	0.27	0.787	0.2579703	5.983288
55 - 64	1.001271	0.8118251	0	0.999	0.204363	4.905702
65 and over	1.608235	1.90716	0.4	0.689	0.1573742	16.43483
Gender	1.008124	0.1543335	0.05	0.958	0.746799	1.360894
Household size	0.9710308	0.0559929	-0.51	0.61	0.867261	1.087217
Employment-related	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	0.5971603	0.1286031	-2.39	0.017	0.3915417	0.9107597
Motives for participation	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Intrinsic	1.545768	0.153108	4.4	0	1.273014	1.876963
Instrumental	0.6594823	0.0782033	-3.51	0	0.5227152	0.8320341
Extrinsic	1.164476	0.1384907	1.28	0.2	0.9223537	1.470157
Constant	0.9479372	0.9936759	-0.05	0.959	0.1214806	7.396942
Model 4	**Number of obs**		1,002	**Prob > chi2**		0.0001
	LR chi2 (16)		45.40	**Pseudo R2**		0.0341
	Log likelihood		-642.81095			
Socio-demographic	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Income	1.108976	0.0330997	3.47	0.001	1.045963	1.175785
Age						
25 - 34	1.074896	0.8869355	0.09	0.93	0.2133092	5.41656
35 - 44	1.001778	0.8164802	0	0.998	0.2027756	4.949112
45 - 54	1.280611	1.043658	0.3	0.762	0.2592475	6.325869

55 - 64	0.9811662	0.8086208	-0.02	0.982	0.1950883	4.934623
65 and over	1.6707	1.998488	0.43	0.668	0.1602114	17.42223
Gender	1.035228	0.1621341	0.22	0.825	0.7615943	1.407177
Household size	0.977021	0.0575422	-0.39	0.693	0.8705063	1.096569
Employment-related	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	0.5786162	0.1275438	-2.48	0.013	0.3756307	0.8912922
Motives for participation	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Intrinsic	1.4981	0.152195	3.98	0	1.227625	1.828168
Instrumental	0.656359	0.0847864	-3.26	0.001	0.5095489	0.8454677
Extrinsic	1.152284	0.141125	1.16	0.247	0.9063779	1.464906
Emotional affiliation	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Reciprocity	1.178768	0.1209358	1.6	0.109	0.9640493	1.44131
Job satisfaction	1.007569	0.1587662	0.05	0.962	0.739857	1.37215
Orgnaisiational Commitment	0.8509614	0.0984758	-1.39	0.163	0.6782757	1.067612
Familiarity	1.037031	0.0961358	0.39	0.695	0.8647344	1.243657
Constant	1.020139	1.130755	0.02	0.986	0.1161876	8.956918
Model 5	**Number of obs**		991	**Prob > chi2**		0.0000
	LR chi2(16)		60.49	**Pseudo R2**		0.0459
	Log likelihood		-628.53526			
Socio-demographic	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Income	1.065663	0.0336201	2.02	0.044	1.001764	1.133637
Age						
25 - 34	1.030939	0.8531661	0.04	0.971	0.2036152	5.219817
35 - 44	0.970201	0.7929626	-0.04	0.97	0.1955058	4.814641
45 - 54	1.255293	1.025628	0.28	0.781	0.2530912	6.226055
55 - 64	1.038392	0.8583028	0.05	0.964	0.205487	5.247329
65 and over	1.386324	1.663063	0.27	0.785	0.1320522	14.55404
Gender	1.144265	0.1850623	0.83	0.405	0.833415	1.571056
Household size	0.9864411	0.0590186	-0.23	0.82	0.8772915	1.109171
Employment-related	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	0.671174	0.1514339	-1.77	0.077	0.431303	1.04445

Motives for participation	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Intrinsic	1.48579	0.1536221	3.83	0	1.213244	1.819562
Instrumental	0.6596997	0.0862825	-3.18	0.001	0.5105251	0.8524628
Extrinsic	1.113761	0.1383038	0.87	0.386	0.8731565	1.420666
Emotional affiliation	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Reciprocity	1.19896	0.1249578	1.74	0.082	0.9774421	1.470681
Job satisfaction	1.02363	0.1636302	0.15	0.884	0.7483006	1.400264
Orgnaisiational Commitment	0.8451615	0.0991494	-1.43	0.152	0.6715552	1.063648
Familiarity	1.067217	0.1006429	0.69	0.49	0.8871171	1.28388
Risk preferences	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Self Perception Of Own Risk Preference	1.067252	0.0369304	1.88	0.06	0.99727	1.142145
Self Perception Of Own Risk Aversion	0.8645079	0.0728507	-1.73	0.084	0.7328913	1.019761
Financial Literacy	1.466534	0.2855076	1.97	0.049	1.001333	2.147859
Constant	0.6737892	0.8175227	-0.33	0.745	0.0624803	7.266159
Model 6	**Number of obs**		986	**Prob > chi2**		0.0000
	LR chi2(16)		138.05	**Pseudo R2**		0.1052
	Log likelihood		-586.86561			
Socio-demographic	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Income	1.041175	0.0344916	1.22	0.223	0.9757207	1.11102
Age						
25 - 34	0.8356641	0.7311525	-0.21	0.837	0.1504129	4.642785
35 - 44	0.7909341	0.6832128	-0.27	0.786	0.1455017	4.299445
45 - 54	1.086025	0.9378748	0.1	0.924	0.1998733	5.900988
55 - 64	0.9732569	0.8502539	-0.03	0.975	0.1756318	5.393265
65 and over	1.559852	1.950401	0.36	0.722	0.1345122	18.08861
Gender	1.333929	0.2293865	1.68	0.094	0.952264	1.868564
Household size	1.026993	0.0642955	0.43	0.671	0.9084013	1.161068
Employment-related	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	0.7158085	0.1688721	-1.42	0.156	0.4507992	1.136608

Motives for participation	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Intrinsic	1.523812	0.1640532	3.91	0	1.233932	1.881792
Instrumental	0.6162195	0.0841923	-3.54	0	0.4714529	0.8054389
Extrinsic	0.9503964	0.1248707	-0.39	0.699	0.7346274	1.229539
Emotional affiliation	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Reciprocity	1.156869	0.1273406	1.32	0.186	0.9323728	1.43542
Job satisfaction	1.074364	0.1799517	0.43	0.668	0.7737109	1.491848
Orgnaisiational Commitment	0.7931342	0.0969278	-1.9	0.058	0.6241983	1.007792
Familiarity	1.044121	0.1040757	0.43	0.665	0.8588255	1.269395
Risk preferences	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Self Perception Of Own Risk Preference	1.037009	0.0377192	1	0.318	0.9656539	1.113636
Self Perception Of Own Risk Aversion	0.8626023	0.0760945	-1.68	0.094	0.7256411	1.025414
Financial Literacy	1.41369	0.287326	1.7	0.088	0.9491859	2.105508
Share price movements	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Check share price regularly	0.7723148	0.0311563	-6.4	0	0.7136013	0.8358591
Perception that the company's share price exceeded the market	1.038704	0.0749117	0.53	0.599	0.9017848	1.196412
Perception that the company's share price was falling when they entered	0.6686521	0.0523672	-5.14	0	0.5735037	0.7795863
Constant	11.98702	15.96632	1.86	0.062	0.8809248	163.1112
Model 7	**Number of obs**		986	**Prob > chi2**		0.0000
	LR chi2(16)		154.16	**Pseudo R2**		0.1175
	Log likelihood		-578.8139			
Socio-demographic	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Income	1.028352	0.0345241	0.83	0.405	0.9628647	1.098294
Age						
25 - 34	0.8761453	0.7811903	-0.15	0.882	0.1526252	5.029514
35 - 44	0.7932134	0.6984673	-0.26	0.792	0.1412086	4.455732
45 - 54	1.144562	1.007525	0.15	0.878	0.2038692	6.425802
55 - 64	1.057463	0.941494	0.06	0.95	0.184677	6.055051
65 and over	1.416773	1.792792	0.28	0.783	0.1186276	16.92057
Gender	1.286943	0.2233092	1.45	0.146	0.9159239	1.808252
Household Size	1.045962	0.0662099	0.71	0.478	0.9239197	1.184124

Employment-related	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Part-time/Full-time	0.7638142	0.1812455	-1.14	0.256	0.4797401	1.2161
Motives for participation	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Intrinsic	1.520285	0.1652246	3.85	0	1.228617	1.881194
Instrumental	0.6315634	0.0870549	-3.33	0.001	0.4820444	0.8274597
Extrinsic	0.942629	0.1251533	-0.44	0.656	0.7266518	1.2228
Emotional affiliation	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Reciprocity	1.176674	0.1311849	1.46	0.144	0.9457087	1.464046
Job satisfaction	1.006524	0.1701551	0.04	0.969	0.7226476	1.401915
Orgnaisiational Commitment	0.7988156	0.098058	-1.83	0.067	0.6279975	1.016097
Familiarity	1.034201	0.1040064	0.33	0.738	0.8491847	1.259527
Risk preferences	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Self Perception Of Own Risk Preference	1.031704	0.0377619	0.85	0.394	0.9602843	1.108435
Self Perception Of Own Risk Aversion	0.8617834	0.0768702	-1.67	0.095	0.7235554	1.026418
Financial Literacy	1.440861	0.2955939	1.78	0.075	0.9638229	2.154005
Share price movements	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Check share price regularly	0.7766767	0.0315457	-6.22	0	0.7172452	0.8410328
Perception that the company's share price exceeded the market	1.077479	0.0792316	1.01	0.31	0.9328601	1.244518
Perception that the company's share price was falling when they entered	0.6723525	0.0530456	-5.03	0	0.5760246	0.7847893
Financial education	**Exp (B)**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Financial education	1.958721	0.3341802	3.94	0	1.402	2.736512
Constant	10.34217	13.95632	1.73	0.083	0.7344315	145.6372

Appendix D: Multi-collinearity Diagnostics

D.1 Savings Plan Contributions

Table 5.57: Table illustrating the multi-collinearity diagnostics

		Collinearity statistics	
Model	Variable	Tolerance	VIF
1	Income	0.828	1.208
	Age	0.954	1.048
	Gender	0.853	1.172
	Household size	0.990	1.010
2	Income	0.589	1.698
	Age	0.925	1.081
	Gender	0.804	1.244
	Household size	0.947	1.056
	Part-time/Full-time	0.580	1.723
3	Income	0.558	1.793
	Age	0.922	1.084
	Gender	0.801	1.249
	Household size	0.942	1.062
	Part-time/Full-time	0.577	1.733
	Intrinsic	0.370	2.699
	Instrumental	0.341	2.931
	Extrinsic	0.868	1.152
4	Income	0.539	1.856
	Age	0.912	1.097
	Gender	0.794	1.259
	Household size	0.939	1.065
	Part-time/Full-time	0.576	1.735
	Intrinsic	0.368	2.715
	Instrumental	0.304	3.295
	Extrinsic	0.854	1.171
	Reciprocity	0.729	1.372
	Job satisfaction	0.435	2.297
	Organisational Commitment	0.355	2.820
	Familiarity	0.740	1.351
5	Income	0.495	2.020
	Age	0.884	1.131
	Gender	0.766	1.306
	Household size	0.939	1.065
	Part-time/Full-time	0.566	1.767
	Intrinsic	0.364	2.745

		Collinearity statistics	
Model	Variable	Tolerance	VIF
	Instrumental	0.303	3.300
	Extrinsic	0.849	1.178
	Reciprocity	0.722	1.385
	Job satisfaction	0.434	2.303
	Organisational Commitment	0.354	2.821
	Familiarity	0.738	1.355
	Self Perception Of Own Risk Preference	0.701	1.427
	Self Perception Of Own Risk Aversion	0.752	1.330
	Financial Literacy	0.874	1.144
6	Income	0.483	2.070
	Age	0.861	1.161
	Gender	0.752	1.330
	Household size	0.938	1.066
	Part-time/Full-time	0.563	1.775
	Intrinsic	0.364	2.747
	Instrumental	0.302	3.312
	Extrinsic	0.811	1.233
	Reciprocity	0.719	1.392
	Job satisfaction	0.433	2.308
	Organisational Commitment	0.354	2.838
	Familiarity	0.735	1.360
	Self Perception Of Own Risk Preference	0.694	1.440
	Self Perception Of Own Risk Aversion	0.748	1.337
	Financial Literacy	0.871	1.149
	Check share price regularly	0.689	1.451
	Perception that the company's share price exceeded the market	0.957	1.045
	Perception that the company's share price was falling when they entered	0.799	1.252
7	Income	0.480	2.082
	Age	0.861	1.161
	Gender	0.751	1.331
	Household size	0.936	1.068
	Part-time/Full-time	0.562	1.780
	Intrinsic	0.364	2.747
	Instrumental	0.302	3.315
	Extrinsic	0.811	1.233
	Reciprocity	0.718	1.392
	Job satisfaction	0.433	2.311

		Collinearity statistics	
Model	Variable	Tolerance	VIF
	Organisational Commitment	0.352	2.845
	Familiarity	0.734	1.362
	Self Perception Of Own Risk Preference	0.694	1.441
	Self Perception Of Own Risk Aversion	0.747	1.138
	Financial Literacy	0.871	1.149
	Check share price regularly	0.683	1.465
	Perception that the company's share price exceeded the market	0.951	1.052
	Perception that the company's share price was falling when they entered	0.799	1.252
	Financial education	0.941	1.062

D.2 Concentration of Savings Allocations

Table 6.64: Table illustrating the multi-collinearity diagnostics

		Collinearity statistics	
Model	Variable	Tolerance	VIF
1	Income	0.828	1.208
	Age	0.954	1.048
	Gender	0.853	1.172
	Household size	0.990	1.010
2	Income	0.589	1.698
	Age	0.925	1.081
	Gender	0.804	1.244
	Household size	0.947	1.056
	Part-time/Full-time	0.580	1.723
3	Income	0.558	1.793
	Age	0.922	1.084
	Gender	0.801	1.249
	Household size	0.942	1.062
	Part-time/Full-time	0.577	1.733
	Intrinsic	0.370	2.699
	Instrumental	0.341	2.931
	Extrinsic	0.868	1.152
4	Income	0.539	1.856
	Age	0.912	1.097
	Gender	0.794	1.259
	Household size	0.939	1.065
	Part-time/Full-time	0.576	1.735
	Intrinsic	0.368	2.715
	Instrumental	0.304	3.295
	Extrinsic	0.854	1.171
	Reciprocity	0.729	1.372
	Job satisfaction	0.435	2.297
	Organisational Commitment	0.355	2.820
	Familiarity	0.740	1.351
5	Income	0.495	2.020
	Age	0.884	1.131
	Gender	0.766	1.306
	Household size	0.939	1.065
	Part-time/Full-time	0.566	1.767
	Intrinsic	0.364	2.745
	Instrumental	0.303	3.300

		Collinearity statistics	
Model	Variable	Tolerance	VIF
	Extrinsic	0.849	1.178
	Reciprocity	0.722	1.385
	Job satisfaction	0.434	2.303
	Organisational Commitment	0.354	2.821
	Familiarity	0.738	1.355
	Self Perception Of Own Risk Preference	0.701	1.427
	Self Perception Of Own Risk Aversion	0.752	1.330
	Financial Literacy	0.874	1.144
6	Income	0.483	2.070
	Age	0.861	1.161
	Gender	0.752	1.330
	Household size	0.938	1.066
	Part-time/Full-time	0.563	1.775
	Intrinsic	0.364	2.747
	Instrumental	0.302	3.312
	Extrinsic	0.811	1.233
	Reciprocity	0.719	1.392
	Job satisfaction	0.433	2.308
	Organisational Commitment	0.354	2.828
	Familiarity	0.735	1.360
	Self Perception Of Own Risk Preference	0.694	1.440
	Self Perception Of Own Risk Aversion	0.748	1.337
	Financial Literacy	0.871	1.149
	Check share price regularly	0.689	1.451
	Perception that the company's share price exceeded the market	0.957	1.045
	Perception that the company's share price was falling when they entered	0.799	1.252
7	Income	0.480	2.082
	Age	0.861	1.161
	Gender	0.751	1.331
	Household size	0.936	1.068
	Part-time/Full-time	0.562	1.780
	Intrinsic	0.364	2.747
	Instrumental	0.302	3.315
	Extrinsic	0.811	1.233
	Reciprocity	0.718	1.392
	Job satisfaction	0.433	2.311
	Organisational Commitment	0.352	2.845

		Collinearity statistics	
Model	Variable	Tolerance	VIF
	Familiarity	0.734	1.362
	Self Perception Of Own Risk Preference	0.694	1.441
	Self Perception Of Own Risk Aversion	0.747	1.338
	Financial Literacy	0.871	1.149
	Check share price regularly	0.683	1.465
	Perception that the company's share price exceeded the market	0.951	1.052
	Perception that the company's share price was falling when they entered	0.799	1.252
	Financial education	0.941	1.062

D.3 Decision at Maturity

Table 7.57: Table illustrating the multi-collinearity diagnostics

		Collinearity statistics	
Model	Variable	Tolerance	VIF
1	Income	0.828	1.208
	Age	0.954	1.048
	Gender	0.853	1.172
	Household size	0.990	1.010
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	Household size	0.942	1.062
	Part-time/Full-time	0.577	1.733
	Intrinsic	0.370	2.699
	Instrumental	0.341	2.931
	Extrinsic	0.868	1.152
4	Income	0.539	1.856
	Age	0.912	1.097
	Gender	0.794	1.259
	Household size	0.939	1.065
	Part-time/Full-time	0.576	1.735
	Intrinsic	0.368	2.715
	Instrumental	0.304	3.295
	Extrinsic	0.854	1.171
	Reciprocity	0.729	1.372
	Job satisfaction	0.435	2.297
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5	Income	0.495	2.020
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	Gender	0.766	1.306
	Household size	0.939	1.065
	Part-time/Full-time	0.566	1.767
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Model	Variable	Tolerance	VIF
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	Self Perception Of Own Risk Preference	0.701	1.427
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	Household size	0.938	1.066
	Part-time/Full-time	0.563	1.775
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	Instrumental	0.302	3.312
	Extrinsic	0.811	1.233
	Reciprocity	0.719	1.392
	Job satisfaction	0.433	2.308
	Organisational Commitment	0.354	2.828
	Familiarity	0.735	1.360
	Self Perception Of Own Risk Preference	0.694	1.440
	Self Perception Of Own Risk Aversion	0.748	1.337
	Financial Literacy	0.871	1.149
	Check share price regularly	0.689	1.451
		0.957	1.045
	Perception that the company's share price was falling when they entered into SAYE	0.799	1.252
7	Income	0.480	2.082
	Age	0.861	1.161
	Gender	0.751	1.331
	Household size	0.936	1.068
	Part-time/Full-time	0.562	1.780
	Intrinsic	0.364	2.747
	Instrumental	0.302	3.315
	Extrinsic	0.811	1.233
	Reciprocity	0.718	1.392
	Job satisfaction	0.433	2.311
	Organisational Commitment	0.352	2.845
	Familiarity	0.734	1.362

		Collinearity statistics	
Model	Variable	Tolerance	VIF
	Self Perception Of Own Risk Preference	0.694	1.441
	Self Perception Of Own Risk Aversion	0.747	1.338
	Financial Literacy	0.871	1.149
	Check share price regularly	0.683	1.465
		0.951	1.052
	Perception that the company's share price was falling when they entered into SAYE	0.799	1.252
	Financial education	0.941	1.062

Abbreviations

Short-form	Long-form
CSOPs	*Company Share Option Plans*
EMI	*Enterprise Management Incentives*
EO	*Employee Ownership*
ESO	*Employee Share Ownership*
ESOPs	*Employee Stock Ownership Plans*
HMRC	*Her Majesty's Revenue & Customs*
ISA	*Interest Savings Account*
SAYE	*Save As You Earn*
SIP	*Share Incentive Plans*
401 (k)	*A defined contribution plan in the United States*

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