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# **CEO Personal Attributes and Corporate Decisions**

*A Thesis presented for the degree of Doctor of Philosophy*

PhD Accounting and Finance

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2017

## Abstract

This thesis examines the effect of CEOs' personal attributes on CEOs' optimistic behaviour and further investigates their effect on corporate leasing and hedging decisions. We integrate behavioural finance with management, leadership and psychological approaches to provide a better understanding of the influence of personal attributes on CEO optimistic behaviour and decision making. By investigating 248 CEOs who worked with the UK FTSE 100 firms from 2000 to 2013, we find that CEO personal attributes (traits, skills & experiences, and networking) do cultivate CEOs' optimistic behaviour (acquisitiveness in the Mergers and Acquisitions (M&A) market). CEO personal traits that were examined in this study are age, gender, nationality and marital status. We find (chapter 2) that for CEO personal traits; younger, male, married and UK nationality CEOs are likely to be optimistic. CEO skills and experiences (e.g. their educational background (MBA, or PhD holder), founder status, financial literacy, duality, tenure as CEO, and emoluments) have also been found to have significant positive relationships with CEO optimism. In the case of CEO networking attributes, we examine CEOs' internal networking (tenure with the firm, and internal promotion), and CEO external networking ties (external directorships, and social networking prestige) and find that CEO networking ties have a significant positive influence on triggering CEO optimistic behaviour. In addition, we propose three personal attributes indexes, namely Traits Index (TI), Skills and Experiences Index (SEI), and Networking Index (NI). Once again all the indexes have a significant influence on cultivating CEO optimistic behaviour. This thesis adds to the growing literature on behavioural finance by proposing an alternative proxy to managerial optimism (chapter 2) – the CEO Optimism Index (CEOOI) - and by investigating the influence of CEOOI on corporate decisions such as corporate leasing (chapter 3) and hedging decisions (chapter 4). This study uses manually collected information relating to Mergers and Acquisitions, Stock Option exercise behaviour, Insider Transaction and CEO personal attributes. In addition, we also manually collected data on operating lease, finance lease and total lease for corporate leasing analysis (chapter 3) and the derivative instruments data for a study of corporate hedging (chapter 4). The results (chapter 3) suggest that optimistic CEOs tend to use more lease financing. This finding is in line with the notion that optimistic CEOs are reluctant to raise external funding by issuing new equity as they believe that the capital market tends to undervalue their firms (Heaton, 2002). Additionally, since optimistic CEOs are highly confident of their own ability to bring in future earnings, they are unwilling to share the potential earnings with new equity holders and avoid this by choosing lease financing (lease is a type of debt). Hedging decisions results (chapter 4) indicate that optimistic CEOs employ more financial derivatives to hedge potential firm risks. Optimistic CEOs have high self-confidence, are committed to the firm's good outcome and believe they themselves can control the firm's future earnings; hence they use derivative instruments to control and reduce the firm's cash flow volatility to deliver more predictable outcomes. Our findings provide evidence that CEOs' personal attributes and optimistic behaviour affected corporate leasing and hedging decisions. Our study suggests that recognizing the presence and importance of CEO personal behaviour will help bridge the gap between the theory and practice of corporate decisions.

## Acknowledgements

First and foremost, praises and thanks to the Almighty God, for His showers of blessings throughout my PhD studies.

I would like to express my deep and sincere gratitude to my supervisors, Dr. Frankie Chau and Dr. Rataporn Deesomsak for their continuous support, guidance, patience, and immense knowledge. Thank you so much, I am so grateful to have both of them as my supervisor.

I am extremely grateful to my supportive family: my parents Paul and Lucy, my siblings; Teresa, Patrick and Mary for their prayers and unconditional support. I am very much thankful to my husband; Anson and my sons; Benedict and Bryden for their love, understanding, prayers, sacrifices and continuous support throughout my PhD studies life.

A huge thanks to my FEB PhD team mates and my best friends: Audrey, Janifer, Emylie, Pauline and Rosita, thanks for the day and night accompanying, motivation and encouragement. Sincere thanks to Dr. Chu Ei Yet, Dr. Rayenda and Bong Yang for helping me throughout my studies. My Special thanks goes to my friends in Durham University, ShiMeng, AiXia and LiXi for sharing lots of valuable ideas, knowledge and information, thank you for accompanying me in the library, conferences and workshops.

My sincere thanks goes to my 9 month progression reviewers; Dr. Rebecca Stratling and Dr. Dennis Philip, and 21 month confirmation and 33 month completion reviewer; Dr. Damian Damianov for their constructive comments and suggestions that help me a lot in improving my works. I thanks for the ideas and suggestions from the experts, and the participants in Young Finance Scholar Conference, University of Sussex (2014 & 2015), thanks for recognising my research works with the best paper award. Special thanks to Prof Brian Lucey for encouraging me to continue to work on this topic during the conference. I would like to thanks Dr. Damain Damianov once again and Dr. Vasileios Kallinterakis (Bill) for their willingness to become my Viva examiners and provide me with valuable suggestions and comments.

Finally, my thanks go to all the people who have supported me to complete my PhD studies directly or indirectly. Thank you!

Josephine

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## Chapter 1: Introduction

Haugen (1999) pointed out that finance evolved from a single discipline into three schools of thought: old finance, modern finance (neoclassical finance)<sup>1</sup> and new finance (behavioural finance). The old finance school emphasises analysis of corporate financial statements and focuses on the nature of financial claims. Modern finance focuses more on asset pricing valuation based on rational economic behaviour, assuming that the market is efficient. The doctrine of the new finance school, introduced in the 1990s, adopts behavioural models and the interaction in inefficient markets.

Conventional finance theories assume that managers act rationally and consider all available information in their investment decisions (Vasile, Sebastian & Radu, 2012). Agency Theory, introduced by Jensen and Meckling (1976), marks a divergence from the traditional and conventional views of corporate finance by highlighting the conflict of interest among firms' management and stakeholders and arguing that managers might make decisions that are favourable to themselves rather than benefiting shareholders. This view takes into consideration the role of managerial traits (managers' beliefs, preferences, attitudes and prior experiences) in corporate policies and decision-making.

Managers' decisions do, in the real world, depend at least in part on individuals' sentiments. As Graham, Harvey and Puri (2013) mention, firms in the same country, same industry, of similar size and with similar investment opportunities behave differently. Hence, recently an increasing number of studies have been published on CEO personal characteristics and

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<sup>1</sup>Statman (1999) calls neoclassical finance 'standard finance'.

managerial behavioural biases and their impact on corporate activities (e.g., Heaton, 2002; Malmendier & Tate, 2005a, 2005b; Hackbarth, 2008; Malmendier, Tate & Yan, 2011; Kaplan, Klebanov & Sorenson, 2012).

Recent research has paid more attention to behavioural finance. Behavioural finance cannot, however, be treated as a standalone discipline but is, instead, a part of the main stream of finance (Ritter, 2003). Behavioural finance complements neoclassical finance by providing additional explanations of the impact of psychological perspectives on financial decisions in households, markets and firms (De Bondt, Muradoglu, Shefrin & Staikouras, 2015; Joo & Durri, 2015).

## **1.1 Neoclassical Finance versus the Behavioural Finance Paradigm**

The main pillar of neoclassical (modern) finance is the Efficient Market Hypothesis (EMH) which proposes that financial asset prices reflect all available information as market participants are rational in processing the information. While behavioural finance applies psychology to explain market anomalies; allows for market inefficiency and market participants 'cognitive biases (Ramiah, Xu & Mossa, 2015).

### **1.1.1 The Neoclassical Finance Paradigm**

Ramiah, Xu and Moosa (2015) outlined the evolution of finance. The timeline of research in neoclassical finance starts with portfolio selection considered by Markowitz (1952). Markowitz's Portfolio Theory, also known as the Modern Portfolio Theory, suggests that investments should be considered by looking at the assets in a portfolio instead of on a stand-

alone basis. Markowitz's Portfolio Theory suggests that investors diversify their portfolios by not affecting the portfolios' expected return, whilst reducing their risk (they maximize investors' returns and minimize the risks of the portfolio). Investors are always perceived as risk-averse; hence construction or selection of a portfolio of multiple assets with different degree of risk can help bring the maximum return for a given risk level, as investors will only take higher risk stocks or securities if they are compensated by higher returns.

Modigliani and Miller (1958, 1963) introduced a foundation theory of firm valuation by proposing the Capital Structure Irrelevant Theory. The Modigliani and Miller (M&M) capital structure irrelevance proposition assumes that the market is perfect without taxes or bankruptcy costs. In this view, changes in the composition of firms' capital structure (debt or equity) have no effect on firm capital costs. In other words, the weighted average cost of capital (WACC) remains constant regardless of the changes in the company's capital structure; no tax benefit for debt financing (interest payments). Since financing decisions (debt or equity financing), have no effects, capital structure does not influence firms' stock prices (firm value). Capital structure is therefore irrelevant to a firm's value.

In the early 1960s, Treynor (1962), Sharpe (1964), Lintner (1965) and Mossin (1966) developed the Capital Asset Pricing Model (CAPM) to investigate the relationship between systematic risk and expected returns for assets. The model further served as a model for the pricing of risky securities. CAPM can be used to forecast the required rate of return for any firm with publicly traded stock. The reason why only a firm's systematic risk is taken into consideration and priced by investors is that that particular risk cannot be eliminated by diversification. CAPM is less concerned about unsystematic risk because investors are able

to avoid such risk by holding diversified portfolios. The implications of the Capital Asset Pricing Model are that: investors are rational mean-variance optimizers who use the Markowitz Portfolio selection method to determine same set of efficient portfolios (risk-averse investors will put most of their wealth in risk-free asset whereas risk-tolerant investors will put most of their wealth in risky assets); market portfolio is mean-variance efficient; and Security Market Line (SML) pricing holds for all assets and portfolios as the expected return on assets is fully determined by the risk-free rate, market risk premium as well as the beta.

Neoclassical investment models pay attention to the concepts of efficient market hypothesis and investor rational expectations (Coleman, 2014). Fama (1965) introduced the Efficient Market Hypothesis (EMH)<sup>2</sup>. According to this investment theory, investors cannot beat the market because the stock market efficiency reflects all the relevant information and incorporates it in the stock price. In other words, once EMH holds, stocks are always traded at their fair value. Fama (1995) further discusses the Random Walk Theory and states that individual securities' successive price changes are independent and stock price changes have no memory. This implies that the past stock price history cannot be used to forecast the future stock price. Fama points out that empirical evidence shows that the stock price changes may not be completely independent due to investors' buy-and-hold strategy. For fundamental value analysis, if the market is efficient, stock prices will be traded at their intrinsic value at any point in time, hence, additional analysis is worthless unless the analysts have private information.

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<sup>2</sup>Fama is often referred to as “the father of modern finance”. For details, kindly refer to a conversation between Eugene F. Fama and Joel M. Stern, June 23, 2016 “A look back at Modern Finance: Accomplishments and Limitations”. They discuss much about M&M theorems and corporate capital structure, behavioural finance, asset pricing and cost of capital, etc.

The evolution of neoclassical finance continues with Black and Scholes' (1973) introduction of the First Option Pricing Model. Subsequently Jensen and Meckling (1976) proposed the Agency Cost Theory, which postulates that in corporate finance, agency problems arise when there is a conflict of interest between a company's management and its stockholders. The Agency Cost Theory states that a firm's optimal capital structure can be obtained when the agency cost that arises from the conflict between the stakeholders is minimised. Myers and Majluf (1984) proposed the Pecking Order Theory by outlining firms' capital structure hierarchies. Firms prioritise their sources of capital based on the financing cost; internal funds are ranked at the highest preference, and when depleted, debt will be issued, with equity financing as the last resort. The Pecking Order Theory states the issue of asymmetric information: managers know their firm's prospects, risks and firm true value better than outside investors.

Another important capital structure theory suggested by Myers (1984) is the Trade-off Theory. This theory emphasises a balance between the choices of debt financing that provide tax saving benefits and reduce the agency costs but at the same time increase the use of debt and also expose the firm to a higher distress cost and bankruptcy risk. Both the Pecking Order and the Trade-off Theory diverge from the Modigliani Miller Model (MM) perspective, which considers that a firm's value is independent of the capital structure. The Pecking Order and the Trade-off theories suggest that capital structure does matter as the cost of capital varies among different types of financing resources.

Baker and Wurgler (2002) introduced the Market Timing Theory of capital structure. This theory states that the choice of financing is based on the market conditions. Firms time their

equity issuing - issue new shares when the share price is perceived as overvalued and repurchase their own shares when they perceive their firm's shares are undervalued. Hence, Baker and Wurgler concluded that stock prices movement will affect a firm's capital structure decisions. Equity Market Timing either references rational managers and investors or irrational managers and investors and the perception of mispricing. Rational managers are expected to issue equity right after the release of positive information or news. This is aimed at reducing asymmetric information between firm management and shareholders, and thus increasing the stock prices. This rational perspective suggests that firms can create their own timing opportunities by issuing new equity to fulfil their financing needs. On the other hand, irrational managers issue equity when they are confident that the cost is irrationally low and perform share repurchases when they believe that the cost is irrationally high (Baker & Wurgler, 2002; Luigi & Sorin, 2009).

In sum, the neoclassical finance paradigm is built on Markowitz's (1952) Portfolio Selection Theory, Modigliani and Miller's (1958, 1963) arbitrage principle, Sharpe's (1964) and Lintner's (1965) Capital Asset Pricing, Fama's (1965) Efficient Market Hypothesis, Black and Scholes' (1963) Option Pricing Theory, Jensen and Meckling's (1976) Agency Cost Theory and Myers and Majluf's (1984), Myers's (1984) and Baker and Wurgler's (2002) asset financing (Capital Structure) theories. According to Thaler (1990), these theories and principles make a most important assumption: that of rational behaviour. Neoclassical finance emphasises that an asset's market value should reflect its fundamental (intrinsic) value, financial markets are efficient and interact quickly with new information, and stock prices follow a random walk pattern, hence no investor can consistently earn an abnormal return unless they take extra risk. However, following the global financial crisis, neoclassical

finance has been questioned and criticised, especially as regards the efficient market hypothesis and capital asset pricing model (Ramiah, Xu and Moosa, 2015).

### 1.1.2 The Behavioural Finance Paradigm

Ramiah, Xu and Moosa (2015) define behavioural finance as explaining market anomalies by using psychological perspectives and give a range of examples: representativeness bias, self-serving bias, overconfidence, status quo, herding behaviour, survivorship bias, money illusion, illusion of control, loss aversion, conservatism and narcissism. Hirshleifer (2015) states that behavioural finance is the application of psychology to finance (with emphasis on individual cognitive biases). De Bondt, Muradoglu, Shefrin and Staikouras (2015) suggest that behavioural finance comprises three main elements: sentiment, behavioural preferences and arbitrage limitations.

Behavioural finance models allow for market participants' cognitive errors in their valuation. Behavioural finance fundamental models assumptions are similar to those of neoclassical finance; the differences are that behavioural finance believes the market is not necessarily in equilibrium due to information imperfection; investors have different investment opportunities; and arbitrage opportunities do exist depending on market sentiment. Investors' investment decisions do not solely depend on mean-variance configurations but other factors such as taste, preference and psychological elements do influence the decisions.

One of the earliest behavioural finance research studies was that of Seldon (1912), concerning the psychology of the stock market. Seldon suggested that stock market movements depend to a considerable degree on the mental attitudes of market participants

and stated that: “Most experienced professional traders in the stock market will readily admit that in the minor fluctuations, amounting to perhaps five or ten dollars a share in the active speculative issues, are chiefly psychological. They result from varying attitudes of the public mind, or more strictly, from the mental attitudes of this person who are interests in the market at the time.” This idea was voiced long before behavioural finance emerged as a school of thought.

The most important and significant contributions to the field of behavioural finance were those of Tversky and Kahneman (1973, 1974) who developed judgmental heuristics. Three heuristics were introduced namely, representativeness, availability and anchoring. Tversky and Kahneman (1979) advocated Prospect Theory<sup>3</sup> which illustrates the decision making process by evaluating the probabilistic alternatives and the associated risk, and suggests that when people make decisions they are more likely to evaluate the potential value of losses or gains than the final outcome. This theory has been widely applied in economics, management, finance and sociology studies. Tversky and Kahneman (1981) introduced framing. They illustrated the perception that psychological principles govern decision problems and valuation outcomes; the same problem is framed in different ways, the prediction of preference may vary.

Thaler (1980) proposed Tversky and Kahneman’s Prospect Theory as an alternative descriptive theory. Thaler argued that in certain situations consumers act in a manner that is inconsistent with economic theory and he proposed Prospect Theory as the basis for an

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<sup>3</sup> Prospect Theory is also known as Behavioural Economic Theory

alternative descriptive theory. Thaler suggested that different descriptive models should be developed for the novice, the intermediate player and the expert. For instance, consumer behaviour should be tested according to various classes otherwise exclusive dependence on the normative theory may lead to systematic, predictable errors in describing or forecasting consumer choices. He further pointed out that the orthodox economic model of consumer behaviour works as a robot-like expert's model and performs poorly in predicting consumer behaviour.

De Bondt and Thaler (1985) originated behavioural finance with an investigation of stock market movements, discovering that market participants tend to systematically overreact to unexpected or dramatic news. This phenomenon resulted in the market being identified as having a weak form of efficiency. De Bondt and Thaler also introduced 'mental accounting', which outlines a set of cognitive operations that individuals or households use for the purpose of organising, evaluating and keeping track of their financial activities. Thaler (1999) made a comprehensive summary of the literature on mental accounting, which he concluded plays an important role in choice decisions. Barberis and Huang (2001) incorporated two forms of mental accounting, loss aversion and narrow framing - into two asset-pricing frameworks (individual stock accounting and portfolio accounting). They found that the individual stock accounting asset pricing framework was more successful with predictable power in the time series.

Shiller (1981) illustrated how dramatically the stock market and the dividend appear to violate inequalities. Shiller argued that stock price volatility is far too high for it to be incorporated with new information about future real dividends. Hence he commented that

the neoclassical finance models of efficient market and random walk theory bear little resemblance to reality and have less proven ability to capture stock prices movement. Shiller considers that markets are irrational and depend on fads. Poterba and Summers (1988), in a study on stock prices' transitory components, found positive serial autocorrelation in returns over short periods and negative autocorrelation over longer horizons, and concluded that random-walk price behaviour cannot be rejected at conventional statistical levels. They suggested that their findings of significant transitory stock price components have important implications for financial practice; if stock price movements contain large transitory components, then the stock market may be less risky for long horizon investors. They further suggested that 'noise trading' by investors, whose demand for shares is determined by factors other than their expected return (e.g., risk factors, fundamental values, level of participation in investment clubs) may provide a plausible explanation for transitory components in stock prices.

Kahneman, Knetsch and Thaler (1990) mentioned that the nature of economic anomalies violates the standard theory and that there is no obvious way to amend the theory to fit the facts. They illustrated several experiments and validated that loss aversion and the endowment effect persistently affect the market. Hence they suggested that the endowment effect, status quo bias and the aversion to losses<sup>4</sup> are both robust and important in explaining certain reference levels for particular analyses as they are fundamental characteristics of

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<sup>4</sup> Brief definitions of endowment effect, status quo bias, and loss aversion:

**Endowment effect:** people often demand much more to give up an object than they would be willing to pay to acquire it (Thaler, 1980).

**Status quo bias:** a preference for the current state that biases the economist against both buying and selling (Samuelson & Zeckhauser, 1988).

**Loss aversion:** the disutility of giving up an object is greater than the utility associated with acquiring it (Kahneman & Tversky, 1984)

preferences. In addition, Tversky and Kahneman (1991) explain loss aversion by presenting a reference-dependent model of riskless choice, and conclude that losses and disadvantages have a greater impact on preferences than gains and advantages. Tversky and Kahneman (1992) suggested an advance in Prospect Theory, which they called Cumulative Prospect Theory. The new methodology uses cumulative rather than separable decision weights and allows different weighting functions for gains and for losses. They found a pattern in risk attitudes: namely risk aversion for gains and risk seeking for losses of high probability; risk seeking for gains and risk aversion for losses of low probability.

Scharfstein and Stein (1990) studied herd behaviour and investment, and examined the factors that can lead to herd behaviour in investment. They mentioned that managers who are concerned about their reputations may simply mimic other managers' investment decisions and ignore substantive private information. They further discussed the effect of herd behaviour in corporate investment, the stock market and decision making within the firm. Money managers' or investors' herd behaviours may result in excessive stock market volatility by mimicking others' behaviour (buying when others are buying and selling when others are selling). The same goes for firms' decision making (investment project, capital budgeting): managers may exhibit herd behaviour by following the decisions made by other managers before them. Banerjee (1992) developed a simple model of herd behaviour and defines herd behaviour as 'everyone doing what everyone else is doing, even when their private information suggests doing something quite different'.

Benartzi and Thaler (1995) questioned why there are investors who are willing to hold bonds which yield less than 1 percent, compared with the annual real stock return of about 7 percent

since 1926. They propose equity premium puzzle based on the empirical fact that stocks have outperformed bonds by a large margin, yet certain investors still choose to hold fixed income securities. To explain this phenomenon they suggest two behavioural concepts from the psychology of decision-making: loss aversion and mental accounting<sup>5</sup>. They concluded that the equity premium is created by an amalgamation of loss aversion behaviour and investors' frequent portfolio evaluations strategy.

Bikhchandani, Hirshleifer and Welch (1998) argued that the theory of observational learning, and mainly the informational cascades, can help explain many patterns of convergent behaviour such as stock market crashes, sharp shifts in investment and unemployment. They mentioned that humans learn by observing the actions of others in nature; within minutes of birth, human infants observe adults' facial expression and as we grow older, we continue to mimic others' decision making (herding). They concluded that observational learning though others' past decisions can help shed light on puzzling phenomena in human behaviour, and this theory does contribute to economics and business strategy.

Barberis, Shleifer and Vishny (1998) proposed a parsimonious model of investor sentiment that displays two families of pervasive regularities: under-reaction and over-reaction. Investors tend to under-react to stock prices on news such as earnings announcements, and over-react to stock prices on hearing a series of good or bad news items. Evidence shows that over 1-12 month horizons stock prices under-react to news, resulting in positive autocorrelation over these horizons as news is incorporated slowly into prices. Hence, current

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<sup>5</sup>Mental accounting refers to the implicit methods individuals use to code and evaluate financial outcomes, such as transactions and investments (Kahneman & Tversky 1984; Thaler 1985).

good news is said to have power in predicting positive returns in the future. Over longer horizons (3-5 years) evidence shows that stock prices over-react to consistent patterns and news in the same direction. Investors tend to overprice the securities that achieve a long record of good news. These views challenge the Efficient Markets Theory, as investors can take advantage of a market's under-reaction and over-reaction to earn greater returns without bearing extra risk.

Odean (1998) examined the investors' disposition effect by analysing 10,000 accounts of investors' trading records. Odean found that the investors showed a strong preference for holding losing investments too long while selling winning investments too soon. Odean (1999) mentioned that overall trading volume in equity markets was excessive, which might be caused by investors' overconfident behaviour. Daniel, Hirshleifer and Subrahmanyam (1998) studied investor psychology and security market under- and over-reactions. They proposed a theory of securities market under- and over-reactions based on two well-known psychological biases: investor overconfidence and biased self-attribution. They concluded that overconfidence can help explain several empirical puzzles of security return predictability and investor behaviour. Motivated by the high rate of business failure, Camerer and Lovo (1999) explored the plausible and predictable influence of optimistic biases towards an economic behaviour (entry into competitive games or markets). They found that business failure was a result of managers acting on optimism about the relative skills they exhibited in surveys and most survey participants think their own profit will be positive, while total profit earned by others will be negative. Their findings are consistent with the prediction that optimism and overconfidence leads to excessive business entry.

Barberis and Thaler (2003) mentioned that behavioural models usually assume specific forms of irrationality and economists perform extensive research on people's preferences of beliefs and systematic biases (overconfidence, optimism and wishful thinking, representativeness, conservatism, belief perseverance, anchoring, and availability biases)<sup>6</sup>. According to Barberis and Thaler, behavioural finance has had some success in explaining investors' behaviour; such as portfolio allocation. On the other hand, for corporate finance, although a firm may have its own mechanisms (e.g., stock options, debt saddling) to mitigate agency problems and keep manager focus on maximising firm value, these mechanism may not have much effect on irrational managers. Irrational managers think that they always maximise the firm's value, since they perceive themselves as doing the best for the firm, hence stock options or debt mechanisms would not alter their behaviour.

Managerial irrationality has been studied by Roll (1986). Roll introduced the 'hubris hypothesis'. He examined firms' takeover activities and found that managerial overconfidence, that is, when managers are overconfident in evaluating the takeover synergies, may cause no gains for takeovers. In the same way that overconfidence in investors may lead to excessive trading, overconfidence in managers may also lead to excessive takeover activities. Heaton (2002) studied managerial optimism and pointed out that optimistic managers tend to overestimate the firm's future outcomes. Heaton posits that managerial optimism can explain the pecking order hierarchy for capital structure. Since managers are optimistic about the capital market, they believe that their firm is undervalued,

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<sup>6</sup> For more details of each of the biases defined, see Barberis & Thaler (2003) 'A survey of Behavioural Finance'.

therefore they are reluctant to issue new equity unless their internal funds are depleted, or debt capacity is exhausted.

Malmendier and Tate (2005a) tested Heaton's model and found that firms managed by optimistic CEOs display greater investment sensitivity to cash flow compared with firms managed by non-optimistic CEOs. Subsequently, research on behavioural corporate finance has emphasised the effects of managerial traits on corporate actions. The importance of managerial traits, career experiences, education and their effect on corporate decision-making have been discussed in detail by Graham, Harvey and Puri (2013) who found that risk-tolerant CEOs make more acquisitions and optimistic CEOs use more debt. Nicolosi and Yore (2015) examined the relationship between CEOs' personal life restructuring (marriages and divorces) and their corporate decision-making. They found mergers, joint ventures, capital expenditure, and overall firm riskiness increase significantly with CEOs' personal life restructuring.

Hambrick and Mason (1984) found that CEOs' personality traits, preferences and behaviours may translate to their firms' strategies and corporate structure decisions. Psychological research has recognised that men are more prone than women to show overconfidence, whereas theoretical models predict that overconfident investors trade excessively. Barber and Odean (2001) concluded that men are more likely to be overconfident as they find that men trade 45 percent more than women and hence lessen their returns more than women do. Huang and Kisgen (2012) state that male directors are more likely to be overconfident than female directors in corporate decision-making and make relatively more aggressive decisions.

Hackbarth (2008) also finds that optimistic managers tend to employ a higher level of debt, especially when their firm experiences continuous earnings growth for consecutive years.

De Bondt, Muradoglu, Shefrin and Staikouras (2015) mentioned that over the last few decades, the understanding of finance has achieved a great deal, yet countless questions still wait to be answered. In particular, the puzzles of the financial decision making process in households, markets and firms await solution using behavioural research results. The combination of neoclassical and behavioural finance approaches will replace unrealistic, heroic assumptions about individual behaviour. Policy makers who desire to make wise decisions must take the true nature of human behaviour into account in addition to keeping updated on the broader perspectives of economics and financial factors. As DeBondt and Thaler (1995) mention, a good psychological finance theory needs to be grounded on psychological evidence as to how humans actually behave. Hence we believe that such a theory is important in explaining firms' behaviours, and in particular the corporate decision making of chief executive officers (CEOs). Hence, our study aims to investigate CEO personal attributes (traits, skills and experiences and networking) and shed light on how these attributes affect CEOs' optimistic behaviour and corporate decisions.

## 1.2 Thesis Overview

Chapter 2 of this thesis investigates the influence of Chief Executive Officers' (CEOs') personal attributes on their optimistic behaviour. Most of the existing literature estimates managerial optimism based on actions (manager's personal action and corporate actions). So far, there is little research on the role CEO personal attributes play in corporate decisions and, in particular, on the question of how CEOs' personal traits, skills and experiences, and networking may potentially cultivate their optimistic behaviour. The importance of managerial traits, career experiences, education and their effect on corporate decision making have been discussed in detail by Graham, Harvey and Puri (2013). Graham, Harvey and Puri find that risk-tolerant CEOs make more acquisitions and optimistic CEOs use more debt. Nicolosi and Yore (2015) examine the relationship between CEOs' personal life restructuring (marriages and divorces) and their corporate decision-making. They found mergers, joint ventures, capital expenditure, and overall firm riskiness increase significantly with CEOs' personal life restructuring.

Hambrick and Mason (1984) find that CEOs' personality traits, preferences and behaviours may translate in their firm's strategies and corporate structure decisions. Huang and Kisgen (2012) document that male directors are more likely to be overconfident than female directors in corporate decision-making and make relatively more aggressive decisions. Hackbarth (2008) also finds that optimistic managers tend to employ a higher level of debt, especially when their firm experiences continuous earnings growth for consecutive years.

The CEO is the principal corporate decision maker. An understanding of the influence of CEO personal attributes in corporate decisions may, therefore, help in a better understanding of several important issues relating to the capital structure decision, payout policy, risk management policies, and investing & financing policies. Hence in chapter 2, we examine the effects of CEO personal attributes (traits, skills and experiences, and networking ties) on their optimistic behaviour (as measured by mergers and acquisitions, stock options exercise behaviour and insider transactions).

Our study examines CEOs' traits from the aspects of their age, gender, nationality, and marital status. For skills and experiences variables, we examine the CEOs' educational background (MBA, PhD), founder status, financial literacy, duality status, tenure as CEO, and emoluments. With regards to CEO networking ties, we examine their internal networking (internal promotion, and tenure with the firm) and external networking (external directorships, and social networking prestige). Our study shows that CEOs' personal attributes do positively influence their optimistic behaviour.

There is a growing field of research on the impact of managerial optimism (MO) on corporate decisions. For example some studies have examined the relationship between MO and investment cash flow sensitivity and overinvestment (Heaton, 2002; Malmendier & Tate, 2005a; Huang, Jiang, Liu & Zhang, 2011), MO and corporate Investment (Malmendier & Tate, 2005b; Campbell et al., 2011), MO and corporate governance (Mohamed, Baccar, Fairchild & Bouri, 2012) and MO and corporate finance policies such as debt, mergers and acquisitions (Graham, Harvey & Puri, 2013). Yet, the potential impact of managerial optimism (MO) on corporate leasing decisions, and on corporate hedging decisions, has not

been fully explored. This may be due to data availability, as the data for leasing and hedging are hard to obtain, and need to be manually collected from firms' annual reports.

Therefore, to fill in this void in the literature, the second empirical chapter of this thesis investigates the relationship between CEO personal attributes and corporate leasing decisions. According to the 'World Leasing Yearbook' published by the White Clarke Group (2015), the UK is among the largest leasing market in the world. However, a limited number of studies examine the relationship between CEO personal attributes and firm leasing decision. Existing research suggests that the use of leasing can benefit the firm by mitigating the agency cost of debt and lowering the overall firm risk (e.g., Robicheaux, Fu & Ligon, 2008). In this study we examine the influence of CEO personal traits, skills and experiences, and networking ties on their corporate lease employment (including total lease, operating lease, and finance lease). Additionally, we also examine the impact of CEO optimism<sup>7</sup> on CEOs' corporate leasing decisions. Consistent with the optimistic argument of Heaton (2002), we find that optimistic CEOs tend to use more lease financing. This finding may be due to CEOs' optimistic beliefs that the capital market often undervalues their firms making them, therefore, reluctant to raise external funds. Lease financing is a good choice for optimistic CEOs as lease is a type of debt, optimistic CEOs are highly confident of their firm's future earnings, hence with lease financing, they can avoid sharing potential profits with new equity holders.

The third empirical chapter in the thesis examines the relationship between CEO personal attributes and firms' corporate hedging decisions. Firm hedging strategy is one of the most

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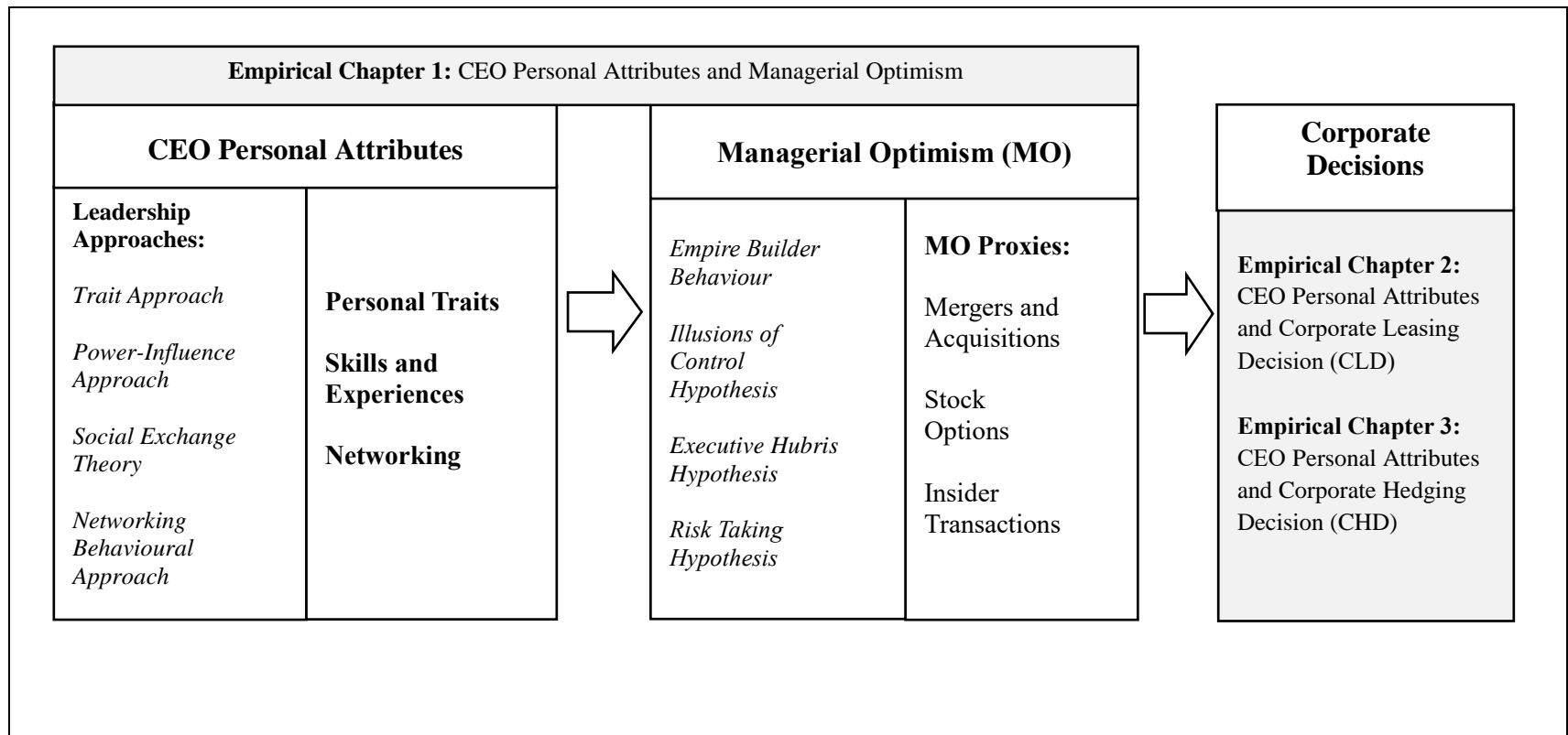
<sup>7</sup> We constructed a CEO Optimism Index (CEOOI), which comprises the components of CEO personal traits, skills and experiences, and networking. For details, refer to Section 3.3.2

important corporate policies, especially for firms that are highly exposed to market risk. Many firms use a number of derivative instruments to hedge against credit risk, commodity price risk, foreign exchange risk, and interest rate risk. Our study finds that Optimistic CEOs tend to be more likely to employ derivative instruments as their hedging tool to hedge against potential firm risks. Our result is consistent with that of Alsubaie (2009) and Adam, Fernando and Golubeva (2015), who also find that optimistic CEOs exhibit positive relationships with the use of financial derivatives. Additionally, we find that the influence of CEO optimism on corporate hedging decision remains significant over different market conditions (calm or crisis period).

This thesis comprises three empirical studies described in chapters 2, 3 and 4 (Figure 1.1). The following sections provide more detailed discussion of the research objectives, relevant literature, data and methodology used, and results and findings for each of the studies. The last chapter of this thesis summarises the main findings of the three empirical studies.

**Figure 1.1**  
**Overview of the Thesis**

This thesis consists of three empirical chapters. We start our study by examining the relationship between CEO personal attributes (traits, skills and experiences, and networking) and managerial optimistic (MO) behaviour. Subsequently, we examine the CEOs' personal attributes and their optimistic behaviour toward two corporate policies: corporate leasing decision (CLD) and corporate hedging decisions (CHD). This study also includes controls for firm and macroeconomic effects. Our study examines the UK FTSE 100 firms listed on the London Stock Exchange for the period 2000-2013.



## **Chapter 2: CEO Attributes and Managerial Optimism**

### **2.1 Introduction**

In the 1990s, behavioural finance was introduced as a moderate approach to complement traditional theory and especially as a way of clarifying the puzzle of financial markets. For instance, Vasile, Sebastian and Radu (2012) mention that behavioural corporate finance emphasises managers' and investors' behaviour in corporate decision-making. Behavioural finance has drawn the attention of researchers, as many of them (such as Heaton, 2002; Malmendier & Tate, 2005a; and Graham, Harvey & Puri, 2013) believe that behavioural finance can explain the optimism or overconfident behaviour of investors and managers.

Recent research on behavioural corporate finance has shown that, theoretically and empirically, CEO optimism and overconfidence do explain corporate decisions; capital structure, investment, dividend, cash flow, and mergers and acquisitions. However the causes of CEO optimism have been less explored. Heaton (2002) suggests that optimistic managers believe that capital markets undervalue their firm, and hence may choose to forgo positive net present value projects that require external funding; on the other hand, optimistic managers overvalued their own investment projects, and hence invested in negative net present value projects, even though they are working in the shareholders' best interests. The issues of underinvestment and overinvestment are closely related to manager optimism beliefs. Overconfident managers and investors tend to overestimate their ability and are confident that they are better than average (e.g., Malmendier & Tate, 2005b; Doukas & Petmezas, 2007; Hackbarth, 2008). In other words, overconfident

managers and investors are more likely to engage in high-risk projects or investments, as they tend to underestimate risk.

The term overconfidence is used to address the cognitive bias in the finance literature (e.g., Malmendier & Tate, 2005a, 2005b, 2008; Ben-David, Graham & Harvey, 2007; Doukas and Petmezas, 2007); while the term ‘optimism’ has been used in studies by Heaton (2002), Wong and Zhang (2009), Campbell et al. (2011), Ma (2014) and Otto (2014). However, the proxy that was used in the managerial optimism studies somehow followed the measurement of overconfidence proxy proposed in Malmendier and Tate’s studies<sup>8</sup>. For instance, Campbell et al. (2011) and Ma (2014) use equity-based measures (CEO shareholdings/net stock purchase and option exercise behaviour) to proxy CEO optimism - two proxies - proposed by Malmendier and Tate to measure managerial overconfidence. Wong and Zhang (2009) use a modified version of overconfidence measure in Malmendier and Tate’s (2005a) insider-trading behaviour (buy more company shares than they sell) to capture CEO optimism.

This study follows the rationale proposed by Malmendier and Tate (2005a, 2005b, and 2008), and Doukas and Petmezas (2007) in measuring managerial overconfidence; overconfidence is based on CEOs’ behaviour of ‘better than average effect’, ‘illusions of control’ and ‘high degree of commitment to good outcomes’. Nevertheless, in this study, we will address CEOs’ behaviour as optimism instead of overconfidence as we consider the term “optimism” as more appropriate in describing CEO behaviour; overconfidence on the other hand tends to have a “negative” connotation (destroying firm value) and implies excessive optimism. In our study, we examine CEO personal attributes and beliefs

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<sup>8</sup>Malmendier & Tate (2005b) quote Heaton’s (2002) idea of optimism as overconfidence in their paper “Does overconfidence affect corporate investment? CEO Overconfidence measures revisited.”

(Managerial Optimism); it is inappropriate to categorise these as overconfidence (“excessive” optimistic) based on their successful mergers and acquisitions (M&A) activity (our main MO proxy in this study). Successful M&As are more suitable to be used as proxy for CEO optimism; CEOs who are optimistic about the firm’s future prospects will tend to perform more takeovers, furthermore, successful M&A will enhance their confidence level, resulting in higher levels of optimism. This idea is in line with the suggestion of Graham, Harvey and Puri’s (2013) in saying that CEOs who initiate more mergers and acquisitions are more risk tolerant and CEOs’ optimism is related to their corporate decisions. Our choice to use the term ‘optimism’ instead of ‘overconfidence’ is also inspired by Campbell et al. (2011) and Otto (2014), who also address the overconfidence measurements<sup>9</sup> by Malmendier and Tate (2005a, 2005b, 2008) as optimism.

In addition, Cambridge Business English Dictionary defines ‘optimistic’ as hopefulness, confidence, buoyancy, positiveness and the quality of being full of hope and emphasizing the good parts of a situation, or a belief that something good will happen. Our main proxy of Managerial Optimism, which is successful mergers and acquisitions, will fit this definition.

A large and growing body of literature has investigated the issue of managerial overconfidence and corporate decisions/outcomes. Overconfident managers are trapped in a psychological bias, and they tend to overvalue investment projects, use extensive debt financing, engage in more mergers and acquisitions, and believe that the market undervalues their firm (e.g., Ben-David, Graham & Harvey, 2007; Vasile, Sebastian &

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<sup>9</sup> Option exercise decision & net stock purchase

Radu, 2012). Several opinions exist as to the motives behind managerial overconfidence, the most commonly discussed being empire building behaviour, illusions of control, executive hubris hypothesis and risk taking behaviour (e.g., Malmendier & Tate, 2005b; Doukas & Petmezas, 2007).

Despite the view that overconfident managers tend to destroy firm value (e.g., Malmendier & Tate, 2005a, 2005b; Fracassi & Tate, 2012), research by Hirshleifer, Low and Teoh (2012) argues that overconfident CEOs can benefit shareholders by investing in riskier projects with higher returns, investing more in innovation, obtaining more patents and thus encouraging a firm's growth opportunities. Additionally, Bolton, Brunnermeier and Veldkamp (2008) use a leadership model in organization and show that a resolute (overconfident) leader who has precise information can benefit the firm by having a stronger commitment to achieve better coordination compared with a rational CEO.

What drives CEOs to exhibit optimistic behaviour in corporations? Existing literature mainly debates whether an overconfident CEO's behaviour destroys or enhances the firm value; however, little research provides insight into the causes of CEO overconfidence/optimism as mentioned by Petit and Bollaert (2012). Although previous studies confirmed the importance of leader's attributes in managing a firm (e.g., Yukl, 1982, 1989; Zaccaro, 2007), the relationship of a CEO's personal traits, skills and experiences, and networking with his or her optimistic behaviour are relatively unexplored. Therefore, a research question remains unsolved in the literature: how and to what extent do personal attributes vary among optimistic and non-optimistic CEOs? In

particular, this study investigates 248 CEOs of UK FTSE 100 firms between the years 2000-2013 and aims to address the following questions:

1. Do CEOs' personal traits (e.g., age, gender, nationality, and marital status) have an impact on their optimistic behaviour?
2. Do CEOs' skills and experiences (e.g., educational attainments, founder status, financial literacy, duality, tenure as CEO, and emoluments) influence their optimistic behaviour? and
3. Do CEOs' networking ties (e.g., tenure with the firm, internal promotion, external directorship, and social networking prestige) affect their optimistic behaviour?

#### 2.1.1 Research Objectives

A better understanding of the issue of managerial optimism (MO) in a corporation can enhance the firm's value and hence benefit shareholders' welfare (Hirshleifer, Low & Teoh, 2012). As mentioned by Puri and Robinson (2007), understanding the causes of moderate optimism and extreme optimism (overconfidence) may help to solve many financial economic puzzles. Graham, Harvey and Puri (2012) mention that CEO traits are important in mergers and acquisitions (M&A) activities, and CEOs claim to be the dominant decision makers in firms' M&A. Unlike many studies which examine the corporate decisions made by overconfident/optimistic managers, this study investigates the potential factors that may associate with CEOs' optimistic behaviour. Thus, this study aims to provide an additional insight into the underlying factors of a CEO's optimistic behaviour from the perspective of CEOs' personal attributes (traits, skills and experiences, and networking), firm and macroeconomic effects.

### 2.1.2 Contribution

Few studies to date have specifically investigated CEO personal traits, skills and experiences and how these personal attributes may contribute to their optimistic behaviour. To our knowledge, there is only one relevant paper by Ben-David, Graham and Harvey (2007) which studies the determinants of managerial overconfidence of US Chief Financial Officers (CFOs), however these authors only study a limited number of personal attribute variables and the rest of the paper covers how overconfidence impacts investment behaviour. Furthermore, the existing literature only looks at a few demographic factors or traits and generally these factors are used as control variables (e.g., Malmendier & Tate, 2005a; Güner, Malmendier, & Tate, 2008; Mohamed, Baccar, Fairchild & Bouri, 2012; Graham, Harvey & Puri, 2013). This study fills the research gap by examining wider aspects of CEO personal attributes (CEO personal traits, CEO skills and experiences, and CEO networking) of 248 CEOs who worked in UK FTSE 100 firms from 2000 to 2013. This will be the first attempt to examine, for UK firms, CEO personal attributes which may contribute to their optimistic behaviour.

Ben-David, Graham and Harvey (2007) obtained data by asking CFOs to predict one and ten-year stock returns and used the narrowness of the confidence interval as a proxy for the CFOs' overconfident behaviour. We take a contrasting approach and choose to examine the UK CEOs as they are the main decision-makers in the firm. In addition, the proxy of optimism that we used in the study is observed from their managerial optimism behaviour according to mergers and acquisitions frequency, CEO stock option exercise behaviour and their personal buying and selling of the firm's stock.

The importance of the driver of MO has been mentioned in Ben-David, Graham and Harvey's (2007) study, and Petit and Bollaert (2012) argue that existing management and finance literature does not discuss the causes of CEO hubris (which can be proxy for overconfidence or narcissism) and how it develops through time. Perhaps the lack of exploration of this issue is due to the data is hard to obtain. Hence, this study attempts to fill in this gap by using primary unique datasets, which are manually collected. The CEOs' traits, skills and experiences, and networking are obtained from the data and information disclosed publicly from various sources<sup>10</sup>.

Additionally, this study constructs new composite indexes, namely: CEO personal Trait Index (TI), Skills and Experiences Index (SEI), and Networking Index (NI). These three indexes (TI, SEI and NI) may be used as an additional variable in explaining managerial behaviour. These indexes may also be used to study other issues such as corporate governance, capital structure, financing and investment decisions, mergers and acquisitions, and firm performance studies. In addition, SEI and NI may be used as a competency comparison among skills and experiences, and networking ties of CEOs. A firm's management and the board may assess the competency of their existing CEO, or of a new CEO during recruitment, to compare potential candidates' skills and experiences, and their networking.

Our study adopts a framework that explains managerial optimistic behaviour by examining CEO personal attributes, firm specific factors and macroeconomic factors. Mohamed, Baccar, Fairchild and Bouri (2012) mention that there is no well-established theoretical framework that explicitly expresses the link between CEO personal attributes

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<sup>10</sup> For main sources of data used in this study, refer to Table 2.2 in section 2.3 Data and Methodology.

and their optimistic behaviour. Motivated by the growing literature in management and leadership<sup>11</sup>, four leadership approaches are associated to support the importance of the CEO attributes chosen in this study. The integration of the leadership approaches (traits approach, power-influence approach, social exchange theory and social networking approach) with optimistic behaviour are used to examine the CEO personal attributes (CEO Traits, Skills and Experiences, and Networking). This is the first attempt to examine CEOs' personal attributes, which derive from management perspectives, and their effect on managerial optimistic behaviour.

### 2.1.3 Significance and Implications

Our study provides an insight into managerial optimism from CEOs' personal perspectives, firm characteristics and macroeconomic conditions. Goel and Thakor (2000, 2008), Gervais, Heaton and Odean (2011) and Banerjee, Dai, Humphery-Jenner and Nanda (2014) all consider that top executives are expected to be overconfident and these overconfident executives are more likely to be promoted to CEO as the board believes this characteristic is important for leading the firm to grow in a competitive market. Graham, Harvey and Puri (2013) conclude that high growth firms tend to appoint young, confident, and risk tolerant managers. The existing literature suggests that overconfident/optimistic managers are more likely to destroy rather than enhance firm value. Nevertheless, we suggest that certain industries may need optimistic CEOs to help firms gain more investment opportunities. As Banerjee, Dai, Humphery-Jenner and Nanda (2014) suggest, large and low-risk firms tend to appoint overconfident CEOs and these

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<sup>11</sup>Existing leadership studies concentrate on the relationship between leadership, organizational culture and leadership effectiveness (DeChurch, Hiller, Murase, Doty & Salas, 2010; Faris & Parry, 2011). For effective leadership research, the studies are done by obtaining the response from followers to understand leader integrity (Martin et al., 2013; Trichas & Schyns, 2012).

appointments are associated with improved performance. Thus, explicitly addressing the relationship between CEOs' personal attributes and their optimistic behaviour can help the board to select their CEO based on their firm's nature of business.

Detecting the optimistic CEO is crucial in maintaining a firm's sustainability and continuous success, as the CEO is the firm's decision-maker. If optimistic CEO candidates can be identified, the board can develop an effective corporate governance mechanism. As Malmendier and Tate (2005a) suggest, the board can constrain the use of an internal fund to control the over-investment behaviour of the overconfident/optimistic CEO. Furthermore, Gervais, Heaton and Odean (2011) and Otto (2014) suggest dynamic compensation contracts can be designed for optimistic CEOs to sufficiently adjust and realign the incentives with the changes of managers' attributes. Our study provides an additional insight into CEO personal attributes and relationships with the CEO's optimistic behaviour. Hence, this study potentially offers to a firm's management a method to assess their CEO based on his/her personal traits, skill and experiences, and networking to monitor his/her managerial behaviour by refining their board strategy accordingly.

Our study provides useful information to investors, market participants and shareholders in forming their investment strategy. For instance, as previous research suggests, overconfident CEOs tend to take on more risky projects (e.g., Malmendier & Tate, 2005a, 2005b; Doukas & Petmezas, 2007; Fracassi & Tate, 2012) and higher risk projects will increase the variability of profits. Additionally, Graham, Harvey and Puri (2013) mention that optimistic CEOs are less risk averse. Therefore, if investors have a high-risk tolerance level, they may choose the firm that is managed by an optimistic CEO to opt for higher

expected returns. Alternatively, if they are risk averse they may choose to invest in the firm that suits their personal risk preference. In addition, we use information about CEOs' of the UK FTSE 100 firms and show the influence of CEOs' personal attributes towards their managerial behaviour. Knowing the characteristics of the optimistic CEO can help investors to plan properly for their investment, portfolio allocation and risk management.

## **2.2 Literature Review**

In the corporate business world, a manager has always been expected to manage the firm by maximizing shareholders' wealth, thus acting in the stockholders' best interests (Bettis, 1983). Nevertheless, managing a firm is a challenging task and it is hard for a manager to meet every stakeholder's preference or demand. Apart from the internal management, as a leader, he/she also needs to be involved in social activities, as they represent the firm and carry the firm's image to current and potential investors. As the top person in the corporate hierarchy, they have the responsibility for all areas of corporate performance and their incentives are highly dependent on the firm's performance (Aggarwal & Samwick, 2003).

For day-to-day business, essentially a manager will need to make corporate decisions, which include the firm's policies, investment and financing decisions, and merger and acquisition activities. To manage a firm, managers need power: the more power they have, the easier it is for them to finalize the decisions. Thus, it is a norm for managers to acquire personal power in a firm in order to achieve their strategic plan for the firm; as Adam, Almeida and Ferreira (2005) mention, powerful CEOs are more likely to influence corporate decisions in an organisation. However, the issue of agency problems arises

when the manager has too much power, in which situation the decisions made might not be in the stakeholders' best interests, and the manager will be classified as overconfident or too optimistic if their actions seem to be too risky or intended to build their own empire (Malmendier & Tate, 2005b).

The issue of managerial overconfidence and managerial optimism has been passionately debated among researchers and academics. A growing literature documents the issue of managerial overconfidence/optimism. However, the reasons why a CEO behaves optimistically, and the characteristics of optimistic CEOs still remain an open question.

### 2.2.1 Managerial Optimism versus Overconfidence

In this section, we summarise the terminology that is commonly used in the literature to address managerial behaviour: Optimism, Overconfidence, Hubris, Narcissism, Miscalibration and Self-Attribution. Behavioural approaches based on human psychology or cognitive research gain attention as proven contributions to explain corporate decision-making in addition to firm level and macroeconomic factors. The term hubris was first used in the field by Roll (1986) to describe the CEO who overestimates the value of the combined entity during the takeover action and tends to bid too high for the target firm, thus destroying the shareholder wealth of the acquiring firm. However, the hubris hypotheses have no directly testable measurement, and researchers found it hard to test the prediction of CEO hubris, hence they proposed related concepts to proxy hubris, such as narcissism and overconfidence (Petit & Bollaert, 2012). Chatterjee and Hambrick (2007) suggest that as overconfidence is part of a narcissistic personality in psychology and management literature, narcissism leads to managerial hubris.

Barberis and Thaler (2003) review human's beliefs in practice from psychological perspectives. They mention that extensive evidence shows people are overconfident in their judgments. For instance, people tend to assign a far too narrow confidence interval in estimating the Dow in a year. They also point out that people are poor in estimating probabilities. They further reveal that overconfidence may in part stem from the other two biases (self-attribution bias and hindsight bias). Self-attribution bias is referred to as the tendency of people to claim any success to their own talents, while failure will be blamed due to bad luck, rather than on their incompetence. Self-attribution bias will lead people to conclude themselves as very talented by disregarding failure. Gervais and Odean (2001) also mention that investors might become overconfident after several successful investments. While hindsight bias is a psychology term to explain people's tendency to overestimate their prediction ability to an outcome that could not possibly have been predicted. If people think they have an ability to predict the past, they may also believe they can predict the future better than they actually can.

Weinstein (1980) mentions that most people display unrealistically high views of their abilities and their future life events. Barberis and Thaler (2003) acknowledge this belief as optimism or wishful thinking. They mention that people typically think they are above average in terms of driving skills, able to mingle around with people and having a sense of humour. In a study of managerial behaviour with corporate policies, Ben-David, Graham and Harvey (2007) try to distinguish overconfidence from optimism. By examining overconfidence as the prediction of CFO towards the Standard and Poor (S&P) 500 stock return, for those narrow confidence intervals will be identified as overconfident. In the case of optimism, their survey question asks the respondents to rate their optimism

about the US economy and their own firm's financial prospects. Furthermore, in their study they use the term miscalibration as synonymous with overconfidence.

Doukas and Petmezas (2007) suggest that overconfidence could be reinforced by self-attribution; managers who suffer from self-attribution bias are more likely to be overconfident in their own judgement, as they believe that they have above average abilities compared with others. Thus, they propose that managerial overconfidence stems from self-attribution bias. To distinguish between managerial overconfidence and optimism, Park (2013) concludes that in the finance literature, 'optimism' is commonly used to refer to an overestimation of outcomes of exogenous events, and 'overconfidence' to an overestimation of one's capability. Park indicates that the use of the terms overconfidence and optimism is sometimes blurred in the literature.

Malmendier and Tate (2005b) propose an overconfident proxy by using CEOs' press portrayals; they include the word 'optimistic' and 'optimism' in their overconfident proxy construction. Hence, it is hard to clearly differentiate the terms 'overconfidence' and 'optimism' as the meanings somehow overlap. In their study, they define 'overconfident' as first the tendency to consider themselves 'above average' on positive characteristics, while 'illusion of control' expresses individuals who are more optimistic about outcomes that they believe they can control and optimistic about outcomes to which they are 'highly committed'. Malmendier and Tate's assumption of 'overconfidence' is consistent with the 'optimism' terminology used by Heaton (2002).

The term 'Managerial Overconfidence' is more widely used in finance literature than 'Managerial Optimism'. Some researchers try to distinguish the definitions or concepts

behind the terms ‘managerial overconfidence’, ‘optimism’, ‘managerial hubris’, ‘narcissism’, ‘miscalibration’ and ‘self-attribution’; but it is difficult to differentiate clearly among these terms as they all overlap somewhat in meaning. Brennan and Conroy (2013) comment that the terms ‘hubris’, ‘overconfidence’ and ‘narcissism’ are intrinsically linked and scholars use these terms interchangeably. Our study chooses the term ‘optimism’ to address the behaviour of our CEOs. This follows the rationale proposed by Malmendier and Tate (2005a, 2005b, and 2008), Doukas and Petmezas (2007) and Graham, Harvey and Puri (2013): ‘better than average effect’, ‘illusions of control’ and ‘high degree of commitment to good outcomes’.

In general, optimism and overconfidence do share similar theoretical approaches in explaining the behavioural context. When a firm faces difficulty or underperforms, the CEO has always been the first one to be criticized for his/her misuse of power, and their optimistic behaviour will be blamed for destroying the firm’s value. There is much research on managerial optimism, most of which looks at the action and the corporate outcome (e.g., Malmendier & Tate, 2005a, 2005b, 2008; Campbell, Gallmeyer, Johnson, Rutherford & Stanley, 2011; Malmendier, Tate & Yan, 2011). The most common optimistic behaviour arguments are empire building behaviour, illusions of control hypothesis, executive hubris hypothesis and risk taking hypothesis.

#### *2.2.1.1 Empire Building Behaviour*

In a firm, empire building behaviour is likely to be related to the action of the expansion of businesses. Recently, this behaviour has been widely described in addressing a firm’s merger and acquisition activities (e.g., Malmendier & Tate, 2005b; Doukas & Petmezas, 2007). According to Malmendier and Tate (2005b), CEOs with empire builder behaviour

are overconfident, they believe that they act in the best interest of the shareholders and tend to engage in quick and multiple mergers over a short period. This rationale of frequent merger and acquisition actions being categorized as optimistic behaviour is actually simulated by overconfident investors who tend to have high stock trading activities (Odean, 1998). Additionally, Graham, Harvey and Puri (2012) also suggest the link between CEO optimism with a firm's merger and acquisition decisions. Noted that with respect to empire building behaviour, the aggressiveness in M&A activities might also cause by market timing issue; when company's stock price is overvalued, firm can pay their M&A deals with 'cheap' currency (stock, as opposed to cash).

#### *2.2.1.2 Illusions of Control Hypothesis*

From a psychological point of view, optimistic managers tend to believe that future outcomes are under their control (Heaton, 2002). Doukas and Petmezas (2007) mention that an overconfident CEO who is under the illusion of control is highly optimistic about the future and tends to underestimate the potential downside. Malmendier and Tate (2005a, 2005b,) argue that the effects of control and commitment have the potential to influence managers' internal investment decisions as well. Specifically, a CEO with this kind of optimism about the prospects of his own firm may be reluctant to raise external capital<sup>12</sup> to finance a takeover bid (Heaton, 2002). The increasing in the new equity proportion may dilute the management control. Malmendier and Tate (2008) mention that the managers who underestimate the downside of mergers and acquisitions due to the illusions of control believe they have above average ability and can control the outcome of mergers.

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<sup>12</sup> We acknowledge the possibility of managers reluctant to raise external capital might this also not be due to external capital financing having the ability to discipline management (e.g. the case of the bonding properties of debt).

### *2.2.1.3 Executive Hubris Hypothesis*

Hubris hypothesis was introduced by Roll (1986): based on this hypothesis, managers who are engaging in mergers and acquisitions are over optimistic about their own ability to create firm value. Doukas and Petmezas (2007) use this hypothesis to explain the merger and acquisition motives of overconfident CEOs: they doubt the ability of the manager in evaluating the value when acquisitions have been carried out too frequently.

### *2.2.1.4 Risk Taking Hypothesis*

From the investor's perspective, if investors are overconfident they tend to underestimate risk and prefer to trade in more risky securities, and overconfidence also leads to higher trading activity in general. Chuang and Lee's (2006) study on investors' overconfidence and risk-taking mentioned that investors overestimate their own ability to predict firm-specific risk and have aggressively higher volume trading in high-risk stocks. This implies that overconfident people are more risk tolerant. Puri and Robinson (2007) also mention that the optimistic individual is more tolerant towards financial risk, and the correlation between optimism and risk taking is positive and highly statistically significant.

## **2.2.2 Managerial Optimism Measures**

Researchers try to find the most plausible proxy for optimistic behaviour. The most widely used proxies for managerial optimism look at the manager's stock options exercise behaviour, the portrayal of a CEO in the news media, and merger and acquisition activities.

### *2.2.2.1 Mergers and Acquisitions*

Doukas and Petmezas (2007) use managers' high merger and acquisition actions to identify overconfident and non-overconfident managers. The rationale for a CEO's frequency of acquisition as a measure of overconfidence is because such people are expected to be confident of their ability and believe greatly in their own instincts and skills. Their motivation is derived from Heaton (2002)'s study, who claims that optimistic managers will tend to undertake more projects. Malmendier and Tate (2008), and Ben-David, Graham and Harvey (2007) find that overconfident managers are more likely to carry out mergers and acquisitions. Doukas and Petmezas identify a CEO as overconfidence if the CEO has successfully engaged in five or more acquisitions in three years (starting from the CEO's first completed acquisition in the sample). However, we argue that the measurement of 'successful' mergers and acquisitions activities are more suitable to denote optimistic behaviour rather than overconfident behaviour, nevertheless the 'unsuccessful' M & A are more suitable to use as a proxy for overconfidence.

Our study believes that 'mergers and acquisitions' is a good proxy to use in the UK studies, as the UK is the most active merger and acquisition market after the US, as mentioned by Croci, Petmezas and Vagenas-Nanos (2010). The potential drawback for this proxy is the industry effects: i.e., certain industries might have more acquisitions compared to others. If a study uses this proxy, it is suggested that the researcher needs to be aware of, and control for industry effects. Hence, in this thesis, we follow this suggestion and control for industry effects in our subsequent analysis.

#### 2.2.2.2 Stock Options Exercise Behaviour

Malmendier and Tate (2005a) were the first to use options exercise behaviour as a measure of overconfidence; they propose two overconfidence measurements, namely Holder 67 and Long Holder<sup>13</sup>. Campbell, Gallmeyer, Johnson, Rutherford and Stanley (2011) use a modified version of overconfidence measurements; they classify CEO optimism across multiple levels of optimism. The Long Holder proxy measurement has also been used by Croci, Petmezas and Vagenas-Nanos (2010) to study mergers and acquisitions in the UK. They classified managers as overconfident when they held their stock option until its expiration, as these managers believe their firm's stock price would keep on increasing under their management. Campbell et al. (2011), Ma (2014) and Otto (2014) also use option exercise behaviour to proxy CEO optimistic behaviour.

Although Croci, Petmezas and Vagenas-Nanos (2010) use this proxy in their study in the UK, Atallah, Vivian and Xu (2012) on the other hand argue that this proxy might not be suitable for the UK, where the structure of executive remuneration and regulation differs from that in the US. Ma (2014) also points out that CEOs' option exercise behaviour may be influenced by firm policies. Our remark on this proxy is that if a CEO works fewer than 10 years, it is hard to observe their exercising behaviour since executive options in UK firms normally have a lifespan of 10 years and not all UK firms have stock option schemes. We also acknowledge that exercising a stock option very often relies on market timing or even earnings manipulation. Nevertheless, this proxy is the most commonly used measurement in managerial overconfidence and managerial optimism studies.

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<sup>13</sup>See Malmendier and Tate (2005a). **Holder 67** is based on Hall & Murphy's (2002) framework: a CEO who fails to exercise a 5 years option that is at least 67% in-the-money (at least 2 times in their tenure) and if a CEO persistently exercises options later than suggested by the benchmark, then the CEO will be classified as overconfident. **Long holder** classifies a CEO who holds an option until the last year of its duration as overconfident.

### *2.2.2.3 Net Buyer (Insiders Transaction)*

Malmendier and Tate (2005a) use ‘net buyer’ as a proxy measurement for overconfidence: CEOs are classified as overconfident if they were a net buyer of company stock more years than they were a net seller during the first five years they appear in the sample. Hribar and Yang (2010) use equity purchase (net buyer) as one of the overconfidence proxies. The same proxy was also used in Germany by Glaser, Schäfers and Weber (2007). These authors gathered data on insider trades and corporate actions based on members of the executive and supervisory boards’ transactions on their personal accounts. More recently, to proxy CEO optimism, Campbell et al. (2011) use net purchase (purchase minus sales) of shares in the firm, Wong and Zhang (2009) use a modification of ‘net buy’ by Malmendier and Tate (2005b). Ma (2014) also employ CEO stock holding behaviour to proxy CEO optimism. The concern in using this proxy is that other personal reasons which cannot explicitly be observed may drive the buying and selling stock owned by the CEO.

### *2.2.2.4 Press-Based: Portrayal in the News Media*

The overconfident CEO proxy is based on the portrayal of the CEO in the news media. A count of the number of published articles using the terms ‘Confident’ and ‘Cautious’ has been used to identify the overconfident or non-overconfident CEO (e.g., Malmendier & Tate, 2005b, 2008; Hribar & Yang, 2010; Malmendier, Tate & Yan, 2011). If more articles use the confident than the cautious terms, then the CEO will be classified as overconfident. Ataullah, Vivian and Xu (2012) comment that this proxy might be biased due to differential coverage according to the total number of articles. Hribar and Yang (2010) also point out that a press-based measure of overconfidence is a noisy instrument

with which the true degree of CEO confidence is hard to measure. Our study acknowledges that this proxy is too subjective and subject to media bias.

#### *2.2.2.5 Disclosure of Good News and Bad News*

According to Brennan and Conroy (2013), managers can use corporate reports to convey their personal advantages to shareholders. CEO letters to shareholders have been used in Chatterjee and Hambrick's (2007) study to identify overconfident or non-overconfident CEOs by applying content analysis. Overconfident CEOs are identified as those that over-emphasize good news and under-emphasize bad news. So far, content analysis is more widely used in accounting narratives research (e.g., Guthrie & Parker, 1990; Guthrie & Petty, 2000). The limitation of disclosure of good and bad news, as mentioned by Brennan and Conroy (2013), is the analysis of CEO letters is highly subjective and hard to replicate. The drawback of this measurement is that the content analysis is merely based on the researcher's perceptions in their coding process and if the CEO's or chairman's report or statement is prepared by others it might fail to capture their personality.

#### *2.2.2.6 Earnings Forecast*

Otto (2014) studied US CEO optimism and incentive compensation using earnings per share (EPS) forecast to measure CEO optimism; a CEO is denoted as optimistic if the forecasts are higher than the actual EPS. Lin, Hu and Chen (2005, 2008) studied firms in Taiwan and defined the difference between the CEO's forecast and actual earnings as forecast error. If there are two positive forecast errors, then the CEO will be classified as optimistic. Huang, Jiang, Liu and Zhang's (2011) study on China's stock exchange-listed companies classifies the executive as overconfident if there is a greater number of over-

forecasts than under-forecasts during the examined period. The data used by Otto and Lin Hu and Chen were gathered from the firms' voluntary disclosure. The limitation of this proxy is data availability, as not all firms are willing to provide their earnings forecasts and earnings forecast is not legally obligated in most countries. In the UK, it is not mandatory for a firm to reveal such forecasts to the public.

#### *2.2.2.7 Other Proxies*

Barros and Da Silveira (2007) use entrepreneur's bias as a measurement of overconfidence. They argue that firms managed by 'entrepreneurs' display overconfidence biases compared with those managed by professional managers or 'non-entrepreneurs'. On the other hand, Campbell, Gallmeyer, Johnson, Rutherford and Stanley (2011) proxy CEO optimism by using firms' investment, while Huang, Jiang, Liu and Zhang (2011) proxy overconfidence by executives' salary. Meanwhile, Dittmar and Duchin (2013) group female CEOs as conservative. Their study argues that the measurement of overconfidence by 'status as entrepreneur', executive salary and gender are inappropriate, as these variables are more likely seen as drivers of optimistic/overconfident behaviour rather than direct measurements of optimism.

Table 2.1 presents the summary of Managerial Optimism (MO) proxies that have been used in published studies. The MO proxies that are commonly used are mergers and acquisition (M&A), stock options exercise behaviour, net buyer (insider transactions), press-based measure (portrayal in the news media), disclosure of good news and bad news, earnings forecast, and other proxies such as entrepreneurs, firm investment, executive's salary and gender.

**Table 2.1**  
**Summary of Existing Managerial Optimism (MO) Proxies**

Proxy	Previous studies	Comments
Mergers and Acquisitions	Doukas & Petmezas (2007)	<ul style="list-style-type: none"> <li>• Good proxy to use in the UK study as the UK is the most active merger and acquisition market after the US (Crocì, Petmezas and Vagenas-Nanos, 2010)</li> <li>• Need to be aware and control for industry effects</li> </ul>
Stock Options Exercise Behaviour	Malmendier & Tate (2005a), Wong & Zhang (2009) Crocì, Petmezas & Vagenas-Nanos (2010), Campbell et al. (2011), Ma (2014)	<ul style="list-style-type: none"> <li>• This proxy is the most common measurement in managerial optimism / overconfidence studies</li> <li>• May be influenced by certain firm policies</li> <li>• Might not suitable for the UK study due to difference in structure of executive remuneration and regulation from US (Ataullah, Vivian &amp; Xu, 2012)</li> <li>• Not all the UK firms have stock option schemes</li> </ul>
Net buyer (Insider Transactions)	Malmendier & Tate (2005a), Glaser, Schäfers & Weber (2007), Hribar & Yang (2010)	<ul style="list-style-type: none"> <li>• Buying and selling of stock owned by the CEO maybe driven by other personal reasons</li> </ul>
Press-Based: Portrayal in the News Media	Malmendier & Tate (2005b, 2008), Hribar & Yang (2010), Malmendier, Tate & Yan (2011)	<ul style="list-style-type: none"> <li>• Noisy instrument</li> <li>• Might be biased due to differential coverage according to the total number of articles</li> <li>• Too subjective and subject to media bias</li> </ul>
Disclosure of Good News and Bad News	Guthrie & Parker (1990), Guthrie & Petty (2000), Chatterjee & Hambrick (2007)	<ul style="list-style-type: none"> <li>• Highly subjective and hard to replicate.</li> <li>• Based on the researcher's perceptions in their coding process</li> <li>• The person's personality, might fail to be captured if others prepare the report or statement</li> </ul>
Earnings Forecast	Lin, Hu & Chen (2005, 2008) Huang, Jiang, Liu and Zhang (2011)	<ul style="list-style-type: none"> <li>• Data availability</li> <li>• Not all firms are willing to provide their earnings forecasts</li> </ul>
Other Proxies <ul style="list-style-type: none"> <li>• Entrepreneurs</li> <li>• Firm's investment</li> <li>• Executive's salary</li> <li>• Gender</li> </ul>	Barros & Da Silveira (2007), Campbell, Gallmeyer, Johnson, Rutherford & Stanley (2011), Huang, Jiang, Liu & Zhang (2011), Dittmar & Duchin (2013)	<ul style="list-style-type: none"> <li>• These variables are more likely seen as drivers of overconfident behaviour</li> </ul>

### 2.2.3 CEO Personal Attributes and Optimism

Wong and Zhang (2009) consider that two perspectives can explain top executives' likelihood of optimism. From a rational view, top executives are self-selected to be optimistic as they represent the image of the firm while dealing with customers, motivating employees and attracting potential investors; their optimistic behaviour hence benefits shareholders. Secondly, from the behavioural perspective, optimistic top executives tend to claim good outcomes for their own actions and relate poor outcomes to uncontrollable causes.

Langabeer II and DelliFraine (2011) find that in management studies researchers find that optimistic individuals generally have better job performance and better social relationships. They also define optimistic people as tending to be more creative in problem solving, proactive, able to predict greater opportunities and more eager to face challenges. They concluded that optimistic executives perceived themselves to have superior decision making abilities along with the perceiving of favourable environmental conditions.

Goel and Thakor (2000) address the issue of overconfident CEOs by looking back to the CEO's promotion: the overconfident manager always stands out of the crowd compared to a rational manager if no one is aware of the overconfidence issue. When appointing a CEO, most firms prioritise self-confidence among the selection criteria. A top manager's appointment is based on how well he/she can fulfil the ceremonial role of figurehead and leader (Yau and Sculli, 1990). Therefore, Goel and Thakor (2000, 2008) mention that in the CEO selection process, there is always a bias in favour of overconfident managers rather than ordinary or rational managers; overconfident managers are more risk tolerant

and tend to take on more risky projects, hence potentially outperforming the ordinary managers.

Although some management studies show that optimistic managers tend to add value to the firm, most of the studies in the financial literature claim that the optimistic/overconfident manager tends to exhibit behavioural distortion which results in destroying the firm value. Such distortion may become apparent in investment decisions (e.g., Malmendier & Tate, 2005a, 2005b), mergers and acquisitions (Malmendier & Tate, 2008) financing decisions (e.g., Malmendier, Tate & Yan, 2011), and earnings forecasts (Schrand & Zechman, 2012). However, recently, Hirshleifer, Low and Teoh (2012) argue that overconfident CEOs can benefit shareholders and increase firm value. Thus, a clear understanding of CEO attributes will help in a firm's management and the recognition of managerial behaviour is worthwhile in creating firm value.

Using survey design, Graham, Harvey and Puri (2013) investigate the difference in behaviour and characteristics between -US and Non-US CEOs. Their study they included a CEO's height, gender, age and educational background; they also use past working experience as a control variable. They showed that corporate policies are significantly related to CEOs' personality traits; with younger CEOs being more confident and risk tolerant. This shows the importance of a CEO's personal attributes in determining a firm's policies, and consequently affecting firm growth and firm value.

Yukl (1989) notes that from a management perspective an effective leader needs personal traits such as risk taking, initiative, achievement, power, self-confidence and emotional maturity. Hernandez, Eberly, Avolio, and Johnson (2011) suggest that despite the

traditional leadership perspective that views leaders as ‘locus of the leadership’; leadership should involve relationships among members in social networking and in the organization’s environment. Hence, in our study, CEOs’ optimistic behaviour will be examined through their personal traits, skills and experiences, internal networking and their external social networking to capture a more comprehensive view of ‘leadership’ attributes.

Yau and Sculli (1990) distinguish between managerial traits and skills. Managers ‘traits’ are assumed to be inborn rather than ‘made’ and ‘skills’ refers to a manager’s having mastered a certain level of proficiency that needs to be maintained with continuous training and practice. These authors note that for top management selection, the main traits and skills will always be the possession of the necessary business and professional knowledge, relevant job experience, internal promotion, leadership skills, and the individual’s general social standing, business and trade links. We considered, for the purpose of this study, that these personal traits and skills in a CEO do influence their optimistic behaviour.

#### *2.2.3.1 CEO Personal Traits and Managerial Optimism*

Shavinina (1995) records that the earliest researcher to investigate the personality traits approach was Terman in 1925, whose pioneer study concluded that personality traits persistently drive a person’s integration, accomplishment, self-confidence and achievement. CEOs are leaders of their firms, who are both tasked with, and responsible for the firm’s main decision-maker (Adams, Almeida & Ferreira, 2005; Brennan & Conroy, 2013; Graham, Harvey & Puri, 2013). In managing a firm, CEOs essentially need to equip themselves with good leadership skills. Yukl (1989) defines leadership as how an individual exhibits his/her traits in their management actions and their influence on

their subordinates. Yukl also states that the evidence shows that leadership traits do influence a firm's behaviour but there is still insufficient evidence to demonstrate direct measurement of a manager's leadership behaviour.

Graham, Harvey and Puri (2013) mention that males' and females' confidence levels differ. They also found that younger CEOs may be bolder in risk taking; hence an executive's personal traits may potentially influence a firm's corporate decisions. Our study followed this viewpoint in suggesting that CEOs' personal traits do contribute to their optimistic behaviour. This study has adopted four CEO personal traits, namely age, gender, nationality and marital status, based on a review of the literature on CEO personal traits.

#### *2.2.3.2 CEO Skills and Experiences, and Managerial Optimism*

Our study looks at the CEO's skills and experiences in term of their education, knowledge, position and dominance power. This study suggests that a CEO with more expertise and higher influence in the firm's decision-making process will have his confidence level boosted and is more likely to become optimistic.

Yukl (1989) states that French and Raven introduced the theory of power influence approach in 1959. Yukl (1982) later extended French and Raven's research in studies of leadership effectiveness and how leaders use power to manage their employees. A chief executive needs power to manage a firm: power to influence subordinates, peers, and outsiders such as investors, customers and suppliers. Individual expertise is a source of personal power; this personal attribute can only be fully utilized when a person is given

the opportunity by being placed in the right place at the right time with the right resources (McCall, 1978 cited in Yukl, 1989). McClelland and Boyatzis (1982) find that a manager in a large and hierarchical firm will have a greater need for power, a fair need for achievement and a slight need for affiliation.

Adam, Almeida and Ferreira (2005) suggest that interaction between CEO characteristics and organizational variables play an important role in affecting firm performance: they found that CEOs who are more powerful tend to have more decision-making power, thereby increasing the variability of firm performance. Fracassi and Tate (2012) measure CEO power by the consolidation of the titles CEO and chairman or president (duality) and CEO tenure.

Adam, Almeida and Ferreira (2005) study CEO power and firm performance by examining Fortune 500 firms from 1992 to 1999. They use 'concentration of titles' in the hands of the CEO as a measure of CEO power. They use in the study a dummy variable, equal to 1 if the CEO holds titles of both chairman and president. Their argument is that if the CEO is not the chairman of the board, he/she will be less influential during strategic decision-making. They also use the status of the current CEO, who is also the firm's founder, as a measure of CEO power: they use a dummy variable to indicate whether the CEO is also one of the company's founders. Their rationale is that a CEO who is also a founder is more influential, especially in the decision-making process. They find that a CEO who is also the firm's founder has a significant positive impact on the firm performance's variability. In this study, we posit that a CEO's power can be accumulated from their skills and experiences, wherein the more skills and experiences they have, the more powerful they will be. Our CEO skills and experiences are proxied by educational

background, status as founder, financial literacy, duality status, tenure as CEO, and emoluments.

### *2.2.3.3 CEO Networking and Optimism*

Hernandez, Eberly, Avolio and Johnson (2011) look at locus with regards to an individual's traits but also consider that leadership should incorporate multiple people (group of followers) and context (interaction with the environment). To understand the CEO's internal networking ties, this study derives its perspective from Social Exchange Theory, proposed by Hollander and Julian (1969) and Jacobs (1970). According to this theory, a person who shows his/her loyalty to a group will receive higher status and trust. Social exchange theory stresses that the longer a person works with a firm, the greater the possibility for him/her to get a higher post. Furthermore, over a longer time frame a person will gain more confidence and stronger social relationships with their peers and subordinates and eventually achieve a higher position in the firm.

Hernandez, Eberly, Avolio, and Johnson (2011) define the social exchange approach as being that any group member who uniquely contributes to his/her group's goal will be more likely to receive higher status and esteem from fellow group members. Our study uses CEO tenure with the firm, and status of internal promotion, as proxies for internal networking ties.

Our study also include the CEO's external networking links. The earliest study on the behavioural approach (Stogdill, 1974) classified managerial behaviour by looking at how managers spent their time and their activity patterns. Yukl (1989) mentions that to understand managerial behaviour based on managers' tasks is too abstract and suggests

research on managerial behaviour should be more specific and focus on certain aspects such as networking behaviour, as proposed by Kaplan (1986). Kaplan, Klebanov and Sorensen (2012) define networking as ‘possesses a large networking of talented people’.

Fracassi and Tate’s (2012) study on network ties and firm outcomes in the US creates a Social Network Index (SNI) for the network tie between a CEO and the firm’s directors. Fracassi and Tate use four types of connections: Current Employment (CE), Prior Employment (PE), Education (Ed) and other activities (OA). Their measurement for CE is external directorships in the same firm. PE is measured by overlapping prior employment in any previous firm. Ed connections are measured by whether the CEO and directors attended the same school and graduated within one year of each other, and OA is the connection with a common membership in organizations, clubs and charities. Our study uses CEO external directorship and the CEO’s social networking prestige to proxy his/her external networking ties. We posit that CEOs who have more and stronger networking ties are more likely to be optimistic.

Although previous research on managerial optimism studies does include some CEO characteristics, the literature did not provide any theoretical support that CEO characteristics may cultivate managerial optimism. The current study will be the first attempt to use CEO personal attributes to explain the CEOs’ leadership qualities as possessing the potential to result in their optimistic behaviour. This study employs the Traits Approach to support the CEO personal traits (age, gender, nationality and marital status). A Power-Influence Approach was used to study, and support the importance of the influence of CEO skills and experiences (formal education, founder, financial literacy, duality, tenure as CEO and emoluments) on managerial optimistic behaviour. Another

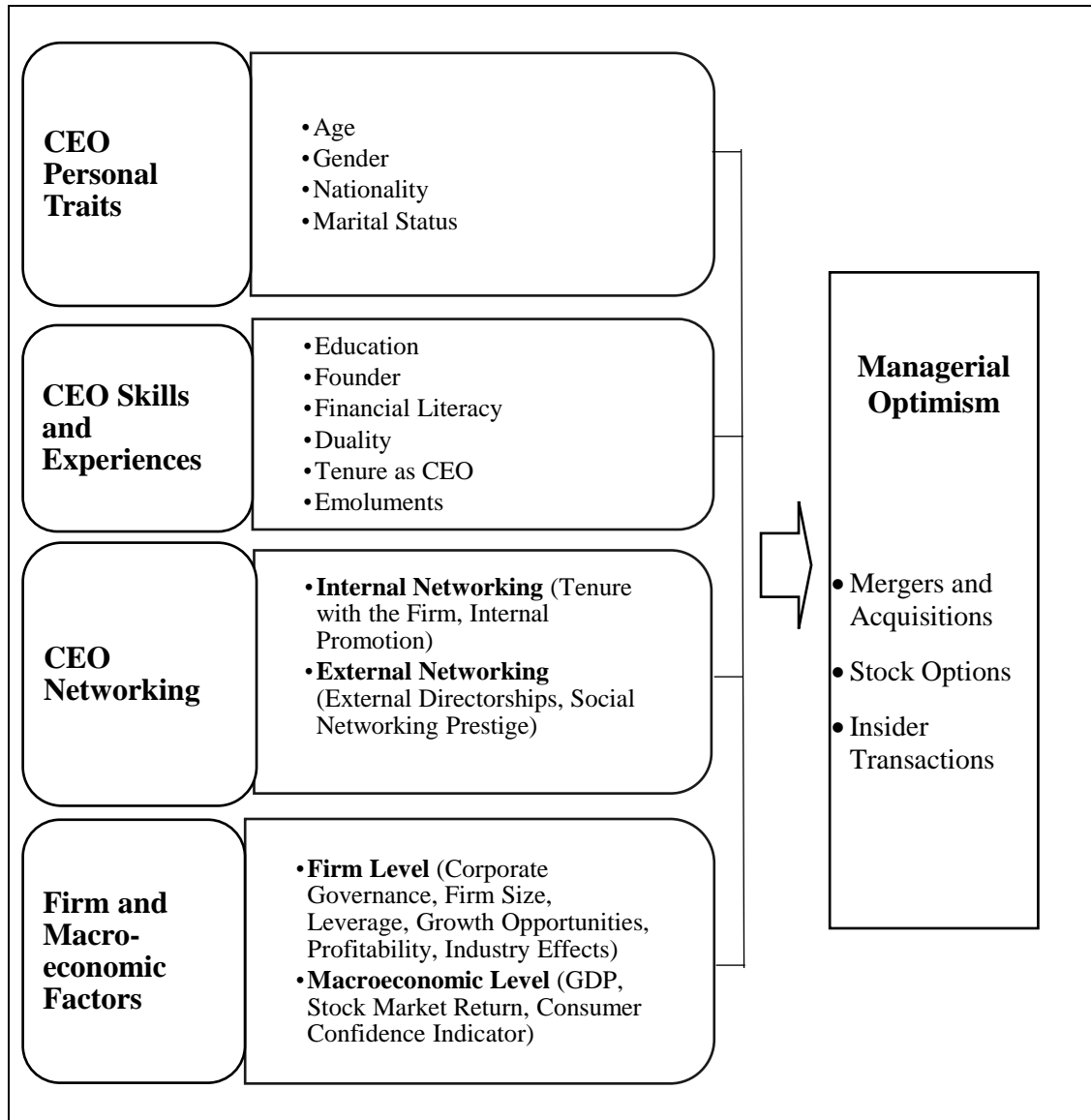
theory used to describe CEO internal networking (tenure with the firm, internal promotion) is Social Exchange Theory; and lastly a Networking Behavioural Approach is used to support the CEO external networking ties (external directorship, social networking prestige).

In summary, this chapter examines the relationship between the CEOs' personal attributes (traits, skills and experiences, and networking ties) with their optimistic behaviour. Figure 2.1 shows the CEO personal traits (age, gender, nationality and marital status) used to study effects on CEO optimism. In the case of CEO skills and experiences influencing optimistic behaviour we examine CEO education, founder, financial literacy, duality, tenure as CEO and emoluments.

We also examine the influence of CEO networking (tenure with the firm, internal promotion, external directorships, and social networking prestige) on CEO optimism. Our study also controls for firm, industry and market effects. In this study, our main proxy for CEO optimism is successful mergers and acquisitions; additionally we use stock options exercise behaviour and CEO stock holding transactions as a test of robustness.

**Figure 2.1**  
**Research Framework for First Empirical Chapter**

The diagram shows the research framework for this chapter. The main objective of this study is to examine the relationship between CEOs’ personal traits, skills and experiences, networking and their optimistic behaviour, while controlling for firm and market effects.



## **2.3 Data and Methodology**

This study focuses on the chief executive officers (CEOs) of the UK FTSE 100 firms, which are listed on the London Stock Exchange (LSE). The study period is from 2000 to 2013 and the total number of CEOs in the sample is 248. Earlier researchers have confirmed the importance of a chief executive in a firm; the CEO is the head figure of the firm who also takes responsibility as the main corporate decision-maker (Adams, Almeida & Ferreira, 2005; Brennan & Conroy, 2013; Graham, Harvey & Puri, 2013). According to Forbes Magazine's (2013) list of the world's most powerful people, 24 of the 72 most powerful people are CEOs.

This study uses a unique, manually collected dataset. More data became available from 2000, and because we aimed to gather as much as data as possible, we chose to start our sample from that year. In addition, Croci, Petmezas and Vagenas-Nanos (2010) mention that UK firms increased their merger activities in the late 1990s. , Our main proxy for CEO optimism in this study is based on the frequency of acquisition activities; hence, starting the sample period from 2000 enabled us to capture this optimistic behaviour of CEOs.

### **2.3.1 Data**

This study focuses on 248 CEOs who worked with the UK FTSE 100 firms trading on the London Stock Exchange (LSE) from 2000 to 2013. Most of the data were manually collected and other non-sterling (£) currencies stated in annual reports were converted to pounds sterling based on the average exchange rate for the respective year. Table 2.2 presents the main sources that were used in this study.

**Table 2.2**  
**Main Sources of Data Used in this Study**

<b>Sources</b>	<b>Data collected</b>
<p><b>1 Annual Report</b></p> <ul style="list-style-type: none"> <li>• Thomson Research database</li> <li>• Company website</li> <li>• Northcote website</li> </ul> <p><i>If a firm's annual report was unavailable from the above sources, the firm was contacted and a copy of the annual report requested</i></p>	CEOs' biographies and some off-balance sheet data, stock option data
<b>2 Thomson DataStream database</b>	Firms' financial data
<b>3 Thomson ONE banker database</b>	Merger and acquisition transactions data
<b>4 Thomson ONE Ownership database</b>	Individual insider transactions data
<p><b>5 Lexis-Nexis database</b></p> <ul style="list-style-type: none"> <li>• Standard &amp; Poor's Register of Directors and Executives</li> <li>• The Who's Who of Company Directors</li> <li>• Who's Who MediaMarketing GmbH. Who's Who In European Business and Industry</li> <li>• Marquis Who's Who LLC. The Complete Marquis Who's Who (R) Biographies</li> <li>• Debrett's People of Today</li> <li>• Reed Elsevier Inc.: Who's Who In International Banking</li> <li>• Content5 Persons (English)</li> <li>• US Executive Compensation Database - Executive Biographies</li> </ul>	CEOs' personal data

### 2.3.1.1 Dependent variables

In this study we use frequency of successful mergers and acquisitions (M&A) as our main proxy for Managerial Optimism (MO); additionally we include two alternative proxies for our robustness test: stock option exercise behaviour, and buying and selling activities (insider transactions).

### **Proxy 1: Mergers and Acquisitions (M&A)**

This study adopts Doukas and Petmezas' (2007) proxy measurement for managerial overconfidence by using the frequency of mergers and acquisitions. However, our study differs from that of Doukas and Petmeza, as we argue that the measurement of 'successful' M&A activities fails to capture the overconfident behaviour, but the 'unsuccessful' ones are more appropriate to use as proxy for overconfidence. We focus on 'optimism' rather than overconfidence, as we consider the CEOs who successfully perform M&A at high frequencies are more likely to perceive themselves to have 'better than average' ability in decision making, 'illusion of control' of outcomes and to be 'highly committed' in terms of firm performance. This idea is in line with the position of Langabeer II and DelliFraine (2011), who mention that optimistic individuals generally have better job performance, are more proactive, face greater challenges and believe themselves to have superior decision making ability.

The CEO is identified as optimistic if he/she successfully engages in five or more acquisitions in three years, starting from when the CEO in the sample completes his or her first acquisition. The period of three years is used as a benchmark for controlling managerial turnover. According to Graham, Harvey and Puri (2013), CEOs who like to make lots of acquisitions are the ones who are risk-loving. Risk loving CEOs are more likely to be the ones who are optimistic about future outcomes, hence, CEO optimism may also contribute in M&A activities. Fracassi and Tate (2012) also mention that more powerful CEOs tend to make more acquisitions.

Data selection for this study:

1. Acquirer must be a UK FTSE 100 firm, not a subsidiary or parent company.
2. Completed acquisition<sup>14</sup>.
3. The deal value is one million dollars or more (\$ mil)<sup>15</sup>.
4. The acquirer owned at least 50% of the target firm after the transaction. (Rationale behind this: CEO can control the firm directly after the acquisition)
5. Identify the firm that completes five or more acquisitions on different announcement days within three years of the first acquisition during the sample period (used by Doukas & Petmezas, 2007).
6. Targets can be public or private firms operating in the UK and the rest of the world. Acquisition of subsidiaries is also included as the action of power concentration (centralization of power) by a CEO.

**Proxy 2: Stock Options (SO)**

In managerial optimism and overconfidence studies, this proxy is widely used to identify optimistic/overconfident CEOs if they hold stock options until the expiration date (Malmendier & Tate, 2005a & 2008; Wong & Zhang, 2009; Croci, Petmezas & Vagenas-Nanos, 2010; Campbell, Gallmeyer, Johnson, Rutherford & Stanley, 2011; Malmendier, Tate & Yan, 2011; Dittmar & Duchin, 2013; Ma, 2014).

This study follows the approach of Croci, Petmezas and Vagenas-Nanos' (2010) as their research was based on the UK market. They justify the existence of CEO optimistic

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<sup>14</sup> Excluded: Withdrawn, Pending, Status Unknown, Intended and Dis Rumor

<sup>15</sup> Ben-David, Graham & Harvey (2007) use a minimum size of \$1 Million. For the UK study, see detail in Doukas & Petmezas (2007); they also mention that this one million dollars cut-off point has also been used in other studies (see, for example, Moeller, Schlingemann, & Stulz, 2004). Reason: to avoid results being generated by very small deals.

behaviour in executive stock options holding by looking at the exercising behaviour, as a CEO who has an opportunity to exercise at higher market price (during exercisable date) but give up the potential gain (as they optimistically believe the stock price will continue to rise) by holding until the expiration date and exercise at a lower market price.

Data selection for this study:

1. Option exercise behaviour is examined based on The Executive Share Option Plan (ESOP)/ Executive option scheme<sup>16</sup>, which CEOs hold during their employment with the firm.
2. Exclude Savings Related Share Option Scheme (period from exercisable to expiration normally within 6 months).
3. Exclude Nil-price option (the optimistic behaviour unable to be identified from the exercising actions).
4. Classify the CEOs as optimistic only if they hold their stock option towards its expiration date.<sup>17</sup>
5. In certain cases, the CEOs hold until the expiration date and the option lapses, as market price is lower than exercise price. A double check is carried out to see if during the exercisable period there is a time when the market price is higher than the exercise price, and yet the CEOs gave up the potential gain and held until expiration: and if so, it is concluded that they are optimistic, although they did not exercise their option at the expiration date because the option lapsed.

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<sup>16</sup> In the UK, most of the executive stock options have a lifespan of 10 years with a vesting period of 3 years; the holder can exercise the option starting from year 3 to year 10 (approaching expiration). Some firms awarded their executive with options tied to firm performance, which is known as a performance share option. If the firm fails to achieve the target set, the stock option will not be vested, and it will lapse.

<sup>17</sup> To make sure that holding onto an option is not because market price is lower compared with the exercise price, this study makes sure that during the exercisable period there is a time when that market price is higher than exercise price, and yet the CEO still chooses not to exercise.

6. Classify the CEOs as optimistic in the respective year only when they have an exercisable option and hold towards the expiration date. Non-optimistic CEOs will be identified only when they have an exercisable option and they exercise it without waiting until close to the expiry date.
7. In certain cases, this study allows a CEO's behaviour to be noted as 'cannot be determined' (not applicable)<sup>18</sup>.

Most research assumes that optimistic/overconfident behaviour is constant across time (e.g., Graham, Harvey & Puri, 2013; Malmendier & Tate 2005a, 2005b). This study on the other hand, allows the classification of optimistic behaviour to change throughout the chief executive's career life. This is because it is more sensible for a person to change their behaviour as environmental conditions change over time. Furthermore, Campbell, Gallmeyer, Johnson, Rutherford and Stanley (2011) also allow for a variation in a CEO's optimism<sup>19</sup> level from year to year.

### **Proxy 3: Insider Transactions (I and II)**

Malmendier and Tate (2005a) use 'net buyer' to identify the overconfident CEO. A CEO who was a net buyer of stock more years than he was a net seller during the first five years of the sample (his first five years) will be categorized as overconfident. If the CEO worked for more than 10 years in the sample, then his/her net buyer behaviour will be observed after his/her first five years. Campbell, Gallmeyer, Johnson, Rutherford and Stanley (2011) suggest that if, in a given year, the CEO's net share purchase is positive

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<sup>18</sup> If no stock option is held by the CEO, or no option is exercisable during the particular year and if there is exercisable option but it has not reached the expiration date yet the CEO is leaving the firm.

<sup>19</sup>Campbell et al. (2011) apply CEO optimism classification to each of the CEO each year in the sample based on their stock option exercise behaviour.

and if the share percentage change is in the top quartile of all the CEOs in the sample, then the respective CEO should be classified as optimistic. In the UK study, Ataullah, Vivian and Xu (2012) use 'net purchase ratio' to determine a CEO's overconfident behaviour.

The rationale for observing the actions of CEOs who purchase shares in the firm where they work is from an investor's viewpoint:

- Firstly, CEOs are believed to have more information about the firm employing them than outside investors.
- Secondly, as independent investors, they are free to invest in other securities for their own personal portfolio. A tendency to increase their ownership of stock in the firm they work for indicates that they are confident in their own ability to bring more profit to the firm and indirectly to increase their own wealth in their personal portfolio.

Our study employs Malmendier and Tate's (2005a) method to classify overconfident CEOs and non-overconfident CEOs. In addition, 'Insider Transaction I' follows Malmendier and Tate's (2005a) method, 'Insider Transaction II' was created for this study and classifies a CEO as 'optimistic' if he/she was a net buyer in any respective year and 'non-optimistic' if he was a net seller in the particular year. The rationale for modifying the proxy measurement is that it is normal for a person to change their behaviour as their personal traits, skills and experiences, and the environment do change over time. The time varying optimistic behaviour was also used by Ma (2014).

### *2.3.1.2 Explanatory Variables*

#### **CEO Personal Traits**

Our study aims to identify a manager's personal traits that may associate with his/her optimistic behaviour. This study uses the traits approach and select four CEO personal traits (age, gender, nationality, and marital status) that have the potential to cultivate CEO optimistic behaviour.

##### ***1. Age***

One's personal risk-tolerance level will differ at different stages of life. Graham, Harvey and Puri (2013) mention that younger CEOs are more confident and risk-tolerant (risk-taking) than older CEOs. Shefrin (2008) suggests a nonlinear relationship between age and risk aversion; risk aversion will increase as one moves from youth to maturity, but interestingly, after reaching 70 years, one's risk tolerance will increase. Weinstein (1980) mentions that optimism is the tendency to overestimate future positive events while underestimating future negative events. Lachman, Röcke, Rosnick and Ryff (2008) find that older adults were less optimistic about their future than younger adults. Younger adults were found to have more positive expectations (expecting things to improve).

Campbell, Gallmeyer, Johnson, Rutherford and Stanley (2011) control for CEO age in their study of CEO optimism and forced turnover. Mohamed, Baccar, Fairchild and Bouri (2012) find that a CEO's age is negatively correlated with their optimism bias. We believe that a younger CEO will be more likely to become optimistic, as young people are more risk-tolerant, as mentioned by Graham, Harvey and Puri (2013). Therefore, this study predicts a negative relationship between CEOs' age and their optimistic behaviour. A

CEO's age in this study is equivalent to the difference between the examined year and the CEO's year of birth.

## ***2. Gender***

The cognitive psychology literature proposes that people are naturally show optimistic expectations about their future life (Lin, Hu & Chen, 2005). According to Deaux and Farris (1977), men tend to have positive expectancies, and they rate their ability greater than do females. Furthermore, males are more defensive about failure as they tend to maintain their self-image of competency. On the other hand, women are prone to explain their performance, whether they succeed or fail, in terms of luck; and women are found to have lower expectations and can accept failure. From this point of view, males are more likely than females to have optimistic beliefs.

Most previous research shows that males tend to be more overconfident than females (Barber and Odean, 2001; Graham, Harvey and Puri, 2013; Huang and Kisgen, 2012; Bhandari and Deaves, 2010). However, Acker and Duck (2008), using a multi-period stock market game, show there is no evidence that males are more confident than females. Similar results were also obtained by Andriosopoulos, Andriosopoulos and Hoque (2013) and Ben-David, Graham and Harvey (2007) who find no significant difference between males and females in terms of overconfident behaviour. For this study, a male CEO is assigned as dummy variable 1; females are then dummy equal to zero: this study expects that male CEOs will be more likely to become optimistic than female CEOs.

### 3. *Nationality*

Clarke and Hammer (1995) study the effect of intercultural effectiveness; they examine the intercultural success of managers who work abroad. They find managers need to have strong social skills in order to succeed when they work in different cultural working environments. According to Mendenhall and Odduo (1985), expatriate managers need to have the ability to interact effectively with their national hosts. In addition to technical competence, they also need to prepare themselves in terms of intercultural, perceptual and interpersonal ability.

Graham, Harvey and Puri (2013), in distinguishing between US and non-US top executives, find that US-based CEOs and CFOs are more optimistic than their Non-US counterparts. Andriosopoulos, Andriosopoulos and Hoque's (2013) study on drivers of buyback completion rates in the UK find a non-significant relationship between CEOs' nationality and buyback program.

Mendenhall and Odduo (1985) mention that managers from a non-host country are exposed to cultural toughness, whereby the host country's political and legal system, socioeconomic and business environments differ from those of the home country. Derived from this dimension, this study proposes that a person who works in his/her home country tends to be more confident as he/she is more familiar with the home country's rules and regulations, people, culture and working environment. Thus, this study predicts that UK CEOs will be optimistic compared to non-UK CEOs. In this study, a dummy variable (1, 0) is used; where a CEO of UK nationality is denoted as 1, and the other as zero.

#### **4. *Marital Status***

Stutzer and Frey (2006) consider that married people benefit from the continuous emotional support from their intimate relationship and that marriage also provides individuals with self-esteem by providing an escape from the stress in their life, in particular from their hectic job. According to Bloch and Kuskin (1978), marital status is a proxy for a personality trait suggesting positive individual attributes such as stability, maturity and responsibility. Judge, Cable, Boudreau and Bretz (1995) suggest that marital status should have a positive impact on an executive's career success. Glenn (1975) finds that marriage does contribute happiness and benefits both husbands' and wives' psychological well-being. Grinblatt and Keloharju (2009) find that people who are married are more self-confident. Puri and Robinson (2007) point out that the optimistic individual is more risk tolerant, thus increasing his/her probability of remarriage. The greater risk tolerance makes them more willing to commit to a new, uncertain relationship.

CEOs in the FTSE 100 firms are well known in UK business, as they are outstanding personalities, public figures and wealthy. Marriage would provide them with positive attributes, and these personality traits are more likely to make them become optimistic, which derives from the risk taking perspective. For these reasons this study anticipates a positive relationship between marital status and a CEO's optimistic behaviour. The number of times married is used for marital status in this study. If a CEO is single, a dummy of zero is assigned; for a first marriage, a dummy of 1 is assigned, for a second marriage a dummy of 2 is used and so on.

Our study examines the effect of four CEO personal traits (age, gender, nationality and marital status) on CEOs' optimistic behaviour. Table 2.3 summarizes the CEO personal traits measurements and the expected relationship with managerial optimism.

**Table 2.3**  
**CEO Personal Traits and Managerial Optimism**

Summary of the attributes used for the CEO personal traits approach and the expected relationship with managerial optimistic behaviour in this study

<b>Approaches</b>	<b>Attributes</b>	<b>Measurements</b>	<b>Expected relationship</b>
<b>Trait Approach</b>	1. Age	The difference between the CEO's year of birth and the examined year	Negative
	2. Male	Male CEO is assigned as dummy variable 1; females are then dummy equal to zero	Positive
	3. UK Nationality	CEO of UK nationality is denoted as 1, and others as zero	Positive
	4. Marital status	If a CEO is single, a dummy of zero is assigned; if it is a first marriage, a dummy of 1 is assigned; if it is a second marriage then 2 is used and so on	Positive

### **CEO Skills and Experiences**

We examine the influence of CEOs' personal skills and experiences on their optimistic behaviour, with the aim of eliciting which of the following skills and experiences (educational, founder status, financial literacy, duality, tenure as CEO, and emoluments) are more likely to associate with CEO optimistic behaviour. Our hypothesis is derived from the idea that higher levels of skills and experiences will provide a CEO with more power. Adams, Almeida and Ferreira (2005) state that a CEO who has power over the board will have greater influence on decision making in the organization. In other words, the sources of power are from the skills and experiences. Anderson and Galinsky (2006) mention that power increases an individual's optimism in viewing risks, and thus

increases their tendency to choose a riskier option. Thus, this study suggests that a CEO who has skills and experiences will be more likely to become optimistic as they have more power in controlling the firm, especially in the decision-making process.

### *1. Education*

Chevalier and Ellison (1999) investigate systematic risk-taking behaviour and find that fund managers with an MBA are more tolerant to systematic risk. Larwood and Whittaker (1977) mention that corporate executives and management students are particularly more likely to have self-serving bias; Malmendier and Tate (2005a) suggest that this self-serving attribution reinforces overconfident behaviour. Malmendier and Tate find finance education is positively correlated with overconfidence while technical education shows the opposite result. However, Graham, Harvey and Puri (2013) show that MBA holders are significantly averse to sure losses. Andriosopoulos, Andriosopoulos and Hoque (2013) examine UK CEOs' educational background and find no relationship between CEOs who did business studies and their share buyback program.

In this study, CEOs with an MBA degree and CEOs with PhDs are identified. For these two variables, dummy 1 is assigned to those who hold an MBA and PhD respectively, and zero to those who hold neither. An MBA or PhD holder is expected to have a certain degree of knowledge and expertise, so this study expects that CEOs who have MBAs or PhDs are more likely to become optimistic than CEOs who do not have such a qualification.

## 2. *Founder*

In management literature, Buyl, Boone, Hendriks, and Matthyssens, (2011) point out that CEOs who are also founders of the firm own two sources of executive power; positional power, as they are also the firm's CEO, and ownership power. Subsequent to the accumulation of these formal executive powers, the CEO becomes more dominant in decision making. In finance literature, Adams, Almeida and Ferreira (2005) also use 'status as founder' as an indication of CEO power. With power centralised in the hands of a CEO who is also a founder of the firm, the CEO tends to have more decision-making power, such that their opinion will be taken and translated directly into outcomes for the firm.

Andriosopoulos, Andriosopoulos and Hoque (2013) find a non-significant relationship between a CEO who is a founder of the firm with share-buyback completion rates. However, Barros and da Silveira (2007) use the CEO who is founder as a proxy for overconfidence and they find a significant positive relationship between a founder CEO and the use of leverage. Since CEOs who are also a founder of the firm have more experience and tend to have more decision-making power in the firm, this study expects them to be more prone to exhibit optimistic behaviour. Anderson and Galinsky (2006) note that people who have greater power would show more optimistic behaviour. In this study, if the CEO is also a founder of the firm, the dummy variable 1 is denoted, otherwise zero is assigned.

### **3. *Financial Literacy***

Güner, Malmendier, and Tate (2008) have used the term ‘financial expertise’ in examining an external director’s main employment related to finance<sup>20</sup> and find that financial expertise significantly influences corporate decisions. Graham, Harvey and Puri (2013) find that the CEO who has a financial or accounting background uses more total debt than CEOs who have no financial background. However, Bhandari and Deaves (2010) argue that if a person has greater knowledge than another, they will not become more overconfident than the average individual; they argue that overconfidence in people is due to insufficient knowledge.

This study adapts Güner, Malmendier, and Tate’s (2008) definition by looking at a CEO’s past career path: if the CEO worked as a financial officer or controller, banker, accountant, treasurer lawyer, or academic who was involved in the field of economics, business, finance or accounting, he/she is categorized as financially literate. This study expects that financially literate CEOs will tend to become optimistic in managing a firm. Hence, the dummy variable 1 is used for a CEO who possesses financial literacy, otherwise zero is assigned.

### **4. *Duality***

In the UK there is a Combined Code principle A.2<sup>21</sup> that suggests assigning the positions of chairman and chief executive officer to two different individuals. The chairman is primarily responsible for the working of the board and the chief executive officer is

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<sup>20</sup>For details of financial expertise, see Güner, Malmendier, and Tate’s (2008) paper ‘Financial expertise of director’. They study US public traded firm board members (1988-2001). This study uses the same method which is to manually collect all the biographical information.

<sup>21</sup> Combined Code principle A.2 states: There should be a clear division of responsibilities at the head of the company between the running of the board and the executive responsibility for the running of the company’s business. No one individual should have unfettered powers of decision.

responsible for running the group's business and implementing board strategy and policy. CEO duality is the situation where the same person holds the role of CEO and chairperson simultaneously.

Adam, Almeida and Ferreira (2005) use 'concentration of titles' in the hands of the CEO as a measure for CEO power. They use dummy variables in the study; variable equals 1 if a CEO holds titles of both chairman and president. Their argument is that if the CEO is not the chairman of the board, he/she will be less influential in strategic decision-making. Fracassi and Tate (2012) also use the consolidation of titles CEO and chairman of the board or president as a measure of CEO power.

Malmendier and Tate (2005a) find that the duality status of a CEO does not affect overconfident behaviour (long holder of stock option). Mohamed, Baccar, Fairchild and Bouri (2012) suggest a positive relationship between duality and an optimistic bias. They mention that if the CEO is also the firm's chairman, then he/she will be at the same time a controller and a decision maker, and this would give the CEO the opportunity to apply his optimism bias if it exists. In this study, if a CEO holds the post of chairman at the same time, a dummy variable is allocated to the respective CEO as 1, otherwise zero is assigned. This study predicts that a CEO who also holds the post of chairman will tend to be optimistic as he/she has greater decision-making power.

##### **5. *Tenure as CEO***

Brennan and Conroy (2013) hypothesize that the longer his/her tenure as CEO (expression of the power position), the more likely a CEO is to become hubristic. CEOs can strengthen their influence over the board, leading to an increase in a CEO's power,

and thus his/her becoming more overconfident (Yim, 2013). Mohamed, Baccar, Fairchild and Bouri (2012) explain that the longer CEOs work with a firm, the more knowledge they tend to gain, making them feel more comfortable when dealing with internal and external environments: thus, this will make them become optimistic. Campbell, Gallmeyer, Johnson, Rutherford and Stanley (2011) include CEO tenure as one of the CEO characteristics to study the relationship between CEO optimism and forced turnover. They find CEO tenure has a significant negative relationship with CEO confidence<sup>22</sup>. Malmendier and Tate (2005a) discover an insignificant result for the relationship between CEO tenure and their overconfident behaviour. In this study, the tenure of a CEO is counted from the year they start being designated CEO. This study suggests that the longer a CEO is with a firm, the more experiences and skills he/she will accumulate, and this will make him/her tend to become more comfortable with the environment, and hence become optimistic.

## **6. *Emolument***

Paredes (2004) studies the link between CEO pay and CEO overconfidence, and explains that high chief executive pay signals the success of a CEO. This positive feedback will tend to result in the CEO becoming overconfident. Brown and Sarma (2007) define CEO emoluments as a proxy for CEO dominance: they suggest that CEO remuneration is the best validation tool in recognizing CEO success. They use the natural logarithm of the ratio of CEO total annual remuneration to the firm's total assets as a CEO dominance proxy. A higher ratio of CEO emoluments to total assets indicates that the CEO has more decision-making power as the firm is more reliant on the CEO. Otto (2014) studies the relationship between US CEO compensation and optimism and finds that optimistic

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<sup>22</sup> Measured by net stock purchases

CEOs tend to receive lower compensation than their peers. Campbell, Galmeyer, Johnson, Rutherford and Stanley (2011) include CEO compensation as a control to capture CEOs' perceived ability in examining CEO optimism and forced turnover. They find that CEO salary shows a significant positive relationship with CEO confidence (net stock purchase, and investment rate) in firms with poor governance, while insignificant results were found in firms with good governance.

The United Kingdom was the first country to implement the 'Say on Pay'<sup>23</sup>, in 2002. This regulation stipulates the annual mandatory voting on executive pay by non-binding shareholders (Ferri and Maber, 2013). According to the requirements of the UK Companies Act 1985, the director's total remuneration should include the base salary, annual cash award/ bonus, non-monetary benefits and other benefits. In this study, annual emoluments scaled by the firm's total assets is used as a proxy for CEO dominance or 'power'. Our study predicts that CEOs who receive a higher emolument will tend to become optimistic as the pay received signals the 'value' of their skill, experiences and expertise to the firm. It is implied that the more they receive, the more important their presence in the firm.

Our study examines the effect of six CEO personal skills and experiences variables (educational, founder status, financial literacy, duality, tenure as CEO, and emolument) on CEOs' optimistic behaviour. Table 2.4 summarises the CEO personal skills and experiences measurements and the expected relationship with managerial optimism.

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<sup>23</sup> See Ferri and Maber (2013) who state that the motive of 'Say on Pay' is to overcome the problem of 'fat cat' pay and to improve the accountability and transparency of a firm's management.

**Table 2.4**  
**CEO Skills and Experiences and Managerial Optimism**

Summary of the attributes used for CEO skills and experiences and the expected relationship with managerial optimistic behaviour in this study

<b>Approaches</b>	<b>Attributes</b>	<b>Measurements</b>	<b>Expected Relationship</b>
Power-influence Approach	1. Educational Background	Dummy 1 is assigned to those who hold an MBA or PhD	Positive
	2. Founder	If the CEO is also the founder of the firm, the dummy variable 1 is denoted, otherwise zero is assigned	Positive
	3. Financial Literacy	If the CEO worked as a financial officer or controller, banker, accountant, treasurer lawyer, or academic who was involved in the field of economics, business, finance or accounting, he/she is categorized as financially literate. Dummy variable 1 is denoted, otherwise zero is assigned.	Positive
	4. Duality	If a CEO holds the post of chairman at the same time, a dummy variable 1 is denoted, otherwise zero is assigned.	Positive
	5. Tenure as CEO	The tenure of a CEO is counted from the year they start to be designated CEO	Positive
	6. Emolument	Annual emolument scaled by the firm's total assets	Positive

### **CEO Networking**

We examine the influence of CEO internal and external networking ties with their optimistic behaviour, motivated by Hernandez, Eberly, Avilio and Johnson (2011), who mention that in addition to focus on an individual's traits, leadership should incorporate

multiple people and the interaction with the environment. Hence, our study looks at CEOs' internal networking (tenure with the firm, and internal promotion) and external networking (external directorships, and social networking prestige) to examine the relationship of these networking ties with their optimistic behaviour.

### ***1. Tenure with the firm***

Long tenure of a CEO with a firm shows the CEO's loyalty to the firm. Taking the example of Tesco Plc., CEOs Sir Terry Leahy and Mr Philip Clarke both worked for Tesco Plc. for more than 35 years. Their loyalty to the firm brought them success and led to their becoming top man in the company. However, Andriosopoulos, Andriosopoulos and Hoque (2013) find that the longer CEOs worked with a firm, the less likely they would become to engage in a share buyback program. Michael, Hou and Fan (2011) study the relationships among creative self-efficacy, optimism, and innovative behaviour of 120 spa and beauty salon employees in Taiwan, and find that job tenure was insignificantly positively correlated with optimism.

The longer CEOs work with a firm the more they will tend to gain respect, support and trust from their peers and subordinates: thus, they will be more prone to show optimistic behaviour, as they are comfortable and know a lot about the firm. On the other hand, there is also a possibility that longer tenure may associated with conservatism and less risky behaviour in the sense of securing their position. In this study, tenure with a firm is calculated from the year the respective CEO joined the firm until the examined year. This study anticipates a positive relationship between CEOs' tenure with a firm and optimistic behaviour.

## **2. *Internal Promotion***

A CEO who is internally promoted indirectly shows evidence of successful internal relationships in the firm. Top executives are expected to be optimistic as their promotion is based on their previous performance with the firm: they are more risk loving and because of their daring, they outperform their peers and are selected for top management (Goel & Thakor, 2008). Banerjee, Dai, Humphery-Jenner and Nanda (2014) use options exercise behaviour as a measure of overconfidence and find that overconfident executives are more likely to be promoted as CEOs. Additionally, Ahmed (2015) examines job satisfaction among teachers in Bangladesh private universities, and finds that optimism is significantly positively correlated with promotion.

This study also expects the internally promoted CEOs will be more likely to become optimistic, as they will be full of pride because they have been selected over other managers. Moreover, if a CEO is internally promoted, he/she is expected to have stronger internal networking ties with the existing employees, board of directors and even main shareholders. In this study, if the CEO is internally promoted, a dummy 1 is assigned: otherwise zero is assigned.

## **3. *External Directorships***

Most FTSE 100 UK firms allow their chief executives to take up external appointments on condition that the CEO is a non-executive director and preferably appointed to a FTSE 100 firm. External appointments are normally subject to the rules governing conflicts of interest and CEOs need to get approval from the board of directors. The reason a board allows a CEO to hold an outside appointment is that the board believes that such an appointment can broaden a CEO's experience and knowledge, and thus benefit the group.

Masulis and Mobbs (2011) show that when an inside director of a firm holds outside directorships, it improves the firm's performance. However, Güner, Malmendier, and Tate (2008) show that outside directorships tend to destroy a firm's value. Andriosopoulos, Andriosopoulos and Hoque (2013) find that CEO external directorships correlate positively and significantly with their share buyback completion rates. This study follows Güner et al.'s (2008) and Andriosopoulos, Andriosopoulos and Hoque's (2013) measurements by using the number of external directorships held by a CEO. Our study posits that CEOs who are appointed by other firms as directors have their own expertise and especially good network ties in the industry. A CEO who has the skills and experience needed for an outside firm will tend to be more confident and this recognition of his/her expertise will tend to make him/her become optimistic compared to those who do not have an external appointment. Hence, we expect a positive relationship between external appointments and a CEO's optimistic behaviour.

#### ***4. Social Networking Prestige***

A social network approach has been used in leadership research: Balkundi and Kilduff (2006) find these social ties can enhance a leader's effectiveness. Brissette, Scheier and Carver (2002) mention that social networks provide social support and can influence psychological well-being. Thus the development of extensive and supportive social networks may lead to greater optimism. Fracassi and Tate's (2012) study on CEOs' networking ties with directors and find that powerful CEOs will have more network ties with the directors. Their observation of CEOs with more network ties is that they tend to have frequent acquisitions. As frequent acquisitions are an indication of overconfident behaviour (e.g., Doukas & Petmezas, 2007; Graham, Harvey & Puri, 2013), this study

predicts that a CEO who has social networking prestige will be more likely to become optimistic. In our study, the networking behavioural approach is observed from a CEO's social networking prestige/status especially CEOs' networking in professional bodies, in fellowships or through official honours, particularly knighthoods.

In our study, if a CEO holds any position or receives awards based on their social networking prestige as listed in Table 2.5, he/she is classified as dummy 1 and assigned zero if he/she does not hold, or has not received any of those mentioned below.

**Table 2.5**  
**Lists of CEO Social Networking Prestige**

The table shows the checklists used in this study to identify the social network prestige of CEO

<b>Social Networking Prestige</b>	<b>Example</b>
Professional	Member of Chartered Institute of Taxation, Associate of Institute of Chartered Accountants in England & Wales, Institute of Chartered Accountants of Scotland, Chartered Institute of Management Accountants, Royal Institution of Chartered Surveyors, CPA US, Chartered Accountants Australia.
Educational	University Adjunct Professor, Pro Chancellor, University Advisor, University Lecturer, Assistant Professor.
Honours/ Awards (Recipient of a knighthood)	Commander of the Order of the British Empire (CBE), OBE, Knight Commander of the Order of the British Empire (KBE, Sir).
Fellowships	Royal Academy of Engineering, Royal Geographical Society, Royal Society of Arts, Institute of Electrical Engineers, Chartered Institute of Bankers, Institute of Actuaries, Royal Aeronautical Society.
Member of advisory board	Advisory board member for council (The Financial Reporting Council) and foundation, member of the UK Prime Minister's business advisory Group, Ministry of Justice, international advisory board member for industries and associations (Association of British Insurers), member of International Monetary Fund (IMF), member of Nasdaq board.
Trustee	Trustee of Darwin, Trust of Edinburgh, The Mayor's Fund for London, Trustee of City Technology College, Birmingham, Trustee of the Royal Theatre, Northampton, Trustee of the Cambridge Foundation, trustee for charitable bodies.

Our study examines the impact of four CEO personal attributes from the aspect of their networking ties (tenure with the firm, internal promotion, external directorships, and social networking prestige) on their optimistic behaviour. Table 2.6 summarises the CEO personal networking ties measurements and the expected relationship with optimistic behaviour.

**Table 2.6**  
**CEO Networking and Managerial Optimism**

Summary of the attributes used for CEO networking, supported by the following approaches (Social Exchange Theory and Networking Behavioural Approach) and the expected relationship with managerial optimistic behaviour in this study

<b>Approaches</b>	<b>Attributes</b>	<b>Measurements</b>	<b>Expected Relationship</b>
Social Exchange Theory	1. Tenure with the firm	calculated from the year the respective CEO joined the firm until the examined year	Positive
	2. Internal promotion	If the CEO is internally promoted, dummy 1 is assigned: otherwise zero is assigned	Positive
Networking Behavioural Approach	1. External Directorships	number of external directorships held by a CEO	Positive
	2. Social Networking Prestige	If a CEO holds any position or receives awards based on their social networking prestige as listed in Table 2.5, he/she is classified as dummy 1, otherwise zero s assigned	Positive

### *2.3.1.3 Firm and Macroeconomic Effect*

Studies have shown that firm and macroeconomic conditions do play an important role in managerial behaviour: thus, these factors are included in this study as control variables. Firm characteristics such as corporate governance, leverage, profitability, firm size and growth opportunities have been widely used in finance studies (e.g., Ataullah, Vivian & Xu, 2012; Barclay & Smith, 1995; Brown, & Sarma, 2007; Deshmukh, Goel, & Howe, 2013; Malmendier & Tate, 2005b).

In this study, firm characteristics and macroeconomics variables are included as control variables as shown in Table 2.7 and Table 2.8. This study intends to examine the incremental explanatory power of a CEO's personal attributes in addition to the conventional factors (firm and market levels). The reason for including the firm level and macroeconomic variables is that these variables have been widely found to have significant influence on managerial optimism. For example, as mentioned by Heaton (2002), the appointment of an independent board of directors can be an effective way to mitigate CEO optimism. Brown and Sarma (2007) proxy corporate governance by dividing the number of independent directors (non-executive directors) with the total board size (board of directors).

Ben-David, Graham and Harvey (2007) in their study suggest overconfident managers perceive their firm's equity as undervalued: thus, they will choose to use more debt as a source of external financing. Their results show that leverage increases with executive overconfidence. Furthermore, Malmendier, Tate and Yan (2011) find that firms run by overconfident CEOs are more likely to use debt than equity.

**Table 2.7****Firm Level Variables**

The table presents the firm level variables that are included as control variables in this study. These variables have been widely used in previous research and are expected to have significant influence on Managerial Optimistic behaviour. In addition, we also control for industry effects.

<b>Variables</b>	<b>Proxies measurement</b>	<b>Used in previous researches</b>
Corporate Governance	<b>Number of Executive Directors and number of non- Executive Directors</b> The proportion of independent directors on each firm's board of directors is recorded. An independent director is defined as a non-executive director = $\frac{\text{number of non- Executive Directors}}{\text{Board size}}$	Malmendier and Tate(2005b); Brown and Sarma, (2007)  Heaton (2002) suggests that an independent board of directors may be an effective way to mitigate CEO optimism
Industry Dummy	<b>10 sectors<sup>24</sup></b> (This study categorizes the firms into 10 sectors)	Gungoraydinoglu and Öztekin (2011)
Firm Size	<b>Natural logarithm of the book value of total assets</b> = $\log(\text{Total Assets})$	Opler, Pinkowitz, Stulz and Williamson (1999); Malmendier and Tate (2005b); Gungoraydinoglu and Öztekin (2011); Atallah, Vivian and Xu (2012); Elsayed and Wahba (2013)
Leverage	<b>Debt Ratio</b> = $\frac{\text{Total debt}}{\text{Total assets}}$	Opler, Pinkowitz, Stulz and Williamson (1999); Hackbarth (2004); Gungoraydinoglu and Öztekin (2011); Atallah, Vivian and Xu (2012); Graham, Harvey and Puri, (2013)
Growth Opportunities	<b>Market to Book Ratio (MTB)</b> = $\frac{\text{Market Value of Assets}}{\text{Book Value of Assets}}$	Smith and Watts (1992) ; Barclay and Smith (1995); Opler, Pinkowitz, Stulz and Williamson (1999); Malmendier and Tate (2005b); Gungoraydinoglu and Öztekin (2011); Atallah, Vivian and Xu (2012); Deshmukh, Goel and Howe (2013);
Profitability	<b>Return on Assets (ROA)</b> = $\frac{\text{Profits before taxes}}{\text{Total assets}}$	Lin, Hu and Chen (2008); Elsayed and Wahba (2013)

<sup>24</sup> Details for industry classification, see Appendix I

Ataullah, Vivian and Xu (2012) use net purchase ratio as a proxy for overconfidence and find that overconfident CEOs have a positive effect on the use of long-term debt financing. When using the measurement of value-based net purchase ratio (NPR) of executive directors, they find firm size and market-to-book ratio are significantly negatively correlated with NPR. On the other hand, Graham, Harvey and Puri (2013) use firm size to control for stability and firm growth.

Li and Tong (2012) conclude that overconfident managers often work in high growth firms (market-to-book ratios) and in industries with high stock volatilities, while non-overconfident managers often work in low market-to-book ratio firms and in low stock volatility industries. Additionally firm level data are also widely used in other corporate finance studies, for instance, firm-specific variables such as profitability, firm size, and market to book are used in Deesomsak, Paudyal and Pescetto's (2004) and Frank and Goyal's (2003) studies on firm's capital structure.

Ben-David, Graham and Harvey's (2007), in a study of US firms' manager overconfidence behaviour, use S&P 500 as a proxy for market returns and find that CFOs are more confident following high stock market returns. Gungoraydinoglu and Öztekin (2011) studying firms' capital structure, include country level factors of GDP and inflation rate besides firm characteristics. Korniotis and Kumar's (2010) study show that investors' behavioural biases adversely affected the local macro-economy (GDP, stock market, housing collateral ratio and industry differences).

**Table 2.8**

**Macroeconomic Factors**

To control the economic effects, a few major macroeconomic factors are included in this study as control variables: GDP, Stock Index, and Consumer Confidence Index.

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<b>Variables</b>	<b>Used in previous research</b>
Gross Domestic Product(GDP)	Afshar, Arabian and Zomorrodian (2011); Gungoraydinoglu and Öztekin (2011); Boubakri, Cosset and Saffar (2012); Julio and Yook (2012)
Stock market return	Ben-David, Graham and Harvey (2007); Afshar, Arabian and Zomorrodian (2011)
Consumer Confidence Indicator (CCI)	Afshar, Arabian and Zomorrodian (2011)

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Our first empirical chapter examines the effects of CEOs' personal attributes on their optimistic behaviour. Table 2.9 summarises all the proxies used in this empirical research and also the justifications for inclusion of these variables in our study.

**Table 2.9**

**Summary of Proxies Used in this Study**

The table presents the summary of all the proxies used in this study. For Panel A, three proxy measurements are used for Managerial Optimism, namely mergers and acquisitions, stock options and insider transactions. In addition, Panel B shows the management and leadership theory that have been used in this study to explain and support the use of traits, skills and experiences, and networking variables of CEOs in this study. The justifications for using these proxies are included in the table.

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**Panel A: Managerial Optimism Proxies**

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<b>Perspectives</b>	<b>Proxy</b>	<b>Justification</b>
Empire Builders' Behaviour Executive Hubris Hypothesis	Mergers and Acquisitions	Merger and acquisition activities of a firm are one of the actions of business expansion

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Illusions of Control Hypothesis	Stock Options	Managers believe that they can always perform better; they will tend to hold their stock option until the last expiration period although during the exercisable period they might gain higher profit
Risk Taking Hypothesis	Mergers and Acquisitions	Managers believe they can control the outcome of mergers.
	Insider Transactions	CEOs confident of their own ability believe that the firm under their control will outperform others; hence they tend to add more of their own firm's shares to their personal investment portfolio.

**Panel B: CEO Personal Attributes (Traits, Skills and Experiences, and Networking)**

<b>Approaches</b>	<b>CEO Personal Attributes</b>	<b>Justification</b>
Trait Approach (CEO Personal Traits)	Age Gender Nationality Marital status	These are all traits and characteristics/qualities of CEOs that potentially influence their personal behaviour
Power-Influence Approach (CEO Skills and Experiences)	Formal education Founder Financial literacy Duality Tenure as CEO Emolument	Firm founder, higher education, financial expert, role as simultaneous CEO and chairman, longer tenure as CEO and higher emoluments are gain based on their skills and experiences and believed to provide a CEO with power
Social Exchange Theory (CEO Internal Networking)	Tenure with the firm, Internal promotion	Tenure with the firm is the measurement of loyalty and internal promotion is the evidence of successful relationships in the firm
Networking Behavioural approach (CEO External Networking ties)	External directorship Social networking prestige	These two variables show the CEOs' external networking ties

### 2.3.2 Methodology

Descriptive statistics are used to summarise the basic features of the dependent variables (managerial optimism) and the explanatory variables (CEO personal traits, skills and experiences, and networking) using the data collected from the UK FTSE 100 firms. Additionally, we also examine our data using correlation coefficient analysis and produce a correlation matrix to identify the degree of correlation (correlation coefficients) among all the variables used in this study.

Our study uses dummy variables to address the optimistic and non-optimistic CEOs: by using these ‘proxy’ variables, the CEOs are grouped (into 1, 0) to compare any significant differences between these two groups. For univariate analyses, independent Sample T-test is used to determine whether there is any statistical difference in the managerial optimism for CEO personal traits, skills and experiences. For this study, a two-sided t-test is employed and the hypothesis is examined as below:

Null Hypothesis testing: The means for CEO personal attributes (traits, skills and experiences, and networking) are the same for optimistic CEOs and non-optimistic CEOs.

We also use non-parametric tests to determine whether there is any statistical difference in the managerial optimism for CEO personal traits, skills and experiences, and networking. Mann-Whitney U test is used to examine the following hypothesis:

Null Hypothesis Testing: The distribution for CEO personal attributes (traits, skills and experiences, and networking) is the same across optimistic CEOs and non-optimistic CEOs.

For the multivariate analyses, we use logistic regression to examine the influence of CEOs' personal attributes (traits, skills and experiences, and networking) towards their optimistic behaviour. We construct CEO personal Traits Index, Skills and Experiences Index, and Networking Index, using two methods: Binomial method and Principal Component Analysis (PCA).

We employ Fracassi and Tate's (2012) method; these authors create a Social Networking Index (SNI) using the aggregate measure of all networking connections: the sum of current employment, prior employment, education and other activity connections. From this binomial method, we construct a Binomial Traits Index (B-TI), a Binomial Skills and Experiences Index (B-SEI), and a Binomial Networking Index (B-NI). In this study, indexes are created by classifying all the variables into dummy variables (1, 0) and we follow Fracassi and Tate's (2012) method by aggregating the sum of CEO Traits, the sum of CEO Skills and Experiences, and the sum of CEO Networking respectively.

We also construct indexes using Principal Component Analysis (PCA). PCA is used to reduce the dimensionality of a data set that consists of inter-correlated variables by extracting the most important information (Wood, 2009; Abdi & Williams, 2010). PCA is widely used in economic and finance studies to create indexes (e.g., Filmer & Pritchett, 2001; Bertrand & Schoar, 2006; Chau & Deesomsak, 2014). Since this study includes a large number of variables for CEO personal traits, skills and experiences, and networking, principal component analysis (PCA) is employed to reduce the large number of variables to obtain a smaller number of variables while keeping most of the information from the large set of variables. By using the PCA method, we create a PCA Traits Index (PCA-TI),

a PCA Skills and Experiences Index (PCA-SEI), and a PCA Networking Index (PCA-NI).

For this analysis, some data are transformed into binary form before constructing a new index. For CEO age, the younger CEO is denoted as 1 and older CEO is assigned dummy zero. The classification of younger and older CEOs is based on the average age of the CEO in the sample, below average age CEOs being considered as a young CEO. For marital status, the data are transformed to dummy variable (of 1, 0) to indicate a married CEO as 1, a single CEO as zero.

Before creating a Skills and Experiences Index (SEI), all data are transformed into binary data (1, 0). For tenure as CEO, if the CEO has worked in the current position for longer than the average year in the sample, then they are noted as 1. Additionally, if the CEO has above average emoluments compared with all the CEOs in the sample, he or she is assigned dummy 1; those CEOs who have been paid lower than the average in the sample are noted as dummy zero.

To construct a Networking Index (NI), data are transformed: CEOs who work longer than the average years with the firm compared with other CEOs in the sample are noted as 1; if they work fewer than the average years with the firm compared to others, then dummy zero is assigned. The external directorship data are transformed into binary form: CEOs who hold outside appointments are denoted as 1, otherwise zero is assigned.

This study investigates 248 CEOs who worked with UK FTSE 100 firms from 2000 to 2013 by looking at the effect of their personal traits, skills and experiences, and

networking toward their optimistic behaviour. This study uses a unique dataset, whereby the data were manually collected from various sources. Our main proxy for managerial optimism (MO) is Mergers and Acquisitions (MA), while stock options and Insider Transactions are used as sensitivity tests. Logistic regression is used to examine the incremental power of the Traits Index (TI), Skills and Experiences Index (SEI), and Networking Index (NI) after controlling for firm and macroeconomic effect.

The specification of the regressions models are as follows:

$$\text{Model I} \quad : \quad MO_{i,t} = \alpha + \beta_1(Z)_{i,t} + \varepsilon$$

$$\text{Model II} \quad : \quad MO_{i,t} = \alpha + \beta_1(Z)_{i,t} + \beta_{TI}(TI)_{i,t} + \varepsilon$$

$$\text{Model III} \quad : \quad MO_{i,t} = \alpha + \beta_1(Z)_{i,t} + \beta_{SEI}(SEI)_{i,t} + \varepsilon$$

$$\text{Model IV} \quad : \quad MO_{i,t} = \alpha + \beta_1(Z)_{i,t} + \beta_{NI}(NI)_{i,t} + \varepsilon$$

$$\text{Model V} \quad : \quad MO_{i,t} = \alpha + \beta_1(Z)_{i,t} + \beta_{TI}(TI)_{i,t} + \beta_{SEI}(SEI)_{i,t} + \beta_{NI}(NI)_{i,t} + \varepsilon$$

Whereby,

MO = Managerial Optimism (Proxy by Mergers and Acquisitions, M&A)

Z = Vector of control variables (Firm, macroeconomic factors, and industry dummies)

TI (Traits Index) = Index of CEO personal Traits (age, gender, nationality, and marital status)

SEI (Skills and Experiences Index) = Index of CEO Skills and Experiences (MBA holder, PhD holder, Firm Founder, Financial Literacy, Duality, Tenure as CEO, and Emolument)

NI (Networking Index) = Index of CEO Networking ties (Tenure with the firm, Internal Promotion, External Directorships, and Social Networking Prestige)

## 2.4 Results and Discussion

This section presents and discusses the results obtained from the data analysis. In this study, Mergers and Acquisitions (M&A) is used as dependent variable to proxy Managerial Optimistic (MO) behaviour. The study comprises explanatory variables to represent CEO attributes (traits, skills and experiences, and networking) and control variables of firm, industry, and macroeconomic effects. The results reported in this section consist of summaries of statistics, correlation coefficients, univariate analyses of CEOs' personal attributes for overconfident and non-overconfident CEOs, and lastly, the panel logistic regression results to examine the explanatory power of the independent variables (Traits Index, Skills and Experiences Index, and Networking Index) on managerial optimism. For this study, 248 CEOs from the UK FTSE100 firms are examined and the study period was from 2000 to 2013.

### 2.4.1 Summary Statistics

Based on the data collected from the UK FTSE 100 firms, the descriptive statistics presented in Table 2.10 include the dependent variable, explanatory variables and control variables used in this study. Mergers and acquisitions (M&A) is used as a proxy for managerial optimism in this study, the final sample consists of 1061 observations with 17.34% of the CEOs in the sample having been identified as optimistic. By using stock options as a proxy for overconfidence, Croci, Petmezas and Vagenas-Nanos (2010) study private firms in the UK and find that 30% of CEOs in their sample are overconfident. Hirshleifer, Low and Teoh (2012) study CEO optimism and firm's innovation growth find their sample consisted of 8.12% press based optimistic CEOs and 61.08% option based measure optimistic CEOs.

**Table 2.10**  
**Descriptive Statistics**

The table presents the descriptive statistics for the variables used in the study. This study covers UK FTSE 100 firms from 2000 to 2013. Panel A shows descriptive statistics for Mergers and Acquisitions (MA), which is used as the dependent variable to measure managerial optimistic (MO) behaviour. Panel B presents the descriptive statistics for explanatory variables: CEO attributes (Traits, Skills and Experiences, and Networking), and Panel C shows the firm and macroeconomic factors which are included in this study as control variables.

<b>Panel A: Dependent Variable (Managerial Optimism)</b>					
	Mean	Median	Max.	Min.	Std. Dev.
Mergers and Acquisitions (MA)	0.1734	0	1	0	0.3787
<b>Panel B: Explanatory Variables (CEO Attributes)</b>					
<b>1. CEO Personal Traits</b>					
	Mean	Median	Max.	Min.	Std. Dev.
Age (AGE)	52.6239	53	77	31	5.6908
Gender (GEN)	0.9575	1	1	0	0.2016
Nationality (NAT)	0.6776	1	1	0	0.4675
Marital Status (MS)	1.0169	1	3	0	0.3157
Binomial Traits Index (B-TI)	0.7726	0.75	1	0.25	0.1910
PCA Traits Index (PCA-TI)	-0.0004	0.4844	1.7984	-4.3989	1.0697
<b>2. CEO Skills and Experiences</b>					
	Mean	Median	Max.	Min.	Std. Dev.
MBA holder (MBA)	0.1922	0	1	0	0.3942
PhD holder (PHD)	0.1215	0	1	0	0.3269
Firm Founder (FOU)	0.0574	0	1	0	0.2328
Financial Literacy (FL)	0.5061	1	1	0	0.5001
Duality (DUA)	0.0386	0	1	0	0.1928
Tenure as CEO (TCEO)	5.9359	4	34	1	5.1693
Emolument (EMO)	0.0047	0.0020	0.1125	0	0.0086
Binomial Skills and Experiences Index (B-SEI)	0.2315	0.2857	0.5714	0	0.1489
PCA Skills and Experiences Index (PCA-SEI)	0.0005	-0.4043	4.0153	-1.8397	1.1853
<b>3. CEO Networking</b>					
	Mean	Median	Max.	Min.	Std. Dev.
Tenure With the Firm (TWF)	14.8492	12	43	1	10.5950
Internal Promotion (IP)	0.7304	1	1	0	0.4439
External Directorships (ETD)	0.9217	1	15	0	1.5017
Social Networking Prestige (SNP)	0.6116	1	1	0	0.4875
Binomial Networking Index (B-NI)	0.5841	0.5	1	0	0.2678
PCA Networking Index (PCA-NI)	-0.0001	0.0982	1.4790	-2.068	1.2434
<b>Panel C: Control Variables</b>					
<b>1. Firm level data</b>					
	Mean	Median	Max.	Min.	Std. Dev.
Corporate Governance (CG)	0.6453	0.6428	1	0	0.1320
Firm Size (FS)	15.9343	15.7819	21.4412	11.3161	1.8932
Leverage (LEV)	0.2305	0.2192	1.6723	0	0.1627
Market to Book Ratio (MTB)	3.1582	2.44	202.32	-540.14	23.2287
Profitability (PRO)	0.0884	0.0781	0.6353	-0.8357	0.0966
<b>2. Macroeconomic Factors</b>					
	Mean	Median	Max.	Min.	Std. Dev.
Log GDP	14.1093	14.1643	14.2938	13.8025	0.1473
Log Stock Market Return (SMR)	8.5842	8.6532	8.7560	8.2371	0.1572
Consumer Confidence Indicator (CCI)	-10.1884	-6.1	-1.88	-21.35	7.2197

We summarise all the explanatory variables (CEO personal attributes) used in this empirical chapter in Table 2.11. The table shows that most of the CEOs in the UK FTSE firms are male; only 4.25% of the CEOs are female. The same phenomenon occurs in the US, for instance Graham, Harvey and Puri (2013) also report the appointment of a high proportion of male CEOs (92.3%). In contrast, 34.9% of the CEOs in Graham, Harvey and Puri's sample possess an MBA degree, while in our sample, only 19.22 % of the CEOs hold an MBA degree. As the UK market is considered one of the mature markets, only 5.74 % of the CEOs are firm founders.

**Table 2.11**  
**Summary of CEOs' Attributes**

This table presents the summary statistics for the explanatory variables used in this study (CEO Personal Traits, CEO Skills and Experiences, and CEO Networking); the CEOs personal attributes data were gathered from UK FTSE100 firms from 2000 to 2013.

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<b>1. CEO Personal Traits</b>	
Age	Youngest CEO is 31 years old, eldest is 77. Average is 53 years old.
Gender	95.75 % of CEOs are male, 4.25 % are female
Nationality	67.76 % of CEOs hold UK nationality, 32.24 % CEOs hold non-UK nationality
Marital Status	Maximum number of times married = 3. Average is 1.02 times.
<hr/>	
<b>2. CEO Skills and Experiences</b>	
MBA holder	19.22 % of the CEOs hold an MBA degree
PhD holder	12.15 % of the CEOs have a PhD
Firm Founder	5.74 % of the CEOs are firm founders
Financial Literacy	50.61 % of the CEOs possess financial literacy
Duality	3.86 % of the CEOs hold the post of chairman at the same time
Tenure as CEO	Average tenure as CEO is 5.94 years, the longest is 34 years
Emolument	Average CEOs receive 0.47 % of the value of the firm's total asset as their pay.
<hr/>	
<b>3. CEO Networking</b>	
Tenure with the Firm	Average CEOs work with the firm for 14.85 years. The longest service period is 43 years.
Internal Promotion	73.04 % of the CEOs are internally promoted.
External Directorships	Average CEOs hold less than 1 directorship in other firms (0.92).
Social Networking Prestige	61.16% of the CEOs have external social networking ties.

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Since the main purpose of this study is to examine managerial optimistic behaviour, In addition to looking at the summary of total sample statistics, we categorised the optimistic CEOs in our sample according to sub-groups. The sub-group statistics provide a closer outlook at optimistic CEOs in different group based on their personal attributes (traits, skills and experiences, and networking). As the statistics in Table 2.12 show, for the sub-group statistics for CEO personal traits, our optimistic CEOs fall in the age range of 41-60 years, and the CEOs in this age range represent 89.68% of the optimistic CEOs observations in our total sample.

Our final sample consists of 1061 observations. Of the CEOs in the sample 184 are identified as optimistic, all of which are male. Our sample shows that none of the optimistic CEO is female. This might be due to the small number of female CEOs in UK FTSE100 firms: there are only 45 observations of female CEOs during our 14-year sample period.

Within the sub-group, CEOs holding UK nationality are found to have a higher percentage of optimistic classification (19.05%) than non-UK nationality CEOs (13.74%). In our total sample, 74.46% of our optimistic CEOs hold UK nationality while 25.54% hold non-UK nationality. As for marital status, our results show that none of our single status CEOs are optimistic; all of our optimistic CEOs observations come from CEOs who have been married once or twice.

**Table 2.12****Summary of Optimistic CEOs in Sub Group and Total Sample**

The table presents the number of optimistic CEOs (Op CEO) in different sub-groups and the percentage of the observations in the sub-group and in the total sample. The summary statistics for optimistic CEOs are based on their personal attributes (CEO Traits, Skills and Experiences, and Networking). The final sample consists of 1061 observations from 248 CEOs who worked with UK FTSE 100 firms from 2000 to 2013.

**Panel A: The number of optimistic CEOs based on their personal traits**

	Sub-group	No. of observations	No. of Op CEOs	% of Op CEOs in sub-group	% of Op CEOs in Total Sample
<b>Age</b>	31-40 years old	16	0	0.00%	0.00%
	41-50 years old	366	74	20.22%	40.22%
	51-60 years old	608	91	14.97%	49.46%
	61-70 years old	67	19	28.36%	10.33%
	71-80 years old	4	0	0.00%	0.00%
<b>Gender</b>	Male	1016	184	18.11%	100.00%
	Female	45	0	0.00%	0.00%
<b>Nationality</b>	UK nationality	719	137	19.05%	74.46%
	Non-UK nationality	342	47	13.74%	25.54%
<b>Marital Status</b>	Single	41	0	0.00%	0.00%
	1 <sup>st</sup> marriage	964	162	16.80%	88.04%
	2 <sup>nd</sup> marriage	53	22	41.51%	11.96%
	3 <sup>rd</sup> marriage	3	0	0.00%	0.00%

**Panel B: The number of optimistic CEOs based on their personal skills and experiences**

	Sub-group	No. of observations	No. of Op CEOs	% of Op CEOs in sub-group	% of Op CEOs in Total Sample
<b>MBA holder</b>	Holder	204	23	11.27%	12.50%
	Non-holder	857	161	18.79%	87.50%
<b>PhD holder</b>	Holder	125	24	19.20%	13.04%
	Non-holder	923	160	17.33%	86.96%
<b>Firm Founder</b>	Founder	61	14	22.95%	7.61%
	Non-founder	1000	170	17.00%	92.39%
<b>Financial Literacy</b>	Yes	537	104	19.37%	56.52%
	No	524	80	15.27%	43.48%
<b>Duality</b>	As CEO and chairman	41	5	12.20%	2.72%
	Holding only CEO post	1020	179	17.55%	97.28%
<b>Tenure as CEO</b>	1- 5 years	640	81	12.66%	44.02%
	6-15 years	364	85	23.35%	46.20%
	More than 15 years	57	18	31.58%	9.78%
<b>Emolument</b>	Less than sample mean	734	116	15.80%	63.04%
	More than sample mean	327	68	20.80%	36.96%

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**Panel C: The number of optimistic CEOs based on their personal networking**

	Sub-group	No. of observations	No. of Op CEOs	% of Op CEOs in sub-group	% of Op CEOs in Total Sample
<b>Tenure With the Firm</b>	Less than 15 years	615	78	12.68%	42.39%
	15 or more years	446	106	23.77%	57.61%
<b>Internal Promotion</b>	Internally promoted	775	156	20.13%	84.78%
	New recruitment	286	28	9.79%	15.22%
<b>External Directorships</b>	No external appointment	478	62	12.97%	33.70%
	1 external directorship	393	79	20.10%	42.93%
	2 external directorships	122	33	27.05%	17.93%
	3 or more external directorships	68	10	14.71%	5.43%
<b>Social Networking Prestige</b>	Yes	649	113	17.41%	61.41%
	No	412	71	17.23%	38.59%

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For CEO Skills and Experiences indicators, the statistics show a higher percentage of optimistic CEO observations among PhD holders, however more optimistic CEOs fall in the non-holder of MBA sub-group. A higher percentage of optimistic CEOs can be observed among the firm founder CEOs. A higher percentage of CEOs who possess financial knowledge are classified as optimistic compared with the group of CEOs who are identified as financial non-literate. However, CEOs who simultaneously hold the post of chairman show lower percentages of optimistic observations among themselves and also in the total sample. The observations of CEOs who also hold the post of firm chairman are relatively few: 3.86% in our study. The statistics also show that the CEOs who worked in their current position for more than six years (average CEO tenure is 5.94 years) have the highest percentage of optimistic CEOs observations. Additionally, we also find a higher percentage of optimistic CEOs categorised in the high emolument group.

Results for CEO networking show that the group of CEOs who worked with the firm for more than 15 years (average CEOs work with the firm for 14.85 years), internally promoted CEOs, CEOs who hold more external directorships, and CEOs with social networking prestige tend to have more observations classified as optimistic. These statistics show that CEOs who have more networking ties are more likely to become optimistic than those who have fewer such ties.

#### 2.4.2 Correlation Coefficients

Correlation coefficients among the variables used in this study are presented in Table 2.13. Our dependent variables are significantly correlated with most of the explanatory variables. Panel A in Table 2.13 presents the correlation coefficients among all the variables including dependent variables (managerial optimism proxy by Mergers and Acquisitions) and explanatory variables (CEO personal traits, skills and experiences, and networking). The table shows that male, UK nationality, and married CEOs tend to have a significant positive correlation with managerial optimism (MO). In terms of CEOs' skills and experiences, CEOs' financial literacy, tenure as CEO, and emoluments show significant positive correlations with MO. In addition, CEO's tenure with the firm, internal promotion and external directorship appointments also exhibit significant positive correlations with MO.

Our results show that the CEO attributes that we examined in this study do correlate with their optimistic behaviour to a certain extent. Human complexity would suggest that investigating the combination of CEOs' attributes may help us to quantify a more complete composition of human behaviour than examining the effect of single attributes on their behaviour. Hence we compose a CEO personal traits index (TI), Skills and

Experiences Index (SEI), and Networking Index (NI), and aim to capture more comprehensive behaviour. Each of the indexes is constructed using binomial method and principal components analysis (PCA). Fracassi and Tate (2012) use the aggregate sum of binomial variables and for PCA, we follow Filmer and Pritchett's (2001) index construction method. The correlation results show that these two methods may be used to complement each other. For instance, the Binomial Traits Index (B-TI) shows a significant correlation with the Principal Component Analysis Traits Index (PCA-TI) (0.849) at the 99% confidence interval. The Binomial Skills and Experiences Index (B-SEI) shows a positive correlation with the PCA Skills and Experiences Index (PCA-SEI) (0.704) significant at the 99% confidence interval. Lastly, the Binomial Networking Index (B-NI) also exhibits a positive correlation with the PCA Networking Index (PCA-NI) (0.644) significant at the 99% confidence interval. Hence, we suggest that the Binomial and PCA index construction method in our study are substitutable. In sum, all of our indexes (B-TI, B-SEI, B-NI, PCA-TI, PCA-SEI, and PCA-NI) show significant positive correlations with MO at the 99% confidence interval.

Panel C of Table 2.13 presents the correlation among managerial optimism and the control variables used in this study. Corporate Governance (CG), firm size (FS), and GDP are found to have significant negative correlations with MO, while Leverage (LEV), market to book value (MTB), and firm profitability (PRO) exhibit significant positive correlation with MO.

**Table 2.13**  
**Correlation Coefficient Analysis**

Panel A presents the correlation coefficients among all the variables including the dependent variable (managerial optimism proxy by Mergers and Acquisitions) and explanatory variables (CEO personal traits, skills and experiences, and networking). Panel B shows the correlation coefficients among the dependent variable (Mergers and Acquisitions) and the indexes (Traits Index, Skills and Experiences Index, and Networking Index). Lastly, Panel C presents the correlation coefficients among managerial optimism and the control variables used in this study. The correlation coefficients presented are analysed using Spearman's rho test.

**Panel A: Correlation coefficients among managerial optimism with CEO personal traits, skill and experiences (dependent variable and explanatory variables)**

	MO	AGE	GEN	NAT	MS	MBA	PHD	FOU	FL	DUA	TCEO	EMO	TWF	IP	ETD	SNP
<b>MO</b>	1.000															
<b>AGE</b>	-.029	1.000														
<b>GEN</b>	.096***	.036	1.000													
<b>NAT</b>	.066**	-.031	.135***	1.000												
<b>MS</b>	.159**	.177**	.010	-.034	1.000											
<b>MBA</b>	-.078**	-.054*	.031	-.216***	-.071**	1.000										
<b>PhD</b>	.012	.162***	.035	-.175***	-.093***	.038	1.000									
<b>FOU</b>	.037	.144***	.052*	-.072**	-.012	.106***	-.055*	1.000								
<b>FL</b>	.054*	-.098***	-.021	.182***	-.148***	-.130***	-.140***	.179***	1.000							
<b>DUA</b>	-.027	.108***	.042	-.050	.123***	-.085***	.060*	.098***	-.134***	1.000						
<b>TCEO</b>	.178***	.316***	-.015	.073**	-.001	-.071**	.023	.328***	.052*	.114***	1.000					
<b>EMO</b>	.104**	-.111**	-.069*	-.026	-.016	-.076*	-.049	.157**	-.205**	.083**	.277**	1.000				
<b>TWF</b>	.143***	.205***	.171***	.104***	.023	-.087***	.016	.209***	-.030	.053*	.430***	.002	1.000			
<b>IP</b>	.121***	-.036	.304***	.090**	.062**	.000	-.040	.150***	.054*	-.021	.096***	-.061**	.640***	1.000		
<b>ETD</b>	.103***	.201***	-.126***	-.009	-.039	-.056*	.161***	.033	.071**	.094***	.129***	-.022	.046	-.076**	1.000	
<b>SNP</b>	.002	.042	.024	.261***	-.020	-.009	-.029	.130***	.377***	.059*	.203***	-.175***	.103***	.039	.035	1.000

\*, \*\*, \*\*\* indicate significance at 10%, 5% and 1% levels, respectively.

**Panel B: Correlation coefficients among managerial optimism with all the indexes used in the study (Traits Index, Skills and Experiences Index, Networking Index)**

	MO	B-TI	B-SEI	B-NI	PCA-TI	PCA-SEI	PCA-NI
MO	1.000						
B-TI	.112***	1.000					
B-SEI	.095***	-.089***	1.000				
B-NI	.173***	.074**	.263***	1.000			
PCA-TI	.097***	.849***	-.025	.148***			
PCA-SEI	.129***	.015	.704***	.298***	.071**	1.000	
PCA-NI	.104***	.127***	.156***	.644***	.165***	.234***	1.000

**Panel C: Correlation coefficients among managerial optimism with control variables (firm and macroeconomic factors)**

	MO	CG	FS	LEV	MTB	PRO	GDP	SMR	CCI
MO	1.000								
CG	-.083***	1.000							
FS	-.082***	.291***	1.000						
LEV	.067**	-.042	.037	1.000					
MTB	.066**	-.012	-.289***	.111***	1.000				
PRO	.074**	.053	-.381***	.021	.507***	1.000			
GDP	-.079***	.353***	.183***	.002	.008	.043	1.000		
SMR	-.010	.033	.044	.001	.128***	.042	.235***	1.000	
CCI	.033	-.264***	-.156***	-.004	.074**	.023	-.698***	-.125***	1.000

\*, \*\*, \*\*\* indicate significance at 10%, 5% and 1% levels, respectively.

### 2.4.3 Univariate Analyses

For univariate analyses, we use both parametric and non-parametric tests to examine the difference in means and distribution across optimistic and non-optimistic CEOs. Independent sample t-test is used for equality of means; the compare means is carried out to determine whether there is any statistically significant difference between optimistic and non-optimistic CEOs in terms of their personal attributes (traits, skills and experiences, and networking). In addition to the CEO attributes, we also examine whether there are any significant differences for Traits Index, Skills and Experiences Index, and Networking Index between optimistic and non-optimistic CEOs. Meanwhile, as some of our data are in binary form, we employ a non-parametric test - the Mann-Whitney U test - to analyse the distribution across optimistic (Op) and non-optimistic (Non-Op) CEOs. The results for univariate analyses are reported in Table 2.14.

Table 2.14 presents the univariate analyses for optimistic (Op) and non-optimistic CEO (Non-Op) in our sample. The univariate results show that age of a CEO does not significantly differ between optimistic and non-optimistic CEOs in UK firms. Our result is inconsistent with that of Graham, Harvey and Puri (2013), who mention that younger CEOs are risk-tolerant and more confident compared to older CEOs, while Mohamed, Baccar, Fairchild and Bouri's (2012) result shows younger age in CEOs is positively correlated with CEOs' optimism bias.

**Table 2.14****Univariate Analyses for Optimistic and Non-optimistic CEOs**

The table shows the compare means results and Mann-Whitney U test results for managerial optimistic proxy by Mergers and Acquisitions with CEO personal attributes (Traits, Skills and Experiences, and Networking). For compare means analyses, the results presented here are based on the significant difference of means between optimistic (Op) and non-optimistic (Non-Op) CEOs, while for the Mann-Whitney U test, this is our hypothesis testing: The distribution is the same across Op CEOs and Non-Op CEOs.

<b>Panel A: CEO Personal Traits</b>				
			<b>Parametric test : Compare means</b>	<b>Non parametric test: Mann-Whitney U test</b>
	Op CEO	Non-Op CEO	Significant difference	Significant difference
<b>AGE</b>	52.4510	52.6602		
<b>GEN</b>	1.0000	0.9486	***	***
<b>NAT</b>	0.7445	0.6636	**	**
<b>MS</b>	1.1195	0.9954	***	***
<b>B-TI</b>	0.8179	0.7631	***	***
<b>PCA-TI</b>	0.2053	-0.0430	***	***

<b>Panel B: CEO Skills and Experiences</b>				
			<b>Parametric test : Compare means</b>	<b>Non parametric test: Mann-Whitney U test</b>
	Op CEO	Non-Op CEO	Significant difference	Significant difference
<b>MBA</b>	0.1250	0.2063	***	**
<b>PhD</b>	0.1304	0.1197		
<b>FOU</b>	0.0760	0.0535		
<b>FL</b>	0.5652	0.4937	*	*
<b>DUA</b>	0.0271	0.0410		
<b>TCEO</b>	7.9728	5.5085	***	***
<b>EMO</b>	0.4351	0.4849		***
<b>B-SEI</b>	0.2647	0.2246	***	***
<b>PCA-SEI</b>	0.3320	-0.0696	***	***

<b>Panel C: CEO Networking</b>				
			<b>Parametric test : Compare means</b>	<b>Non parametric test: Mann-Whitney U test</b>
	Op CEO	Non-Op CEO	Significant difference	Significant difference
<b>TWF</b>	17.9402	14.2006	***	***
<b>IP</b>	0.8478	0.7058	***	***
<b>ETD</b>	1.3260	0.8369	***	***
<b>SNP</b>	0.6141	0.6111		
<b>B-NI</b>	0.6807	0.5638	***	***
<b>PCA-NI</b>	0.3554	-0.0745	***	***

\*, \*\*, \*\*\* indicate significance at 10%, 5% and 1% levels, respectively.

The results obtained show a significant difference at the 99% confidence level across the Op and Non-Op CEOs in terms of CEOs' gender. From the compare means results, male CEOs are more likely to become optimistic, a result that finds support in Deaux and Farris's (1977) study, whose authors mention that males tend to have higher expectancies of their own ability compared with females, and from this viewpoint they are more likely to have optimistic beliefs. Our finding is consistent with those of Barber and Odean (2001), Bhandari and Deaves (2010), Huang and Kisgen (2012) and Graham, Harvey and Puri (2013), However, our finding differs from those of Ben-David, Graham and Harvey (2007), Acker and Duck (2008) and Andriosopoulos, Andriosopoulos and Hoque (2013), who find no significant difference between males and females with overconfident behaviour.

Our univariate analyses show that CEOs' nationality is significantly different at the 95% confidence interval across Op and Non-Op CEOs: Op CEOs have higher mean values compared with Non-Op CEOs. Our findings support those of Mendenhall and Odduo (1985) and Clarke and Hammer (1995), who indicate that expatriate managers who work in a different cultural working environment are exposed to cultural-toughness. Foreign CEOs may also be less privy to local network, therefore may have less information compare with UK nationality CEOs. From this, we may conclude that non-UK nationality CEOs will need to put in more effort to be able to interact effectively with their national hosts, hence they are less likely to become optimistic compared to UK nationality CEOs who are more comfortable working in their home country. Our finding is consistent with that of Graham, Harvey and Puri (2013), who study the optimism between US and non-US top executives and find that US-based CEOs and CFOs are more optimistic than their Non-US counterparts.

In the case of CEOs' marital status, our results show that optimistic and non-optimistic CEOs are significantly different at the 99% confidence level, the higher means for optimistic CEOs show that the married CEOs are more likely to become optimistic. Our finding supports the idea of marital status as a positive personal trait that indicates stability, maturity and responsibility (Bloch and Kuskin, 1978; Judge, Cable, Boudreau and Bretz, 1995), hence married CEOs are more likely to become optimistic, as shown in our findings. Our findings are consistent with those of Puri and Robinson (2007) and Grinblatt and Keloharju (2009).

The Traits Indexes also show significant difference at the 99% confidence interval in compare means and distribution across optimistic and non-optimistic CEOs. For the Binomial Traits Index (B-TI), optimistic CEOs show a higher value (0.8179) than non-optimistic CEOs (0.7631), while PCA Traits Index (PCA-TI) also shows the same result: Op CEOs have a positive mean index value of 0.2053, while Non-Op CEOs have a negative mean index value (-0.0430). Thus, we may conclude that the traits indexes (age, gender, nationality, and marital status) of an optimistic CEO are significantly different from the traits of non-optimistic CEOs

In the case of CEO Skills and Experiences, CEOs holding a MBA degree, Op CEOs and Non-Op CEOs show significantly different means, and Non-Op CEOs show higher means values compared to Op CEOs. This implies that CEOs who hold a MBA degree are less likely to become optimistic, a finding consistent with that of Graham, Harvey and Puri (2013), who found MBA holders are significantly averse to sure losses. Our findings are inconsistent with those of Chevalier and Ellison (1999), who found that fund managers holding an MBA are more risk tolerant. Our univariate analyses show there is no

significant difference in term of becoming optimistic between Op and Non-Op CEOs who hold a PhD degree.

Although we expect the CEO as a firm founder will be more likely to become optimistic, the univariate analyses show no significant difference between Op and non-Op CEOs in terms of CEO was also a firm founder. This may be because our study sample includes only a few founder CEOs. The study by Andriosopoulos, Andriosopoulos and Hoque (2013) find a non-significant relationship between CEOs who are founders of a firm with the share-buyback completion rates.

From the aspect of financial literacy, we find significant differences of means and the distribution of Op and Non-Op CEOs. The higher means in Op CEOs show that CEOs with financial knowledge will be more likely to become optimistic. This finding supports that of Güner, Malmendier, and Tate (2008) who note that directors who have financial expertise significantly influence corporate decisions (in our study we use high frequencies of merger and acquisition activities as MO proxy). Our finding contrasts with that of Bhandari and Deaves (2010), who argue that a person with greater knowledge is less likely to become overconfident.

In the case of CEO duality, our results show no significant difference between Op and Non-Op CEOs, a finding consistent with that of Malmendier and Tate (2005a), who find that the duality status of CEO does not affect his/her overconfident behaviour. However, our finding is inconsistent with that of Mohamed, Baccar, Fairchild and Bouri (2012), who suggest a positive relationship between duality and an optimistic bias. Our non-significant univariate result may be due to most of the CEOs in our sample not holding

the post of chairman at the same time, as suggested by the Combined Code principle A.2, stating that UK firms should separate the positions of chairman and CEO.

CEOs who work longer at their current position are found to be more likely to become optimistic. There is a significant difference between the Op and Non-Op CEOs, wherein the Op CEOs work an average of 7.9 years while Non-Op CEOs work an average of 5.5 years. Our findings are consistent with those of Mohamed, Baccar, Fairchild and Bouri (2012), Brennan and Conroy (2013), and Yim (2013), who suggest a positive relationship between CEO tenure and optimistic/overconfident behaviour. However, our finding is inconsistent with that of Malmendier and Tate (2005a), who find a non-significant result for the relationship between CEO tenure and CEO overconfident behaviour.

When we use compare means analysis, the results show no significant difference between Op and Non-Op CEOs in term of emolument. Our finding is inconsistent with that of Paredes (2004) who suggests that high chief executive pay tends to result in CEOs becoming overconfident. However, using a non-parametric test we found there is a significant difference in emoluments across the Op and Non-Op CEOs.

The Skills and Experiences Indexes (B-SEI and PCA-SEI) show a significant difference at the 99% confidence interval between optimistic and non-optimistic CEOs. The B-SEI of Op CEOs shows a mean of 0.2647, while that of Non-Op CEOs have a mean value of 0.2246. In the case of PCA-SEI, Op CEOs show a positive mean value (0.3320) while Non-Op CEOs a negative mean value (-0.0690). The significant difference in Skill and Experiences Indexes between Op and non Op CEOs may imply that CEOs who have more skills and experiences will be more likely to become optimistic.

The results for CEO networking show that CEOs' tenure with the firm, internal promotion and external directorship have significant differences in means for Op and Non-Op CEOs. The results show that Op CEOs tend to work in the same firm for an average longer period (17.9 years) compared to Non-Op CEOs' tenure (14.2 years). This implies that the longer a CEO works with the firm, the more likely it is that he/she will become optimistic.

Internally promoted CEOs also tend to show optimistic behaviour with higher means compared to those of non-optimistic CEOs. This finding supports that of Goel and Thakor (2008), who suggest that the internally promoted manager is more risk loving; Banerjee, Dai, Humphery-Jenner and Nanda (2014) also find that overconfident executives are more likely to be promoted as CEOs. We find that Op CEOs tend to have more external directorship appointments than Non-Op CEOs. Optimistic CEOs held an average of 1.326 external directorships while non-optimistic CEOs held an average of only 0.8369 such directorships. However, our results shows that there is no significant difference in social networking prestige between Op and Non-Op CEOs. This finding is inconsistent with that of Lucey, Plaksina and Dowling (2013), who find a negative relationship between CEOs' social status and merger activities.

In sum, the CEO Networking Index (B-NI and PCA-NI) shows significant differences in means and distribution across optimistic and non-optimistic CEOs at the 99% confidence interval. The B-NI means value for Op CEOs is 0.6807, whereas that for Non-Op CEOs is 0.5638. The PCA-NI for Op CEOs shows a positive index value of 0.3554, while that for Non-Op CEOs shows a negative index value (-0.0745). The networking indexes explain that the more networking ties the CEOs have, the more likely they are to become

optimistic. This finding is consistent with that of Fracassi and Tate (2012), who observe that the CEOs with more network ties tend to have frequent acquisitions.

#### 2.4.4 Multivariate Analyses

We use five models to observe the incremental power of each of the indexes and the joint effect for these indexes on managerial optimism. Model I is used as a control model by including the control variables of firm, macroeconomic factors and industry effects. Model II is for CEO traits index (B-TI, and PCA-TI), model III for Skills and Experiences index (B-SEI, and PCA-SEI), and model IV for networking index (B-NI, and PCA-NI). These three models are used to enable us to observe the explanatory power of each of the indexes. Lastly, in Model V, includes CEO personal attributes (Traits Index, Skills and Experiences Index, and Networking Index) in order to observe the combination incremental power of these CEO personal attributes indexes on managerial optimistic behaviour. The results are reported in Table 2.15.

Table 2.15 presents the panel logistic regression results of our five models. The first model is the control vector model; the results show that when we control for firm, industry effect and macroeconomic factors our model has an  $R^2$  of 11.06%. In model I, firm level factors (corporate governance and firm size) show a significant negative relationship with managerial optimistic behaviour. The corporate governance variable used in this study is derived from the number of non-executive directors divided by board size. Hence, our result indicates that a greater number of non-executive directors than executive directors on the board may effectively control the optimistic behaviour of CEOs. Furthermore, CEOs who work with smaller firms tend to increase their likelihood to become optimistic.

**Table 2.15**

**Results for Managerial Optimism (MO) and CEO Personal Attributes Indexes**

The table presents the results for Managerial Optimism proxy by merger and acquisition activities with the five models, which consist of firms and macroeconomic variables, industry dummies, CEO Traits Index (TI), Skills and Experiences Index (SEI), and Networking Index (NI). Panel A presents the result for binomial indexes, Panel B shows result of PCA indexes. The results presented are based on the five models as below:

**Model I:**  $MO_{i,t} = \alpha + \beta_1(Z)_{i,t} + \varepsilon$ , **Model II:**  $MO_{i,t} = \alpha + \beta_1(Z)_{i,t} + \beta_2(TI)_{i,t} + \varepsilon$ , **Model III:**  $MO_{i,t} = \alpha + \beta_1(Z)_{i,t} + \beta_2(SEI)_{i,t} + \varepsilon$ ,

**Model IV:**  $MO_{i,t} = \alpha + \beta_1(Z)_{i,t} + \beta_2(NI)_{i,t} + \varepsilon$ , and **Model V:**  $MO_{i,t} = \alpha + \beta_1(Z)_{i,t} + \beta_2(TI)_{i,t} + \beta_3(SEI)_{i,t} + \beta_4(NI)_{i,t} + \varepsilon$ , Z-Statistics are reported in parentheses and \*, \*\*, \*\*\* denote significance at the 10%, 5% and 1% levels, respectively.

	<b>Baseline Model</b>	<b>Panel A: Binomial Index</b>				<b>Panel B: PCA Index</b>			
<b>Model</b>	<b>Model I</b>	<b>Model II</b>	<b>Model III</b>	<b>Model IV</b>	<b>Model V</b>	<b>Model II</b>	<b>Model III</b>	<b>Model IV</b>	<b>Model V</b>
C	17.0242 (1.4633)	16.7951 (1.4309)	18.7327 (1.5986)	15.4059 (1.2863)	16.0566 (1.3323)	17.7191 (1.5141)	17.1765 (1.4518)	15.7031 (1.3172)	16.4524 (1.3671)
Corporate Governance (CG)	-1.9087** (-2.5337)	-1.4556* (-1.8628)	-1.9321** (-2.5173)	-1.8216** (-2.2927)	-1.5190* (-1.8578)	-1.4073* (-1.7900)	-1.8423** (-2.3744)	-1.2881* (-1.6495)	-1.1466 (-1.4117)
Firm Size (FS)	-0.2331*** (-3.9944)	-0.2295*** (-3.9243)	-0.1789*** (-3.0206)	-0.3195*** (-5.0973)	-0.2744*** (-4.1454)	-0.2561*** (-4.2682)	-0.1540** (-2.5169)	-0.3005*** (-4.8895)	-0.2430*** (-3.7064)
Leverage (LEV)	0.8086 (1.5175)	0.6223 (1.1613)	1.0248* (1.8956)	1.1256** (2.0217)	1.0655* (1.9078)	0.5656 (1.0245)	1.0191* (1.8865)	1.0507* (1.9028)	1.0283* (1.8254)
Market to Book Ratio (MTB)	0.0018 (0.3407)	0.0020 (0.3721)	0.0018 (0.3199)	0.0010 (0.1832)	0.0013 (0.2296)	0.0017 (0.3233)	0.0018 (0.3241)	0.0015 (0.2844)	0.0015 (0.2781)
Profitability (PRO)	-0.8667 (-0.9730)	-0.6311 (-0.7002)	-1.2340 (-1.3666)	-1.3331 (-1.4381)	-1.1885 (-1.2718)	-0.7681 (-0.8541)	-0.8609 (-0.9483)	-1.8489** (-2.0032)	-1.5592* (-1.6643)
Log GDP	-1.0378 (-1.2626)	-1.1453 (-1.3770)	-1.2591 (-1.5175)	-0.9210 (-1.0852)	-1.1180 (-1.3033)	-1.0895 (-1.3163)	-1.1640 (-1.3890)	-0.8642 (-1.0219)	-1.0192 (-1.1908)
Log Stock Market Return (SMR)	-0.0883 (-0.1647)	-0.0549 (-0.1015)	-0.0856 (-0.1583)	-0.1326 (-0.2398)	-0.1030 (-0.1852)	-0.0769 (-0.1427)	-0.0581 (-0.1068)	-0.1424 (-0.2600)	-0.1005 (-0.1818)
Consumer Confidence Indicator (CCI)	-0.0168 (-1.0156)	-0.0187 (-1.1259)	-0.0169 (-1.0110)	-0.0162 (-0.9487)	-0.0179 (-1.0442)	-0.0165 (-0.9924)	-0.0168 (-1.0056)	-0.0107 (-0.6287)	-0.0121 (-0.7132)

Traits Index (TI)		1.4383*** (3.0135)			1.1457** (2.2750)	0.2467*** (2.6570)			0.1287 (1.2956)
Skills & Experiences Index (SEI)			2.2258*** (3.4090)		1.0088 (1.4071)		0.3324*** (4.2273)		0.2283*** (2.7641)
Networking index (NI)				2.4145*** (6.4901)	2.1346*** (5.3169)			0.4595*** (5.6150)	0.3693*** (4.1862)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.1106	0.1203	0.1227	0.1590	0.1656	0.1186	0.1287	0.1465	0.1556
Incremental R <sup>2</sup>	-	0.97%	1.21%	4.84%	5.50%	0.80%	1.81%	3.59%	4.50%
Observations	1061	1061	1061	1061	1061	1061	1061	1061	1061
Dep = 0	877	877	877	877	877	877	877	877	877
Dep = 1	184	184	184	184	184	184	184	184	184

To examine the incremental power of different indexes independently, we test each index in different models (panel A for binomial indexes and panel B for PCA indexes). For instance, Model II is aimed to test the incremental power of traits index (TI) in the control model I; the results show an increase of 0.97% of the TI in the binomial index model, and 0.80% for the PCA index model. Both of the CEO personal traits indexes show a significant positive relationship with CEO optimistic behaviour at the 99% confidence interval.

In the case of Model III, we include CEO Skills and Experiences indexes (SEI) in the model I to examine the incremental power of these indexes. The binomial model for SEI shows an increase of 1.21% and the PCA model of SEI shows a slightly higher incremental power of 1.81% compared to the control Model I. Both of these indexes show a significant positive relationship with managerial optimistic behaviour at the 99% confidence interval.

We test the networking indexes in Model IV, Binomial Networking Index (NI) in panel A and PCA Networking Index (NI) in panel B. Both binomial and PCA networking indexes show a significant positive relationship with CEO optimistic behaviour at the 99% confidence interval.

Model V is used to investigate the joint effect of all the CEO attributes indexes, i.e. to examine the combination of the overall effect of CEO Personal Traits Index, CEO Skills and Experiences Index and CEO Networking Index. The results shows that by using binomial indexes the incremental explanatory power of the indexes is increase by 5.5% while the combination of PCA indexes contributes 4.5% additional explanatory power

The significant positive coefficients between the indexes (Traits Index, Skills and Experiences Index, and Networking Index) with CEO optimism implies that the CEO who has higher Traits Index, Skills and Experiences Index, and Networking Index values is more likely to become optimistic. Hence, we may conclude that CEO personal attributes do contribute to CEO optimistic behaviour. Additionally, the regressions for Binomial Index and Principal Component Analysis (PCA) index yield identical results, suggesting that these two methods of constructing an index are substitutable.

The panel logistic regression results confirm our prediction that CEO personal traits do increase the likelihood of CEOs' optimistic behaviour. Hence, based on our Traits Index result, we may conclude that younger CEOs, Male CEOs, UK nationality CEOs, and married CEOs tend to be more likely to become optimistic. Our result is consistent with that of Graham, Harvey and Puri (2013), who study the US market and mention that younger CEOs, male CEOs and US nationality CEOs are more risk-tolerant (risk-taking) and more likely to become optimistic. Furthermore, Mohamed, Baccar, Fairchild and Bouri (2012) also find that CEOs' age is correlated with their optimism bias (younger CEOs have a greater optimism bias). However, our finding is inconsistent with those of Andriosopoulos, Andriosopoulos and Hoque (2013), and Yim (2013), who find that older CEOs tend to have a positive relationship with their decision-making.

In the case of CEOs' gender differences, our finding is consistent with those of Barber and Odean (2001), Bhandari and Deaves (2010) and Huang and Kisgen (2012) who suggest that males tend to be more overconfident than females. However, our result differs from that of Ben-David, Graham and Harvey (2007), who found no significant difference between males and females with regard to overconfident behaviour. Our results show that

married CEOs tend to have an increased likelihood of becoming optimistic, a finding supporting Puri and Robinson's (2007) and Grinblatt and Keloharju's (2009) position that married people are more self-confident and more risk tolerant.

Based on the traits index result, CEOs with higher traits index values will have an increased likelihood of becoming optimistic. A plausible reason is that younger and male CEOs are more risk loving and self-confident. According to Deaux and Farris (1977), males claim to have greater ability to perform tasks than do females. In addition, they also tend to maintain their self-image of competency; hence, they are more likely to be optimistic. Moreover, UK nationality CEOs are found to be more likely to become optimistic, maybe because they are not exposed to cultural-toughness compared with their non-UK counterparts, as they are acquainted with the UK's political and legal system and socioeconomic and business environment. A plausible reason why married CEOs are found to be more likely to become optimistic in our study is that married status is a positive attribute combining stability, maturity and responsibility as Bloch and Kuskin (1978) suggest. Additionally, Judge, Cable, Boudreau and Bretz (1995) mention that marital status has a positive impact on an executive's career success: and indeed the study results show that UK FTSE 100 firms' married CEOs tend to become optimistic than the single CEOs.

The Skills and Experiences Index (SEI) constructed in this study suggests that the higher the skills and experiences a CEO has, the more likely he/she will become optimistic. This index comprises the following constituents: holder of MBA or PhD, firm founder, financially literate, duality, tenure as CEO, and emoluments. Hence, our result is consistent with those of Chevalier and Ellison (1999), Larwood and Whittaker (1977), and

Malmendier and Tate (2005a) who suggest that a corporate executive that holding a MBA, or management studies is positively correlated with optimism.

Adams, Almeida and Ferreira (2005) and Buyl, Boone, Hendriks and Matthyssens (2011) suggest that CEOs who are also firm founders tend to have more influence / power in the firm's decision-making process. Furthermore, Adam, Almeida and Ferreira (2005), Fracassi and Tate (2012) and Mohamed, Baccar, Fairchild and Bouri (2012) suggest that CEOs who hold the post of chairman at the same time are more dominant in decision making as they hold more power. Our results confirm the premise that founder and duality CEOs tend to have more power, and show that this power will lead the CEOs to be more likely to become optimistic. Also, we find that CEOs who possess financial knowledge are more likely to become optimistic, a finding consistent with that of Güner, Malmendier, and Tate (2008) and Graham, Harvey and Puri (2013), who find that financial expertise significantly influences corporate decisions.

The significant positive relationship between Skills and Experiences Index with CEOs' optimistic behaviour suggests that the longer a CEO works in his/her their current position and the higher emoluments he/she receives, the more likely they will be to become optimistic. The longer a CEO's tenure, the more he/she tends to become more influential over the board (Yim, 2013), and the more knowledge he/she gains, the more comfortable he/she will feel when dealing with the working environment (Mohamed, Baccar, Fairchild and Bouri, 2012). Emolument received by a CEO is a proxy for CEO dominance (Brown and Sarma, 2007). Our results suggest that CEOs who receive above average pay compared to other CEOs are more likely to become optimistic. Our finding is consistent with that of Paredes (2004).

A plausible reason for the higher Skill and Experiences Index value of CEOs tending to increase their likelihood to become optimistic is because all the positive qualities of skills and experiences will provide them knowledge, dominance and power in their management decision making. Hence it is sensible for a CEO who has more skills and experiences will become optimistic.

The CEO Networking Index also exhibits a significant positive relationship with CEOs' optimistic behaviour. The networking constituents are tenure with the firm, internal promotion, external directorships, and social networking prestige. Our results show that CEOs who have stronger networking ties (internal and external) tend to increase their likelihood to become optimistic. In the case of internal networking, when a CEO works with the firm for a longer period and when he/she is internally promoted to become CEO, he/she will tend to gain trust, respect and support: hence, he/she will have a stronger network with his/her peers and subordinates. This may be the reason why they become optimistic, as they are comfortable with the firm and know it well.

In the case of external networking, a CEO who has external appointments and who has social networking prestige, especially linked with professional bodies, fellowships or official honours (knighthoods), tends to increase his/her likelihood to become optimistic. Our findings are consistent with that of Malmendier and Tate (2009), who also stated that prestigious awards might cultivate CEOs' overconfident behaviour. CEOs who are appointed by outside firms or have social prestige are believed to have expertise and good external networking ties. Hence, recognition by such external firms may make them feel esteem and possibly make them more likely to become optimistic.

#### *2.4.4.1 Additional Robustness Tests*

For a sensitivity test we use CEOs' stock options (SO) exercising behaviour as proxy for managerial optimism (MO). The result for stock options<sup>25</sup> shows that Trait Index (TI), Skills and Experiences Index (SEI), and Networking Index (NI) do increase their explanation power in CEO optimism. For the indexes joint effect, the results show an increase of 1.29% and 1.18% for binomial indexes and PCA indexes respectively.

The results are robust with Mergers and Acquisitions (M&A) used as proxy, except for Traits Index. Traits Index shows non-significant results for MO that uses stock options exercise behaviour as proxy. Our Skills and Experiences Index and Networking Index show identical results for both M&A and SO proxy. We acknowledge that, for this study there are differences between the observations for these two proxy measurements. For the study period (2000-2013), we have 1061 observations for M&A proxy, but for stock options exercise behaviour we only obtain 507 observations.

Furthermore we also use insider transactions<sup>26</sup> as a proxy for managerial optimism; both Skills and Experiences Binomial and PCA Indexes show significant negative effect on MO, other indexes are found to have insignificant effect on MO. The results obtained contradict those for the other two MO proxies: Mergers and Acquisitions and Stock Options. Hence, we conclude that the choice of the MO proxy may capture different aspects of insider transactions. Insider transactions involving stock purchases by CEOs in UK firms might be

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<sup>25</sup> The result is reported in Appendix II

<sup>26</sup> Due to data availability for insider transactions, we use the sample data from 2009 to 2013 for both managerial optimism proxies: Mergers and Acquisition, and Insider Transaction I and II. The same sample period is chosen in order to obtain comparable result. (The result is reported in Appendix III)

due to compliance with the minimum threshold<sup>27</sup> for the position held as we find that the CEOs with lower skills and experiences levels tend to buy more than shares of the firm they work with than they sell. Additionally, for insider transaction II, we discover that the buying and selling of the firm's stock is more likely associated with the macroeconomic conditions. The results for stock options and insider transactions are reported in Appendix II and III.

## **2.5 Conclusion**

Corporations are concerned about the issue of managerial optimism (MO), especially its effect on the corporate performance. As Hirshleifer, Low and Teoh (2012) mention, understanding the issue of managerial optimism (MO) in a corporation can increase the firm value and hence benefit shareholders. The existing studies mainly examine the corporate decisions made by optimistic managers, but the causes of optimism have been less explored. Hence in our study, we aim to answer the question of what drives CEOs to exhibit optimistic behaviour in corporations.

Our study fills a research gap by examining more comprehensively aspects of CEO personal attributes (CEO personal traits, CEO skills and experiences, and CEO networking) of 248 UK FTSE 100 firms' CEOs from 2000 to 2013. In addition, we also propose four indexes; Personal Trait Index (TI), Skills and Experiences Index (SEI), Networking Index (NI) and CEO Optimism Index (CEOOI)<sup>28</sup>. Our Optimism Index can be used as an

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<sup>27</sup> Example of share ownership guidelines for CEO: AMEC plc requiring their CEO to hold 250% of base salary of targeted shareholding, while Legal & General Group Plc expects their CEO to build a personal shareholding valued at twice salary.

<sup>28</sup> CEOOI index will be used in Chapter 3

alternative proxy to measure CEO optimism<sup>29</sup>. The other three indexes (TI, SEI and NI) may be used as an additional variable in explaining other corporate issues.

In the case of CEO personal traits, univariate analyses results show optimistic CEOs have lower mean age and higher means for male gender, UK nationality and married status. The panel logistic regression results confirm the positive relationship between the Traits Index and Managerial Optimism which suggests that younger, male, UK nationality, and Married CEOs are more likely to become optimistic.

As for CEO skills and experiences, the sub-group statistics show that a higher percentage of optimistic CEOs are found in the following sub-groups: PhD holder, firm founder, CEOs who possess financial knowledge, CEOs with longer tenure, and higher pay CEO. In the case of length of tenure as CEO, the univariate result also confirm that optimistic CEOs have higher means (have worked for more years) than non-optimistic CEOs. In terms of the Skills and Experiences Index, the univariate analysis shows the optimistic CEOs tend to have a higher index value, while non-optimistic CEOs have a lower index value. These results are confirmed by the logistic regression, which also shows that the higher a CEOs' Skills and Experiences Index the greater the likelihood that they will become optimistic.

In the case of CEO networking, from the sub-group analysis we find that optimistic CEOs are better represented in the groups which are internally promoted, have worked longer with the firm (tenure more than 15 years), who have external directorship appointments and social networking prestige. Similar results are also obtained from univariate analyses: we find that optimistic CEOs tend to have higher mean tenure (years worked) with the firm,

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<sup>29</sup>Existing studies proxy optimism by using stock option, insider transaction, press based measured, M&A etc.

have been internally promoted, hold external directorships and have social networking prestige compared with non-optimistic CEOs. Optimistic CEOs show a higher Networking Index value do non-optimistic CEOs. Once again, the logistic regression results confirm that CEOs who have a higher Networking Index value are more likely to become optimistic.

Overall, the individual or jointly of CEO personal Traits Index, Skills and Experiences Index, and Networking Index that we constructed in this study do show significant relationships with CEOs optimistic behaviour. In summary, we may conclude that CEO personal attributes (traits, skills and experiences, and networking) do contribute to the likelihood that their behaviour will be optimistic.

## **Chapter 3: CEO Personal Attributes and Corporate Leasing Decisions**

### **3.1 Introduction**

The traditional or neoclassical view suggests that a firm's corporate policies are mainly determined by technology changes in the business and product market conditions; the managers' roles are less important as their characteristics are treated as homogeneous with the firm's factors. This is because the neoclassical approach considers that a single person can hardly contribute to significant effects in firm policies. However, with the growing literature on behavioural corporate finance, the role of managers is seen to be increasingly important, especially concerning decision making; a manager's sentiments and beliefs are found to have an impact on corporate policies (Beber & Fabbri, 2012).

Leasing decision is one of the important corporate policies. The benefits of leasing have been widely mentioned in the literature, most of which suggests that leasing can mitigate agency cost (Smith & Warner, 1979; Stulz & Johnson, 1985). Robicheaux, Fu and Ligon (2008) suggest that leasing can reduce agency cost of debt by easing the conflicts between debt-holders and shareholders. Managers acting in the shareholders' best interests would try their best to minimize agency cost of debt. One of the solutions is to introduce covenants to the bond by using lease. Zhou (2014) mentions that lease financing can reduce agency cost (both cost of equity and cost of debt) by mitigating conflict of interests between shareholders and managers, and between shareholders and bondholders. Lease financing is associated with periodical non-cancellable payments (rental commitments), therefore potentially limits free cash flow in a firm whilst reduces agency cost of equity by providing better alliance of interest between managers and shareholders. On the other hand, motivated

by prior literature that suggests debt covenants, short term debt, secured debt and convertible debt can reduce agency cost of debt, Zhou tests on convertible debt and leases and finds both mechanisms are significantly positively affect CEO pay-performance sensitivity. Hence Zhou concludes that firms use both mechanisms to reduce conflict of interest among shareholders and bondholders by mitigating agency cost of debt.

Zhou (2014) further concludes that firms prefer to use leasing as a mechanism to reduce agency cost of debt than convertible debt. The possible reasons are convertible debt may dilute firms' earnings per share thus shareholders may take control over the firm, whereas leasing does not have such effect; borrowing long-term convertible debt is cost more (issuing cost, flotation cost) than to lease, as leasing is a private deal between a lessor and a lessee; operating leases have off-balance sheet benefit. Zhou's data sample shows that on average, 90% of the lease financing is taken in the form of operating lease. Zhou concludes that leasing is a better tool compared with secured debt in reducing agency cost of debt; leasing has a higher priority of in claim than secured debt in the occurrence of bankruptcy. Sharpe and Nguyen (1995) also suggest that firms facing high financing costs may employ more leases to mitigate information asymmetry, and reduces agency costs associated with monitoring and underinvestment. Previous research has shown that optimistic managers tend to prefer debt to equity<sup>30</sup>; however, the relationship between managerial attributes and a firm's leasing decisions is less explored. As a lease is considered a type of corporate debt, we believe that optimism may also favour using lease financing if a company needs to finance a new asset.

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<sup>30</sup> Optimistic managers are unwilling to issue shares to finance new assets as they tend to consider that the market undervalues their firm (Heaton, 2002)

Our second chapter demonstrated that CEOs' personal attributes do influence their optimistic behaviour. We now investigate further, as to how and to what extent CEOs' personal attributes affect firms' corporate leasing decisions. In our previous chapter, we have shown that younger, male, UK nationality, married CEOs tend to be more optimistic, and CEOs who have higher skills and experiences levels (MBA holder, PhD holder, firm founder, with financial knowledge, longer tenure as CEO, and receive higher pay than average CEOs) are more likely to become optimistic. Additionally, CEOs who have more networking ties (longer tenure with the firm, internally promoted, holds external directorships, and has social networking prestige) are also found to be more likely to become optimistic. From these findings we construct a CEO Optimism Index<sup>31</sup> (CEOOI), which is proposed to be an alternative CEO optimism measurement. This new measure will be used to examine the linkage between CEO optimism and firm asset financing, specifically corporate leasing decisions.

Our study is based on the UK FTSE 100 firms listed on the London Stock Exchange (LSE). Leasing plays an important role in the UK market. According to Leaseurope<sup>32</sup>, among the European countries, UK had the highest new leasing volumes in 2013 (48.5 billion euro), followed by Germany (46.9 billion euro) and France (37.5 billion euro). From 2012 to 2013, the European leasing market was the second largest, with an annual volume of US\$ 333.6 billion, ranked second only to North America (US\$335.1 billion), with the total world annual volume of the leasing market being US\$ 883.96 billion. UK and Germany are the dominant players in the global leasing market, accounting for 42.3% of the European

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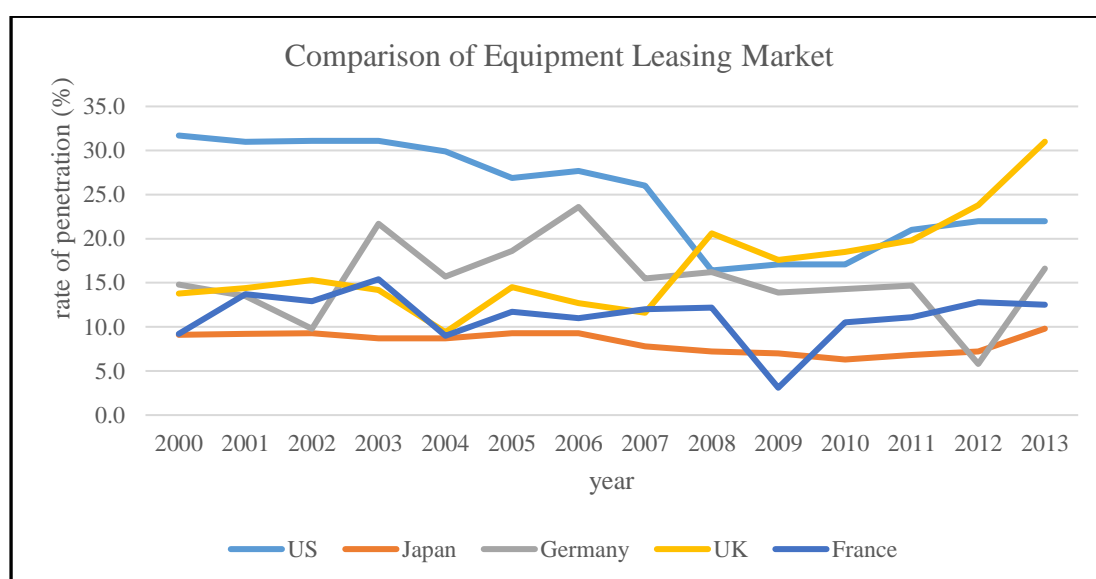
<sup>31</sup> Our Optimism Index is constructed based on CEO personal attributes that potentially cultivate their optimistic behaviour, which is different from the previous research (see example: Stock options exercise behaviour (Malmendier & Tate, 2005a), Merger and Acquisition activities (Doukas & Petmezas, 2007), speech content analysis (Brennan & Conroy, 2013))

<sup>32</sup> Leaseurope is an organisation that consists of 46 member associations in 34 European countries representing the leasing, long term and/or short term automotive rental industries. It is estimated that Leaseurope represented approximately 92% of the European leasing market in 2013.

market and 16% of the world market (White Clarke Group Global Leasing Report, 2015). Figure 3.1 shows the equipment leasing rate in the few main leasing markets. The UK equipment leasing market exhibits upward trends from 2000 until 2013. This may imply that the decision to lease equipment has become increasingly important among corporate decisions by UK firms.

**Figure 3.1**  
**Comparison of Equipment Leasing Markets (2000 to 2013)**

A comparison of the rate of equipment leasing market penetration (%) from 2000 to 2013. The Global Leasing Report presented the rate of equipment leasing market penetration by taking leasing as a proportion of all fixed investments in plant and equipment



Sources: World Leasing Yearbook (White Clarke Group Global Leasing Report, 2015)

Subsequently, we discuss the fundamentals and characteristics of lease contracts (operating lease and finance lease) and the implication on financial reporting in UK firms. A lease is an agreement between a lessor and a lessee. A lessor is the one who leases the asset (property, plant, and equipment, PPE) to the lessee for a stated period and provides the lessee with the right to use the asset. In the corporate world, leasing is a source of firm financing. In making a decision whether to buy or to lease an asset, a firm will need to

evaluate the costs and benefits of these choices. If the firm chooses to buy the asset, then it will obtain the right to use and to sell the asset at any future date. However, if the firm chooses to lease the asset, it will have the right to use the asset for a specific period, and may have the option to buy the asset based on the lease agreement.

In the leasing market, lessors offer a wide range of assets and leases that can be tailored to meet clients' (lessees) needs. Table 3.1 lists the common assets that are available in the leasing market.

**Table 3.1**  
**Commonly Leased Assets in Leasing Market**

Commercial vehicles	Cars, trucks & trailers, coaches & buses, forklifts, cranes and other yellow goods
Computers and Business machines	Software applications, computers and other IT infrastructure, security equipment, faxes and photocopiers, office furniture
Machinery and industrial equipment	Containers, agriculture and construction machinery, machine tools, vending and catering equipment, production plants, printing equipment, medical equipment, aircraft, ships, rail and rolling stock, infrastructure and utilities
Buildings and facilities	Retail premises, office buildings, industrial buildings, hotels and other leisure facilities

UK firms report their leasing activities using The International Leasing Standard (IAS 17 “Leases”). Generally, there are two types of lease, namely financial lease and operating lease. A financial lease is also known as a capital lease in U.S standard (SFAS 13). The main different between a financial lease and an operating lease is that the financial lease is capitalised and stated on the balance sheet, while the operating lease is off-balance sheet, and reported as rental commitments. The agenda to bring the operating lease onto the balance sheet started in the late 90’s with the formation of the Group G4+1, (which

comprises Australia, New Zealand, the U.K, the U.S and the standard setting bodies<sup>33</sup>) which shall develop a leases approach and proposal<sup>34</sup>. However, the proposal to change the accounting for leases is challenging and to date there is still no implementation date. The main impact of the proposed standard will be that the lessee will need to include both financial leases and operating leases onto the balance sheet. Bringing the operating leases onto the balance sheet thus will increase the respective firm's assets and liabilities.

Finance leases and operating leases have different lease contracts. Finance leases might provide the option to purchase the asset at the end of the lease term; while in the case of operating leases, the lessor retains ownership during and after the lease period. An operating lease does not have an option to transfer the ownership rights. A firm will normally choose a finance lease if the lease term is equal to or exceeds 75% of the expected asset's useful life. To be categorised as a finance lease, the present value of the lease payments should be equal to, or exceed 90% of the total original cost of the asset; while for an operating lease the present value of lease payments is less than 90 % of the asset's fair market value.

In terms of risks and benefits, a finance lease contracts transfer of the maintenance fees, insurance and taxes to lessees; though for an operating lease, lessees only obtain the right to use the assets; the risks and benefits remain with the lessors and the lessee pays the maintenance costs. For accounting reporting purposes, a finance lease is considered an asset (leased asset) and a liability (lease payments); hence, the payments are shown in the balance sheet. An operating lease's lessee has, on the other hand, no ownership rights or risks, so the payments (rental commitments) are treated as operating expenses and reported in the

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<sup>33</sup>Financial Accounting Standards Board, FASB, and the International Accounting Standards Board, IASB

<sup>34</sup> For details see Beattie, Goodacre and Thomson (2000)

income statement. For tax purposes, lessees are considered the owner of the leased assets under finance leases; therefore they can claim depreciation expenses and interest expenses. In the case of operating leases, the lessee is considered to be renting the asset, thus the lease payment is categorised as a rental expense. Our empirical results show that UK firms tend to use operating leases more than finance leases; hence a better understanding of the differences between these two types of lease contracts may help us explain the preferences.

### 3.1.1 Contribution

Our study contributes to the existing literature in three ways. Firstly, to our knowledge, no research has been carried out to examine the effect of CEO personal attributes on corporate leasing decisions. Given that leasing is a main source of financing for firms in the UK market, identification of “who” uses leases in their daily business operations is important for a firm’s financial planning and monitoring. Our study provides a linkage between CEO traits, skills and experiences, and networking towards their leasing decisions. In addition to using existing finance theories, we also try to explain the CEOs’ personal attributes from sociological and psychological points of view, in order to understand the influence of CEO optimism on the choice of lease financing.

Secondly, our study also complements existing UK corporate leasing studies. Earlier research on corporate leasing focuses on the determinant of firms’ lease employments (Drury & Braund, 1990; Adedeji & Stapleton, 1996; Adams & Hardwick, 1998; Beattie, Goodacre & Thomson, 2000; and Goodacre, 2003). We notice that since these studies, no study has examined corporate leasing decisions in the UK market. As already mentioned, the UK leasing market is among the largest in the world. Our study provides the overview

of the UK leasing market development from 2000 to 2013 and this will help lessee firms to gain a clearer picture regarding the financing resources available in the market. Understanding market trends and needs, lessor firms can design and provide their clients with better service / offers.

Thirdly, the limited research on leasing decisions is most probably due to the fact that lease data needs to be manually extracted from firm annual reports. For this study, we manually collected unique data sets (Total Lease, Operating Lease, and Finance Lease) from firms' annual reports. Analysis of these manually collected data will help us shed light on why and how firms employ leases and who in the firm does so. Besides complementing the existing literature on the determinants (firm and market level) of corporate leasing decisions, our study adds new information on the impact of CEO personal attributes on UK firms' corporate leasing decisions.

### 3.1.2 Research Objectives

Previous research has mainly investigated how firm and macroeconomic conditions explain “why” and “when” firms choose to use a lease. Yet, the question of “who” uses a lease is less explored. In this study, we try to shed light on who uses a lease by examining the effect of CEO personal attributes towards his/her corporate leasing decisions after controlling for conventional leasing determinants. We aim to address the following questions:

- 1) How and to what extent do personal attributes influence the firm's leasing decisions?
- 2) How and to what extent does this impact vary depending on the types of leasing?

### **3.2 Literature Review**

In real life, it is common for a person to rent a car or an apartment for a short period. Firms in the corporate business world usually rent for longer terms. Firms lease farming machinery, computers, trucks, aircraft, cars, ships, buildings and other plant, property and equipment. Leases that are short-term or cancellable during the contract are generally known as operating leases, while those that extend over most of the estimated economic life of the leased asset and cannot be cancelled (or the lessor will be compensated for any losses) are called capital leases, financial leases or full-payout leases. Taking out a lease contract is like borrowing money. In the business world, firms treat leasing and borrowing as financing alternatives; a lease is a long-term rental agreement and it is a type of corporate debt (Brealey, Myers and Allen, 2014).

When firms face financial constraints they may choose to lease rather than purchase the asset with debt financing to avoid being in default of debt. Leasing has become a popular financing tool among corporations. Fülbier, Lirio and Pferdehirt (2008) point out that the most common set of motivations underlying the lease-versus-buy decision is that utilizing leasing can minimize transaction costs that arise when a firm expects the life of equipment to exceed its prospective usefulness for a certain project (e.g., Flath, 1980; Smith & Wakeman, 1985).

In this study, we intend to examine which of the CEO personal attributes may affect corporate leasing decisions. According to Robicheaux, Fu and Ligon (2008), lease financing is a well-known mechanism to reduce agency cost of debt; leasing can be used as a corporate governance tool in mitigating agency conflict between debt holders and

shareholders, and hence lower the overall risk of the firm. A look at the existing literature does not provide a direct link between the leasing decision and managerial attributes; therefore, we can only discuss related approaches that may help us better understand a firm's corporate leasing decisions. , We try to make a linkage between corporate leasing approaches and CEO optimism.

### **Financing Perspective (Debt versus Leasing)**

Gombola and Marcuikaityte (2007) note that when managers are optimistic about future investment outcomes, they prefer to finance the project with debt financing rather than equity, as they are confident about the future incomes. This makes them unwilling to share the potential profits with new equity holders.

In the corporate world, firms treat leasing and borrowing as financing alternatives. As Brealey, Myers and Allen (2014) mention, finance leases are a source of debt financing; a lease contract is like borrowing money and lease is a type of corporate debt. From a financing perspective, if a firm decides to own an asset for its production, it can choose to use debt financing or to have the asset under lease (finance or operating lease). Heaton (2002) suggests that optimistic managers tend to believe that the market undervalues their firm, and they are reluctant to issue shares to finance new assets. Hence, from the CEO optimism perspective, we may expect an optimistic CEO to be more likely to employ a finance lease, as lease is a type of debt.

### **Investing Perspective (Buy or Lease Decision)**

From a firm's investing perspective, when the firm plans to purchase an asset (asset investment) for production or operational purposes the firm can finance the asset with equity capital or debt financing. Nevertheless, the firm may also have an option to rent the respective asset by using an operating lease. The firm's decision to own the asset rather than renting it using an operating lease (as rental commitments) can be defined as risk-taking behaviour. If the firm chooses to purchase the asset, it will be exposed to the potential risk of asset's obsolescence and the risk of engaging more debt or liabilities in their financial statement, which investors may consider unfavourable.

If, on the other hand, the firm is willing to make periodical payments (rental commitments) instead of purchasing the PPE, we may see the manager as risk averse. Risk aversion behaviour can be explained by the fear of the risk of asset obsolescence and accounting reporting reasons. Robicheaux, Fu and Ligon (2008) consider that lease financing can lower a firm's overall risk. The difference between buy and lease is that if the asset bought by the firm becomes obsolete, the firm still has the obligation to pay off the debt and may also incur additional costs to dispose of the asset. Conversely, if the asset is under lease agreement, then when the asset becomes obsolete, the firm can cancel the contract.

Although leasing can lower a firm's risk (risk of asset obsolescence), lessees may be need to pay higher charges or costs to the lessor, who bears the risk. If the firm still chooses to lease, based on this argument, the lessees are willing to pay higher charges on leased assets to avoid the potential risk of an asset's obsolescence as ownership of the rented asset remains with the lessor. This indirectly shows that the leasing decision may connote a firm's risk adverse behaviour.

## **Accounting Disclosure Approach**

This perspective is only applicable for operating leases, which are treated as off-balance sheet. Finance leases are reported by the same method as is debt. Hirshleifer and Teoh (2009) propose the Psychological Attraction Approach (PAA); having investigated accounting disclosure they find that firms seem better pleased to have a “clean balance sheet”, hence, a firm may prefer to take up an operating lease rather than a finance lease or purchase the asset. By using an operating lease, a firm can remove the debt from the balance sheet and less debt appearing in the balance sheet will make the firm more attractive to investors.

Black (1993) also suggests that if a firm makes too much information available to the public, this can reveal valuable proprietary information to competitors. Hence, from this perspective, risk-averse CEOs would be expected to have more operating leases as they try to avoid positioning their firm as a high debt enterprise, therefore they will take advantage of off-balance sheet treatment for operating leases.

## **CEO Power Perspective**

This approach can be used to explain the argument that the more skills and experiences, and networking ties a person has, the more power the person will attain. We use two different theories to explain the relationship between power and risk-taking behaviour. The first theory, the Prospect Theory proposed by Kahneman and Tversky (1979), posits that an individual is more risk seeking in the domain of losses and more risk averse in the domain of gains. Powerless people have less to lose, thus individuals with low power might be more risk seeking as they are willing to try any available opportunity regardless of risk considerations to get them out of the position of disadvantage (Anderson and Galinsky,

2006). Based on this theory, power should have a negative relationship with individual risk-taking behaviour. From this perspective, we expect the CEO who possesses more skills and experiences, and networking ties, to have more lease employment, as leases can lower the firm's risk and at the same time secure its CEO's position.

The second theory, the converse of Kahneman and Tversky's (1979) Prospect Theory, is Anderson and Galinsky's (2006) Approach/Inhibition Theory. This theory suggests that power increases with optimism when perceiving risks, which may increase the propensity for risk taking. When people have power, they have more access to material sources (financial, physical comforts) and social resources (prestige, positive attention) (French and Raven, 1959). Furthermore, people with power are less constrained in pursuing rewards and making decisions. On the one hand, people with little power are more likely to avoid risks as they are subject to more material and social threats. People with a higher sense of power had more optimistic perceptions about the future in the case of controllable events, and this optimistic perception extended to events that seemed outside of their control. People with high power positions are more likely to choose riskier options compare to people with neutral or low power positions. From this perspective, we expect that the CEO who possesses high skills and experiences, and networking ties, will take more risks, and will consider using leases less, as leases are known as a conservative financing tool.

Cain and Mckeon (2016) analyse the relationship between CEO personal risk-taking (CEO with pilot's licence), corporate risk taking and firm's total risk. Their results show that risk-tolerant CEOs has explanatory powers in corporate project selection (debt financing, mergers and acquisitions). They conclude that leverage increases firms' risk, CEOs who possess risk-taking behaviour tends to show a positive relationship with leverage ratios,

and CEOs' risk-taking increases his/her propensity for making acquisitions. Cain and Mckeeon suggest that shedding light on the myriad behavioural characteristics that lie behind risk-taking behaviour in corporate policies can lead to better corporate decision-making.

### 3.2.1 The Determinants of Corporate Leasing

Earlier corporate leasing research has focused on tax incentives as the main reason a firm would use a lease. More recently, researchers have focused on firms' financial constraints, and whether the lease is used to complement or substitute debt<sup>35</sup>. Most of the studies were carried out in the US (Sharpe & Nguyen, 1995; Beatty, Liao & Weber, 2010; Schallheim, Wells & Whitby, 2013). The UK leasing market has been studied by Drury and Braund, (1990), Adedeji and Stapleton (1996), Adams and Hardwick (1998), Beattie, Goodacre and Thomson (2000), and Goodacre (2003). In addition, Cosci, Guida and Meliciani (2013) study lease financing in Italian firms and Fülbier, Lirio and Pferdehirt (2008) investigate German firms' leasing decisions.

#### 3.2.1.1 *Leasing and Tax Benefits*

Theoretical leasing models initially focused on the tax benefit between lessee and lessor. Croci, Guida & Meliciani (2013) note that earlier researchers suggested that tax incentives are the main reason a firm would lease. Smith and Wakeman (1985) and Graham, Lemmon and Schallheim (1998) show that low tax rate firms gain net tax benefits from leasing; lessees tends to gain more compared to the lessor. However, Croci, Guida and Meliciani

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<sup>35</sup> Empirical evidence for Substitution Relationship: see e.g., Beattie, Goodacre & Thomson (2000), Schallheim, Wells & Whitby (2013), Cosci, Guida & Meliciani (2013), Adedeji & Stapleton (1996)  
Empirical evidence for Complementary Relationship: see e.g., Ang & Peterson (1984), Adam & Hardwick (1998), Garrod (1989)

(2013) summarise that empirical evidence shows mixed results for the relationship between leasing decision and firms' tax positions.

Graham, Lemmon and Schallheim (1998) note that capital lease payments are divided into interest expenses and capital lease amortization. They also mention the "true lease" issue, and argue that true leases may have a negative relationship with tax rate, while a non-true lease (like debt) shows a positive relationship with tax rate. They further conclude that operating leases, which are predominantly true leases, will negatively correlate with tax rate, whereas capital leases might show an ambiguous relationship with tax rate as capital leases are mixed true and non-true leases.

Much previous research mentions tax-related incentives as the main reason for leasing, but Smith and Wakeman (1985) state that taxes only provide a limited explanation as to why assets are leased rather than owned. According to Smith and Wakeman, if the same tax rates were applied on both lessor and lessee, then there would be no tax advantage in leasing an asset.

### *3.2.1.2 Leasing and Financial Constraints*

When a firm faces financial constraints, leasing may be an important source of finance especially for firms lacking prior history and reputation (Lasfer & Levis, 1998; Neuberger & R athke-D oppner, 2013). Sharpe and Nguyen (1995) find that non-dividend paying, and cash-poor-firms, use leasing more. More recently, Eisfeldt and Rampini (2009) suggest that financially constrained firms would lease more of their capital assets than less constrained firms. Barclay and Smith (1995), meanwhile, claim that firms with greater growth opportunities rely more heavily on lease financing.

High debt firms may face financial constraints. If a firm is highly leveraged, this will affect its choice of financing in new asset investment. Differences in selection of financing sources will affect the firm's cost of capital. Earlier studies find that the relationship between debt and lease is positive if debt and lease complement each other; while a negative relationship between debt and lease shows that these financing sources are substitutable. In the UK, Adams and Hardwick (1998) study 100 UK based listed firms and find that leverage is positively correlated with propensity to lease. Garrod (1989) finds that debt and lease are in a complementary relationship. However, Adedeji and Stapleton's (1996) study of UK firms find a substitutive relationship between debt and leasing.

Adedeji and Stapleton (1996) mention in lease agreements, the lessor will retain, and bear the cost of, the asset ownership. Thus, lessees may be charged higher costs (interest charges or rental commitments) as lessors will pass the costs to lessees. From this perspective, a firm may rank lease as a lower preference than debt; a lease will be used only if the firm has utilized their debt capacity. Cosci, Guida and Meliciani (2013) highlight the issue of substitution between leasing and debt. Using the debt ratio as the dependent variable and the leasing ratio as the explanatory variable in regressions, they found a negative coefficient on the debt ratio which implied total lease and debt financing are substitutable.

### *3.2.1.3 Contracting Cost*

Financial Contracting Theory suggest that firm characteristics such as business risk and investment opportunity set should affect firms' contracting cost; hence the firm may choose to lease rather than buy an asset (Mehran, Taggart & Yermack, 1999).

*i. Investment Opportunity Set (Agency Theory)*

Myers (1977) mentions that shareholders might forgo positive net present value (NPV) investment opportunity if the project benefits accrue to the firm's existing bondholders; this is the conflict between bondholders and shareholders. To overcome this conflict, Myers suggests that a firm can introduce debt with restrictive covenants, thus financing with lease contract will be a good choice. Stulz and Johnson (1985) also mention that incentive problems can be reduced if the firm retains the ability to finance new investment with high priority claims such as secured debt and leases. Lease can help to reduce agency conflict between shareholders and bondholders. Sharpe and Nguyen (1995) mention that firms may choose to lease when they are facing high external funding cost, as lease financing can economize the transaction costs.

*ii. Leasing as Collateral for a Secured Loan*

Leasing as collateral for a secured loan implies that a firm using leasing has a higher funding capacity than one using secured lending. Stulz and Johnson (1985) show leasing as more effective than other forms of finance in mitigating underinvestment problems as leasing contract is tied to a specified fixed asset. Graham, Lemmon and Schallheim (1998) argue that firms that use more fixed assets in production processes should use more lease financing. They expect a positive relationship between use of fixed assets and debt, as fixed assets are more valuable in liquidation and hence support a higher debt capacity. As lease is a form of corporate debt, tangibility is expected to have a positive relationship with lease.

### *iii. Firm Size*

Graham, Lemmon and Schallheim (1998) suggest that based on the Size-based theories; larger firms are more likely to be debt financed. This is because large firms are more diversified and hence have more stable cash flows to meet the debt obligations. However, Sharpe and Nguyen (1995) take the opposite position; they mention that large firms may be able to exploit economies of scale in issuing securities and because of such information asymmetries, smaller firms are more likely to face higher costs to obtain external funds. Thus, they suggest that leases mitigate such information problems and provide lower financing costs. Based on this argument, firm size is expected to have a negative relationship with lease financing.

#### *3.2.1.4 Firm Uniqueness*

The reason a firm invests in firm specific assets is to enhance firm uniqueness and achieve competitive advantage. However the employment of firm specific assets may affect firm borrowing capacity. Firm specific assets cannot be redeployed for other uses and therefore are hard to use as collateral for borrowing (Balakrishnan & Fox, 1993). Many of the firm's specific assets are intangible assets (e.g. promotion and advertising, research and development).

Firm uniqueness refers to a firm that employs highly specific assets. Smith and Wakeman (1985) suggest that firms are less likely to use lease financing for highly specific assets in order to avoid conflict and agency cost between lessor and lessees. Hence, firms are more likely to lease generic office facilities rather than firm specific asset, which are unique for the firm's production or research. Hence, we may expect that the firm that engages in more research and development will be less likely to use lease.

### *3.2.1.5 Corporate Governance*

Robicheaux, Fu and Ligon (2008) find that firm with strong governance structure (more outside directors) will use more lease financing. They also mention that lease can be used as a mechanism to mitigate agency costs of debt and overcome underinvestment problems by lessening the probability of rejecting positive net present value projects. On the other hand, they find that the number of directors is negatively and significantly related to the use of lease, possibly due to inefficient monitoring and control if the board is too big. Rosenstein and Wyatt (1990) mention that the appointment of outside directors aims to provide better monitoring than inside board directors. Hence, our study expects a positive relationship between leasing employment and number of outside directors.

### *3.2.2 CEO Personal Attributes and Corporate Leasing Decisions*

In this study, we examine the relationship between CEO personal attributes and the decision to use lease financing. We develop our hypotheses based on the firm's financing perspective. Gombola and Marcuikaityte (2007) note that when managers are optimistic about future investment outcomes, they prefer to finance the project with debt financing rather than equity; as they are confident about future incomes, and this makes them unwilling to share the potential profits with new equity holders. We expect the optimistic CEO will use lease more, considering lease is a type of debt. Heaton's (2002) study on Managerial Optimism and corporate finance suggested that managerial optimism predicts the pecking order preferences in firm's capital structure, whereby managers tend to finance their project with internal cash or risk-free debt and if external funds are needed, they would prefer risky debt to equity. As optimistic managers believe that the capital market undervalues the firm's risky securities; optimistic managers always perceived issuing risky securities as a negative NPV event.

Hackbarth (2008) and Baker and Wurgler (2011) also mention an optimistic manager relies more on internal capital and debt in making financing decisions, resorting to equity issuing as a last resort; as optimistic managers view the firm's risky securities are undervalued by the capital market, they perceive a larger cost in issuing new equity than debt. Moreover, Ben-David, Graham and Harvey (2007) also find that overconfident CFOs tend to use more debt. From the perspective of CEO optimism, we may expect an optimistic CEO (younger, male, UK nationality and married) would be more likely to employ lease; we predict therefore a positive relationship between CEO optimism and corporate leasing decisions.

In the case of CEO skill and experiences, and networking, lease can be used to mitigate agency cost of debt and lower the firm's overall risk, as mentioned by Robicheaux, Fu and Ligon (2008). A CEO with higher skills and experiences, and more networking ties will have more access to information resources and knowledge. Such CEOs also have more power and possess good social skills, which can help the firm to get good deals in lease agreements. We may predict that CEOs with higher skills and experiences and CEOs with more networking ties will be more likely to employ lease. Based on the above arguments, we intend to test our hypotheses by examining the relationship between:

1. CEO personal traits (age, gender, nationality, and marital status) with corporate leasing decisions
2. CEO skills and experiences (educational background, founder, financial literacy, duality, tenure as CEO, and emoluments) with corporate leasing decisions, and
3. CEO networking ties (tenure with the firm, internally promoted, external directorships, and social networking prestige) with corporate lease financing decision.

### *3.2.2.1 CEO Personal Traits and Corporate Lease Financing*

Few studies explicitly study the relationship between CEO characteristics and corporate leasing decisions. Brealey, Myers and Allen (2014) consider that lease is a type of corporate debt, and firms use lease as a financing alternative. Hence in this study we expect optimistic CEOs may also prefer lease if they engage in asset investment. Previous studies suggest that younger CEOs, male CEOs, UK nationality CEOs, and married CEOs are more likely to become optimistic and risk loving. As mentioned by Graham, Harvey and Puri (2013), younger CEOs are more confident and more risk tolerant (risk -taking) compared to older CEOs. Anderson and Galinsky (2006) find that older people were less optimistic than younger people. Most previous research shows that males tend to be more optimistic and risk taking than females (Barber and Odean, 2001; Bhandari and Deaves, 2010; Huang and Kisgen, 2012; Graham, Harvey and Puri, 2013).

Mendenhall and Odduo (1985) consider that expatriate managers tend to have a greater need to be flexible and are required to have better ability to interact effectively with their national hosts than their UK CEO colleagues who already had established networking ties. In addition to technical competence, they also need to prepare themselves in terms of intercultural, perceptual and interpersonal ability. Mendenhall and Odduo (1985) mention that managers from a non-host country are exposed to cultural-toughness, where the host country's political and legal system, socioeconomic and business environment are different from those of the home country. From this, we predict that UK nationality CEOs are more optimistic, as they are more familiar with the rules and regulations, people, culture and working environment of the place where they work.

Judge, Cable, Boudreau and Bretz (1995) suggest that marital status should have a positive impact on an executive's career success. Grinblatt and Keloharju (2009) find that married people are more self-confident. Moreover, Puri and Robinson (2007) point out that the optimistic individual is more risk tolerant and also have the tendency to undertake remarriage. Hence, we predict married CEOs are more optimistic and risk tolerant. From the optimism perspective, we expect younger, male, UK nationality, and married CEOs will employ more lease (a type of corporate debt) as they view that the market tends to undervalue their firm and therefore they are reluctant to issue new equity to avoid sharing potential profits with new equity holders. Our first hypotheses are as follows:

*H1*: CEO personal traits (Younger, Male, UK Nationality and Married) have a positive relationship with firm corporate leasing decisions

**Table 3.2**  
**Prediction of the Relationship between CEO Personal Traits and Corporate Leasing Decisions**

CEO Personal Traits	Lease Employment
1. Younger	Positive
2. Male	Positive
3. UK Nationality	Positive
4. Married	Positive

#### *3.2.2.2 CEO Skills and Experiences and Corporate Lease Financing*

Our second objective for this empirical chapter is to find out which of the following CEOs skills and experiences are more likely to associate with corporate leasing decisions. Our hypothesis is derived from the idea that higher skills and experiences will provide a CEO with more power and, according to Adams, Almeida and Ferreira (2005), a CEO who has power over the board will have a greater influence on decision-making in the organization. With powerful status, a CEOs can utilise his/her knowledge (MBA, PhD and financial

knowledge) to employ more leases in their firm, and, as Robicheaux, Fu and Ligon (2008) claimed, leasing can mitigate agency cost of debt and lower the firm's overall risk.

Previous studies also show that the higher the skills and experiences of a manager, the more likely the manager will become optimistic and able to accept more risk. Our study anticipates higher skills and experiences CEOs as the one who are MBA or PhD holder, founder status, financially literate, duality, longer tenure as CEO, and higher emoluments, and we expect them to be more likely to become optimistic. Larwood and Whittaker (1977), Chevalier and Ellison (1999), and Malmendier and Tate (2005a) suggest corporate executive that holding an MBA, or a management studies are positively correlated with overconfidence. The CEO with founder status<sup>36</sup> and the CEO who holds the chairman post simultaneously<sup>37</sup> have more influence and power in the firm's decision-making process.

Previous research also found that financial expertise significantly influences corporate decisions (Güner, Malmendier & Tate, 2008; Graham, Harvey & Puri, 2013). The longer a CEO's tenure, the more the CEO tends to become influential over the board (Yim, 2013), and the more knowledge he/she gains the more comfortable they will feel dealing with their working environment (Mohamed, Baccar, Fairchild & Bouri, 2012). Additionally, emoluments received by a CEO is used as a proxy for CEO dominance (Brown & Sarma, 2007).

Our argument is that a CEO who has more skills and experiences would be expected to know the benefit of leasing and be able to utilise lease financing for their firm. As Robicheaux, Fu and Ligon (2008) mentioned, leasing can lower a firm's overall risk and

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<sup>36</sup>See: Adam, Almeida and Ferreira (2005) and Buyl, Boone, Hendriks and Matthyssens (2011)

<sup>37</sup> See: Adam, Almeida and Ferreira (2005), Fracassi and Tate (2012) and Mohamed, Baccar, Fairchild and Bouri (2012)

reduce agency cost of debt by easing the conflicts among debt holders and shareholders. A skilful and experienced CEO is expected to act in the shareholders' best interests and try to minimize agency cost of debt by using more lease financing. As Stulz and Johnson (1985) also point out, incentive problems can be reduced if the firm retains the ability to finance new investment with high priority claims such as secured debt and leases.

Hence, in this study, we expect that the CEO with more skills and experiences (holder of MBA or PhD, firm founder, financially literate, with duality status, longer tenure as CEO and higher pay) will have more decision-making power, and their opinions will be taken and translated directly into outcomes for the firm. With the knowledge and experiences they have, they are expected to employ more leases for the firm to lower the firm's risk. Thus, hypothesis 2 is designed as:

*H2: CEOs' Skills and Experiences have a positive relationship with corporate leasing decisions*

**Table 3.3**  
**Prediction of the Relationship between CEO Skills and Experiences and Corporate Leasing Decisions**

<b>CEO Skills and Experiences</b>	<b>Lease Employment</b>
1. Educational Background (MBA, PhD holder)	Positive
2. Founder Status	Positive
3. Financial Literacy	Positive
4. Duality	Positive
5. Length of Tenure as CEO	Positive
6. Emoluments	Positive

### *3.2.2.3 CEO Networking and Corporate Leasing Decisions*

Our third hypothesis aims to examine CEOs' networking ties with their leasing decision. We incorporate four measurements for networking ties based on internal and external

networking. Internal networking comprises tenure with the firm and internal promotion, while external networking comprises external directorships, and social networking prestige.

We suggest that a CEO who has stronger networking ties tends to increase their likelihood to become optimistic. When CEOs work with a firm for a longer period or when they are internally promoted to CEO, they will tend to gain trust, respect and support: hence, they will have stronger networking ties with the board, their peers and subordinates. These factors help a CEO to be comfortable with a firm and know it well, and may be the reason why such CEOs become more prone to show optimistic behaviour.

Furthermore, a CEO who holds external appointments and who has social networking prestige, especially related to association with professional bodies, or the holding of fellowships or official honours (knighthoods), tends to increase his/her likelihood to become optimistic. Malmendier and Tate (2009) mention that prestigious awards might cultivate CEOs' overconfident behaviour. CEOs who are appointed by outside firms or have social prestige are believed to have expertise and good external networking ties. Hence, such recognition from external firms may make them feel esteemed, and possibly make them more likely to become optimistic. Additionally, CEOs who have more networking ties (internal and external) are expected to have better social skills which may help them obtain better deals in leasing agreements. Hence, CEOs who have more networking ties are expected to be able to reduce agency conflicts between shareholders and debt holders, as they are more experienced in dealing with internal and external networking. Therefore, our hypothesis 3 is developed as follows:

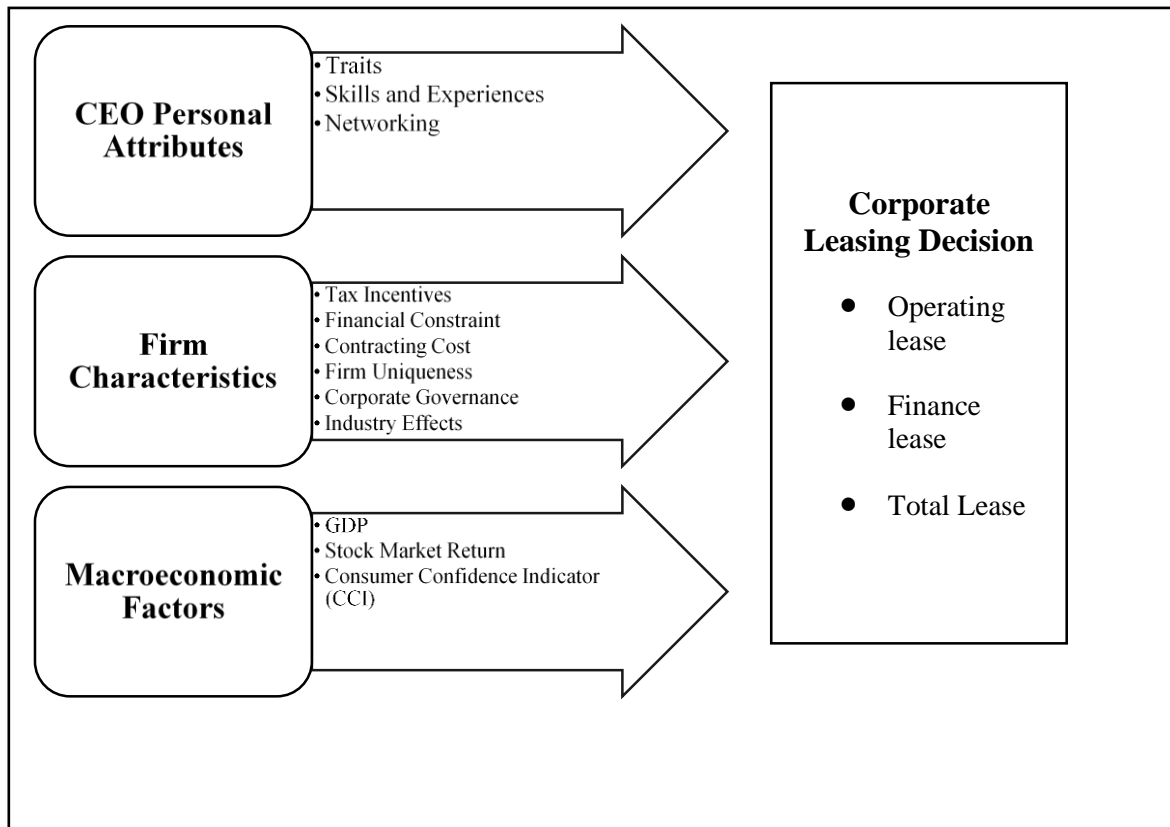
*H3: CEOs' networking ties have a positive relationship with corporate leasing decisions*

**Table 3.4**  
**Prediction of Relationship between CEO Networking Ties and Corporate Leasing Decision**

CEO Networking Ties	Lease Employment
1. Tenure with the firm	Positive
2. Internally Promoted	Positive
3. External Directorships	Positive
4. Social Networking Prestige	Positive

In summary, this chapter investigates the influence of CEOs' personal attributes towards corporate leasing decisions. We summarise the research framework in Figure 3.2.

**Figure 3.2**  
**Research Framework for Second Empirical Chapter**



### 3.3 Data and Methodology

Our study period is from 2000 to 2013; the final sample to examine the relationships between CEO personal attributes and corporate leasing decisions comprises 623 observations. These observations are from the UK FTSE 100 firms, excluding financially related firms, utilities firms and natural resources firms<sup>38</sup>. We manually collect the data for operating lease from firms' annual reports. To ensure the consistency and accuracy of the dataset, we also hand-collect the net finance leases (net book value of fixed assets held under finance lease) and depreciation expenses, from firms' annual reports.

In this study, we examine the influence of CEO personal attributes on their firm's corporate leasing decisions. One may argue that financing decision is a responsibility of the CFO, yet we choose to examine the CEO, as the CEO is the firm's dominant decision maker. Although he/she might not be directly involved in every single leasing agreement, the CEO monitors overall firm performance and on average, lease financing in our sample study was equivalent to 30-40% of the capital cost. Therefore, a CEO should be aware of, and concerned about his/her firm's lease financing; Capital cost is important for a firm's strategic planning, therefore, a CEO is expected to have influence on corporate leasing decisions.

#### 3.3.1 Dependent Variables

This study adopts Sharpe and Nguyen's (1995) firm corporate leasing measurements as shown in Table 3.5. They propose three measures of a firm's propensity to lease: capital

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<sup>38</sup>Same as Sharpe and Nguyen (1995), Lin, Wang, Chou and Chueh (2013)

lease share (in this study we address this as finance Lease<sup>39</sup>), operating lease share, and total lease share. These measurements have also been used by Robicheaux, Fu and Ligon (2008) and Mehran, Taggart and Yermack (1999).

**Table 3.5**  
**Dependent Variables (propensity to lease) Used in this Study**

Propensity to Lease	Measurement	
Finance Lease Share (FLS)	$FLS = \frac{Net\ Finance\ Leases}{Net\ PPE}$	The Finance Lease share is ratio of the net book value of fixed assets held under finance lease divided by net property, plant and equipment.
Operating Lease Share (OPLS)	$OPLS = \frac{Rental\ Commitments}{Total\ Capital\ Cost}$	$Total\ Capital\ Cost = Rental\ Commitments + Depreciation\ Expense + (i \times Net\ PPE)$ <p><i>i</i> = Short – term borrowing rate We use annual average rate of discount of 3-month UK Treasury bills as our short-term borrowing rate.</p>
Total Lease Share (TLS)	$TLS = OPLS + (1 - OPLS) \times FLS$	Total lease share is the sum of operating lease share plus the finance lease share weighted by the share the total capital cost.

### 3.3.2 Explanatory Variables

In this study, our main explanatory variable is CEO personal attributes (traits, skills and experiences, and networking). For this study, we first examine every single CEO personal attributes (age, gender, nationality, and marital status, MBA or PhD holder, firm founder, financially literate, duality, tenure as CEO, and emoluments, tenure with the firm, internal promotion, external directorships, and social networking prestige) and their effects on optimistic behaviour. In addition to looking at the individual effects of the attributes, we also compose a CEO Traits Index (TI), Skills and Experiences Index (SEI), and Networking

<sup>39</sup> UK firm uses the term of “Finance lease” as the same as “Capital Lease” uses in US.

Index (NI)<sup>40</sup> to observe the effect of each of the indexes on firms' lease financing. Lastly, derived from the results we discussed in chapter two; we find that CEOs personal traits, skills and experiences, and networking do cultivate their optimism behaviour, hence we construct a CEO Optimism Index<sup>41</sup> (CEOOI) to investigate CEO optimism and corporate leasing decisions. We choose to use the binomial method to construct the indexes in this study, as our chapter two results suggest that the binomial index and PCA index are substitutable. Each of the indexes (TI, SEI, NI and CEOOI) comprises following components shown in Table 3.6 below:

**Table 3.6**

**The Components for CEO Optimism Index (CEOOI) which comprises CEO Personal Traits index (TI), Skills and Experiences Index (SEI), and Networking Index (NI)**

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**Panel A: CEO Personal Traits**

Age	CEO's age is calculated according to the difference between his/her year of birth and the examined year. Dummy 1 is allocated if the CEO is younger than the average age of the CEOs in the sample study.
Gender	For this study, a male CEO is assigned dummy variable 1; females are then dummy = zero
Nationality	A dummy variable (1, 0) is used where a CEO of UK nationality is denoted as 1 and others as zero
Marital Status	If a CEO is single, a dummy of zero is assigned, if married; a dummy of 1 is assigned

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**Panel B: CEO Skills and Experiences**

Formal Education	CEOs with an MBA or PhD degree are identified. For these two variables, dummy 1 is assigned to those who hold an MBA and PhD respectively, and zero otherwise.
Founder	If the CEO is also a founder of the firm, dummy variable 1 is denoted, otherwise zero is assigned.

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<sup>40</sup> The construction of index has been outlined in section 2.3.2 Methodology (page 83-84).

<sup>41</sup> Our CEO optimism index is the composite of CEO personal attributes (traits, skills and experiences, and networking)

Financial Literacy	If the CEO has worked as a financial officer or controller, banker, accountant, treasurer lawyer, or academic who was involved in the economics, business, finance or accounting fields, he/she is categorized as financially literate. Dummy variable 1 is used for a CEO who is financially literate: otherwise zero is assigned.
Duality	If a CEO holds the post of chairman at the same time, a dummy variable of 1 is allocated to the CEO: otherwise zero is assigned.
Tenure as CEO	The tenure of a CEO is counted from the year he/she starts being designated CEO. If the CEO has worked longer than the average tenure of the CEOs in the sample, then dummy 1 is assigned: otherwise zero is assigned.
Emoluments	Annual emoluments scaled by the firm's total assets. If the CEO received higher than average pay, he/she is assigned 1, if he/she gets paid below- average emoluments, he/she is assigned dummy zero.

### **Panel C: CEO Networking**

Tenure with the Firm	Tenure with a firm is calculated from the year the respective CEO joins the firm until the examined year. If the CEO worked longer years than the average years worked in the sample, then dummy 1 is assigned: otherwise zero is assigned.
Internal Promotion	If the CEO is internally promoted, dummy 1 is assigned: otherwise zero is assigned
External Directorships	If the CEO has outside appointment, dummy 1 is assigned: otherwise zero is assigned
Social Networking Prestige	Observed from a CEO's social networking prestige/status especially a CEOs' networking in professional bodies, being awarded fellowship or official honours, particularly knighthoods. A CEO with any of the above-mentioned marks of prestige/status, is assigned dummy 1: otherwise zero is assigned.

For control variables, we include firm-specific factors which have been used in previous research (Table 3.7). These leasing determinants are used to explain why firms choose to lease. Firm specific factors that we control for in this study include tax (tax loss carried forward), financial constraints (internal fund, growth opportunity, leverage, and profitability), contracting cost (tangibility, and firm size), firm uniqueness and corporate governance. Furthermore, we also control for industry effect and macroeconomic factors, namely GDP, Stock Market return and Consumer Confidence Indicator (CCI).

**Table 3.7**  
**Firm-specific Factors Used as Control Variables in this Study**

<b>Firm-specific factors</b>	<b>Measurement / Proxy</b>	
<b>Tax benefits</b>	Non Tax Shield (Dummy)	Tax loss = 1, if the firm has tax loss carried forward
	Tax Rates	$\frac{\text{Income taxes}}{\text{Profit before tax}}$
<b>Financial constraints</b>	Internal Fund	$\frac{\text{Operating income before depreciation and amortization} - \text{tax}}{\text{Total Asset}}$
	Growth Opportunity	$\frac{\text{Market value of asset}}{\text{Book value of asset}}$
	Leverage	$\frac{\text{Total Debt}}{\text{Total Asset}}$
	Profitability	$\frac{\text{Profits before tax}}{\text{Total Asset}}$
<b>Contracting Cost</b>	Tangibility	$\frac{\text{PPE}}{\text{Total Asset}}$
	Firm Size	Natural logarithm of the book value of Total Asset
<b>Uniqueness</b>	Research and Development (R & D)	Dummy= 1, if the firm has R&D expenses, otherwise zero.
<b>Corporate Governance</b>	Proportion of independent directors on each firm's board of directors	$\frac{\text{Number of Non – executive Director}}{\text{Board Size}}$

### 3.3.3 Regression Specification

In this study, we examine the relationships between CEO personal attributes (personal traits, skills and experiences, and networking) and corporate leasing decisions using panel OLS regression. We control for firm macroeconomic factors and industry effects as our baseline Model I. In Model II, we include CEO personal attributes to observe the influence of CEO traits (age, gender, nationality, and marital status), skills and experiences, and networking towards corporate leasing decisions. To investigate further and from different perspectives, we construct three indices using the attributes: CEO personal Traits Index (TI), CEO Skills and Experiences Index (SEI), and CEO Networking Index (NI), as in Model III. Lastly, these three indexes are combined into the CEO Optimism Index (CEOOI) in order to observe the total effect of an optimistic CEO on firms' corporate leasing decisions. The specifications of the regression models are as follows:

**Model I:**  $CLD_{i,t} = \alpha + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$

**Model II:**  $CLD_{i,t} = \alpha + \beta_{pa} \sum CEO\_Personal\_Attributes_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$

**Model III:**  $CLD_{i,t} = \alpha + \beta_{TI} TI_{i,t} + \beta_{SEI} SEI_{i,t} + \beta_{NI} NI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon$

**Model IV:**  $CLD_{i,t} = \alpha + \beta_{OI} CEOOI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$

Whereby:

CLD	=	Corporate Leasing Decisions (Total Lease Share, Finance Lease Share, and Operating Lease Share)
CEO personal Attributes	=	CEO personal traits (age, gender, nationality, and marital status) CEO Skills and Experiences (MBA or PhD holder, firm founder, financially literate, duality, tenure as CEO, and emoluments) CEO Networking Ties (tenure with the firm, internal promotion, external directorships, and social networking prestige)
Z	=	Vector of control variables (firm, and macroeconomic factors and industry dummies)
TI	=	Traits Index
SEI	=	Skills and Experiences Index
NI	=	Networking Index
CEOOI	=	CEO Optimism Index

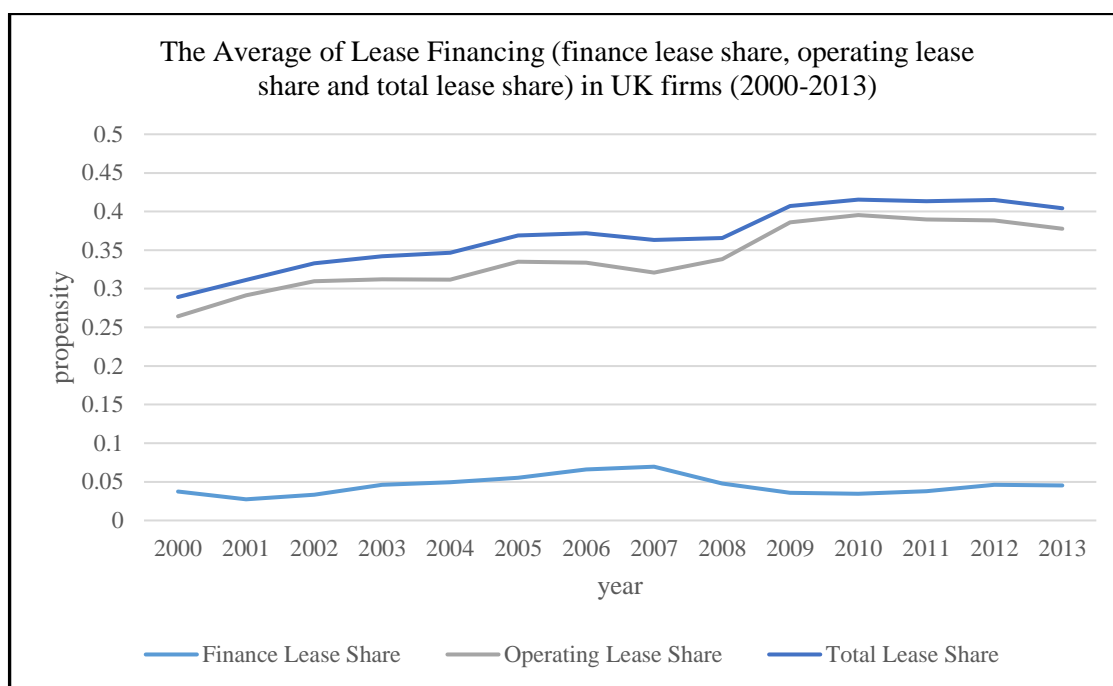
### **3.4 Results and Discussion**

Based on our sample firms, we find that UK firms commonly use lease financing. Of the sample in this study, 81.06% of the firms employed finance leases while 99.84% of the firms employed operating leases. The plausible explanation is that operating leases provide higher flexibility in term of the option to change to new assets (more compatible with fast changes in technology). Additionally, use of operating leases also lowers the firm's risk by eliminating the risk of asset obsolescence. From a financial reporting perspective, operating lease is treated as off-balance sheet, which may make the firm's financial status look less leveraged and enable it to attract new investors. Consequently, UK firms use finance leases less due to the need to include these as liabilities on the balance sheet, which does not add value from the financial reporting perspective. This finding is in line with Hirshleifer and Teoh's (2009) suggestion that a firm prefers a "clean balance sheet", therefore takes up operating leases rather than finance leases.

The UK firms' lease employment is similar to that of US firms; as Robicheaux, Fu and Ligon's (2008) report, US firms employ 1.84% finance lease, 37.39% operating lease and 38.81% total lease. Their study period covered the years 1992 to 2004. Figure 3.2 shows that UK firms tend to employ more operating leases than finance leases. The average propensity to use total leases ranges from 28-42% of their total capital cost, operating leases comprise 26-40% of their total capital cost, while the finance leases' share is less than 10% of their net PPE.

**Figure 3.2**  
**Lease Financing for UK firms (2000 to 2013)**

The figure presents the average of lease employment propensities (finance lease share, operating lease share, and total lease share) for UK FTSE 100 firms from 2000 to 2013. This study utilises 623 observations.



### 3.4.1 Descriptive Statistics

The summary statistics (Table 3.8) show that the average Total Lease Share (TLS) employed by our sample firms is 37.19% of their total capital cost. This shows that leasing is an important financing source for the UK firms. The average finance lease share (FLS) is 0.0455 of their net PPE book value. This implies that less than 5% of the firms' PPE in our sample is financed by finance leases. We find that UK firms prefer to use operating leases rather than finance leases, as the operating lease share (OPLS) is equivalent to 34.39% of firms' total capital cost.

**Table 3.8**  
**Summary Statistics**

The table presents the summary statistics for the variables used in this study. This study looked at the UK FTSE 100 firms from 2000 to 2013. Panel A shows the dependent variables, which are the propensity to lease (Total Lease Share, Finance Lease Share, and Operating Lease Share). Panel B shows the explanatory variables used in this study (traits, skills and experiences, and networking). Panel C shows the control variables included in this study.

**Panel A: Dependent Variables**

	Mean	Min.	Max.	Std. deviation
Net Finance Lease (£'000)	71,483	0.0000	2,462,820	188,979
Net PPE (£'000)	2,464,280	8,990	25,710,000	4,337,765
Operating Lease (£'000)	124,586	0.0000	1,888,000	213,487
Depreciation Expenses (£'000)	315,146	463	4,583,000	650,753
Finance Lease Share (FLS)	0.0455	0.0000	0.6740	0.0892
Operating Lease Share (OPLS)	0.3439	0.0000	0.8693	0.2207
Total Lease Share (TLS)	0.3719	0.0000	0.8716	0.2235

**Panel B: Explanatory Variables (CEO Attributes)**

**1. CEO Personal Traits**

	Mean	Min.	Max.	Std. deviation
Age	52.3980	31	69	5.9295
Gender (GEN)	0.9374	0	1	0.2420
Nationality (NAT)	0.6837	0	1	0.4650
Marital Status (MS)	1.0160	0	2	0.3490

**2. CEO Skills and Experiences**

	Mean	Min.	Max.	Std. deviation
MBA	0.1926	0	1	0.3950
PhD	0.1027	0	1	0.3040
Founder (FOU)	0.0208	0	1	0.1430
Financial Literacy (FL)	0.4189	0	1	0.4940
Tenure as CEO (TCEO)	5.9052	1	28	4.5540
Duality (DUA)	0.0240	0	1	0.1530
Emoluments (EMO)	0.0053	0.0000	0.0569	0.0063

**3. CEO Networking**

	Mean	Min.	Max.	Std. deviation
Tenure with the firm (TWF)	14.7528	1	43	10.4690
Internal Promotion (IP)	0.6869	0	1	0.4640
External Directorships (ED)	0.7239	0	4	0.7780
Social Networking Prestige (SNP)	0.5409	0	1	0.4990

**4. CEO Attributes Indexes**

	Mean	Min.	Max.	Std. deviation
Traits Index (TI)	0.7652	0.2500	1.0000	0.1942
Skills and Experiences Index (SEI)	0.2208	0.0000	0.5714	0.1460
Networking Index (NI)	0.5581	0.0000	1.0000	0.2721
Optimism Index (OI)	0.5147	0.1667	0.8095	0.1375

<b>Panel C: Control Variables</b>				
<b>1. Firm Level Data</b>				
	Mean	Min.	Max.	Std. deviation
<b>i. Tax</b>				
Taxes (£'000)	242,726	-547,000	2,956,000	428,228
• Tax-loss carried forward (TLCF) (dummy)	.04012	0.0000	1.0000	0.1964
• Tax rate (TAXR)	0.2870	-3.3333	7.3444	0.5479
<b>ii. Financial Constraints</b>				
Operating Income (£'000)	959,270	-6,260,000	8,982,000	1,639,286
• Internal Fund (IF)	0.1260	-0.0350	0.5537	0.0671
• Leverage (LEV)	0.2478	0.0000	1.6724	0.1612
• Market to Book Value (MTB)	3.534	-540.14	202.32	30.2556
• Profitability (PRO)	0.0999	-0.5144	0.6354	0.0849
<b>iii. Contracting cost</b>				
• Tangibility (TANG)	0.2524	0.0005	0.8943	0.2193
• Firm Size (FS)	15.3042	11.7324	18.9613	1.3433
<b>iv. Uniqueness</b>				
• Research and Development (R&D) (£'000)	204,625	0.0000	3,810,000	605,658
• Uniqueness (UNIQ) (dummy)	0.5040	0.0000	1.0000	0.5003
<b>v. Corporate Governance</b>				
• Proportion of Non-executive Directors (N-ED)	0.6380	0.0000	0.8947	0.1470
• Board Size (BS)	11.27	5	20	2.7740
<b>2. Macroeconomic Factors</b>				
	Mean	Min.	Max.	Std. deviation
Log GDP (GDP)	14.1043	13.8026	14.2938	0.1484
Log Stock Market Return (SMR)	8.5827	8.2371	8.7560	0.1583
Consumer Confidence Indicators (CCI)	-10.0247	-21.3500	-1.8800	7.2088

This study employs 623 observations; as Table 3.8 shows, the CEO's average age is 52.39 years. Only a small number of female CEOs head UK FTSE firms. Our sample comprises 93.74% male CEOs, 68.37% of UK nationality and most married (only 5.29% of the CEOs are single). In terms of CEO skills and experiences, 19.26% of the CEOs hold an MBA degree and 10.27% hold a PhD. Only 2.08% are also a founder of the firm; 41.89% possess

financial knowledge. On average, the CEOs have worked as CEO for 5.9 years. Only 2.4% of them hold the position of chairman simultaneously. On average, CEOs receive pay equivalent to 0.53% of the firm's total asset value. In terms of CEO networking ties, the average CEO has worked with the firm for 14.75 years and 68.69% have been internally promoted to become CEO, while, 55.85% of the CEOs in our sample hold external directorships and 54.09% of them have networking prestige.

For firm level data, we include tax, financial constraints, contracting cost, firm uniqueness, and corporate governance and industries dummy to control for the conventional determinant of corporate leasing. For macroeconomics factors, we also include GDP, stock market return, and consumer confidence indicators (CCI).

#### 3.4.2 Correlation Coefficients

Table 3.9 shows the correlations between our dependent variables and independent variables. Panel A shows that the three propensities-to-lease measurements: Total Lease Share (TLS), Finance Lease Share (FLS), and Operating Lease Share (OPLS), are significantly positively correlated with each other. As a major proportion of a firm's total lease share made up by the firm's operating lease, the TLS and OPLS are highly correlated at  $R = 0.968$ . In the case of CEO personal traits (age, gender, nationality, and marital status); the CEO's age is negatively, though non-significantly, correlated with all the propensity-to-lease measurements. CEO gender (male) is significantly negatively correlated with the use of lease and non-UK nationality CEOs, while the status (married) of CEOs is positively correlated with finance lease employment.

In the case of CEO skills and experiences, CEOs' education background (holder of MBA or PhD) shows significant negative correlations with finance lease and total lease share. Founder CEOs exhibit a significant positive correlation with OPLS and TLS. CEOs who are financially literate are found to have significant positive correlations with the employment of all type of leases. A CEO's duality status is significantly negatively correlated with OPLS. Tenure as CEO is significantly positively correlated with TLS and OPLS, but significantly negatively correlated with FLS. CEO emoluments show a significant positive relationship with all types of leasing propensity. In the case of CEO networking ties, tenure with the firm exhibits a negative correlation with all type of leases, while internally promoted CEOs show a significant negative correlation with FLS, and CEOs who have external appointments tend to have a significant positive correlation with FLS. Lastly, CEOs who have social networking prestige (such as holding fellowships and professional memberships, or being a recipient of a knighthood) exhibit significant positive correlations with TLS and OPLS.

Panel C presents the correlations between conventional corporate leasing determinants and the firms' propensity-to-lease. TLS shows a significant positive correlation with tax-loss carried forward. This implies that the firm with tax loss is more likely to use finance leases more. Furthermore, firms with less internal funds are found to significantly correlate with higher OPLS and TLS. For the relationship between leasing propensity and leverage, the correlation results show that OPLS and TLS are significant negatively correlated with debt ratio, which shows that the relationship between operating lease and total lease used by the firm and the firm's debt ratio are in a substitution relationship. Firm profitability is found to have significant negative correlations with OPLS and TLS; firms making less profit are more likely to have higher operating leases and total leases.

Tangibility, firm size and firm uniqueness are found to have significant negative correlations with all types of lease (TLS, FLS and OPLS); smaller firms, fewer tangible assets, and firm with research and development expenses are more likely to use less lease financing. Corporate governance exhibits significant negative correlations with OPLS and TLS; firms with a smaller proportion of non –executive directors on the board will tend to have more operating leases and total leases. In the case of macroeconomic factors, GDP is found to have significant positive correlations with OPLS and TLS, while CCI shows significant negative correlations with OPLS and TLS.

Our correlation coefficient results show that most of the explanatory variables we examine are significantly correlated with the dependent variables – propensity-to-lease (total lease share, operating lease share, and finance lease share). This implies that CEO personal attributes have a significant impact on corporate leasing decisions. We therefore carry out univariate and multivariate analyses to further examine how, and to what extent CEO personal attributes influence firms' leasing decisions.

**Table 3.9**  
**Correlations**

**Panel A: Correlations among dependent variables and explanatory variables**

	FLS	OPLS	TLS	Age	Gen	Nat	MS	MBA	PhD	FOU	FL	DUA	TCEO	EMO	TWF	IP	ED	SNP
FLS	1																	
OPLS	.090**	1																
TLS	.326***	.968***	1															
Age	-.025	-.037	-.041	1														
Gen	-.259***	-.128***	-.179***	.033	1													
Nat	-.099**	.025	.004	-.011	.138***	1												
MS	.067*	-.040	-.026	.213***	.012	-.018	1											
MBA	-.075*	.018	.007	-.009	.126***	-.272***	-.092**	1										
PhD	-.116***	-.041	-.068*	.178***	.022	-.168***	-.106***	.143***	1									
FOU	-.064	.222***	.203***	.261***	.038	.099**	-.007	.299***	-.049	1								
FL	.083**	.181***	.195***	-.076	-.116***	.172***	-.151***	-.109***	-.116***	.172***	1							
DUA	.047	-.081**	-.058	.083**	.041	.039	-.007	-.050	.119***	-.023	-.006	1						
TCEO	-.113***	.277***	.243***	.320***	-.005	.200***	.002	.036	-.034	.516***	.173***	.045	1					
EMO	.296***	.228***	.276***	-.116***	-.344***	-.031	-.010	-.085**	.028	-.077*	-.116***	.124***	.011	1				
TWF	-.143***	-.070*	-.104***	.204***	.188***	.235***	.114***	-.074*	-.062	.101**	-.125***	-.080**	.350***	-.127**	1			
IP	-.151***	.021	-.020	-.059	.326***	.166***	.140***	.075*	-.125***	.099**	.026	-.120***	.116***	-.145**	.621***	1		
ED	.110***	.022	.050	.265***	-.151***	.020	-.013	-.010	.168***	.081**	.184***	.164***	.195***	.070*	-.018	-.160***	1	
SNP	-.041	.081**	.076*	.030	-.052	.184***	-.022	-.056	.068*	.134***	.358***	.103**	.232***	-.165**	.044	-.004	.108***	1

\*, \*\*, \*\*\* denote that the correlation is significant at the 10%, 5% and 1% level respectively.

**Panel B: Correlations among dependent variables and indexes**

	FLS	OPLS	TLS	TI	SEI	NI	CEOOI
TI	-.085**	.013	-.004	1			
SEI	-.020	.265***	.254***	-.040	1		
NI	-.133**	.051	.018	.188**	.244**	1	
CEOOI	-.135***	.134***	.100**	.581***	.496***	.835***	1

**Panel C: Correlations among dependent variables and control variables**

	FLR	OPLS	TLS	TLCF	TAXR	IF	MTB	LEV	PRO	TANG	FS	UNIQ	CG	GDP	SMR	CCI
TAXR	-.043	-.043	-.051	-.079**	1											
IF	.017	-.183***	-.170***	-.037	.043	1										
MTB	-.037	-.018	-.029	-.014	-.010	.021	1									
LEV	-.011	-.139***	-.134***	-.007	.020	.391***	-.014	1								
PRO	.007	-.096**	-.093**	-.276***	.007	.770***	.087**	.171***	1							
TANG	-.088**	-.345***	-.350***	.066*	-.024	.140***	-.056	.052	.040	1						
FS	-.070*	-.299***	-.298***	.048	.024	-.216***	-.010	.104***	-.221**	.021	1					
UNIQ	-.140***	-.326***	-.352***	-.075*	.021	.002	.019	-.086**	.025	-.242***	.126***	1				
CG	-.008	-.076*	-.079**	.011	.020	.066	-.034	.149***	.024	-.286***	.338***	.216***	1			
GDP	.033	.154***	.153***	.043	-.033	.045	-.028	.085**	.031	-.075*	.243***	-.048	.346***	1		
SMR	.013	-.004	-.003	-.027	-.120***	.000	.005	.045	.048	-.006	.085**	.010	.041	.206***	1	
CCI	.040	-.131***	-.115***	-.074*	-.037	.017	.070*	-.043	.052	.057	-.237***	.013	-.262***	-.672***	-.090**	1

\*, \*\*, \*\*\* denote that the correlation is significant at the 10%, 5% and 1% level respectively.

### 3.4.3 Univariate Analyses

Table 3.10 presents the results of the univariate analysis for lease employment by CEOs groups in terms of their Personal Traits (age, gender, nationality, marital status); Skills and Experiences (holder of MBA or PhD, firm founder, financially literate, duality, tenure as CEO, and emoluments), and Networking (tenure with the firm, internal promotion, external directorships, and social networking prestige).

The compare means results show that younger CEOs tend to use a higher total lease share (TLS) of 0.3919 compared to older CEOs (0.3527). Female CEOs tend to use a higher lease share than male CEOs; female CEOs employ 0.5267 of total lease share, while male CEOs' average total lease share is 0.3617. Identical results are found for the compare medians analysis. The compare medians results also finds significant differences in total lease share depending on nationality (UK nationality CEOs are found to employ higher total lease compare with their counterparts). The younger, UK nationality CEOs are found to be more likely to use leases and this is consistent with an optimistic and risk-taking approach, as mentioned by Heaton (2002), who posited that optimistic managers believe that the market undervalues their firm, so they are reluctant to issue new equity to finance their investment. Graham, Harvey and Puri (2013) mentioned that younger CEOs and home country nationality CEOs are more risk taking and optimistic.

The univariate results for total lease share, operating lease share and finance lease share show that female CEO tend to have higher lease ratios compared to male CEOs. This result may support the argument that females are more risk averse. Additionally, from accounting disclosure approach, whereby a lease is treated as a low risk security and has off-balance sheet treatment in the case of an operating lease. The compared univariate

results show that females are more likely to use more lease compare to males, however we also noted that this result is not conclusive as the number of females in our study is much lower than the males.

The compare means and compare medians analysis also show that married CEOs tend to employ a significantly higher finance lease ratio compare to single status CEOs. Grinblatt and Keloharju (2009) and Puri and Robinson (2007), mention that married people are more self-confident hence they may have higher confidence in the firm's future earnings and be unwilling to share them with new equity holders; thus married CEOs may be reluctant to issue new equity to finance new assets, and prefer to choose lease financing.

Based on the univariate analyses and the significant differences in the use of lease by CEOs age, gender, and nationality in the UK firms, we may conclude that a CEO's personal traits may have a significant influence on the firm's leasing decisions.

In the case of CEOs' skills and experiences, we find significant differences in total leases used by CEOs depending on their status as PhD holders and firm founders, their financial literacy, duality status, length of tenure as CEO, and level of emoluments. PhD holders and CEOs with duality status are found to have lower mean lease employment while CEOs who are also firm founders and have financial knowledge, longer tenure, and higher pay tend to have higher lease employment. CEOs who have worked as CEO for a longer period in the firm show significantly higher usage of total leases and operating leases. Significant differences in means and medians are also found in the case of finance leases; shorter tenure CEOs tends to have higher use of finance leases. Interestingly, CEOs who

are financially literate and have higher emoluments are consistently found to have a higher propensity to lease (TLS, FLS and OPLS).

The results of univariate analyses in Panel C shows that CEOs who have networking prestige (fellowships, professional memberships, and awarded knighthoods) tend to have higher total lease use compared with CEOs who have no networking prestige. However, compare medians results for total lease shows that CEOs who were not internally promoted tend to have higher lease employment compared with internally promoted CEOs. Identical results for social networking prestige and internally promoted CEOs are found for finance leases and operating leases.

CEOs who work for fewer years (shorter tenure) with the firm are found to have higher finance lease use compared to CEOs who work longer years with the firm. There is no significant difference in lease employment between CEOs who have external directorship appointments and those who have no outside directorships. In the case of networking ties, social networking prestige and internal promotion are factors that show significant differences in CEOs' employment of leases, whereby CEOs with social networking prestige tend to have higher use of all type of lease and CEOs who are not internally promoted tend to have higher use of TLS, FLS, and OPLS leases.

Panel D presents the univariate analysis for lease decision and indexes (Traits Index, Skills and Experiences Index, Networking Index, and Optimism Index). CEOs with a higher Traits Index (TI) score are found to have higher employment of total leases but lower employment of finance leases. The Skills and Experiences Index (SEI) shows a significant difference in the use of total leases and operating leases, whereby CEOs with

a higher SEI score tend to use higher total leases and higher operating leases. The Networking Index (NI) only shows a significant difference in the case of FLS; CEOs with a lower NI score tend to have higher finance lease employment. Lastly, the CEO Optimism Index (OI) shows significant differences as regards FLS and OPLS; CEOs with lower OI scores show higher lease employment in FLS, while CEOs with higher OI scores show higher operating lease employment. This implies that optimistic CEOs prefer to rent an asset than purchase it.

**Table 3.10**  
**Univariate Results**

In the case of univariate analysis, we use compare means and compare medians to examine the lease employment by different groups of CEO, namely CEO Personal Traits (age, gender, nationality, marital status), CEO Skills and Experiences (holder of MBA or PhD, firm founder, financially literate, duality, tenure as CEO, and emoluments), and CEO Networking (tenure with the firm, internal, external directorships, and social networking prestige)

<b>Panel A: CEO Personal Traits</b>														
		N	<b>Total Lease Share</b>				<b>Finance Lease Share</b>				<b>Operating Lease Share</b>			
			mean	Sig. diff.	media n	Sig. diff.	mean	Sig. diff.	media n	Sig. diff.	mean	Sig. diff.	media n	Sig. diff.
Age	Younger CEO	307	0.3919	**	0.3677	**	0.0495		0.0101		0.3618	**	0.3056	*
	Older CEO	316	0.3527		0.3007		0.0417		0.0137		0.3265		0.2705	
Gender	Male	584	0.3617	***	0.3071	***	0.0396	***	0.0111	**	0.3366	***	0.2744	***
	Female	39	0.5267		0.5798		0.1349		0.0328		0.4531		0.5316	
Nationality	UK nationality	426	0.3725		0.3155	*	0.0395	**	0.0093	***	0.3477		0.2713	**
	Non-UK nationality	197	0.3708		0.3141		0.0585		0.0155		0.3357		0.2967	
Marital Status	Married	590	0.3708		0.3128		0.0475	**	0.0137	***	0.3415		0.2747	
	Single	33	0.3929		0.3921		0.0100		0.0037		0.3864		0.3921	

<b>Panel B: CEO Skills and Experiences</b>														
		N	<b>Total Lease Share</b>				<b>Finance Lease Share</b>				<b>Operating Lease Share</b>			
			mean	Sig. diff.	media n	Sig. diff.	mean	Sig. diff.	media n	Sig. diff.	mean	Sig. diff.	media n	Sig. diff.
MBA holder	Holder	120	0.3752		0.5432		0.0318	*	0.0258		0.3519		0.5083	**
	Non-holder	503	0.3712		0.5624		0.0488		0.0480		0.3420		0.5206	
PhD holder	Holder	64	0.3272	*	0.3758		0.0149	***	0.0124		0.3173		0.3632	*
	Non-holder	559	0.3771		0.3125		0.0490		0.0126		0.3470		0.2748	
Founder status	Founder	13	0.6821	***	0.6846	***	0.0065	***	0.0000	*	0.6799	***	0.6783	***
	Non-founder	610	0.3654		0.3123		0.0464		0.0129		0.3367		0.2750	
Financial literacy	Financially literate	261	0.4232	***	0.4137	***	0.0542	**	0.0171	***	0.3910	***	0.3528	***
	Non-financially literate	362	0.3351		0.2810		0.0393		0.0092		0.3099		0.2569	
Duality	As chairman and CEO	15	0.2889	**	0.3042		0.0722		0.0572		0.2305	**	0.2573	
	CEO post only	608	0.3740		0.3162		0.0449		0.0123		0.3467		0.2876	
Tenure as CEO	Longer tenure	264	0.4017	***	0.3464		0.0385	*	0.0086	***	0.3785	***	0.3163	
	Shorter tenure	359	0.3501		0.3097		0.0507		0.0152		0.3184		0.2715	
Emoluments	Higher pay	256	0.4316	***	0.4553	***	0.0531	*	0.0088	*	0.4011	***	0.3960	***
	Lower pay	367	0.3304		0.2717		0.0402		0.0150		0.3040		0.2300	

<b>Panel C: CEO Networking</b>													
		N	<b>Total Lease Share</b>			<b>Finance Lease Share</b>				<b>Operating Lease Share</b>			
			mean	Sig. diff.	media n	Sig. diff.	mean	Sig. diff.	media n	Sig. diff.	mean	Sig. diff.	media n
Tenure with the Firm	Longer Tenure	278	0.3663		0.3029		0.0321		0.0063	***	0.3476		0.2509
	Shorter Tenure	345	0.3766		0.3498		0.0563	***	0.0160		0.3409		0.2946
Internal promotion	Internally promoted	428	0.3690		0.3025	**	0.0365	***	0.0089	***	0.3470		0.2577
	Newly recruited	195	0.3785		0.3586		0.0654	***	0.0185		0.3371		0.3000
External directorships	With external appointment	348	0.3728		0.3207		0.0475		0.0137		0.3433		0.2918
	No external appointment	275	0.3710		0.3074		0.0430		0.0103		0.3447		0.2777
Social networking prestige	With networking prestige	337	0.3875	*	0.3531		0.0422		0.0149	*	0.3603	**	0.2944
	No networking prestige	286	0.3537		0.3059		0.0494		0.0086		0.3245		0.2750

<b>Panel D: CEO Personal Attributes Indexes</b>													
		N	<b>Total Lease Share</b>			<b>Finance Lease Share</b>				<b>Operating Lease Share</b>			
			mean	Sig. diff.	media n	Sig. diff.	mean	Sig. diff.	media n	Sig. diff.	mean	Sig. diff.	media n
Traits Index (TI)	High TI	185	0.3869		0.3649	**	0.0344	**	0.0074	**	0.3654		0.3291
	Low TI	438	0.3656		0.3065		0.0502		0.0140		0.3348		0.2753
Skills and Experiences Index (SEI)	High SEI	309	0.4291	***	0.4495	***	0.0465		0.0112		0.4015	***	0.3921
	Low SEI	314	0.3157		0.2572		0.0445		0.0140		0.2871		0.2226
Networking Index (NI)	High NI	258	0.3712		0.2993		0.0364	**	0.0087	**	0.3491		0.2576
	Low NI	365	0.3725		0.3399		0.0519		0.0144		0.3402		0.2959
CEO Optimism Index (OI)	High OI	295	0.3821		0.3162		0.0370	**	0.0090	**	0.3597	*	0.2853
	Low OI	328	0.3628		0.3146		0.0531		0.0147		0.3296		0.2856

\*, \*\*, \*\*\* denote significant at the 10%, 5% and 1% level respectively.

### 3.4.4 Multivariate Analyses

#### *3.4.4.1 Firm and Macroeconomics Leasing Determinants*

The conventional leasing determinants play an important role in corporate leasing decisions. Table 3.11 shows that financial constraints (internal fund and growth opportunity) do significantly influence firms' leasing decisions; financially constrained firms are more likely to use leases, a result consistent with that of Eisfeldt and Rampini (2009). In the case of contracting cost, we find that firms with fewer tangible assets and smaller firms are more likely to use leases, supporting Sharpe and Nguyen's (1995) viewpoint of information asymmetries; smaller firms are more likely to face higher costs for obtaining external funds, hence smaller firms may choose to lease when facing high external funding costs.

Furthermore, firm uniqueness also exhibits a significant negative relationship with total lease; firms with research and development are less likely to use leases. Our result is consistent with that of Smith and Wakeman (1985), who suggest that firms are less likely to use lease financing for highly specific assets in order to avoid conflict and agency cost between lessor and lessees. In the case of macroeconomic factors, we find that GDP is positively correlated with firm leasing decisions. This implies that when the economy grows, firms will tend to use more leases. The possible reason for this is that during better economic conditions, leasing firms (lessors) can make better leasing contract offers, resulting in lessees taking up more lease contracts.

In our baseline model, total lease share and operating lease share show an  $R^2$  of 0.5682 and 0.5629 respectively. This implies that the determinants in our baseline model have

the power to explain the employment of total lease and operating lease. The low R<sup>2</sup> (0.0828) in the finance lease share baseline model may indicate that finance lease employment may have a different set of determinants.

**Table 3.11**  
**Firm and Macroeconomics Leasing Determinants: Baseline Model**

This table examines the determinants of corporate leasing decisions using OLS regression analysis using 623 observations from the period 2000 to 2013. The dependent variables are Total Lease Share (TLS), Finance Lease Share (FLS) and Operating Lease Share (OPLS). Year and industry effects are included. Our regression is based on our Model I:  $CLD_{i,t} = \alpha + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$ , in which Z is the vector of control variables (firm, and macroeconomic factors and industries dummies). T statistics are reported in parentheses and \*, \*\*, \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

	Panel A: Total Lease Share	Panel B: Finance Lease Share	Panel C: Operating Lease Share
c	-1.8148** (-2.28)	-0.7771* (-1.68)	-1.4527* (-1.84)
Tax Loss Carried Forward	0.0409 (1.24)	0.0550*** (2.87)	0.0033 (0.10)
Internal Fund	-0.6565*** (-3.93)	0.0320 (0.33)	-0.7270*** (-4.39)
MTB	-0.0003* (-1.70)	-0.0001 (-1.18)	-0.0002 (-1.24)
Leverage	0.0284 (0.63)	-0.0251 (-0.96)	0.0487 (1.10)
Profitability	-0.0367 (-0.29)	0.0381 (0.52)	-0.0499 (-0.40)
Tangibility	-0.4180*** (-13.24)	-0.0636*** (-3.46)	-0.3861*** (-12.31)
Firm Size	-0.0599*** (-10.95)	-0.0033 (-1.03)	-0.0614*** (-11.30)
Uniqueness	-0.1990*** (-14.31)	-0.0162** (-2.00)	-0.1934*** (-13.99)
Corporate Governance	-0.0720 (-1.44)	-0.0227 (-0.78)	-0.0485 (-0.98)
GDP	0.2534*** (4.42)	0.0597* (1.79)	0.2267*** (3.98)
Stock Market Return	-0.0116 (-0.30)	0.0092 (0.41)	-0.0137 (-0.35)
CCI	-0.0017 (-1.55)	0.0013** (2.12)	-0.0026** (-2.40)
Industry dummies	Yes	Yes	Yes
Adjusted R <sup>2</sup>	0.5682	0.0828	0.5629
Observations	623	623	623

#### *3.4.4.2 CEO Personal Attributes and Corporate Leasing Decisions*

Table 3.12, Panel A, appears to indicate that the CEO personal traits youth, male gender, UK nationality and married status show positive relationships with firm's total lease financing, although the results are not significant. These results do, however, provide us an intimation of a plausible relationship between CEOs' possession of optimistic traits (younger, male, UK nationality, and married) and the employment of lease financing. Female gender in CEOs shows a significant positive correlation with finance lease employment, while male gender in CEOs exhibits a significant positive correlation with operating lease share. This implies that, in asset investment, male CEOs prefer to rent an asset while female CEOs prefer to have an option to buy the asset at the end of the lease contract.

In the case of CEO skills and experiences, Table 3.12 Panel B, shows that CEOs who are MBA or PhD holders tend to use more leases; a significant positive relationship is found between educational background (MBA, PhD) and employment of operating lease and total lease. CEOs with founder status are found to have significant negative correlation with employment of finance leases, but do, however, exhibit a positive relationship with the use of operating lease financing. CEOs with duality status are found to have a negative relationship with total leases and operating leases used, which implies that CEO who are also the firm's chairman at the same time are less likely to use lease financing. Firm founder CEOs and CEO with longer tenure are found to have a positive, yet non-significant relationship with lease employment. CEOs who possess financial knowledge and CEOs who receive higher pay than average tend to use more leases as reported in Panel B, Table 2.13.

**Table 3.12**  
**CEO Personal Attributes and Corporate Lease Decisions**

This table examines the relationship between CEO personal traits (age, gender, nationality, and marital status), CEO skills and experiences (educational background, founder status, financial literacy, duality, tenure as CEO and emoluments), and networking ties (tenure with the firm, internally promoted, external directorships, and social networking prestige) with firm corporate leasing decisions using OLS regression analysis. There are 623 observations from the period, 2000-2013. The dependent variables are Total Lease Share (TLS), Finance Lease Share (FLS) and Operating Lease Share (OPLS). Year and industry effects are included. Our regression is based on Model II:  $CLD_{i,t} = \alpha + \beta_{pa} \sum CEO\_Personal\_Attributes_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$ . T statistics are reported in parentheses and \*, \*\*, \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

	<b>Panel A: Corporate Leasing Decisions and CEO Personal Traits</b>			<b>Panel B: Corporate Leasing Decisions and CEO Skills and Experiences</b>			<b>Panel C: Corporate Leasing Decisions and CEO Networking</b>		
	Total Lease Share (TLS)	Finance Lease Share (FLS)	Operating Lease Share (OPLS)	Total Lease Share (TLS)	Finance Lease Share (FLS)	Operating Lease Share (OPLS)	Total Lease Share (TLS)	Finance Lease Share (FLS)	Operating Lease Share (OPLS)
c	-1.7645** (-2.17)	-0.8201* (-1.77)	-1.3832* (-1.72)	-1.1261 (-1.43)	-0.7159 (-1.62)	-0.7820 (-0.99)	-1.6992** (-2.15)	-0.7554* (-1.66)	-1.3568* (-1.73)
Tax Loss Carried Forward	0.0407 (1.23)	0.0534*** (2.83)	0.0040 (0.12)	0.0500 (1.56)	0.0441** (2.48)	0.0184 (0.57)	0.0368 (1.12)	0.0517*** (2.74)	0.0010 (0.03)
Internal Fund	-0.6600*** (-3.93)	0.0153 (0.16)	-0.7201*** (-4.34)	-0.7915*** (-4.87)	-0.0272 (-0.29)	-0.8333*** (-5.14)	-0.6728*** (-4.05)	-0.0163 (-0.17)	-0.7127*** (-4.32)
MTB	-0.0003* (-1.69)	-0.0001 (-1.18)	-0.0002 (-1.23)	-0.0003* (-1.81)	-0.0001 (-1.33)	-0.0003 (-1.30)	-0.0003* (-1.65)	-0.0001 (-1.16)	-0.0002 (-1.19)
Leverage	0.0225 (0.49)	-0.0074 (-0.28)	0.0324 (0.72)	0.0424 (0.98)	-0.0160 (-0.66)	0.0584 (1.35)	0.0391 (0.87)	-0.0089 (-0.34)	0.0487 (1.09)
Profitability	-0.0247 (-0.19)	0.0320 (0.44)	-0.0322 (-0.25)	-0.0399 (-0.32)	-0.0198 (-0.29)	-0.0252 (-0.20)	-0.0221 (-0.17)	0.0964 (1.32)	-0.0729 (-0.58)
Tangibility	-0.4176*** (-13.10)	-0.0550*** (-3.02)	-0.3903*** (-12.38)	-0.3709*** (-11.54)	-0.0565*** (-3.15)	-0.3436*** (-10.72)	-0.4210*** (-13.01)	-0.0771*** (-4.13)	-0.3804*** (-11.82)
Firm Size	-0.0591*** (-10.63)	-0.0030 (-0.95)	-0.0608*** (-11.04)	-0.0491*** (-7.25)	0.0195*** (5.15)	-0.0625*** (-9.25)	-0.0623*** (-11.24)	-0.0022 (-0.69)	-0.0644*** (-11.69)
Uniqueness	-0.2036*** (-13.70)	-0.0052 (-0.61)	-0.2050*** (-13.94)	-0.1838*** (13.01)	-0.0151* (-1.91)	-0.1779*** (-12.62)	-0.1981*** (-13.90)	-0.0086 (-1.05)	-0.1977*** (-13.94)
Corporate Governance	-0.0684 (-1.34)	-0.0465 (-1.59)	-0.0316 (-0.62)	-0.0886* (-1.78)	-0.0305 (-1.10)	-0.0630 (-1.27)	-0.0897* (-1.78)	-0.0513* (-1.77)	-0.0480 (-0.96)
GDP	0.2643*** (4.56)	0.0672** (2.03)	0.2348*** (4.09)	0.1878*** (3.27)	0.0301 (0.93)	0.1756*** (3.06)	0.2498*** (4.40)	0.0602* (1.83)	0.2232*** (3.95)

Stock Market Return	-0.0109 (-0.28)	0.0089 (0.40)	-0.0126 (-0.33)	-0.0125 (-0.33)	0.0107 (0.51)	-0.0152 (-0.41)	-0.0130 (-0.34)	0.0092 (0.41)	-0.0150 (-0.39)
CCI	-0.0018 (-1.61)	0.0013** (2.05)	-0.0027** (-2.46)	-0.0015 (-1.35)	0.0015** (2.39)	-0.0024** (-2.26)	-0.0018 (-1.58)	0.0013** (1.96)	-0.0026** (-2.35)
Age	-0.0652 (-1.15)	0.0032 (0.09)	-0.0726 (-1.30)						
Male CEO	0.0123 (0.43)	-0.0735*** (-4.59)	0.0560** (2.01)						
UK Nationality	0.0072 (0.51)	-0.0122 (-1.53)	0.0145 (1.04)						
Married CEO	0.0209 (1.06)	0.0111 (0.99)	0.0185 (0.95)						
MBA holder				0.0337** (2.04)	-0.0091 (-0.98)	0.0333** (2.02)			
PhD holder				0.0358* (1.74)	-0.0322*** (-2.81)	0.0599*** (2.92)			
Firm Founder				0.0545 (1.08)	-0.0683** (-2.43)	0.0984* (1.95)			
Financial Literacy				0.0729*** (5.55)	0.0256*** (3.49)	0.0597*** (4.56)			
Duality				-0.1015** (-2.57)	0.0189 (0.85)	-0.1296*** (-3.30)			
Tenure as CEO				0.0041 (0.51)	-0.0110** (-2.49)	0.0093 (1.17)			
Emoluments				0.0487*** (3.68)	0.0671*** (9.11)	0.0147 (1.12)			
Tenure with the firm							-0.0223** (-2.32)	-0.0131** (-2.35)	-0.0152 (-1.58)
Internal Promotion							0.0280 (1.40)	-0.0104 (-0.90)	0.0374* (1.88)
External Directorships							0.0021 (0.26)	0.0127*** (2.73)	-0.0063 (-0.79)
Social Networking Prestige							0.0482*** (3.75)	0.0043 (0.57)	0.0451*** (3.53)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R <sup>2</sup>	0.5671	0.1169	0.5656	0.6013	0.2198	0.5932	0.5776	0.1176	0.5710
Observations	623	623	623	623	623	623	623	623	623

Overall, most of the skills and experiences variables that we use in this study, except CEO duality status, show a positive relationship with corporate lease employment. This implies that CEOs who have more skills and experiences tend to use more leases to lower the firm's risk as they are aware of the benefit of leasing to mitigate the cost of debt.

Table 3.12 Panel C provides the regression results for CEO networking ties and corporate leasing decisions. The results show that CEOs who work for longer with the firm are less likely to use leases, holding social networking prestige (e.g., a CEO's professional memberships, fellowships, knighthoods, trusteeships) shows a significant positive relationship with the use of corporate leases. This may be because a CEO who has social networking prestige has easier access to information and resources and is able to obtain better deals for leasing financing contracts. Additionally, internal promotion, and outside directorship appointments in CEOs show non-significant positive relationships with lease employment.

In summary, we may conclude that a CEOs personal attributes (traits, skills and experiences, and networking) do influence firm corporate leasing decisions. CEO skills and experiences have the highest explanatory power in corporate leasing decisions (with a  $R^2$  of 0.6013), specifically, the MBA holder CEOs, PhD holder CEOs, CEOs with financial knowledge, and CEOs who receive higher pay tend to use more leases in their financing decisions.

#### *3.4.4.3 CEO Personal Attribute Index and Corporate Leasing Decisions*

Table 3.13, Panel A, shows the results of the investigation of three indexes (TI, SEI, and NI), and their relationship with total lease employment (model III). We observe a significant positive relationship between CEO Skills and Experiences Index (SEI) with the firm's Total Lease Share (TLS). This result is consistent with our model II result (Panel B, Table 3.12) which suggests that the skills and experiences variables have the highest contribution in explaining corporate leasing decisions.

In model IV, we amalgamate the three indexes into a CEO Optimism Index (CEOOI). Total lease results show that CEOOI is significantly positively correlated with firm leasing decisions. This supports our hypothesis that optimistic CEOs are more likely to use leases. Optimistic managers tend to consider that the market undervalues their firm, and they are reluctant to issue shares to finance new assets (Heaton, 2002). When managers are optimistic about future investment outcomes, they prefer to finance the project with debt financing rather than equity, as they are unwilling to share the potential profits with new equity holders (Gombola & Marcuikaityte, 2007).

**Table 3.13**

**Regression Results for Personal Attributes Indexes and Corporate Leasing Decisions**

The table presents the regression result for three-lease propensity (Total Lease Share, Finance Lease Share, and Operating Lease Share). Model III in this study is Baseline with and Traits index (TI), Skills and Experiences Index (SEI), and Networking Index (NI), while Model IV is the baseline amalgamating the three indexes into the CEO Optimism Index (CEOOI). Our regressions are based on: Model III  $CLD_{i,t} = \alpha + \beta_{TI}TI_{i,t} + \beta_{SEI}SEI_{i,t} + \beta_{NI}NI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon$ , and Model IV:  $CLD_{i,t} = \alpha + \beta_{OI}CEOOI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$ . T statistics are reported in parentheses and \*, \*\*, \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

	Panel A: Total Lease Share		Panel B: Finance Lease Share		Panel C: Operating Lease Share	
c	-1.6861** (-2.14)	-1.8036** (-2.28)	-0.7776* (-1.68)	-0.7837* (-1.70)	-1.3234* (-1.70)	-1.4376* (-1.84)
Tax Loss Carried Forward	0.0475 (1.45)	0.0481 (1.46)	0.0507*** (2.65)	0.0508*** (2.66)	0.0125 (0.38)	0.0129 (0.40)
Internal Fund	-0.7099*** (-4.30)	-0.6544*** (-3.94)	0.0271 (0.27)	0.0307 (0.31)	-0.7748*** (-4.74)	-0.7242*** (-4.42)
MTB	-0.0003* (-1.79)	-0.0003* (-1.77)	-0.0001 (-1.12)	-0.0001 (-1.12)	-0.0002 (-1.35)	-0.0002 (-1.33)
Leverage	0.0338 (0.75)	0.0133 (0.29)	-0.0148 (-0.56)	-0.0161 (-0.62)	0.0473 (1.06)	0.0282 (0.64)
Profitability	-0.0546 (-0.44)	-0.0460 (-0.36)	0.0432 (0.59)	0.0436 (0.60)	-0.0710 (-0.57)	-0.0625 (-0.50)
Tangibility	-0.3875*** (-11.92)	-0.4022*** (-12.60)	-0.0721*** (-3.77)	-0.0729*** (-3.93)	-0.3506*** (-10.89)	-0.3647*** (-11.56)
Firm Size	-0.0550*** (-9.56)	-0.0606*** (-11.12)	-0.0024 (-0.73)	-0.0028 (-0.91)	-0.0575*** (-10.09)	-0.0623*** (-11.58)
Uniqueness	-0.1936*** (-13.75)	-0.2035*** (-14.60)	-0.0128 (-1.55)	-0.0135* (-1.67)	-0.1904*** (-13.66)	-0.1994*** (-14.49)
Corporate Governance	-0.0683 (-1.36)	-0.0514 (-1.02)	-0.0359 (-1.22)	-0.0349 (-1.20)	-0.0366 (-0.74)	-0.0207 (-0.41)
GDP	0.2334*** (4.12)	0.2469*** (4.33)	0.0627* (1.88)	0.0635* (1.91)	0.2053*** (3.66)	0.2179*** (3.87)
Stock Market Returns	-0.0112 (-0.29)	-0.0101 (-0.26)	0.0082 (0.37)	0.0083 (0.37)	-0.0125 (-0.33)	-0.0116 (-0.30)
CCI	-0.0015 (-1.38)	-0.0016 (-1.51)	0.0013** (2.10)	0.0013** (2.08)	-0.0024** (-2.25)	-0.0026** (-2.36)
TI	0.0292 (0.86)		-0.0249 (-1.25)		0.0418 (1.24)	
SEI	0.1992*** (4.32)		-0.0143 (-0.52)		0.1996*** (4.38)	
NI	-0.0048 (-0.18)		-0.0285* (-1.90)		0.0161 (0.63)	
CEOOI		0.1260*** (2.73)		-0.0748*** (-2.79)		0.1705*** (3.74)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R <sup>2</sup>	0.5805	0.5728	0.0903	0.0931	0.5785	0.5721
Observations	623	623	623	623	623	623

Leases used by a firm can be categorised as one of two different types: finance lease and operating lease. Table 3.13, Panel B shows the results of regression between finance leases and the three indexes (TI, SEI, and NI). It appears that CEOs who have more networking ties are less likely to use finance leases. The CEO Optimism Index (OI) shows a significant negative relationship with Finance Lease Share (FLS), which implies that optimistic CEOs tend to use less finance leases. Finance leases offer an option to buy at the end of the contract, and an optimistic CEO might not require such an option. Optimistic CEOs are confident of their own decisions; if they think the asset may potentially generate positive outcomes and can be used for future projects, they might just buy the asset.

In the case of operating leases, the results, reported in Panel C, are identical to those for total lease; a CEO with higher skills and experiences level is more likely to use more leases and when we compose our Optimism Index, the results show that optimistic CEOs tend to use more operating leases. The high correlation between operating leases and total leases may explain the Total Lease Share (TLS) and Operating Lease Share (OPLS) exhibiting similar results, - whereby the firms' use of total leases is heavily influenced by the use of operating leases.

The Optimism Index results provide support for our hypothesis that CEO optimism does have a positive relationship with corporate leasing decisions, although when we examine the CEO personal attributes (age, gender, nationality, marital status, skills and experiences, and social networking ties) individually our results show inconsistent effects of CEO personal attributes on corporate leasing decisions. However, we believe that human attributes should be examined from a wider perspective, and that amalgamating

all the attributes as one, may give us a better understanding of the effect on CEOs' behaviour.

Our CEO Optimism Index comprises CEO personal traits (younger, male, UK nationality and married), CEO skills and experiences (MBA or PhD holder, firm founder, financial literacy, duality status, longer tenure as CEO, and higher emoluments), and CEO networking ties (longer tenure with the firm, internally promoted, holding external directorships, and with social networking prestige). The combination of all these CEO attributes is shown to positively significantly influence firms' corporate leasing decisions (Total Lease Employment).

The reason why younger, male, UK nationality and married CEOs use more leases is because CEOs with these traits are more prone to show optimistic behaviour as proven in the literature and also confirmed by our own results (chapter two). Furthermore, we believe that CEOs with more skills and experiences will tend to have an increased likelihood of becoming optimistic, as all of these positive skills and experiences qualities will provide them with knowledge and dominance/ power in their management decision-making.

Additionally, those who have more skills and experiences will be more likely to use leases, which can help lower the firm's overall risk and mitigate the agency cost of debt. Furthermore, we also believe that the longer a person works with the same firm, the stronger his/her relationship with the board and employees. Since they have persevered for a longer period with the firm, we expect them to possess very good communication and negotiation skills. The reason for allowing a CEO to hold an outside appointment is

that the board believes that such an appointment can broaden a CEO's experience and knowledge, and thus benefit the group. Masulis and Mobbs (2011) show that when a firm's director holds outside directorships, it improves the firm's performance. Therefore, we believe that a CEO who has external appointments and more social networking prestige (such as holding professional fellowships and having been awarded official honours) will have more information about financing and investing opportunities that can benefit the firm he/she works with.

#### *3.4.4.4 Additional Robustness Test*

We employ Cosci, Guida and Meliciani's (2013) method as an additional test in examining the relationship between leasing and debt financing. We regress the debt ratio with leasing, and find that they are significantly negatively correlated. This implies a substitution relationship between debt and lease, which is consistent with the results of Adedeji and Stapleton (1996), who also find a substitution relationship for debt and lease in UK firms. Our results are reported in Appendix IV.

Furthermore, we also examine the relationship between the employment of debt and CEO optimism, and we find that UK firms' optimistic CEOs are more likely to employ debt<sup>42</sup>, a result consistent with that of Gombola and Marcuikaityte (2007), who mention that optimistic managers are confident about future investment outcomes, and hence prefer to finance projects with debt financing to avoid sharing the potential profits with any new equity holders. In short, our results show that optimistic CEOs are more likely to employ debt financing and leasing.

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<sup>42</sup> The result for CEO optimism and debt employment is attached in Appendix V.

To further investigate the optimistic CEOs' financing preferences and in order to find out whether optimistic CEOs prefer debt over lease, we calculate the Lease-Debt ratio. Based on the results obtained (Appendix VI), we find that CEO optimism has a significantly negatively relationship with lease-debt ratio, which implies that the increment in the CEO's optimism level will lead to higher debt employment rather than increments in leases. This finding may indirectly show that optimistic CEOs prefer debt employment. This result may be consistent with Adedeji and Stapleton's (1996) suggestion that in a lease agreement the lessor will retain the ownership and bear the ownership cost. Hence, lessors may charge lessees higher costs in order to cover the costs they bore. This perspective suggests that a firm may prioritise taking debt over leasing and will consider using a lease only when they have utilised their debt capacity.

Although our results show that optimistic CEOs may prefer debt financing rather than leasing, by looking at the high lease ratio (an average of 37.19% of a firm's total capital cost, while debt ratio is 24.78%) employed by firms, we conclude that lease financing is very important for UK firms as different types of asset may require different financing sources/choices. For example, a firm may prefer to finance the purchase of computer software by leasing, and might prefer debt financing to finance office furniture.

### **3.5 Conclusion**

We would like to highlight a few important trends discovered from this study. The first is the growth and development of the global leasing market, especially in the UK; the steady growth trend in the use of leases as an alternative financing resource in the UK market, as reported in the World Leasing Yearbook (White Clarke Group Global Leasing Report 2015). Secondly, our study also detects an upward trend in the employment of

leases, especially operating leases, by the UK firms. The average total lease share increased from 28.92% in 2000 to 40.40% in 2013.

Thirdly, we find that UK firms tend to use more operating leases than finance leases. Continuing existing studies on the determinants of corporate leasing decisions, we obtained results of an examination of CEOs' personal attributes that affect their firm's leasing decisions that suggest that CEO traits, skills and experiences, and networking do influence the firm's employment of leases. Using the traits, skills and experiences, and networking index, we find that optimistic CEOs tend to use more lease financing, which may be due to their optimistic belief that the market undervalues their firm and so they are reluctant to issue shares to finance new asset and they are optimistic about future profits and unwilling to share them with new equity holders. Hence, they prefer to finance their assets by lease (a type of corporate debt).

We find that optimistic CEOs in the UK FTSE 100 tend to use more leases. The employment of a lease is a good mechanism to avoid the potential conflicts that might arise between debt holders and shareholders. In this situation, optimistic CEOs actually help the firm to mitigate agency cost of debt and lower the firm's overall risk.

Looking beyond the lease employment from lessee firm's perspective, this study also has an implication for the leasing market (lessor). Lessors can use a CEO's optimism perspective as a selling point (as optimistic CEOs are the ones who have higher levels of skills and experiences, and stronger networking) to promote their leases and convince their clients to use leases in their firms in order to lower the firm's risk and mitigate the agency cost of debt. This will indirectly help the development and growth of the UK

leasing market, in which the leasing firm (lessor) can offer a wide range of lease assets that can be tailored to meet firms' (lessees') needs. Leasing decisions can be a part of asset management policy. Leasing can help avoid the retention of idle assets resulting from wasteful asset purchases. Leasing provides firms with the right to use an asset and an option to buy (finance lease), hence firms can manage their assets more precisely and efficiently. Due to the fast growth of technology, lessee firms can also benefit from offers of compatible future technical innovations from lessors.

## **Chapter 4: CEO Personal Attributes and Corporate Hedging Decisions**

### **4.1 Introduction**

Corporate hedging policies mainly aim to establish the strategies to offset or protect a firm's transactional risk exposure. The strategies that are commonly used are borrowing or lending in different currencies, commit into forwards, futures, or options contracts; and also swaps utilisation to switch assets/liabilities with other parties (Megginson, Smart & Gitman, 2007). Due to market imperfections, derivatives are one of the financial strategies or tools that firms use to manage their financial risks; foreign currency risk, interest rate risk, and commodity risk (Belghitar, Clark & Mefteh, 2013). As Judge (2006) mentioned, if the capital market were perfect, then corporate hedging would not add any value to the firm.

Beber and Fabbri (2012) study corporate speculation in the foreign exchange market, and mention that CEO personal characteristics are an empirically important determinant of a large range of corporate decision and policy making. Iqbal (2015) suggests that CEO age and education are two important attributes that may impact corporate hedging decisions. He finds that CEO age does explain the use of financial derivative instruments in the US oil and gas industry.

Firms may experience an adverse change in the value of their cash flow as a result of exchange rate movement. No firm can escape facing exchange rate risk. Even if the firm operates in one country in only one currency, they are still exposed to exchange rate risk if their products compete with importers' products in the home market or if their production input requires imported goods or services.

Chapter four of this thesis focuses on the impact of CEO personal attributes on his/her firm's corporate hedging decisions. Our study sample is the UK FTSE 100 firms. These large firms are highly exposed to market risk and therefore corporate hedging is an important risk management decision<sup>43</sup>. An understanding of the current trends and developments in the derivatives market and how it works may help us to have a clearer picture as to why and how firms hedge their financial risk.

#### 4.1.1 Contribution

Our study contributes to the existing literature in three ways. Firstly, we examine more CEO characteristics in our study than in similar studies. Few studies have looked into “who” (personal attributes) tends to use hedging instruments - to our knowledge, only two US studies look at CEO attributes' relationships with hedging decision: Iqbal (2015) studies the US oil and gas industry's hedging decisions relationships with CEO characteristics (age, college degree holder and educational institutions attended) while Beber and Fabbri (2012) examine US non-financial firms' relationships between corporate speculation in the foreign exchange market and CEO characteristics (age, MBA holder and working experiences). We believe that there are more attributes that do influence corporate hedging decisions; for example CEO financial knowledge, firm founder and duality status, and also their networking ties. Hence, our study contributes significantly to the existing literature by examining corporate hedging decisions from the perspective of a wider range of CEOs' personal attributes, providing a linkage between CEO traits, skills and experiences, and networking and CEOs' hedging preferences. Our study also tries to relate the CEOs' personal attributes to social psychology, management

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<sup>43</sup> For types of derivatives instrument that available in the UK derivatives marker, refer Appendix VII

and existing finance theory, in order to understand the attitude of optimistic CEOs towards firm risk and how such CEOs deal with the risk.

Secondly, our study extends and complements the existing studies on UK firms' corporate hedging. Existing corporate hedging studies in the UK mainly focus on firm characteristics, for instance, Judge (2006) and Clark and Judge (2009) study UK non-financial firms' hedging decisions by looking at the firms' foreign currency derivatives (user and non-user) and the type of instruments the firms used. Our study extends the existing UK studies in two ways. Firstly, we extend the hedging measurement from measurement of dichotomous variables to measurement of magnitude variables, for which we manually collected the total amount of derivatives used by the firm. Secondly, we fill in a gap by examining the influence of CEO personal attributes on corporate hedging decisions in the UK firms. Few researchers have studied corporate hedging in the UK market, most of the corporate hedging studies having been based on the US market. As by the Bank of England (2013) reported, the UK has one of the most active derivatives market, hence, we believe that it is worthwhile to understand UK firms' hedging decisions. Our study will help shed light on the managers' personal characteristics perspective, in addition to controlling for conventional firm characteristics and market conditions.

Thirdly, the data that we used in this study were mainly manually collected from firms' annual reports. This unique data set will be useful to give us a clearer picture of hedging decisions by UK firms. The lack of studies in the UK may be because the collection of derivatives data is time consuming. Au Yong, Faff and Nguyen (2011) find that a variety of previous research studied only the use of derivatives or foreign debt as hedging

instruments, but, they suggest, in reality, firms tends to use various types of hedging instruments to hedge their financial risks. Motivated by Au Yong, Faff and Nguyen, therefore, we studied a more comprehensive range of hedging strategies that firms employ to manage their risk. Our study complements the current literature by looking at UK firms' corporate hedging decisions. The unique data set provides us with a more comprehensive measurement of hedging, and we employ broader measurements, as below:

- i. The traditional approach using dichotomous variables measurement for “hedge or non-hedge firm” and using logistic regression (Iqbal, 2015).
- ii. The additional approach adopted from Au Yong, Faff & Nguyen (2011), of ordered probit regression to examine a number of different types of derivative contracts (Judge, 2006).
- iii. A third measure - the degree of hedging (financial hedge ratio), using the fair value of total derivatives used by the firm. Beber and Fabbri (2012) use currency derivatives notional amounts and claim that they are the first to use this measurement.

#### 4.1.2 Research Objectives

The existing literature still lacks a full-fledged theory which associates CEO personal characteristics with corporate hedging decisions (Beber & Fabbri, 2012). A better understanding of the influence of a CEO's personal attributes toward firm hedging policies can help us to identify the profile of the CEOs with regard to their hedging preferences.

Additionally we also examine the influence of CEO personal attributes on hedging decisions during a calm economic period (2000 to 2006) and during a period of global

financial crisis<sup>44</sup> (2007 to 2013). Hence, this study aims to address the following research questions:

1. Do the CEO's personal attributes influence the firm's hedging decisions?
2. To what extent do the CEO's personal attributes affect the magnitude of hedging in the firm?
3. Do the CEO's personal attributes influence the type of contract used ('co-ordinated' corporate hedging strategy)? and
4. Does the impact of CEO personal attributes vary across different types of period (calm and global financial crisis)?

## **4.2 Literature Review**

Empirical studies by Carter, Rogers and Simkins (2006) and Allayannis and Weston (2001) suggest a positive relationship between hedging and firm value. As Belghitar, Clark and Mefteh, (2013) mention, derivatives create shareholder value by reducing the 'bad' exposures to provide an increase in average returns. Additionally, Chen and King (2014) outline the benefit of hedging - they mention that hedging can help to smoothen firms' performances by lowering cash flow and income volatility. Guay and Kothari (2003) suggest based on the risk management theory, that firms' cash flow volatility, growth opportunities and financial distress are the incentives for firms to hedge.

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<sup>44</sup> "UK economy is highly exposed to foreign economic developments due to its trade and financial openness. And given the major world events that have occurred since 2007, the global economy has been an important influence on UK output and inflation over the recent past. These events include the global financial crisis in 2007-2008, severe gyrations in global commodity prices over 2008-11 and, since 2010, and the euro-area crisis." (Chawla, Qualietti & Rachel, 2014)

Guay and Kothari (2003) study 234 large non-financial US firms and find that the corporate derivatives the firms used were a relatively small piece of the firms' overall profiles. In addition to examining the conventional incentives for a firm to hedge (cash flow volatility, growth opportunities and leverage), they also included firm size, segment diversification and geographic diversification to capture the contracting-related reasons. They posit that large, diversified firms may result in managers' demands for more derivatives for hedging purposes.

Kim, Mathur and Nam (2006) study operational hedging and financial hedging by 424 US firm from 1996 to 2000. They defined the operationally hedged firms as firms with foreign sales, and non-operationally hedged firms as firms with export sales. In the case of financial hedging, they used the total notional amount of currency and interest rates derivatives use (forwards, futures, options, and swaps). Their results showed that hedging increases a firm's value, and suggested that operational hedging is effective in managing long-term economic exposure, while financial hedging is effective for short-term transaction exposure. They further concluded that operational hedging and financial hedging are important in firms' risk management strategies.

Au Yong, Faff and Nguyen (2011) study the association between Australian listed companies' characteristics and the use of a corporate hedging strategy. Their sample period is 1999 to 2000, and the sample comprises 239 firms in 1999 and 230 firms in 2000. In their study they categorise the derivatives into foreign currency derivatives (FCD), interest rate derivatives (IRD), commodity derivatives (CD), and foreign debt (FD). Using the ordered probit method they find that firm size, leverage and block holding are positively correlated with hedging decisions, while executive shareholding shows a

negative relationship with firm hedging decisions. Their results support the 'scale economies' hypothesis and 'financial distress cost' hypothesis in their study. Their study mainly focuses on firm characteristics (firm size, leverage, market to book ratio, liquidity, current ratio, and dividend yield), however, we also notice that some managerial characteristics were included in the study: executives' shares, executives' options, block holding. This may show that the researchers also recognised the importance of managerial characteristics in corporate hedging decisions.

More recently, Iqbal (2015) studies hedging decisions by US oil and gas firms in relation to two CEO attributes, age and educational background, using logistic regression. Categorising the CEOs into hedger and non-hedger, they find that CEO age does explain the use of financial derivatives in the oil and gas industry; the hedger CEOs are younger than the non-hedger CEOs. The study also find that there is a difference between CEOs holding petroleum-related degrees and those holding business degrees CEO, whereby the former are better represented (higher percentage) in the hedge group. He concludes that CEO attributes do play a significant role in corporate hedging decisions.

Another study that investigates the relationship between CEO attributes and corporate hedging was carried out by Beber and Fabbri (2012). They study large US non-financial firms between 1996 and 2001, and find that younger CEOs, MBA degree holder CEOs, and CEOs with less previous working experience tend to speculate more (use more derivatives). They view the use of derivatives as having a speculation motive which implied risk-taking behaviour. They conclude that their finding is consistent with the idea of managerial overconfidence - overconfident managers taking more risks.

In studies in the UK, Judge (2006) use mixed data (from surveys and collected from annual reports) to examine UK firms' rationales for corporate hedging. He finds a strong relationship between a firm's hedging decision and its expected financial distress cost; larger firms, cash rich firms, high probability of financial distress firms, export or import firms, and firms with more short-term debt tend to hedge with derivatives. The sample firms comprises the 500 largest UK companies listed on the London Stock Exchange in 1995. Using the same sample, Clark and Judge (2009) distinguish between short-term hedge and long-term hedge. They suggest that short-term hedge is aimed to hedge exposure caused due to export activity and the derivatives used are foreign currency forwards, options, and futures. The long term hedge, on the other hand, is used to hedge exposure arising from assets being located in foreign locations, and the derivatives for long-term hedge are foreign currency debt, and foreign currency swaps (with longer-term horizons). They use multinomial logit to estimate the likelihood of using different derivatives. They indicate the user of foreign currency swaps as a long-term hedger, and show that it is important to distinguish between long-term and-short term exposure as different types of derivatives serve different purposes.

#### 4.2.1 Motives for Corporate Hedging

Several rationales for hedging have been discussed in the literature. Rationales include minimising corporate tax liabilities (Smith & Stulz, 1985; MacMinn, 1987), reducing bankruptcy cost/financial distress (Smith & Stulz, 1985; Guay & Kothari, 2003; Judge, 2006; Chen & King 2014), mitigation of agency cost of debt (Judge, 2006; Chen & King 2014), and lowering the level of information asymmetry (Judge, 2006; Chen & King 2014).

#### *4.2.1.1 Minimise Corporate Tax Liability*

Smith and Stulz (1985) suggest that hedging can lower the expected tax liability; the more convex the corporate tax function, the greater incentives for a firm to hedge. However, Judge (2006) mentioned that tax incentives may not be particularly attractive in the UK market as the progression range of the UK corporate tax structure is relatively small; most of the listed firms have pre-tax beyond the progressive range which they are facing a linear form tax function. Hence, he conclude that in the UK market a motive for hedging based on tax is rather weak. Hence, we exclude tax as our control variable in this study.

#### *4.2.1.2 Reduce Bankruptcy Cost/ Reduce the Expected Cost of Financial Distress*

Judge (2006) and Chen and King (2014) suggest that hedging can help reduce the cost of bankruptcy or the expected cost of financial distress. Smith and Stulz's (1985) study on the determinants of hedging policies suggest that hedging can help to reduce the volatility of a firm's cash flow, thus lowering the expected financial distress cost. When a firm's cash flow is highly volatile, there is more risk of financial distress.

#### *4.2.1.3 Lower Agency Cost of Debt / Ameliorate Conflicts of Interest between Shareholders and Bondholders*

According to Judge (2006), a firm that hedges can effectively commit to meet its obligations, therefore such a firm can expand its debt capacity to finance new projects. Additionally, Chen and King (2014) suggest that hedging can help address underinvestment problems by reducing the likelihood of poor states occurring and, on the other hand, hedging can encourage a firm to invest in value-enhancing projects. Hence

hedging eases the conflicts between shareholders and bondholders and lowers the cost of debt.

#### *4.2.1.4 Lower Level of Information Asymmetry*

Chen and King (2014) posit that firms with hedging instruments tend to lower the level of information asymmetry. By hedging, a firm can reduce its cash flow volatility, making cash flow become more predictable. Chen and King mentioned that if the firm's cash flow is stable hence the bondholder may demand a lower rate of return as the default risk is lower. Hedging helps to improve the co-ordination between financing and investment policy, whereby a firm can have lower financing cost and provide more capital for investment projects.

#### 4.2.2 CEO Personal Attributes and Corporate Hedging Decisions

We examine in this study the effect of CEO personal attributes on their corporate hedging decisions. Specifically, we classify CEO attributes into three categories; CEO personal traits (age, gender, nationality, and marital status), CEO skills and experiences (educational background, firm founder, financial literacy, duality, tenure as CEO, and emoluments), and CEO networking ties (tenure with the firm, internal promotion, external directorships, and social networking prestige).

Beber and Fabbri (2012) point out the importance of personal characteristics for corporate risk management. A few approaches may explain the relationship between CEO personal attributes and corporate hedging decisions. We list here the related theories/approaches that may help us investigate which CEOs are more likely to use hedging as a mechanism to manage corporate risk.

#### *4.2.2.1. Managerial Risk Aversion Hypothesis*

In corporate risk management, hedging is used as a tool to manage firm risk. Hence, CEOs who take up more hedging strategies can be considered as showing risk-averse behaviour. Based on our CEO risk taking traits (younger, male, UK nationality and married CEOs) if the use of hedging instruments is classified as risk aversion, then we may expect younger, male, UK nationality and married CEO to be less likely to employ hedging strategies. Thus, we may expect a negative relationship between ‘risk taking’ in CEOs and their corporate hedging decisions.

#### *4.2.2.2. Value Enhancing Hypothesis*

The benefits of hedging have been widely addressed in the literature; empirical research suggests that hedging can help firms mitigate agency cost of debt, reduce bankruptcy cost, and lower level of information asymmetry. Smith and Stulz (1985) suggest that hedging can help firms to reduce cash flow volatility and therefore lower the expected financial distress cost. Graham and Rogers (2002) claim that hedging increase firm debt capacity and they prove that hedging adds firm value. Chen and King (2014) suggest that hedging may lower cost of debt by mitigating underinvestment and risk-shifting problems. Chen and King also mention that hedging lowers a firm’s information asymmetry; hedging can reduce cash flow volatility, hence making cash flows more predictable and result in bondholders demanding a lower rate of return (lower cost of debt).

If the rationales or motivations for hedging can add value to a firm, we may expect that a CEO with a high level of skills and experiences and stronger networking will tend to use more hedging instruments to lower his/her firm’s risk and maximize the firm’s value.

#### *4.2.2.3 Power Approach and Risk Taking*

A third approach can potentially explain the relationship between CEO personal attributes (especially skills and experiences and networking ties). A CEO who has more skills and experiences, and stronger networking ties, tends to have more power in the firm. There are two different perspectives on the relationship between power and risk taking behaviour. According to the Prospect Theory proposed by Kahneman and Tversky (1979), an individual with low power might be more likely to take risk, as they will try any available opportunity to help them out from the disadvantage of their situation as they have less to lose. Hence, from this perspective, powerless people are more risk taking, and we may expect them to be less likely to use hedging in their firm.

On the other hand, the Approach/Inhibition Theory proposed by Anderson and Galinsky (2006) states that power increases with optimism, and hence an increase in the propensity to take risks. They argue that when people have power, they can more easily obtain material sources (financial, physical comforts) and social resources (prestige, positive attention). This approach is in line with the power-influence approach of French and Raven (1959). From this perspective, a powerful CEO may be less likely to hedge.

#### *4.2.2.4 CEO Optimism Hypothesis*

Scheinert (2014) studies managerial optimism and hedging and outlines the plausible reason for a negative or positive relationship between CEO optimism and hedging. The first idea is based on the suggestion of Malmendier, Tate and Yan (2011) who showed that optimistic managers tend to view external financing as costly, and hence are expected to rely more on internal funds. Thus, in order to avoid raising capital from external

funding, optimistic CEOs are more likely to hedge their internal cash flow. Beber and Fabbri (2012) explain the relationship between optimism and hedging in a different way, their suggestion being based on Heaton's (2002) and Malmendier and Tate's (2005) ideas; optimistic CEOs systematically overestimate the probability of good outcomes resulting from their actions. Optimistic CEOs are more aggressive and more risk taking, hence such CEOs may actively become involved in the foreign exchange market as a part of their corporate risk management strategy. From this perspective, optimism in CEOs is expected to have positive relationship with their corporate hedging decisions.

Conversely, Scheinert (2014) also suggests a possible negative relationship between CEO optimism and corporate hedging decisions. According to Scheinert, the optimistic CEO overestimates future cash flows, and thus underestimates the risk that the firm may become unable to meet its obligations. The underestimation of risk may result in the firm's financial distress. Hence, if the optimistic CEO underestimates the financial distress cost and is less concerned about cash flow volatility in the firm, that may put the firm into insolvency, and so such CEOs may be less likely to use hedging.

Alsubaie (2009) studies the relationship between CEO overconfidence/optimism and hedging decisions in US firms. He used insider transaction data to proxy CEO optimism and finds that CEO optimism exhibits positive yet non- significant relationship with the firm's usage of currency derivative instruments. Additionally, he also finds a positive significant support for the usage of interest rate derivatives with CEO optimism. The results obtained contradicted the author's expectation. Alsubaie expected that optimistic CEOs would be less likely to engage in derivatives usage as previous literature suggested

that optimistic managers are more likely to predict the occurrence of positive future outcomes and undervalue the risk.

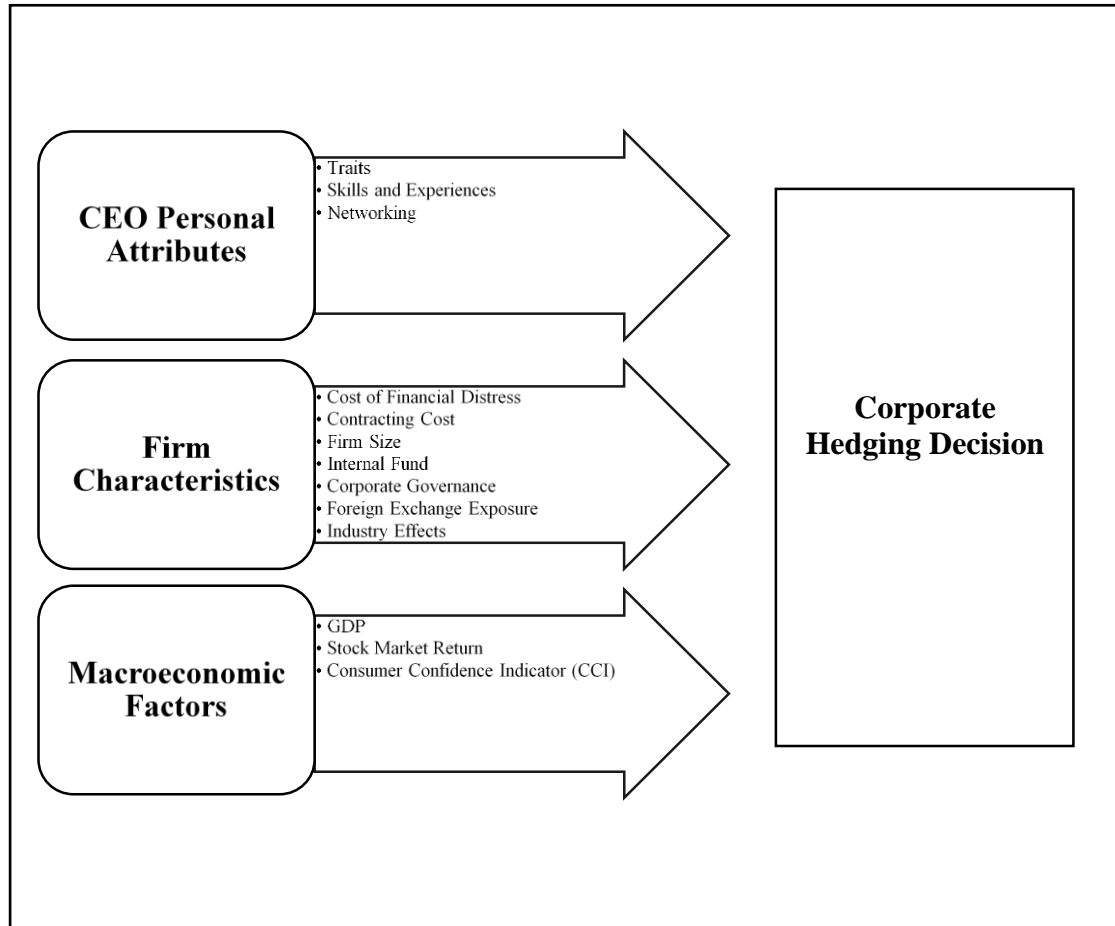
Adam, Fernando and Golubeva (2015) study managerial overconfidence/optimism and corporate derivatives engagement for 92 North American gold mining firms. They find that MO<sup>45</sup> is positively correlated with financial derivatives usage. Adam, Fernando and Golubeva report that past derivatives gains tend to increase MO and losses do not reduce MO. They suggest that their findings are inconsistent with the rationale of risk management theories. However, the overconfidence hypothesis may explain this behaviour, as managers incorporate their private market views into hedging decisions and become more confident following past derivatives gain (speculative success), and hence become more aggressive in engaging in a financial hedging strategy. Adam, Fernando and Golubeva also suggest that managerial behaviour affects corporate risk management practices. Hence, recognising the presence of such behaviour can help in bridging the gap between corporate risk management theory and practice.

In summary, our study investigates the effect of CEO personal attributes on firm corporate hedging decisions. The framework for this research is summarised in Figure 4.1.

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<sup>45</sup>Their MO is measured by firm's acquisitiveness in the M&A market.

**Figure 4.1**  
**Research Framework for Third Empirical Chapter**



### **4.3 Data and Methodology**

This study examines the influence of CEO personal attributes on CEOs' corporate hedging decisions. The study period covers the years 2000 to 2013 and all financial hedging data were manually collected from annual reports. We exclude financial-related firms as these firms play a role as market makers and dealers in the derivatives market (Au Yong, Faff & Nguyen, 2011). We take note of the firm's purpose for using derivatives, because as Clark and Judge (2009) mention, it is important to identify the firms that disclose that the usage of derivatives is for hedging not for speculation in their

annual report. Firms report their use of derivatives in their annual report. Most of the firms report that they use derivative instruments to hedge against financial risk and that the corporate hedging decisions are mainly approved by the top management<sup>46</sup>.

For a robustness test we also exclude swaps contracts. Allayannis and Ofek (2001) and Beber and Fabbri (2012) mention that firms generally use swaps to translate foreign debt into domestic liabilities and do not hedge foreign sales, and firms swap FC debt into domestic debt (Allayannis, Brown & Klapper, 2003; Clark & Judge, 2009). Since our study focuses on CEOs and their hedging decision in the firm in specific years, a study of short-term horizon derivatives (FC forwards, Options and Futures) would be more theoretically appropriate. Swaps and foreign debt are used as a long term hedge (Clark & Judge, 2009); hence, we exclude swaps in our robustness test in order to observe any significant differences.

However, we noted that WPP plc 2004, in their annual report, stated that: “From time to time, the Group uses certain short-term derivative financial instruments to mitigate interest rate and foreign exchange rate risks.” and they employed only swaps contract (interest rate swaps, and cross currency swaps) in order to hedge the interest rate and exchange rate risk. This means that firms also use swaps contract to hedge their short-term financial risk, which contradicts Clark and Judge’s (2009) claim that Swap is for long-term hedge.

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<sup>46</sup> E.g., Anglo American PLC disclose in their 2002 annual report:

‘The Group utilises derivative and equity instruments to manage its exposure to fluctuations in foreign currency exchange rates, interest rates and commodity prices. The use of derivative instruments can give rise to credit and market risk....’

‘The use of derivative instruments is subject to limits and the positions are regularly monitored and reported on to senior management.’

#### 4.3.1 Dependent Variable

The dependent variable for this study is corporate hedging. We study the corporate hedging decisions from three perspective; firstly, the decision to hedge or not to hedge; secondly, the magnitude of hedging, and thirdly, the co-ordination of contract used.

##### Corporate Hedging Proxy 1: Hedge or Not-Hedge

To identify whether the UK firms employ hedging instrument or not in their firm, we adopt the measurement used by Chen and King (2014) by performing a keyword search for derivatives used in their annual reports.

Keywords searching process:

1. We search for the following words: currency, exchange, interest rates, commodity, hedge, hedging, derivative, currency exchange, swaps, forwards, futures.
2. When a keyword is found, we review the content in which the keyword appears and make sure the term is used for hedging purposes.
3. If we are able to confirm the use of derivatives in the firm, we assign Dummy 1 for a firm that hedges in a given year. If we fail to identify the use of any hedging instrument or the firm mentions in the annual report that they did not hedge, then the firm will be categorised as a non-hedger, which dummy zero will be assigned.

Although we may identify a hedge or not-hedge firm based on the reported derivatives used in our third measurement (magnitude of hedging), we still perform the keyword search to identify hedge or non-hedge firms, as there are firms which hedge but do not report their amount of hedging instruments' value.

### Corporate Hedging Proxy 2: The Magnitude of Hedging

The measurement of a firm's hedging magnitude is more complicated than the measurement of Proxy 1. Beber and Fabbri (2012) study US firms' hedging decisions using notional amounts of foreign currency derivatives outstanding at the end of the year to proxy the degree of derivative employment. In contrast to Beber and Fabbri's US study, we use fair value of the derivatives to examine hedging decisions by UK firms. The reason why we employ fair value instead of notional contract amount is that not many UK firms reported the notional value in their annual reports. However, majority of UK firms have started to report the fair value<sup>47</sup> of derivative in their balance sheet, starting in 2006, so the data for the years before this need to be extracted from the financial notes.

To maintain the consistency of our data, we choose to use the fair value of derivatives reported in firms' annual reports as our measurement of hedging magnitude. Hence, our study forms our derivatives data as follows: The total of derivatives used is the sum of current asset derivatives, non-current asset derivatives, current liabilities derivatives and non-current liabilities derivatives. Subsequently, we obtain the measurement of the magnitude of hedging by the total derivatives scaled by firm total assets.

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<sup>47</sup> Under International Financial Reporting Standard (IFRS), Financial Reporting Standard (FRS) 101, FRS 102 and FRS 26 all derivatives on the balance sheet are at their fair value even if they are counted for as a hedge. Example: Anglo American Plc, 2003: 'The adoption of IAS 32 and 39 (revised) will require all derivatives to be recognised on the balance sheet at fair value'.

### Corporate Hedging Proxy 3: Hedging Preferences

We follow Au Yong, Faff and Nguyen's (2011) and Chen and King's (2014) studies for this proxy, by collecting the number of types of derivatives used in a firm<sup>48</sup>. Au Yong, Faff and Nguyen mention that this measurement is a meaningful proxy of the application of a 'co-ordinated' corporate hedging strategy.

This measurement also uses the keyword search method, and we follow Clark and Judge's (2009) method in collecting the different types of derivative contracts. The reason we follow their measurement is because we are examining the same market, hence, using with the same measurement, we obtain results comparable result with those of Clark and Judge. For this method, we record the type of financial derivatives used by the firm. We search for the keywords of 'forwards', 'swaps', 'futures', and 'options' to identify the type of contract. The use of 'forwards', 'swaps', 'futures', and 'options' contracts is recorded for each firm in the sample for a given year, and dummy of '1' is assigned to the firm that has employed every single type of contract mentioned. Later a 'count' of the dummies will be performed to obtain a categorical and ordinal variable as the number of derivative contract types.

For this variable construction, we follow Au Yong, Faff and Nguyen's (2011) ordered probit method with a 'count' of the number of different types of derivatives, whereby, dummy zero is for non-users, dummy '1' for users of one type, dummy '2' for users of two types, dummy '3' for users of three types and dummy '4' for users of four types.

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<sup>48</sup> See Appendix VIII for an example of an annual report - section of derivative financial instruments & hedge accounting (Weir Group Plc's Annual Report 2013)

**Table 4.1**  
**Summary of Corporate Hedging Measurements Used in this Study**

<b>Variables</b>	<b>Measurement</b>
Hedge or non-hedge firm	Dummy variable that takes a value of 1 if the firm hedges in a given year, and zero otherwise.
Magnitude of hedging	Fair value of total derivatives used in the given year: <ul style="list-style-type: none"> <li>i. Total Derivatives/ Total Asset</li> <li>ii. Total Derivative excluding Swaps/ Total Asset (robustness test)</li> </ul>
Number of types of derivative used	‘Count’ of number of different types of derivative contracts used (‘forwards’, ‘options’, ‘futures’, and ‘swaps’).

#### 4.3.2 Explanatory Variables

This study uses the same explanatory variable of CEO personal attributes (traits, skills and experiences, and networking) as the previous chapter. Additionally, we control for firm and macroeconomics hedging determinants as listed in Table 4.2.

**Table 4.2**  
**Firm and Macroeconomics Hedging Determinants as the Control Variables Used in this Study**

<b>Conventional Hedging Determinants</b>	<b>Measurement</b>	<b>Definition</b>	<b>Previous Studies</b>
Cost of financial distress	DEBT	Total debt/ Total assets	Kim, Mathur, & Nam, (2006); Beber and Fabbri (2012)

Reduction in underinvestment problem theory	Research and Development expenditure	R&D expenditures/ total assets	Kim, Mathur, & Nam, (2006); Clark & Judge, (2009); Beber and Fabbri, (2012)- robustness
	Growth	Capital expenditure /total assets	Beber and Fabbri (2012)
Firm size	Total assets	=logarithm of total assets	Iqbal (2005); Kim, Mathur, & Nam (2006);
Availability of internal funds	Cash ratio	Total cash and cash equivalents divided by total current liabilities	Clark & Judge, (2009)
	Dividend yield	Gross dividend divided by share price	Clark & Judge (2009); (Au Yong, Faff & Nguyen, (2011)
Corporate governance	Proportion of non-executive director/ Board size		
Foreign exchange exposure	Foreign sales/ total sales		Beber and Fabbri (2012)
Industry dummy/ industrial segment			Kim, Mathur, & Nam (2006)
Macroeconomic factors	GDP, Stock market Return, Consumer Confidence Indicator (CCI)		

#### 4.3.3 Regression Specification

To examine the relationship between CEO personal attributes (personal traits, skills and experiences, and networking) and corporate hedging decisions, we employ panel OLS regression analysis. We control for firm (conventional hedging determinants), macroeconomic factors and industry effects as our baseline Model I. We include CEO

personal attributes in Model II to observe the influence of CEO traits (age, gender, nationality, and marital status), skills and experiences, and networking ties on corporate hedging decisions. Subsequently, for Model III, we construct indexes based on the CEO personal attributes from three perspectives: CEO Personal Traits Index (TI), CEO Skills and Experiences Index (SEI), and CEO Networking Index (NI). These three indexes are amalgamated into the CEO Optimism Index (CEOOI) in order to observe an optimistic CEO's hedging preferences.

$$\text{Model I: } CHD_{i,t} = \alpha + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$$

$$\text{Model II: } CHD_{i,t} = \alpha + \beta_{pa} \sum CEO\_Personal\_Attributes_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$$

$$\text{Model III: } CHD_{i,t} = \alpha + \beta_{TI} TI_{i,t} + \beta_{SEI} SEI_{i,t} + \beta_{NI} NI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon$$

$$\text{Model IV: } CHD_{i,t} = \alpha + \beta_{OI} CEOOI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon$$

Whereby:

CHD	=	Corporate Hedging Decisions
CEO	=	CEO personal traits (age, gender, nationality, and marital status)
Personal Attributes	=	CEO Skills and Experiences (MBA or PhD holder, firm founder, financial literacy, duality, tenure as CEO, and emoluments)
	=	CEO Networking Ties (tenure with the firm, internal promotion, external directorships, and social networking prestige)
Z	=	Vector of Control Variables (firm, and macroeconomic factors and industry dummies)
TI	=	Traits Index
SEI	=	Skills and Experiences Index
NI	=	Networking Index
CEOOI	=	CEO Optimism Index

#### **4.4 Results and Discussion**

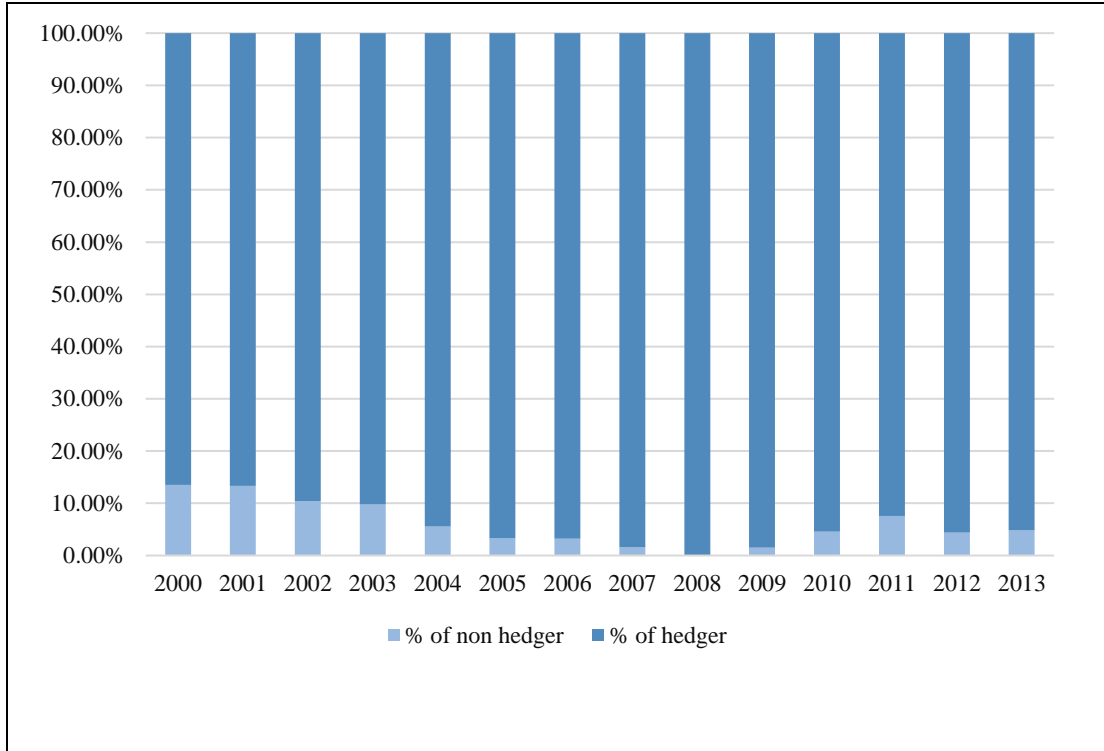
Based on the UK FTSE 100 firms in our sample, we find that the majority of UK firms are hedged; 95% of the firms in our sample use financial derivative instruments to hedge the firm's financial risk (foreign currency exchange, interest rate and commodity risk). As mentioned in the Bank of England's (2013) report, the UK has the most active derivatives market in the world and this well-developed derivatives market may provide UK firms with convenient access to employment of hedging instruments.

Figure 4.2 shows an interesting occurrence during 2008, a year during which all of the firms in our sample used financial derivative instruments. A possible reason of this phenomenon of firms being highly hedged may be the financial crisis of 2007, on which firms became more risk alert, and thus used more hedging mechanisms. Corporate hedging using derivative instruments exhibits an increasing trend of firms using financial derivatives from 2000 up to 2008, in which year all of the sample firms employed financial derivative instruments. However, after 2008, the average number of firms that employed financial derivatives decreased slightly, yet the non-hedgers comprise less than 8% of the total sample firms from 2009-2013<sup>49</sup>. We may conclude that the UK FTSE 100 firms were highly hedged during the period 2000 to 2013.

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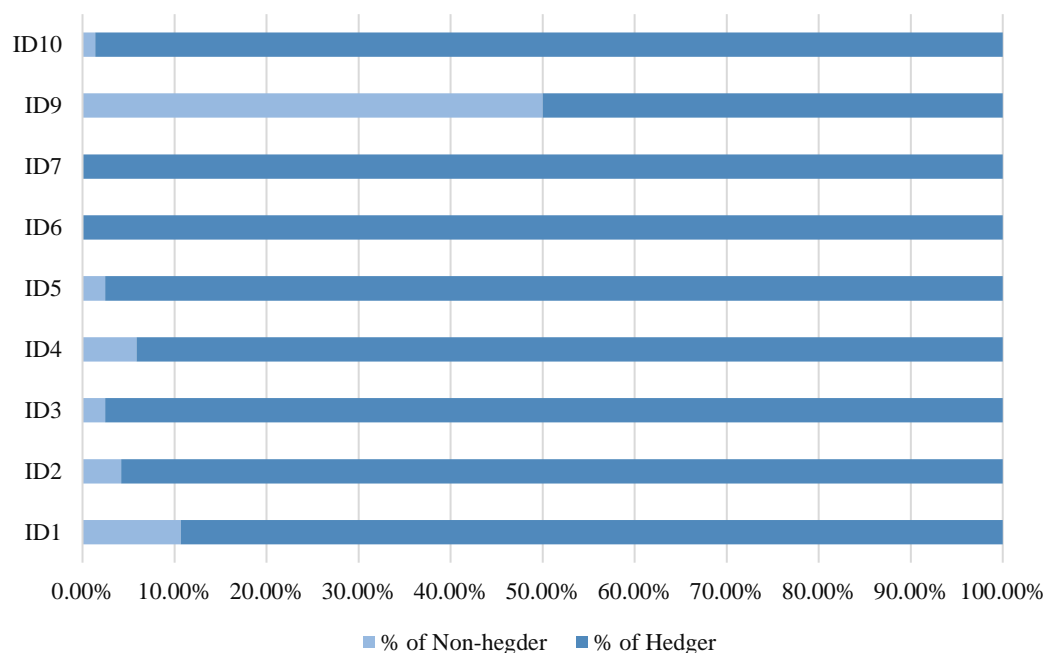
<sup>49</sup> The details of The FTSE 100 UK firms' financial hedging behaviour (2000 to 2013) are presented in appendix IX

**Figure 4.2**  
**The FTSE 100 UK Firms' Corporate Hedging Behaviour (2000 to 2013)**



In addition to looking at the hedging behaviour for the FTSE 100 UK firms by year, we also categorise our sample firms by industry in order to observe the corporate hedging decisions by industry, as shown in Figure 4.3. The computing equipment industry shows less use of financial derivative instruments; only half of the sample firms used derivatives to hedge. In contrast, we find all of the telecommunication and utilities firms used derivative instruments to hedge their financial risk.

**Figure 4.3**  
**The FTSE 100 UK Firms' Corporate Hedging Behaviour by Industry**



Industry classifications:

Industry Dummy	Sector
ID 1	Chemicals, Mining
ID 2	Aerospace & Defence, Construction & Materials, General Industrials, Industrial Engineering, Support Services
ID 3	Automobiles & Parts, Beverages, Food Producers, Household Goods, Personal Goods, Tobacco
ID 4	Health Care Equipment & Services, Pharmaceuticals & Biotechnology
ID 5	Food & Drug Retailers, General Retailers, Media, Travel & Leisure
ID 6	Fixed Line Telecommunications, Mobile Telecommunications
ID 7	Electricity, Gas, Water & Multi-utilities
ID 8	Banks, General Financial, Life Insurance, Non-life Insurance, Real Estate Investment Trusts
ID 9	Software & Computer Services, Technology Hardware & Equipment
ID 10	Oil & Gas Producers, Oil Equipment, Services & Distribution

Software, hardware and computer technology firms may use fewer financial derivatives because of the industry's fast changing technology which results in firms focusing on, and spending more on research and development (R&D). Such firms have more intangible assets compared to other industries so they are less likely to use derivatives.

Therefore, information technology firms invest more in R&D, hence most of their financing comes from venture capitalists rather than the debt market. Hence, hedging is therefore less.

Telco and utilities firms use more financial derivatives possibly because these firms are highly regulated, hence incur high operating leverage (fixed costs). Hedging helps firms to stabilise the cash flow to ensure they can meet their need to pay the fixed costs through debt financing. Furthermore, telco and utilities firms in the UK are in the mature stage of their business cycle. They need to maintain the stability to continue as main market players in the industry. Due to the need for huge capital investments, a firm may need to borrow internationally through the foreign bond market. Firms can maintain their stability and sustainability by employing hedging mechanism.

#### 4.4.1 Descriptive Statistics

From the summary statistics in Table 4.3, we observe that 95% of the firms used financial derivatives as their hedging tools, 91% of the firms in our sample hedged their foreign exchange risk by foreign currency derivatives (FCDs), 78% hedge interest rate risk by interest rate derivatives (IRDs) and 36% hedged commodity risk by commodity derivatives (CDs). Most of the firms chose to engage in forwards and swaps contracts: forwards (85%), and swaps (83%). Moreover, firms also used options and futures to meet their hedging needs: options (31%), and futures (13%). The firms in our sample hedged an average of 2.05 risk types and used an average of 2.12 types of derivatives contract.

**Table 4.3**  
**Summary Statistics**

The table presents the summary statistics for the variables used in this study. The study sample comprises the UK FTSE 100 firms from 2000 to 2013 (financial-related firms are excluded). The dependent variables are the Operational Hedging and Financial Hedging in Panel A. Panel B shows the explanatory variables used in this study (traits, skills and experiences, and networking). Panel C shows the control variables included in this study.

<b>Panel A: Dependent Variables</b>					
	N	Mean	Min.	Max.	Std. Dev.
Corporate Hedger (CH)	816	0.9500	0.0000	1.0000	0.2260
Foreign Currency Derivatives (FCDs)	816	0.9100	0.0000	1.0000	0.2890
Interest Rate Derivatives (IRDs)	816	0.7800	0.0000	1.0000	0.4160
Commodity Derivatives (CDs)	816	0.3600	0.0000	1.0000	0.4800
Total Type of Derivatives Used (TTDU)	816	2.0500	0.0000	3.0000	0.8070
Forwards Contract (FORC)	816	0.8500	0.0000	1.0000	0.3620
Options Contract (OPC)	816	0.3100	0.0000	1.0000	0.4620
Swaps Contract (SWC)	816	0.8300	0.0000	1.0000	0.3750
Futures Contract (FUC)	816	0.1300	0.0000	1.0000	0.3390
Total Type of Derivatives Contract Used (TTDCU)	816	2.1200	0.0000	4.0000	0.9910
Total Derivatives Used (£'000), Fair Value	816	708,482	0.0000	32,290,899	2,808,531
Total Derivative/ Total Assets (TDTA)	816	0.0277	0.0000	0.3329	0.0429

<b>Panel B: Explanatory Variables (CEO Attributes)</b>					
	N	Mean	Min.	Max.	Std. Dev.
<b>1. CEO Personal Traits</b>					
Age	816	52.6400	31.0000	77.0000	5.9080
Gender (GEN)	816	0.9500	0.0000	1.0000	0.2240
Nationality (NAT)	816	0.6500	0.0000	1.0000	0.4770
Marital Status (MS)	816	1.0100	0.0000	3.0000	0.3430
	N	Mean	Min.	Max.	Std. Dev.
<b>2. CEO Skills and Experiences</b>					
MBA	816	0.2000	0.0000	1.0000	0.3980
PhD	816	0.1300	0.0000	1.0000	0.3380
Founder (FOU)	816	0.0400	0.0000	1.0000	0.1910
Financial Literacy (FL)	816	0.4200	0.0000	1.0000	0.4940
Duality (DUA)	816	0.0400	0.0000	1.0000	0.2000
Tenure as CEO	816	6.0000	1.0000	29.0000	5.0660
Emolument (EMO)	816	0.0050	0.0000	0.1125	0.0088

<b>3. CEO Networking</b>					
Tenure with the Firm (TWF)	816	15.0800	1.0000	43.0000	10.6070
Internal Promotion (IP)	816	0.7200	0.0000	1.0000	0.4500
External Directorship (ED)	816	0.7900	0.0000	5.0000	0.8510
Social Networking Prestige (SNP)	816	0.5700	0.0000	1.0000	0.4950

<b>4. CEO Personal Attributes Indexes</b>					
Traits Index (TI)	816	0.7561	0.2500	1.0000	0.1949
Skills and Experiences Index (SEI)	816	0.3199	0.1429	0.7143	0.1317
Networking Index (NI)	816	0.5836	0.0000	1.0000	0.2667
Optimism Index (OI)	816	0.5065	0.2000	0.8000	0.1208

### **Panel C: Control Variables**

	N	Mean	Min	Max	Std. Dev.
<b>1. Firm Level Data</b>					
Leverage (LEV)	816	0.2518	0.0000	1.6724	0.1619
R & D/Total Asset (RD)	791	0.01479	0.0000	0.2380	0.0334
Capital Expenditure/Total Asset (CE)	813	6.2940	0.0000	50.7200	5.7240
Dividend Yield (DY)	811	2.8992	0.0000	11.6200	1.8187
Firm Size (FS)	816	15.5616	11.3161	19.2059	1.4669
Profitability (PRO)	816	0.1041	-0.8357	0.6354	0.0921
Corporate Governance (CG), Proportion of Non-executive Directors	816	0.6468	0.0000	1.0000	0.1342
Foreign Sales/ Total Sales (FSTS)	773	57.4592	0.0000	229.1300	36.5765
<b>2. Macroeconomic Factors</b>					
Log GDP (GDP)	816	14.1106	13.8026	14.2938	0.1453
Log Stock Market Return (SMR)	816	8.5841	8.2371	8.7560	0.1564
Consumer Confidence Indicators (CCI)	816	-10.1732	-21.3500	-1.8800	7.2329

As shown in the summary statistics in Table 4.3, the average fair value of derivatives held by a firm was £708 million, and the maximum holding was about £32,290 million. The average of total derivatives over total assets was 2.77% and the highest proportion of derivatives was 33.29% of the firm's total assets.

#### 4.4.2 Correlation Coefficients

Correlations Table 4.4 presents the correlations between dependent variables (corporate hedging decisions) and explanatory variables (CEO personal attributes) and control variables in this study (firm and macroeconomic factors). Panel A shows that corporate hedgers are significantly positively correlated with the use of financial derivatives contracts; Forwards (FORC), Options (OPC), Swaps (SWC), and Futures (FUC). Our magnitude of corporate hedging (Total Derivatives/Total Assets, TDTA) also shows significant positive correlation with all types of derivatives contracts (FORC, OPC, SWC, and FUC). In terms of CEO personal traits, CEO age and male gender show a significant positive correlation with corporate hedging (to hedge or not to hedge). In the case of the total derivatives used as financial hedging, UK nationality of CEOs shows a significant positive correlation with magnitude of hedging (TDTA).

Panel B in Table 4.4 shows the correlations among corporate hedging decisions with CEO skills and experiences. Only CEO emolument exhibits a significant negative correlation with corporate hedging (to hedge or not to hedge). For the degree of hedging, holding an MBA shows a significant negative correlation with the total derivatives used, while financial literacy in CEOs shows a significant positive correlation with the magnitude of the derivatives used.

Panel C in Table 4.4 presents the correlations among corporate hedging decisions with CEO networking. Holding external directorships by CEOs exhibits a significant positive correlation with corporate hedging (hedger and the total amount of derivative instruments used). Additionally, possession of social networking prestige by CEOs shows a significant positive correlation with financial hedging (total derivatives used).

Panel D in Table 4.4 reports the correlations among corporate hedging decisions with the CEO attributes indexes. The CEO Traits Index (TI) shows a non-significant negative correlation with corporate hedging (hedge or not to hedge) while the CEO Skills and Experiences Index (SEI), CEO Networking Index (NI) and CEO Optimism Index (OI) all show a non-significant positive correlation with corporate hedging (hedge or not to hedge). In the case of magnitude of hedging, the CEO Traits Index (TI), CEO Skills and Experiences Index (SEI), CEO Networking Index (NI) and CEO Optimism Index (OI) all exhibit significant positive correlations with financial hedging (magnitude of hedging). This implies that the higher the index value (of TI, SEI, NI, and OI) the higher the employment of derivatives by the firm.

Panels E and F in Table 4.4 list the correlations between hedging decisions, firm and macroeconomic factors. Leverage, R&D, firm size, cash ratio, dividend yield, corporate governance, GDP and CCI show significant correlations with corporate hedging decisions (to hedge or not to hedge). Leverage, R&D, capital expenditure, firm size, cash ratio, dividend yield, foreign sales/ total sales, GDP and CCI also exhibit significant correlations with the magnitude of hedging (TDTA)

**Table 4.4**  
**Correlations**

**Panel A: Correlations among dependent variables and explanatory variables (CEO Personal Traits)**

	CH	FORC	OPC	SWC	FUC	TTDCU	TDTA	AGE	GEN	NAT	MS
Corporate hedger (use of financial derivative)	1										
Forwards (FORC)	.559***	1									
Options (OPC)	.159***	.248***	1								
Swaps (SWC)	.529***	.268***	.046	1							
Futures (FUC)	.093***	.167***	.406***	.167***	1						
Total Type of Derivatives Contracts Used (TTDCU)	.510***	.638***	.713***	.555***	.655***	1					
Total Derivative/Total Assets (TDTA)	.154***	.182***	.162***	.173***	.127***	.252***	1				
AGE	.100***	-.028	.038	.129***	.051	.075**	-.051	1			
Gender (GEN)	.065*	-.010	.110***	.128***	.092***	.127***	.040	.039	1		
Nationality (NAT)	-.026	-.042	-.054	.061*	-.147***	-.068*	.096***	-.037	.127***	1	
Marital Status (MS)	-.007	-.014	-.109***	.007	-.088**	-.084**	-.048	.193***	.008	-.019	1

**Panel B: Correlations among dependent variables and explanatory variables (CEO Skills and Experiences)**

	CH	FORC	OPC	SWC	FUC	TTDCU	TDTA	MBA	PHD	FOU	FL	DUA	TCEO	EMO
MBA	.023	.016	-.097***	.068*	.079**	.014	-.064*	1						
PhD	.012	.045	.056	.001	.073**	.068*	.003	.081**	1					
Founder (FOU)	.019	-.163***	.090***	.056	-.002	.003	-.027	.111***	-.039	1				
Financial Literacy (FL)	.029	.092***	.111***	.143***	.038	.153***	.167***	-.189***	-.128***	.141***	1			
Duality (DUA)	-.005	.038	.100***	-.004	.190***	.124***	-.049	-.088**	.046	.151***	-.104***	1		
Tenure as CEO (TCEO)	-.047	-.175***	-.011	-.027	-.028	-.088**	.008	-.034	.016	.633***	.169***	.123***	1	
Emolument (EMO)	-.143***	-.116***	-.097***	-.363***	-.154***	-.278***	-.052	-.118***	.212***	-.021	-.109***	.035	.140***	1

*\*, \*\*, \*\*\* denote the correlation is significant at the 10%, 5% and 1% level respectively.*

**Panel C: Correlations among dependent variables and explanatory variables (CEO Networking)**

	CH	FORC	OPC	SWC	FUC	TTDCU	TDTA	TWF	IP	ED	SNP
Tenure with the Firm (TWF)	.030	-.046	.052	.041	.160***	.076**	.009	1			
Internal Promotion (IP)	-.029	-.072**	.028	-.007	.068*	.007	.044	.608***	1		
External Directorship (ED)	.062*	.153***	.109***	.031	.084**	.148***	.099***	.015	-.139**	1	
Social Networking Prestige (SNP)	.023	.101***	.096***	.091***	.033	.128***	.136***	.057	.017	.000	1

**Panel D: Correlations among dependent variables and explanatory variables (CEO Attributes Indexes)**

	CH	FORC	OPC	SWC	FUC	TTDCU	TDTA	TI	SEI	NI	OI
Traits Index (TI)	-.041	-.017	-.021	.005	-.124**	-.058	.115***	1			
Skills and Experiences Index (SEI)	.003	.000	.072**	.082**	.119**	.107***	.065*	-.111***	1		
Networking Index (NI)	.044	.055	.130***	.093***	.139**	.163***	.134***	.108***	.339***	1	
Optimism Index (OI)	.010	.025	.104***	.099***	.089**	.126***	.161***	.438***	.661***	.808**	1

**Panel E: Correlations among dependent variables and control variables (Firm Level Data)**

	CH	FORC	OPC	SWC	FUC	TTDCU	TDTA	LEV	RD	CE	FS	CASH	DY	CG	FSTS
Leverage (LEV)	.220***	.049	-.062*	.331***	-.025	.105**	.125**	1							
R&D/TA (RD)	-.177***	-.029	-.053	-.144***	-.137***	-.137***	-.142***	-.217***	1						
Capital Expenditure/Total Assets (CE)	-.032	-.008	.165***	-.063	.121***	.091***	.086**	-.060*	-.153***	1					
Firm Size (FS)	.271**	.312***	.123***	.412***	.327***	.440***	.225***	.063*	-.063*	.014	1				
Cash Ratio (CASH)	-.300***	-.116***	.142***	-.396***	.055	-.106***	-.062*	-.253***	.158***	.195***	-.218**	1			
Dividend Yield (DY)	.252***	.209***	.055	.271***	.105***	.238***	.183***	.339***	-.112***	-.116***	.327***	-.277***	1		
Corporate Governance (CG)	.187***	.183***	.093***	.106***	.145***	.202***	.055	.011	.023	-.089**	.327***	.114***	-.049	1	
Foreign Sales/Total Sales (FSTS)	.017	.031	-.017	.109***	.162***	.101***	-.102***	-.116***	.087**	-.004	.151***	.070*	-.140***	.300**	1

**Panel F: Correlations among dependent variables and control variables (Macroeconomic Factors)**

	CH	FORC	OPC	SWC	FUC	TTDCU	TDTA	GDP	SMR	CCI
Log GDP (GDP)	.123***	.102***	-.020	.148***	-.021	.079**	.150***	1		
Log Stock Market Return (SMR)	-.008	.021	-.008	.004	-.012	.000	.000	.225***	1	
Consumer Confidence Indicators (CCI)	-.058*	-.091***	.029	-.085**	.030	-.043	-.135***	-.666***	-.089**	1

\*, \*\*, \*\*\* denote the correlation is significant at the 10%, 5% and 1% level respectively.

#### 4.4.3 Univariate Analyses

We employ compare mean analysis to examine the different means of CEO attributes across non-hedger and hedger firms, and low-hedged and high-hedged firms. The results for univariate analyses are reported in Table 4.5. The results indicate that the age of the CEO is significantly different across non-hedger and hedger and low-hedged and high-hedged firms, whereby older CEOs are found in the hedger group and also in low-hedged firms. UK Nationality of CEOs shows higher mean value in highly-hedged firms, while married status of CEOs was found significant in low-hedged firms. Based on the single trait results, the result for hedger and non-hedger and low and high-hedged firms are inconclusive. Hence we construct the Traits Index (TI), to further investigate the blend of the personal traits of a CEO and the impact of this on hedging decisions. The results in Panel D, Table 4.5, lead us to conclude that there is a significant difference between the CEO personal traits for low-hedged and those for high-hedged firms, whereby CEOs show higher trait index values in high-hedged firm compared to low-hedged firms. This implies that younger, male, UK nationality and married CEOs are more likely to be found in high-hedged firms.

In the case of CEO skills and experiences, MBA holders show significantly higher mean values in the low-hedged group. Furthermore, CEOs who possess financial knowledge show higher means in high-hedged firms. A significant difference between means was also found for CEO emoluments, with higher means for non-hedger firms. For further investigation, we formed the CEO Skills and Experiences Index (SEI); our results in Panel D show that hedger and high-hedged firms exhibit higher SEI values. However, the result is non-significant.

In the case of CEO networking, CEOs who also hold external appointments show higher means in the hedger group and also in high-hedged firms. Additionally, CEOs who have social networking prestige also exhibit higher mean values for high-hedged firms. From the results presented in Panel D, the CEOs' Networking Index (NI) shows a significantly higher mean value in high-hedged firms.

Panel D in Table 4.5 reports the univariate analyses for CEO attributes indexes across hedger and non-hedger firms, and low-hedged and high-hedged firms. Higher means in the Traits Index, Skills and Experiences Index, and Networking Index have been found in high-hedged firms. Meanwhile, higher CEO Optimism Index (OI) is significantly found in the high-hedged group; a result that implies that optimistic CEOs are more likely to employ more hedging instruments. The higher indexes value for highly hedged firms once again strengthen our correlations findings which indicate that CEOs with higher Traits Index values, higher skills and experiences, more networking and who are optimistic are more likely to employ derivative instruments. To further investigate the relationship between CEO personal attributes and corporate hedging decisions, we perform multivariate analyses, reported in the next section.

**Table 4.5**

**Univariate Analyses for Non-hedger CEOs versus Hedger CEOs and Low Hedged and High Hedged Firms' CEOs**

The table shows the compare means and compare medians results for corporate hedging decisions (to hedge or not to hedge) and low-hedged firms and highly-hedged firms with CEO personal attributes (traits, skills and experiences, networking, and CEO attributes indexes). Our non-hedger firm sample comprises 44 observations, while the hedger firm sample has 772 observations. Our low or high hedge firms are selected from the top 25% (204 observations) and lowest 25% (204 observations) of derivatives used by the firms.

<b>Panel A: CEO Personal Traits</b>								
	Mean		Median		Mean		Median	
	Non-hedger	Hedger	Sig. diff.	Sig. diff.	Low hedged firm	Highly hedged firm	Sig. diff.	Sig. diff.
Age	50.1600	52.7800	**		52.6400	51.5700	*	*
Gender	0.8900	0.9500			0.9500	0.9500		
Nationality	0.7000	0.6500			0.6200	0.7400	**	
Marital Status	1.0200	1.0100			1.0700	0.9700	***	***

<b>Panel B: CEO Skills and Experiences</b>								
	Non-hedger	Hedger	Sig. diff.	Sig. diff.	Low hedged firm	Highly hedged firm	Sig. diff.	Sig. diff.
MBA holder	0.1600	0.2000			0.1900	0.1100	**	*
PhD holder	0.1100	0.1300			0.1400	0.1300		
Founder status	0.0200	0.0400			0.0400	0.0200		
Financial literacy	0.3600	0.4300			0.3100	0.5400	***	***
Duality	0.0500	0.0400			0.0500	0.0200		
Tenure as CEO	7.0000	5.9500			5.7700	5.8800		
Emoluments	0.0103	0.0047	***	***	0.0063	0.0052		***

<b>Panel C: CEO Networking</b>								
	Non-hedger	Hedger	Sig. diff.	Sig. diff.	Low hedged firm	Highly hedged firm	Sig. diff.	Sig. diff.
Tenure with the Firm	13.7700	15.1600			15.7200	15.2800		
Internal promotion	0.7700	0.7200			0.7500	0.7700		
External directorships	0.5700	0.8000	*		0.7300	0.9000	**	
Social networking prestige	0.5200	0.5700			0.4800	0.6500	***	

<b>Panel D: CEO Personal Attributes Indexes</b>								
	Non-hedger	Hedger	Sig. diff.	Sig. diff.	Low hedged firm	Highly hedged firm	Sig. diff.	Sig. diff.
Traits Index (TI)	0.7898	0.7542		***	0.7549	0.7953	**	*
Skills and Experiences Index (SEI)	0.3182	0.3199			0.2990	0.3179		*
Networking Index (NI)	0.5341	0.5865			0.5625	0.6348	***	**
CEO Optimism Index (OI)	0.5015	0.5068			0.4909	0.5297	***	***

\*, \*\*, \*\*\* denote significant at the 10%, 5% and 1% level respectively.

#### 4.4.4 Multivariate Analyses

##### *4.4.4.1 Corporate Hedging Decisions: To hedge or not to hedge*

We start our multiple regression analysis by examining the relationship of CEO personal attributes with the corporate hedging decisions; to hedge or not to hedge. As Table 4.6 shows, we include the firm and macroeconomics factors as our baseline model; Model I. Firm and macroeconomics factors are important determinants for corporate hedging decisions. As shown in Table 4.6, we find that leverage significantly influences the corporate hedging decision. Higher leverage firms tend to use financial derivatives to hedge their financial risk.

Our findings support the suggestion of Judge (2006) who posits that hedging can effectively help firms to meet their obligations. Hence, if a firm is highly leveraged, then derivatives can be used as a hedging mechanism to help the firm to lower the risk of being unable to meet the obligations committed to. We also find that larger firms are more likely to hedge using financial derivative instruments. Additionally, lower cash firms also exhibit the intention to hedge by employing financial derivatives instruments; our finding is consistent with that of Clark and Judge's (2009) findings in their UK study; they also found a negative relationship between cash ratio and hedging strategies.

**Table 4.6**

**CEO Personal Attributes and Financial Hedging Decision (to hedge or not to hedge)**

This table examines the relationship between CEO personal attributes (traits, skills and experiences, and networking) with corporate hedging decisions (hedger or non-hedger) using panel logistic regression. Industry effects are included. Our regressions are based on our Model I:  $CHD_{i,t} = \alpha + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$ , Model II:  $CHD_{i,t} = \alpha + \beta_{pa} \sum CEO\_Personal\_Attributes_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$ , Model III:  $CHD_{i,t} = \alpha + \beta_{TI} TI_{i,t} + \beta_{SEI} SEI_{i,t} + \beta_{NI} NI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon$ , and Model IV:  $CHD_{i,t} = \alpha + \beta_{OI} CEOOI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon$ , where Z is the vector of control variables (firm, and macroeconomic factors and industries dummies). P-values are reported in parentheses and \*, \*\*, \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

	<b>Model I: Baseline Model</b>	<b>Model II: CEO Personal Attributes</b>			<b>Model III: CEO Personal Attributes Indexes</b>			<b>Model IV: CEO Optimism Index</b>	
c	22.2536 (0.5675)	17.2711 (0.6690)	29.8140 (0.5356)	-0.8872 (0.9844)	18.2853 (0.6436)	13.2722 (0.7419)	29.7149 (0.4603)	11.3310 (0.7879)	26.5305 (0.5059)
Leverage	4.9586* (0.0546)	4.6469* (0.0783)	3.5927 (0.1748)	4.4394 (0.1400)	5.1295** (0.0476)	4.7610* (0.0725)	5.3408** (0.0477)	5.4015* (0.0525)	4.9895* (0.0602)
R&D	-1.8196 (0.8648)	1.8999 (0.8611)	-6.4813 (0.7266)	-6.0060 (0.6295)	-1.0128 (0.9243)	-2.8431 (0.7911)	-1.5256 (0.8890)	-1.4355 (0.8947)	-2.6755 (0.8071)
Capital Expenditure	0.0227 (0.5367)	0.0219 (0.5668)	-0.0039 (0.9353)	0.0066 (0.8653)	0.0200 (0.5888)	0.0171 (0.6495)	0.0258 (0.4875)	0.0147 (0.7005)	0.0246 (0.5072)
Firm Size	0.8675*** (0.0051)	0.8862*** (0.0071)	2.8941*** (0.0010)	1.0097*** (0.0053)	0.8391*** (0.0066)	0.9606*** (0.0044)	0.9292*** (0.0047)	0.9437*** (0.0056)	0.9400*** (0.0047)
Cash Ratio	-0.8236*** (0.0003)	-0.9986*** (0.0002)	-1.3772*** (0.0018)	-0.7181** (0.0114)	-0.8317*** (0.0003)	-0.7965*** (0.0019)	-0.7953*** (0.0012)	-0.7930*** (0.0024)	-0.7946*** (0.0013)
Dividend Yield	1.1332*** (0.0001)	1.1841*** (0.0001)	1.6125*** (0.0004)	1.3684*** (0.0001)	1.1202*** (0.0001)	1.2581*** (0.0001)	1.2367*** (0.0001)	1.2788*** (0.0001)	1.2301*** (0.0001)
Corporate Governance	6.3716** (0.0213)	4.8529 (0.1047)	6.7470* (0.0935)	5.0649 (0.1102)	5.8823** (0.0388)	5.7766* (0.0521)	6.0088** (0.0360)	4.6114 (0.1443)	6.3552** (0.0281)
FSTS	-0.0017 (0.8750)	-0.0035 (0.7427)	0.0204 (0.2191)	-0.0014 (0.9101)	-0.0018 (0.8678)	0.0005 (0.9682)	0.0009 (0.9381)	0.0011 (0.9207)	0.0005 (0.9670)
GDP	-0.7781 (0.7751)	-0.1404 (0.9597)	-4.1031 (0.2759)	-0.0099 (0.9976)	-0.3627 (0.8969)	-0.1973 (0.9440)	-1.4139 (0.6193)	0.1138 (0.9696)	-1.2523 (0.6572)
Stock Market Return	-2.8364* (0.0940)	-3.0841* (0.0769)	-1.9045 (0.3549)	-1.5240 (0.3984)	-2.8887* (0.0897)	-3.0176* (0.0836)	-2.8439* (0.0934)	-3.0847* (0.0781)	-2.8365* (0.0956)
CCI	0.0830* (0.0881)	0.1000* (0.0516)	0.1112* (0.0609)	0.0935* (0.0832)	0.0872* (0.0777)	0.1015** (0.0464)	0.0858* (0.0794)	0.1081** (0.0387)	0.0857* (0.0788)
Age		0.0115							

Male CEO									
Married CEO									
UK Nationality									
MBA holder									
PhD holder									
Founder									
Financial Literacy									
Duality									
Tenure as CEO									
Emoluments									
Tenure with the firm									
Internal Promotion									
External Directorships									
Social Networking prestige									
Trait Index									
Skills and Experiences Index									
Networking Index									
Optimism Index									
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R <sup>2</sup>	0.5398	0.5508	0.6544	0.6032	0.5412	0.5521	0.5457	0.5561	0.5453
Observations	765	765	765	765	765	765	765	765	765
Number of non-hedger	34	34	34	34	34	34	34	34	34
Number of hedger	731	731	731	731	731	731	731	731	731

The results in Table 4.6 show that higher dividend yield firms are more likely to engage in decisions to hedge. Our findings are consistent with that of Au Yong, Faff and Nguyen (2011), who suggest that high dividend payout firm are logically more likely to have liquidity constraints, hence tend to hedge more. Corporate governance is found to have a positive relationship with hedging decision. Hedging can help firms reduce cash flow volatility and ease the conflict among bondholders and shareholders (Chen & King, 2014), hence firms with stronger corporate governance are more likely to employ hedging strategies.

In the case of macroeconomics factors, we find a significant relationship between firms' stock market returns and hedging decision. This implies that when there is a downturn in the stock market the firms tend to use derivative instruments to minimize potential risk of loss. However, when consumer confidence indicators are higher, the firm is more likely to choose to hedge. Once the firm is hedged, the firm's outcome becomes more predictable (Chen & King, 2014), and will thus attract more investors to invest.

Model II in Table 4.6 shows the regression results for CEO personal attributes (traits, skills and experiences, and networking) and the decision to hedge or not to hedge. There is no significant relationship between CEO traits (age, marital status and nationality) with the decision to hedge. However, we find some skills and experiences attributes of the CEOs do have a significant effect on hedging decision; founder status CEOs, financially literate CEOs, and higher pay CEOs are more likely to hedge their firm. On the other hand, in the case of CEO networking attributes, we find that CEOs who have stronger external networking (external directorship and social networking prestige) are more likely to hedge their firm.

Model III in Table 4.6 presents the relationship of CEO personal attributes indexes with the decision to hedge or not to hedge. The results show that only the Skills and Experiences Index (SEI) has a significant positive relationship with the decision to hedge. This implies that CEOs with higher skills and experiences will be more likely to hedge their firm. In the case of the CEO Optimism Index reported in Model IV, we find a positive non-significant relationship between CEO optimism and the hedging decision. Since our sample consists of a higher percentage of firms that hedged (731 out of 765), we further investigate the magnitude of hedging, in order to examine the influence of CEO personal attributes towards the degree of hedging.

#### *4.4.4.2 Magnitude of hedging*

In this section, we present the multiple regression analysis results that examine the correlations between CEO personal attributes and corporate hedging decisions; magnitude of hedging. As shown in Table 4.7, Model I is our baseline model, in which we include the firm and macroeconomics factors. We find that leverage and capital expenditure significantly influence the corporate hedging decision. Higher leverage firms and higher capital expenditure firms tend to use more financial derivatives to hedge their financial risk. Our finding is consistent with the idea of Judge (2006), who suggests that derivative instruments can be used as hedging tools to help lower the firm's risk by matching and meeting the obligation committed to. We also find that larger firms use more financial derivative instruments. Additionally, higher dividend yield firms also exhibit higher employment of financial derivative instruments. Our finding is consistent with the proposition of Au Yong, Faff and Nguyen (2011) -that high dividend pay-out firms are more likely to face liquidity constraints, and hence tend to hedge more.

In the case of macroeconomics factors, we find a significant positive relationship between GDP and degree of hedging. This may be because when the economy is growing, firms will have more investment opportunities and expand their businesses (product line or geographical diversification), hence the need to hedge using derivative instruments will also increase. On the other hand, we find a significant negative relationship between a firm's stock market return and the degree of hedging. This implies that when there is a stock market return downturn, firms tend to use more derivative instruments to minimize risk of loss and limit cash flow uncertainty, as mentioned by Chen and King (2014), and a firm's outcomes will be more predictable once the firm is hedged.

Model II in Table 4.7 presents the results for correlations between CEO personal attributes (traits, skills and experiences, and networking) and the magnitude of hedging. A significant relationship is found between CEO traits (age, marital status and nationality) and the magnitude of derivatives used. Younger, married, and UK nationality CEOs show higher employment of financial derivatives in their firm. Iqbal (2015) also finds that younger CEOs are more likely to hedge. Beber and Fabbri (2012) find the same relationship; younger CEOs use more derivative instruments. Additionally, we find some skills and experiences attributes of CEOs do have a significant effect on decision to hedge. CEOs with an MBA degree are found to use financial derivatives less, but CEOs who possess financial knowledge are found to have higher employment of hedging derivative instruments. In the case of CEO networking attributes, we find that CEOs who are internally promoted, and who have stronger external networking (external directorship and social networking prestige) tend to hedge more.

**Table 4.7**  
**CEO Personal Attributes and Financial Hedging Decision (Magnitude of Hedging)**

This table examines the relationship between CEO personal attributes (traits, skills and experiences, and networking) with financial hedging magnitude (Total fair value of the derivatives/Total Assets) using panel OLS regression. Year and industry effects are included. Our regressions are based on our Model I:  $CHD_{i,t} = \alpha + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$ , Model II:  $CHD_{i,t} = \alpha + \beta_{pa} \sum CEO\_Personal\_Attributes_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$ , Model III:  $CHD_{i,t} = \alpha + \beta_{TI} TI_{i,t} + \beta_{SEI} SEI_{i,t} + \beta_{NI} NI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$ , and Model IV:  $CHD_{i,t} = \alpha + \beta_{OI} CEOOI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$ , where Z is the vector of control variables (firm, and macroeconomic factors and industries dummies). T-statistics are reported in parentheses and \*, \*\*, \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

	Model I: Baseline Model	Model II: CEO Personal Attributes			Model III: CEO Personal Attributes Indexes			Model IV: CEOOI	
c	-0.3759** (-2.0984)	-0.3886** (-2.1829)	-0.4014** (-2.2656)	-0.4570** (-2.5765)	-0.3912** (-2.1965)	-0.3649** (-2.0441)	-0.3645** (-2.0513)	-0.3736** (-2.1132)	-0.3664** (-2.0752)
Leverage	0.0293*** (3.0025)	0.0258*** (2.6083)	0.0290*** (3.0005)	0.0272*** (2.8032)	0.0240** (2.4303)	0.0310*** (3.1739)	0.0295*** (3.0386)	0.0257*** (2.6270)	0.0277*** (2.8691)
R&D	-0.0283 (-0.4932)	-0.0570 (-0.9761)	-0.0082 (-0.1420)	-0.0439 (-0.7615)	-0.0459 (-0.8010)	-0.0322 (-0.5643)	-0.0446 (-0.7823)	-0.0587 (-1.0314)	-0.0549 (-0.9676)
Capital Expenditure	0.0006** (2.3641)	0.0006** (2.4348)	0.0007*** (2.9014)	0.0007*** (2.8629)	0.0006** (2.5178)	0.0006** (2.3685)	0.0007*** (2.7250)	0.0007*** (2.7569)	0.0007*** (2.7413)
Firm Size	0.0034*** (2.9351)	0.0039*** (3.4087)	0.0045*** (3.1899)	0.0023** (2.0133)	0.0038*** (3.2808)	0.0033 (2.8378)	0.0024** (2.0329)	0.0030** (2.5027)	0.0028** (2.4190)
Cash Ratio	-0.0016 (-0.7951)	-0.0015 (-0.7494)	-0.0010 (-0.5162)	-0.0010 (-0.5004)	-0.0013 (-0.6661)	-0.0013 (-0.6492)	-0.0009 (-0.4603)	-0.0006 (-0.3311)	-0.0006 (-0.3279)
Dividend Yield	0.0023*** (2.6521)	0.0025*** (2.8917)	0.0026*** (2.9516)	0.0029*** (3.2400)	0.0024*** (2.7718)	0.0026*** (2.9019)	0.0026*** (2.9798)	0.0028*** (3.1797)	0.0028*** (3.2126)
Corporate Governance	-0.0034 (-0.2889)	0.0002 (0.0180)	0.0033 (0.2806)	-0.0040 (-0.3386)	0.0038 (0.3145)	-0.0018 (-0.1522)	0.0003 (0.0211)	0.0070 (0.5804)	0.0053 (0.4421)
FSTS	-0.0001 (-1.6228)	-0.0001 (-0.9904)	-0.0006 (-1.3110)	-0.0001** (-2.0165)	-0.0001 (-1.0828)	-0.0001* (-1.7780)	-0.0001* (-1.7532)	-0.0001 (-1.3313)	-0.0001 (-1.5496)
GDP	0.0333** (2.5717)	0.0347*** (2.6921)	0.0316** (2.4596)	0.0382*** (2.9823)	0.0321** (2.4884)	0.0317** (2.4499)	0.0322** (2.5042)	0.0301** (2.3535)	0.0302** (2.3585)
Stock Market Return	-0.0153* (-1.7752)	-0.0151* (-1.7609)	-0.0131 (-1.5558)	-0.0140* (-1.6507)	-0.0148* (-1.7258)	-0.0149* (-1.7308)	-0.0149* (-1.7404)	-0.0142* (-1.6708)	-0.0143* (-1.6785)
CCI	-0.0002 (-0.8447)	-0.0002 (-0.6538)	-0.0001 (-0.3903)	-0.0002 (-0.9701)	-0.0002 (-0.7100)	-0.0002 (-0.7663)	-0.0002 (-0.9578)	-0.0002 (-0.7393)	-0.0002 (-0.7755)

Age									
Male CEO									
Married CEO									
UK Nationality									
MBA holder									
PhD holder									
Founder									
Financial Literacy									
Duality									
Tenure as CEO									
Emoluments									
Tenure with the firm									
Internal Promotion									
External Directorships									
Social Networking prestige									
Trait Index									
Skills and Experiences Index									
Networking Index									
Optimism Index									
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R <sup>2</sup>	0.1589	0.1723	0.2014	0.1883	0.1692	0.1652	0.1728	0.1821	0.1829
Observations	754	754	754	754	754	754	754	754	754

Model III in Table 4.7 presents the result for the relationships between CEO personal attributes indexes and corporate hedging decisions: magnitude of hedging. The results show that all of the indexes (Traits Index, Skills and Experiences Index, and Networking Index) exhibit significant positive relationships with decision to hedge. This implies that the higher the Traits Index (composite of younger, male, married, and UK nationality) value of a CEO, the higher the magnitude of the use of derivative instruments in his/her firm. Also, the higher the Skills and Experiences Index value CEOs, the higher the employment of financial derivatives as hedging instruments. Moreover, the higher the Networking Index value, the more financial derivatives will be used to hedge firm risk. In the case of the CEO Optimism Index, as reported in Model IV, we find a positive significant relationship between CEO optimism and the decision to hedge. This implies that optimistic CEOs will employ more derivative instruments in their firm as a hedging mechanism. Our result is consistent with those of Alsubaie (2009) and Adam, Fernando and Golubeva (2015), who also find that CEO optimism is positively correlated with financial derivatives used.

We explain our results in this way: recall from chapter two that the term “optimism” is based on the concepts proposed by Malmendier and Tate (2005a, 2005b, 2008), Doukas and Petmezas (2007) and Graham, Harvey and Puri (2013): ‘better than average’, ‘illusions of control’ and ‘highly committed to good outcomes’. Hence, the optimistic CEO would be one who has self-confidence, believes that he/she is able to predict future events precisely and is confident that he/she can lead the firm to perform better in the future. Hence such a CEO will try to eliminate the potential risks that he/she foresees, and uses derivative instruments as a hedging mechanism to make sure that the firm’s outcomes are more assured and under their control. This explanation supports Smith and

Stulz's (1985) suggestion that hedging can help to reduce cash flow volatility, and hence lower the expected cost of financial distress.

#### *4.4.4.3 'Co-Ordinated' Corporate Hedging Strategy: Type of Derivative Contract Used*

Table 4.8 presents the result for CEO personal attributes and their 'co-ordinated' corporate hedging strategy. As mentioned by Au Yong, Faff and Nguyen (2011), an examination of the number of types of derivatives used in a firm will provide a meaningful proxy of diversity of financial hedging strategy. From the results, we find that CEO personal Traits Index (TI), Skills and Experiences Index (SEI), and Networking Index (NI) show a positive relationship with the number of types of derivative contracts used. In particular, we find a significant positive influence of SEI on the 'co-ordinated' hedging strategy, which implies that the CEO with higher skills and experiences tends to use more types of derivatives (forwards, futures, swaps and option contracts).

In Table 4.8, the Model IV result shows that the CEO Optimism Index (OI) significantly positively affects the corporate hedging strategy. The higher the CEO optimism index value, the more 'co-ordinated' the hedging strategy employed. This shows that optimistic CEOs tend to use more types of financial derivative instruments (forwards, futures, swaps and option contracts) to hedge their firm's financial risk (currency exchange risk, interest rate risk and commodity risk).

As already mentioned, optimistic CEOs are committed to good outcomes and the 'illusion of control'. Therefore it is sensible that optimistic CEOs will employ more or different types of derivative instruments to meet their needs in eliminating different types of financial risk in order to deliver good outcomes for the firm.

**Table 4.8**  
**CEO Personal Attributes and Financial Hedging Decision ('Co-ordinated'  
Strategy)**

This table examines the relationship between CEO personal attributes indexes with use of total types of derivatives and total types of derivative contracts (forwards, futures, swaps and options contracts) using ordered probit regression. Z-statistics are reported in parentheses and \*, \*\*, \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

	Model III	Model IV
Leverage	0.3386 (1.1417)	0.3188 (1.0866)
R&D	-4.8192*** (-2.8417)	-4.9648*** (-2.9332)
Capital Expenditure	0.0258*** (3.4708)	0.0263*** (3.5456)
Firm Size	0.3056*** (8.6229)	0.2991*** (8.6505)
Cash Ratio	0.0142 (0.2363)	0.0152 (0.2522)
Dividend Yield	0.0973*** (3.6229)	0.0960*** (3.5803)
Corporate Governance	1.3786*** (3.7735)	1.3874*** (3.8306)
FSTS	0.0021 (1.5982)	0.0022* (1.6648)
GDP	0.0639 (0.1642)	0.0731 (0.1879)
Stock Market Return	-0.2063 (-0.7998)	-0.2114 (-0.8199)
CCI	0.0187** (2.4886)	0.0182** (2.4244)
Trait Index	0.3413 (1.5087)	
Skills and Experiences Index	0.9443*** (2.8276)	
Networking Index	0.1657 (0.9683)	
Optimism Index		1.2272*** (3.5346)
Industry dummies	Yes	Yes
Pseudo R <sup>2</sup>	0.1214	0.1206
Observations	769	769

#### *4.4.4.4 Corporate Hedging Across Time*

As mentioned by Belghitar, Clark and Mefteh (2013), firms use financial derivatives as hedging mechanisms to manage their financial risk; hence we further investigate the impact of CEO personal attributes and CEOs' use of financial derivatives across economic calm and crisis periods. Table 4.9 presents the results of the effects of CEO personal attributes on their hedging decisions during a calm period in the economy (2000 to 2006) and a global financial crisis period (2007 to 2013). The results show that personal attributes indexes (Traits Index, Skills and Experiences Index, and Networking Index) show a positive but non-significant relationship with the use of derivatives during a calm period in the economy. However, the CEO personal Traits Index (TI) and Networking Index (NI) exhibit a significant positive relationship with the magnitude of financial hedging during a global financial crisis period. This implies that younger, male, married and UK nationality CEOs and CEOs who have more networking ties (internally promoted, longer tenure with the firm, more external directorships, and has social networking prestige) will employ more derivative instruments during times of financial crisis.

Nevertheless, the CEO Optimism Index, as presented in Model IV, shows a significant positive relationship with decision to hedge throughout both calm and crisis periods. Hence, we may conclude that optimistic CEOs tend to employ more derivatives regardless of the condition of the economy. Even so, we observe a higher co-efficient value during the crisis period compared to the calm period.

**Table 4.9**

**CEO Personal Attributes Indexes and Corporate Hedging Magnitude Across Time (2000 to 2006 and 2007 to 2013)**

This table examines the relationship between CEO personal attributes indexes (Traits Index, Skills and Experiences Index, Networking Index, and CEO Optimism Index) with financial hedging magnitude (Total fair value of the derivatives/Total Assets) using panel OLS regression. Industry effects are included. Our regressions are based on our, Model III:  $CHD_{i,t} = \alpha + \beta_{TI}TI_{i,t} + \beta_{SEI}SEI_{i,t} + \beta_{NI}NI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon$ , and Model IV:  $CHD_{i,t} = \alpha + \beta_{OI}CEO_{OI}_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon$ , where Z is the vector of control variables (firm, and macroeconomic factors and industries dummies). T-statistics are reported in parentheses and \*, \*\*, \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

	Whole sample		2000-2006		2007-2013	
	Model III	Model IV	Model III	Model IV	Model III	Model IV
c	-0.3736** (-2.1132)	-0.3664** (-2.0752)	-0.6752** (-2.1643)	-0.6826** (-2.1953)	1.7456*** (2.7154)	1.8571*** (2.8918)
Leverage	0.0257*** (2.6270)	0.0277*** (2.8691)	0.0126 (0.9959)	0.0108 (0.8715)	0.0266* (1.8489)	0.0321** (2.2574)
R&D	-0.0587 (-1.0314)	-0.0549 (-0.9676)	-0.0362 (-0.5250)	-0.0334 (-0.4877)	-0.1738* (-1.8822)	-0.1390 (-1.5254)
Capital Expenditure	0.0007*** (2.7569)	0.0007*** (2.7413)	0.0007** (2.2492)	0.0007** (2.2976)	0.0006* (1.6893)	0.0006 (1.5939)
Firm Size	0.0030** (2.5027)	0.0028** (2.4190)	0.0017 (1.0563)	0.0019 (1.2485)	0.0067*** (4.0084)	0.0062*** (3.7274)
Cash Ratio	-0.0006 (-0.3311)	-0.0006 (-0.3279)	0.0047* (1.7084)	0.0047* (1.7144)	-0.0072** (-2.5650)	-0.0071** (-2.5262)
Dividend Yield	0.0028*** (3.1797)	0.0028*** (3.2126)	0.0017 (1.4991)	0.0017 (1.4716)	0.0033** (2.5286)	0.0034*** (2.6189)
Corporate Governance	0.0070 (0.5804)	0.0053 (0.4421)	0.0162 (1.0493)	0.0176 (1.1570)	0.0059 (0.3296)	0.0027 (0.1522)
FSTS	-0.0001 (-1.3313)	-0.0001 (-1.5496)	0.0000 (0.0634)	0.0000 (0.2434)	-0.0002*** (-2.6865)	-0.0002*** (-3.0155)
GDP	0.0301** (2.3535)	0.0302** (2.3585)	0.0429** (2.2545)	0.0428** (2.2551)	-0.1309** (-2.5604)	-0.1385*** (-2.7112)
Stock Market Return	-0.0142* (-1.6708)	-0.0143* (-1.6785)	0.0028 (0.2502)	0.0029 (0.2650)	-0.0010 (-0.0560)	0.0004 (0.0205)
CCI	-0.0002 (-0.7393)	-0.0002 (-0.7755)	0.0000 (-0.0232)	0.0000 (-0.0033)	-0.0002 (-0.6840)	-0.0003 (-0.7373)
Trait Index	0.0214*** (2.8609)		0.0020 (0.1917)		0.0367*** (3.5449)	
Skills and Experiences Index	0.0203* (1.8273)		0.0192 (1.3371)		0.0129 (0.7655)	
Networking Index	0.0133** (2.3744)		0.0096 (1.2645)		0.0171** (2.1380)	
Optimism Index		0.0536*** (4.7526)		0.0336** (2.1019)		0.0698*** (4.3484)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R <sup>2</sup>	0.1821	0.1829	0.0914	0.0955	0.2955	0.2903
Observations	754	754	325	325	429	429

#### *4.4.4.5 Additional and Robustness Test*

There is an argument that swaps contracts are used to translate foreign debt into domestic liabilities and do not hedge foreign sales (Allayannis, Brown and Klapper, 2003; Clark & Judge, 2009). Moreover, Clark and Judge (2009) also mention that swaps are used for long-term hedge. Hence for a robustness test, we exclude the swaps<sup>50</sup> amount in our total derivatives. Our results show, however, that the exclusion of swaps in the total derivatives provides similar results with those for the total derivatives containing swaps contracts. The results for this additional test are reported in Appendix X.

In the case of the annual reports, we find that swaps used by the UK FTSE 100 firms are not ultimately designed for long-term hedging, as claimed by Clark and Judge (2009), as some of the contracts are short-term contracts<sup>51</sup> and swaps are used to hedge interest rate and exchange rate risk, as mentioned in WPP plc, 2004 Annual Report.

## **4.5 Conclusion**

A look at the corporate hedging decisions by UK firms from 2000 to 2013 shows that most of the UK firms (95%) use financial derivatives to hedge their firm's financial risk. The most common derivatives contracts used by the UK firms are forwards and swaps contracts.

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<sup>50</sup> We tried our best to exclude the amount of swaps contracts used by the firms. Yet, we also noted that during our collection of data on the amount of swaps, there are some limitations, whereby which there are firms who mentioned the used of swaps but did not present the amount in their annual report (e.g., ABF), and there are also firms that combine the amount of swaps with other contracts (e.g., AMEC plc 2009-2013, combined their forward foreign exchange contracts and foreign exchange swaps)

<sup>51</sup> E.g.,: Shire plc Annual Report and Accounts, (2009) the swaps and forward contracts mature within 90 days.

We conclude that that younger, male, UK nationality and married CEOs tend to hedge more. From the correlation coefficient analyses, the CEO Traits Index (TI) exhibits a significant positive correlation with financial hedging (magnitude of hedging). Our regression results also suggest that younger, married, and UK nationality CEOs tend to have higher employment levels of financial derivatives in their firm. This result is consistent with those of Iqbal (2015) and Beber and Fabbri (2012), who also found that younger CEOs are more likely to hedge.

We also conclude that CEOs with higher skills and experiences tend to employ more financial derivatives as hedging tools. In correlation coefficient analyses, the CEO skills and Experiences Index (SEI) shows a significant positive correlation with financial hedging (magnitude of hedging). In the case of regression analysis, CEOs with an MBA degree are found to use financial derivatives less, but CEOs who possess financial knowledge are found to have higher employment of hedging derivative instruments.

We also to conclude that the more networking ties a CEO has, the more hedging derivative instruments will be used. The correlation coefficient analyses show that the CEO Networking Index (NI) exhibits a significant positive correlation with financial hedging (magnitude of hedging). In the case of univariate analyses, the CEOs' Networking Index (NI) shows a significantly higher mean value in high-hedged firms. The results from multiple regression analysis also suggest that internally promoted CEOs, and CEOs with stronger external networking (external directorship and social networking prestige) tend to hedge more.

In conclusion, we find that optimistic CEOs tend to hedge more. This conclusion is based on the correlation coefficient analysis, univariate analyses and also multiple regression analysis, for which test results show that the CEO Optimism Index positively significantly affects the employment of hedging instruments<sup>52</sup>. Our results support those of Alsubaie (2009) and Adam, Fernando and Golubeva (2015), who also found that CEO optimism was positively correlated with decision to hedge. A possible explanation for the use of more financial derivatives by optimistic CEOs in hedging their firms' risk can be derived from the proposition of Malmendier and Tate (2005a, 2005b, 2008), Doukas and Petmezas (2007) and Graham, Harvey and Puri (2013), that optimistic CEOs are the ones who are believed to have high levels of commitment towards their firm's good outcomes and are confident in predicting future events. Hence optimistic CEOs may use more derivative instruments to hedge their firm's risk to ensure their firm is under their control ('illusion of control'). As Smith and Stulz (1985) mentioned, hedging can help reduce cash flow volatility, and hence lower the probability of the occurrence of financial distress.

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<sup>52</sup> We acknowledge the possibility that hedging can also be viewed as an attempt to manage risk, rather than a result of optimistic trait.

## **Chapter 5: Conclusion and Future Research**

This thesis builds on a motivation to understand managerial behaviour, particularly CEO optimism. The approach used was to incorporate behavioural finance with cross-disciplinary studies from the perspectives of leadership and management and also psychology. Our main aim in this study was to examine CEO personal attributes that we believe have an important influence on CEOs' optimistic behaviour. The results of our study suggest that CEO personal attributes do contribute to their optimistic behaviour. Subsequently we proposed the CEO Optimism Index derived from the CEO personal attributes (traits, skills and experiences and networking) -that this study has proven to have an impact on triggering CEO optimistic behaviour. Our study complements Petit and Bollaert's (2012) results but we provide additional insight into the underlying causes of CEO optimistic behaviour from a CEO personal attributes perspective, after controlling for firm, industry and macroeconomics effects. We provide a more comprehensive composite proxy in the shape of the CEO Optimism Index, based on CEOs' traits, skills and experiences and networking ties.

The sample period for this study was from 2000 to 2013 (14 years) and we examined 248 CEOs of the UK FTSE 100 firms to answer what drives CEOs to exhibit optimistic behaviour in corporations, and how CEO optimism affects corporate leasing and hedging decisions. Our study contributes to the existing literature in several ways. Firstly, this study fills a research gap by examining CEO personal traits, CEO skills and experiences, and CEO networking for the UK FTSE 100 firms. This is the first attempt to examine UK firms' CEOs' personal attributes that may contribute to their optimistic behaviour. Secondly, by its use of primary,

unique, manually-collected datasets, this research shows both originality and a novel approach.

This study also proposed four new composite indexes: the CEO personal Trait Index (TI), Skills and Experiences Index (SEI), Networking Index (NI), and Optimism Index (OI). These indexes can be used to explain managerial behaviour and corporate decisions, and may also be used to examine the competency of firms' existing CEOs/managers, or to compare potential CEOs'/managers' skills and experiences and networking recruitment exercises. Explicitly addressing the relationship between CEOs' personal attributes and their optimistic behaviour can help boards select their CEO based on their firm's nature of business as certain industries may need a more aggressive CEO/manager.

Our study also provides a linkage between CEO personal attributes and CEOs' optimistic behaviour by integrating management, leadership and psychological approaches (traits approach, power-influence approach, social exchange theory and social networking approach). Our study reflects Mohamed, Baccar, Fairchild and Bouri's (2012) concern regarding the lack of a well-established theoretical framework that explicitly expresses the link between CEO personal attributes and their optimistic behaviour. Moreover, as Gervais, Heaton and Odean (2011) and Otto (2014) mentioned, dynamic compensation contracts can be designed for optimistic CEOs to adjust and realign the incentives to differences in managers' attributes. Hence detecting the optimistic CEO enables the board to make the necessary refinements to its strategy.

Additionally, this study also provides useful information or guidelines to investors, market participants and shareholders who are developing their investment strategy. According to Graham, Harvey and Puri (2013) optimistic CEOs are less risk averse. Hence risk tolerant investors may choose to invest in a firm led by an optimistic CEO, to opt for higher expected outcomes. Acknowledgement of the optimism factor in CEOs may help investors suit their risk preferences to their investment decisions, portfolio allocation and risk management strategies.

Our first empirical chapter suggests that in the case of CEO personal traits; younger, male, married and UK nationality CEOs are more likely to become optimistic. CEO skills and experiences (MBA holder, PhD holder, firm founder, financially literate, duality status, longer tenure as CEO and high emoluments) have also been found to have a significant impact on CEO optimism. In addition, CEO internal networking (tenure with the firm, internal promotion), and CEO external networking ties (external directorship, social networking prestige) show significant influences in cultivating CEO optimistic behaviour. Hence we propose that a composite of CEO personal attributes can be used as a new alternative proxy for CEO optimism alongside the proxies used by others and reported in the literature.

Beber and Fabbri (2012) mention that, in addition to the firm, industry and market conditions, managers' personal beliefs and characteristics do explain corporate decisions. Thus, our second empirical chapter in this thesis examines the relationship between CEO personal attributes and corporate leasing decisions. Motivated by the limitations in data availability due to few studies having been done in this area, we manually collected the data for firm's

corporate leasing decisions (total lease, operating lease, finance lease) from the respective firms' annual reports. Our results show that optimistic CEOs tend to use more lease financing, a finding consistent with the optimistic perspectives proposed by Heaton (2002). Lease is a type of debt and optimistic CEOs tend to perceive that the capital market often undervalues their firm. Optimistic CEOs are confident of their firm's future earnings ability and hesitate to raise external funds by issuing new equity, the potential profits of which new equity holders will be able to share. This might be the reason why optimistic CEOs tend to prefer lease financing.

The UK leasing market exhibits steady growth, as reported in the World Leasing Yearbook (White Clarke Group Global Leasing Report 2015). Leasing provides firms with alternative financing sources, and we find that UK firms' employment of lease financing, especially operating leases, is increasing. This study benefits leasing firms (lessors) as well as lessees – the study provides an attractive selling point (optimistic CEOs are those who have higher skills and experiences, and stronger networking ties) that lessors can use to convince their clients (lessees) to use more leased assets, and leasing can lower overall firm risk and mitigate agency cost of debt.

Our third empirical chapter examines the relationship between CEO personal attributes and firms' corporate hedging decisions. Firm hedging strategy is important as all firms are exposed to market risk, and most of the UK FTSE 100 firms use financial derivatives as hedging tools. Our results suggest that younger, married, and UK nationality CEOs tend to employ more financial derivatives in their firm, consistent with the findings of Iqbal (2015) and Beber and Fabbri (2012), who also noted that younger CEOs are more likely to hedge.

Furthermore, we also find CEOs with higher skills and experiences tend to employ more financial derivatives as their hedging tools. In particular, CEOs who possess financial knowledge are found to have higher employment of hedging derivative instruments. Our results also suggest that internally promoted CEOs, and CEOs with external directorships and social networking prestige tend to hedge more.

We conclude that optimistic CEOs tend to employ more financial derivatives to hedge potential firm risks, consistent with the results reported by Alsubaie (2009) and Adam, Fernando and Golubeva (2015). The possible reason why optimistic CEOs employ more financial derivative instruments derives from the proposal of Malmendier and Tate (2005a, 2005b, 2008), Doukas and Petmezas (2007) and Graham, Harvey and Puri (2013); optimistic CEOs are those who are highly committed to their firm's good outcomes, confident in predicting future events as they have a belief that they are "better than average" and have the 'illusion of control'. Hence optimistic CEOs may use more derivative instruments to hedge their firm's risk to ensure that their firm is under their control by reducing cash flow volatility, delivering more predictable outcomes and lowering the firm's financial distress cost. This finding is also in line with the idea that optimistic CEOs are more risk taking, and hence the need for financial derivatives as hedging mechanisms will also increase.

In this thesis we examine the influence of CEO personal attributes on corporate decisions, particularly leasing and hedging decisions. Future studies may investigate the relationship between CEO personal attributes and other corporate decision-making, including decisions on investment, payout policy, corporate fraud and other accounting issues. Future studies may also look into the relationship between CEO optimism and shareholders/investors. We

suggest that behavioural finance studies may incorporate more psychological perspectives which might provide a clearer picture of the issue of conflict among managers, shareholders and debt-holders. The most challenging task for future study is the development of a new proxy for 'optimism', and we suggest that future studies use our measurement as a fundamental base to develop a more 'intrinsic' optimism proxy derived from CEOs personal attributes. Additionally, future research may also look into the optimism of the management team or top executive (comprising chairman, CEO, CFO, COO etc.) to further investigate the influence of 'team attributes' on firm value, corporate policies, and investment decisions.

## Appendices

### Appendix I

#### Industry classification for this study

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<b>Industry Dummy</b>	<b>Sector</b>
ID 1	Chemicals, Mining
ID 2	Aerospace & Defence, Construction & Materials, General Industrials, Industrial Engineering, Support Services
ID 3	Automobiles & Parts, Beverages, Food Producers, Household Goods, Personal Goods, Tobacco
ID 4	Health Care Equipment & Services, Pharmaceuticals & Biotechnology
ID 5	Food & Drug Retailers, General Retailers, Media, Travel & Leisure
ID 6	Fixed Line Telecommunications, Mobile Telecommunications
ID 7	Electricity, Gas, Water & Multi-utilities Banks, General Financial, Life Insurance, Non-life Insurance, Real Estate
ID 8	Investment Trusts
ID 9	Software & Computer Services, Technology Hardware & Equipment
ID 10	Oil & Gas Producers, Oil Equipment, Services & Distribution

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## Appendix II

### Robustness result with alternative MO proxy (stock options exercise behaviour)

Model	Baseline Model	Panel A: Binomial Index				Panel B: PCA Index			
	Model I	Model II	Model III	Model IV	Model V	Model II	Model III	Model IV	Model V
C	11.1375 (0.8246)	11.1492 (0.8242)	11.6877 (0.8612)	8.9749 (0.6589)	9.7863 (0.7154)	9.8598 (0.7266)	11.8844 (0.8748)	11.0607 (0.8135)	11.1135 (0.8103)
Corporate governance (CG)	1.2633 (1.5228)	1.2607 (1.4903)	1.2550 (1.4785)	1.2226 (1.4405)	1.2053 (1.3716)	1.3491 (1.6171)	1.2422 (1.4707)	1.4368* (1.6971)	1.4315* (1.6636)
Firm Size (FS)	-0.1013* (-1.6467)	-0.1013 (-1.6448)	-0.0624 (-0.9674)	-0.1163* (-1.8686)	-0.0873 (-1.3200)	-0.1066* (-1.7242)	-0.0502 (-0.7546)	-0.1179* (-1.8914)	-0.0708 (-1.0442)
Leverage (LEV)	1.5452** (2.1878)	1.5449** (2.1867)	1.5460** (2.1827)	1.4541** (2.0476)	1.4652** (2.0621)	1.5456** (2.1825)	1.4857** (2.0981)	1.4145** (1.9867)	1.3883* (1.9560)
Market to Book Ratio (MTB)	0.0403** (2.2795)	0.0403** (2.2780)	0.0394** (2.2212)	0.0369** (2.0896)	0.0366** (2.0661)	0.0397** (2.2703)	0.0391** (2.1793)	0.0405** (2.2691)	0.0388** (2.1730)
Profitability (PRO)	-6.5556*** (-4.3723)	-6.5572*** (-4.3629)	-6.7231*** (-4.4563)	-6.3276*** (-4.2073)	-6.4996*** (-4.2927)	-6.4136*** (-4.2537)	-6.0991*** (-4.0066)	-6.6459*** (-4.4013)	-6.1185*** (-3.9807)
Log GDP	-0.5946 (-0.6165)	-0.5950 (-0.6167)	-0.7200 (-0.7403)	-0.4552 (-0.4688)	-0.5697 (-0.5824)	-0.5004 (-0.5165)	-0.7103 (-0.7304)	-0.5430 (-0.5599)	-0.6120 (-0.6244)
Log Stock Market Return (SMR)	-0.2703 (-0.4487)	-0.2700 (-0.4481)	-0.2407 (-0.3968)	-0.2963 (-0.4878)	-0.2674 (-0.4383)	-0.2753 (-0.4565)	-0.2691 (-0.4435)	-0.3321 (-0.5479)	-0.3208 (-0.5258)
Consumer Confidence Indicator (CCI)	-0.0183 (-0.9855)	-0.0183 (-0.9848)	-0.0193 (-1.0365)	-0.0178 (-0.9514)	-0.0187 (-1.0001)	-0.0179 (-0.9656)	-0.0201 (-1.0810)	-0.0169 (-0.9085)	-0.0188 (-1.0039)
Traits Index (TI)		-0.0079 (-0.0155)			-0.0636 (-0.1213)	0.1059 (1.1504)			0.0629 (0.6488)
Skills & Experiences Index (SEI)			1.4542** (2.0298)		1.0251 (1.3732)		0.1847** (2.0544)		0.1708* (1.8745)
Networking Index (NI)				1.0711*** (2.6294)	0.9254** (2.1814)			0.1966** (2.0905)	0.1581 (1.5936)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.1130	0.1130	0.1190	0.1230	0.1259	0.1149	0.1191	0.1194	0.1248
Incremental R <sup>2</sup>		0.00%	0.6%	1.00%	1.29%	0.19%	0.61%	0.64%	1.18%
Observations	507	507	507	507	507	507	507	507	507
Dep=0	256	256	256	256	256	256	256	256	256
Dep=1	251	251	251	251	251	251	251	251	251

*Z-Statistics are reported in the parentheses and \*, \*\*, \*\*\* denote significant at the 10%, 5% and 1% level respectively*

### Appendix III

#### Robustness result with alternative MO proxy (insider transactions behaviour)

MO proxy	Panel A: Control models			Panel B: Binomial Index			Panel C: PCA Index		
	MA	IT I	IT II	MA	IT I	IT II	MA	IT I	IT II
<b>C</b>	131.0410 (1.2305)	0.2720 (0.0032)	109.3108 (1.4088)	145.7628 (1.3331)	-16.64605 (-0.1898)	110.9314 (1.4113)	126.9974 (1.1820)	-27.2176 (-0.3060)	124.3735 (1.5720)
<b>CG</b>	1.3606 (0.9604)	-0.5115 (-0.4592)	0.0760 (0.0808)	1.2714 (0.8605)	-0.6728 (-0.5804)	0.1846 (0.1906)	1.4163 (0.9475)	0.0301 (0.0255)	0.2767 (0.2799)
<b>FS</b>	-0.2605** (-2.4163)	0.0984 (1.2184)	0.0623 (0.9159)	-0.2006* (-1.7402)	-0.0061 (-0.0708)	0.0611 (0.8537)	-0.2276** (-1.9672)	-0.0500 (-0.5695)	0.0175 (0.2420)
<b>LEV</b>	2.6596*** (2.6495)	2.2130** (2.54310)	2.2164*** (2.9458)	3.4549*** (3.1394)	2.1144* (2.3054)	2.0299*** (2.6210)	2.9518*** (2.7507)	2.0527** (2.2339)	1.9686** (2.5068)
<b>MTB</b>	-0.0013 (-0.0837)	0.0068 (0.5229)	0.0068 (0.5360)	-0.0022 (-0.1449)	0.0078 (0.5860)	0.0081 (0.6387)	-0.0032 (-0.2075)	0.0078 (0.5967)	0.0089 (0.6931)
<b>PRO</b>	1.0676 (0.6258)	-0.1719 (-0.1054)	-1.4603 (-1.0473)	0.0896 (0.0488)	0.3545 (0.2043)	-0.6685 (-0.4618)	0.4964 (0.2784)	-1.0577 (-0.5767)	-0.9258 (-0.6362)
<b>Log GDP</b>	-10.5438 (-1.1830)	-0.4492 (-0.0625)	-10.2350 (-1.5684)	-11.906 (-1.3011)	1.1607 (0.1573)	-10.3342 (-1.5635)	-10.333 (-1.1489)	1.8611 (0.2487)	-11.3495* (-1.7059)
<b>Log SMR</b>	2.2765 (0.8747)	0.6224 (0.2833)	4.2172** (2.1542)	2.4805 (0.9311)	0.3451 (0.1532)	4.2868** (2.1612)	2.3025 (0.8766)	0.3115 (0.1369)	4.4042** (2.2072)
<b>CCI</b>	-0.0265 (-0.8196)	-0.0039 (-0.1510)	0.0280 (1.1837)	-0.0333 (-1.0030)	-0.0019 (-0.0735)	0.0312 (1.2983)	-0.0288 (-0.8824)	-00001 (-0.0014)	0.0311 (1.2923)
<b>TI</b>				-0.2703 (-0.3042)	-0.4730 (-0.6477)	0.4179 (0.6668)	-0.0057 (-0.0379)	0.1053 (0.8532)	0.0729 (0.6600)
<b>SEI</b>				3.1839** (2.4159)	-4.3733*** (-4.0208)	-1.4295** (-1.5880)	0.2195 (1.6245)	-0.5964*** (-4.7111)	-0.2938*** (-2.7766)
<b>NI</b>				1.2460* (1.8726)	0.3605 (0.6766)	-1.1423 (-2.4524)	0.2012 (1.3997)	0.1190 (0.9977)	-0.1836* (-1.9020)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.0830	0.0759	0.0460	0.1258	0.1149	0.0684	0.1018	0.1296	0.0730
Incremental R <sup>2</sup>				4.28%	3.90%	2.24%	1.88%	5.37%	2.7%
Observations	432	375	432	432	375	432	432	375	432
Dep=0	368	118	155	368	118	155	368	118	155
Dep=1	64	257	277	64	257	277	64	257	277

Z-Statistics are reported in the parentheses and \*, \*\*, \*\*\* denote significant at the 10%, 5% and 1% level respectively.

## Appendix IV

### Result for the Relationship between Debt Financing and Leasing

The table presents the regression result for debt financing (leverage) with three types of lease propensity (total lease share, finance lease share, and operating lease share). Our regressions are based on Model 1:  $LEV_{i,t} = \alpha + \beta_1 TLS_{i,t} + \varepsilon$ , Model 2:  $LEV_{i,t} = \alpha + \beta_1 OPL_{i,t} + \varepsilon$  and Model 3:  $LEV_{i,t} = \alpha + \beta_1 FLS_{i,t} + \varepsilon$ . T statistics are reported in parentheses and \*, \*\*, \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
C	0.2261*** (13.7721)	0.2236*** (13.8966)	0.2083*** (14.8182)
Total Lease Share	-0.0679** (-2.3059)		
Operating Lease Share		-0.0659** (-2.1816)	
Finance Lease Share			-0.0743 (-1.0379)
Adjusted R <sup>2</sup>	0.1113	0.1105	0.1051
Observations	623	623	623

## Appendix V

### Regression Results for Debt Employment and CEO Optimism

The table presents the regression result for debt employment (leverage) and CEO optimism. Our regressions are based on the regression model:  $LEV_{i,t} = \alpha + \beta_{ol} CEOOI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$ ,  $T$  statistics are reported in parentheses and \*, \*\*, \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

C	-0.6089 (-0.8492)
Tax Loss Carried Forward	-0.0652** (-2.1787)
Internal Fund	1.6106*** (11.7762)
MTB	0.0001 (0.1726)
Profitability	-0.5767*** (-5.1617)
Tangibility	-0.0182 (-0.6236)
Firm Size	0.0202*** (4.1343)
Uniqueness	-0.0064 (-0.5072)
Corporate Governance	0.0474 (1.0429)
GDP	-0.0024 (-0.0455)
Stock Market Return	0.0389 (1.1184)
CCI	0.0007 (0.6866)
CEOOI	0.1018** (2.2704)
Industry dummies	Yes
Year fixed effects	Yes
Adjusted R <sup>2</sup>	0.3160
Observations	631

## Appendix VI

### Regression Results for Lease-Debt ratios and CEO Optimism

The table presents the regression result for lease-debt ratios (total lease share/debt, finance lease share/debt, and operating lease share/debt). Our regressions are based on the regression model:  $LeaseDebtRatio_{i,t} = \alpha + \beta_{ol} CEOOI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}$ , T statistics are reported in parentheses and \*, \*\*, \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

	Panel A: Total Lease Share	Panel B: Finance Lease Share	Panel C: Operating Lease Share
C	4.4773 (0.7321)	-8.7797 (-0.8105)	4.7113 (0.7479)
Tax Loss Carried Forward	0.4157* (1.6589)	0.9352** (2.1786)	0.2627 (1.0178)
Internal Fund	-8.2037*** (-6.8671)	-7.5914*** (-3.7202)	-8.7355*** (-7.0996)
MTB	-0.0024 (-1.6199)	-0.0024 (-0.9791)	-0.0021 (-1.3938)
Profitability	2.5553*** (2.7475)	2.0723 (1.3296)	2.6419*** (2.7580)
Tangibility	-1.6963*** (-6.7379)	-2.3740*** (-5.0416)	-1.6009*** (-6.1740)
Firm Size	-0.2799*** (-6.7420)	0.0506 (0.6869)	-0.3069*** (-7.1758)
Uniqueness	-0.6284*** (-5.6986)	-0.7273*** (-3.7550)	-0.5954*** (-5.2422)
Corporate Governance	-0.4204 (-1.0330)	-1.6738** (-2.3465)	0.0002 (0.0005)
GDP	0.3384 (0.7632)	0.6275 (0.8042)	0.3481 (0.7623)
Stock Market Return	-0.2439 (-0.8356)	0.1491 (0.2893)	-0.2874 (-0.9563)
CCI	-0.0064 (-0.7466)	0.0229 (1.5367)	-0.0077 (-0.8780)
CEOOI	-0.6612* (-1.6630)	-2.8317*** (-3.8859)	-0.6628 (-1.6184)
Industry dummies	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Adjusted R <sup>2</sup>	0.3198	0.2336	0.3118
Observations	594	501	594

## Appendix VII

<b>INSTRUMENT DEFINITIONS AND CATEGORISATION</b>	
<b>Panel A: Foreign Exchange Transactions</b>	
Spot Transaction	Single outright transaction involving the exchange of two currencies at a rate agreed on the date of the contract for value or delivery (cash settlement) within two business days. The spot legs of swaps, and swaps that were for settlement within two days (i.e. overnight swaps, spot next swaps, and “tomorrow/next day” swap transactions) were excluded from this category.
Outright Forward	Transaction involving the exchange of two currencies at a rate agreed on the date of the contract for value or delivery (cash settlement) at some time in the future (more than two business days later). Also included in this category were forward foreign exchange agreement transactions (FXA), non-deliverable forwards, and other forward contracts for differences.
Foreign Exchange Swap	Transaction which involves the actual exchange of two currencies (principal amount only) on a specific date at a rate agreed at the time of the conclusion of the contract (the short leg), and a reverse exchange of the same two currencies at a date further in the future at a rate (generally different from the rate applied to the short leg) agreed at the time of the conclusion of the contract (the long leg). Short-term swaps carried out as “tomorrow/next day” transactions are included in this category.
Currency Swap	Transaction which involves the actual exchange of two currencies on a specific date at a rate agreed at the time of the conclusion of the contract and an agreement to exchange streams of interest payments in the currencies for an agreed period of time, followed by a reverse exchange at a pre-agreed exchange rate at maturity.
Option	Option contract that gives the right to buy or sell a currency with another currency at a specified exchange rate during a specified period. This category also includes currency swaptions, currency warrants, plain vanilla contracts and exotic foreign exchange options such as average rate options and barrier options.
<b>Panel B: OTC Interest Rate Derivatives</b>	
<p>Interest rate contracts are contracts related to an interest-bearing financial instrument whose cash flows are determined by referencing interest rates or another interest rate contract (e.g. an option on a futures contract to purchase a Treasury bill).</p> <p>This category is limited to those deals where all the legs are exposed to only one currency’s interest rate.</p> <p>Thus it excludes contracts involving the exchange of one or more foreign currencies (e.g. cross-currency swaps and currency options) and other contracts whose predominant risk characteristic is foreign exchange risk.</p>	
Forward Rate Agreement (FRA)	Interest rate forward contract in which the rate to be paid or received on a specific obligation for a set period of time, beginning at some time in the future, is determined at contract initiation.
Interest Rate Swap	Agreement to exchange periodic payments related to interest rates on a single currency. Interest rate swaps can be fixed for floating, or floating for floating based on different indices. This category includes those swaps whose notional principal is amortised according to a fixed schedule independent of interest rates.
Interest Rate Option	Option contract that gives the right to pay or receive a specific interest rate on a predetermined principal for a set period of time. Included in this category are interest rate caps, floors, collars, corridors, swaptions and warrants.

Source: BIS and Bank of England

## Appendix VIII

Weir Group Plc (Annual Report 2013)

### **Derivative financial instruments & hedge accounting**

The Group uses derivative financial instruments, principally forward foreign currency contracts and cross currency swaps, to reduce its exposure to exchange rate movements. The Group also uses foreign currency borrowings as a hedge of its exposure to foreign exchange risk on its investments in foreign subsidiaries. Additionally, the Group uses interest rate swaps to manage its exposure to interest rate risk. The Group does not hold or issue derivatives for speculative or trading purposes.

Derivative financial instruments are recognised as assets and liabilities measured at their fair values at the balance sheet date. The fair value of forward foreign currency contracts is calculated as the present value of the estimated future cash flows based on spot and forward foreign exchange rates and counterparty and own credit risk. The fair value of interest rate swaps and cross currency swaps is calculated as the present value of the estimated future cash flows based on interest rate curves, spot foreign exchange rates and counterparty and own credit risk. Changes in their fair values have been recognised in the income statement, except where hedge accounting is used, provided the conditions specified by IAS 39 are met. Hedge accounting is applied in respect of hedge relationships where it is both permissible under IAS 39 and practical to do so. When hedge accounting is used, the relevant hedging relationships will be classified as fair value hedges, cash flow hedges or net investment hedges.

Where the hedging relationship is classified as a fair value hedge, the carrying amount of the hedged asset or liability will be adjusted by the increase or decrease in its fair value attributable to the hedged risk and the resulting gain or loss will be recognised in the income statement where, to the extent that the hedge is effective, it will be offset by the change in the fair value of the hedging instrument.

Where the hedging relationship is classified as a cash flow hedge or as a net investment hedge, to the extent that the hedge is effective, changes in the fair value of the hedging instrument will be recognised directly in other comprehensive income rather than in the income statement. When the hedged item is recognised in the financial statements, the accumulated gains and losses recognised in other comprehensive income will be either recycled to the income statement or, if the hedged item results in a non-financial asset, will be recognised as adjustments to its initial carrying amount.

Hedge accounting is discontinued when the hedging instrument expires or is sold, terminated or exercised, or no longer qualifies for hedge accounting. At that point in time, any cumulative gain or loss on the hedging instrument recognised in other comprehensive income is kept in other comprehensive income until the forecasted transaction occurs. If a hedged transaction is no longer expected to occur, the net cumulative gain or loss recognised in other comprehensive income is transferred to net profit or loss for the period.

## Appendix IX

### The FTSE 100 UK Firms' Financial Hedging Behaviour (2000-2013)

#### Panel A: Financial hedging by year: hedger or non-hedger

Year	Obs.	Non- hedger	% of Non-hedger	Hedger	% of hedger
2000	37	5	13.51%	32	86.49%
2001	45	6	13.33%	39	86.67%
2002	48	5	10.42%	43	89.58%
2003	51	5	9.80%	46	90.20%
2004	54	3	5.56%	51	94.44%
2005	61	2	3.28%	59	96.72%
2006	62	2	3.23%	60	96.77%
2007	64	1	1.56%	63	98.44%
2008	65	0	0.00%	65	100.00%
2009	67	1	1.49%	66	98.51%
2010	66	3	4.55%	63	95.45%
2011	66	5	7.58%	61	92.42%
2012	68	3	4.41%	65	95.59%
2013	62	3	4.84%	59	95.16%
<b>Total</b>	<b>816</b>	<b>44</b>		<b>772</b>	
<b>Average</b>			<b>5.39%</b>		<b>94.61%</b>

#### Panel B: Financial Hedging: type of risk hedged

Year	Foreign Currency Derivatives (FCDs)	% of firm uses FCDs	Interest Rate Derivatives (IRDs)	% of firm uses IRDs	Commodity Derivatives (CDs)	% of firm uses CDs	Average type of derivative used
2000	32	86.49%	26	70.27%	10	27.03%	1.84
2001	37	82.22%	31	68.89%	13	28.89%	1.80
2002	43	89.58%	35	72.92%	13	27.08%	1.90
2003	43	84.31%	38	74.51%	16	31.37%	1.90
2004	48	88.89%	44	81.48%	20	37.04%	2.07
2005	56	91.80%	50	81.97%	21	34.43%	2.08
2006	57	91.94%	51	82.26%	21	33.87%	2.08
2007	59	92.19%	52	81.25%	22	34.38%	2.08
2008	60	92.31%	54	83.08%	24	36.92%	2.12
2009	62	92.54%	58	86.57%	26	38.81%	2.18
2010	61	92.42%	54	81.82%	25	37.88%	2.12
2011	61	92.42%	48	72.73%	28	42.42%	2.08
2012	64	94.12%	48	70.59%	29	42.65%	2.07
2013	58	93.55%	45	73.77%	26	41.94%	2.08
<b>Total</b>	<b>741</b>		<b>634</b>		<b>294</b>		
<b>Average</b>		<b>90.81%</b>		<b>77.70%</b>		<b>36.03%</b>	<b>2.03</b>

**Panel C: Financial Hedging: type of derivative contract used**

Year	Forward Contract (FORC)	% of firm uses Forward Contract	Options Contract (OPC)	% of firm uses Options Contract	Swaps Contract (SWC)	% of firm uses Swaps Contract	Futures Contract (FUC)	% of firm uses Futures Contract	Average type of derivativ e contract used
2000	30	81.08%	11	29.73%	25	69.44%	5	13.51%	1.92
2001	34	75.56%	14	31.11%	31	68.89%	7	15.56%	1.91
2002	39	81.25%	15	31.25%	35	72.92%	6	12.50%	1.98
2003	40	78.43%	15	29.41%	38	74.51%	7	13.73%	1.96
2004	44	81.48%	20	37.04%	43	79.63%	7	12.96%	2.11
2005	50	81.97%	21	34.43%	51	83.61%	9	14.75%	2.15
2006	51	82.26%	21	33.87%	54	87.10%	10	16.13%	2.19
2007	54	84.38%	19	29.69%	58	90.63%	9	14.06%	2.19
2008	57	87.69%	21	32.31%	59	90.77%	7	10.77%	2.22
2009	60	89.55%	19	28.36%	61	91.04%	10	14.93%	2.24
2010	56	84.85%	18	27.27%	59	89.39%	8	12.12%	2.14
2011	59	89.39%	19	28.79%	55	83.33%	7	10.61%	2.12
2012	60	88.24%	20	29.41%	57	83.82%	8	11.76%	2.13
2013	56	90.32%	18	29.03%	51	82.26%	8	12.90%	2.15
<b>Total</b>	<b>690</b>		<b>251</b>		<b>677</b>		<b>108</b>		
<b>Average</b>		<b>84.56%</b>		<b>30.76%</b>		<b>83.07%</b>		<b>13.24%</b>	<b>2.10</b>

## Appendix X

### Additional Test (Total Derivatives Excluding SWAPS) CEO Personal Attributes and Financial Hedging Decisions (Magnitude Of Hedging)

	Model II: CEO Personal Attributes			Model III: CEO Personal Attributes Indexes				Model IV: CEO Optimism Index
C	-0.2502*	-0.3205*	-0.3523**	-0.2793*	-0.2604	-0.2646	-0.2632	-0.2657
	(-1.8499)	(-1.9202)	(-2.1081)	(-1.6604)	(-1.5558)	(-1.5794)	(-1.5758)	(-1.5930)
Leverage	-0.0184**	-0.0168*	-0.0184**	-0.0189**	-0.0148	-0.0165*	-0.0171*	-0.0179**
	(-1.9720)	(-1.8484)	(-2.0139)	(-2.0289)	(-1.6148)	(-1.8087)	(-1.8501)	(-1.9629)
R&D	-0.0560	-0.0427	-0.0620	-0.0651	-0.0621	-0.0693	-0.0756	-0.0776
	(-1.0227)	(-0.7841)	(-1.1407)	(-1.2038)	(-1.1594)	(-1.2897)	(-1.4056)	(-1.4468)
Capital Expenditure	0.0007***	0.0008***	0.0008***	0.0007***	0.0007***	0.0008***	0.0007***	0.0008***
	(2.9357)	(3.4250)	(3.4611)	(3.0793)	(3.0285)	(3.2844)	(3.2443)	(3.3124)
Firm Size	0.0036***	0.0044***	0.0027**	0.0036***	0.0033***	0.0028**	0.0031***	0.0030***
	(3.3017)	(3.2617)	(2.4413)	(3.3578)	(3.1076)	(2.5016)	(2.7612)	(2.7989)
Cash Ratio	-0.0021	-0.0020	-0.0018	-0.0021	-0.0019	-0.0017	-0.0015	-0.0015
	(-1.1356)	(-1.0677)	(-0.9860)	(-1.1269)	(-1.0140)	(-0.9299)	(-0.82460)	(-0.8149)
Dividend Yield	0.0018**	0.0020**	0.0022***	0.0019**	0.0021**	0.0020**	0.0022***	0.0022***
	(2.1445)	(2.4400)	(2.6439)	(2.2437)	(2.5028)	(2.4383)	(2.6492)	(2.6294)
Corporate Governance	-0.0031	0.0033	-0.0048	-0.0007	-0.0019	-0.0011	0.0023	0.0028
	(-0.2630)	(0.2983)	(-0.4293)	(-0.0579)	(-0.1695)	(-0.0968)	(0.2051)	(0.2480)
FSTS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(-0.4354)	(-0.4455)	(-1.1028)	(-0.3121)	(-0.7420)	(-0.6486)	(-0.5385)	(-0.4850)
GDP	0.0228**	0.0248**	0.0291**	0.0238*	0.0224*	0.0235*	0.0217*	0.0219*
	(2.4023)	(2.0521)	(2.4113)	(1.9542)	(1.8524)	(1.9392)	(1.7961)	(1.8169)
Stock Market Return	-0.0113	-0.0097	-0.0104	-0.0114	-0.0111	-0.0113	-0.0108	-0.0109
	(-1.4030)	(-1.2245)	(-1.2973)	(-1.4109)	(-1.3840)	(-1.4059)	(-1.3474)	(-1.3527)
CCI	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	(0.1847)	(0.6200)	(0.0406)	(0.2338)	(0.2699)	(0.0910)	(0.2636)	(0.2374)
Age	-0.0002							
	(-0.7468)							
Male CEO	0.0041							
	(0.6434)							
Married CEO	-0.0020							
	(-0.5151)							
UK Nationality	0.0007							
	(0.2344)							

MBA holder		-0.0110*** (-3.0637)						
PhD holder		0.0035 (0.8766)						
Founder		0.0084 (1.1796)						
Financial Literacy		0.0119*** (4.2674)						
Duality		0.0022 (0.3469)						
Tenure as CEO		0.0005 (0.3330)						
Emoluments		0.1498 (0.6720)						
Tenure with the firm		-0.0002 (-0.0810)						
Internal Promotion		0.0093** (2.2844)						
External Directorships		0.0064*** (4.3054)						
Social Networking prestige		0.0023 (0.8313)						
Traits Index			0.0100 (1.4313)				0.0093 (1.3122)	
Skills and Experiences Index				0.0304*** (3.0768)			0.0258** (2.4539)	
Networking Index					0.0137*** (2.7779)		0.0084 (1.5942)	
Optimism Index								0.0402*** (3.7705)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R <sup>2</sup>	0.1080	0.1499	0.1354	0.1111	0.1199	0.1179	0.1239	0.1255
Observations	754	754	754	754	754	754	754	754

This table shows the result of the relationship between CEO personal attributes (traits, skills and experiences, and networking) with financial hedging magnitude (total fair value of the derivatives excluding swaps/ total assets) using panel OLS regression. Year and industry effects are included. Our regressions are based on our Model II:

$$CHD_{i,t} = \alpha + \beta_{pa} \sum CEO\_Personal\_Attributes_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}, \text{ Model III: } CHD_{i,t} = \alpha + \beta_{TI} TI_{i,t} + \beta_{SEI} SEI_{i,t} + \beta_{NI} NI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t}, \text{ and Model IV: } CHD_{i,t} = \alpha + \beta_{OI} CEOOI_{i,t} + \beta_z \sum (Z)_{i,t} + \varepsilon_{i,t},$$

where Z is the vector of control variables (firm, and macroeconomic factors and industries dummies). T-statistics are reported in parentheses and \*, \*\*, \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

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