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Corporate Governance Practices and Firm Performance in the UK Insurance Industry, Does This Relationship Hold True During Financial Distress?

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Abstract:

Past empirical studies in corporate governance have focused on non-financial companies, and mostly in the U.S, while few within financial firms have investigated corporate governance in the banking industry, and much fewer in the UK. However, a scarce number of studies, with no recent studies, have attempted to systematically explore the effect of corporate governance in the UK insurance industry, taking into account the 'Comply or Explain' approach to corporate governance, compared to legislation-based approach in the US. In this study, the main aim is to examine the impact of corporate governance arrangements on firm performance of the UK insurance industry, and whether listing status and/or financial distress make any difference?

This study contributes to the literature first by a manually collected dataset for both listed and non-listed insurance companies in the UK over a longer period of time stretching between 2004 and 2013. As far as the researcher is aware, this study is also the first to using two new insurance-related performance measures, revenue growth ratio and adjusted combined ratio, in order to compare the effects of corporate governance arrangements implemented among listed and non-listed insurance companies, as well as before, during, and after the Financial Crisis of 2008.

Using a sample of 67 UK insurance firms during the period 2004-2013, the main findings show that board non-duality and the presence of a majority shareholder, but with a local audit firm with less independence ratio, improve firm performance in insurance companies. Furthermore, the findings for the sub-samples indicate a stronger association between corporate governance and firm performance in listed insurance companies during the financial crisis of (2007-2009), and afterwards.

Keywords: Corporate Governance, Firm Performance, Insurance, Listed and Non-Listed, Financial Crisis, United Kingdom.

INTRODUCTION

After a series of unexpected corporate failures in the early 1980s in the UK, corporate governance has gained a wide attention leading to the Cadbury report on UK Corporate Governance in 1992 (Diacon and O'Sullivan 1995), followed by subsequent reports aiming to emphasise the good practice of corporate governance in the UK until 1998 where the Financial Reporting Council (FRC) released a single corporate governance code for the UK, "The Combined Code", and has committed to review the code regularly thereafter, in which the latest update was released on July 2018 (FRC 2018). Nowadays, according to (Arcot et al. 2009; FRC 2012), the UK Corporate Governance Code, 'The Code', has been recognised widely as an international benchmark for good corporate governance practice. Indeed, having a good corporate governance, (Babu and P.Viswanatham 2013; Ahmad et al. 2014) argue, would promote disclosure in financial reporting and increase the confidence of investors and lenders in a company, leading to better access to funding with lower cost of capital, and as a result, enhanced performance and long-term sustainable success (FRC 2014, 2016, 2018).

While much academic research has been done on corporate governance in non-financial companies (see Core et al. 1999; Short and Keasey 1999; Bhagat and Bolton 2008; Anderson and Gupta 2009; Munisi and Randøy 2013; Andreou et al. 2014; Yoo and Jung 2014), less research has focused on financial firms in which the banking industry has been the main focus (see Olatunji and Stephen 2011; Aebi et al. 2012; Dedu and Chitan 2013). However, there has been only a limited amount of empirical research has investigated the corporate governance practices across insurance companies (see Wang et al. 2007; Boubakri 2011; Huang et al. 2011), with a few exceptions in the UK (see Diacon and O'Sullivan (1995). Therefore, this study aims to investigate the impact of various corporate governance practices on the performance of both listed and non-listed insurance firms in the UK over the period 2004 – 2013. Another objective, to the best of researcher's knowledge, is to use two new insurance-related performance measures, the revenue growth ratio and the adjusted combined ratio, and to see whether these new variables create any insights. This study also aims to give more insights into the effectiveness of corporate governance practices used in listed and non-listed companies, prior to, throughout and following the Financial Crisis (2007-09). To sum up, this study will try to answer the following research questions:

1. *Does corporate governance affect the performance of insurance firms?*
2. *Which particular corporate governance practices/mechanisms are more important in affecting firm performance?*
3. *Have listing and/or the recent financial crisis of 2008, changed the relationship between corporate governance and firm performance?*

LITERATURE REVIEW

Firm Performance and Corporate Governance

The relationship between specific arrangements of corporate governance, such as Board Remuneration and Ownership, and several performance metrics, has been investigated in prior literature, in which most studies has found that well-governed firms are generally associated with improved corporate performance (see Diacon and O'Sullivan 1995; Daily and Dalton 1998; Core et al. 1999; Gompers et al. 2003; Kiel and Nicholson 2003; Klapper and Love 2004; Black et al. 2006; Bhagat and Bolton 2008; Dahya et al. 2008; Anderson and Gupta 2009; Sami et al. 2011; Guo and Kga 2012; Peni and Vähämaa 2012; Munisi and Randøy 2013; Andreou et al. 2014). However, this governance-performance association has not received much attention during turbulent financial periods, such as the Global Financial Crisis of 2007-09 (Erkens et al. 2012; Ressas and Hussainey 2014)[1], and there is only a limited amount of research exploring to what extent such crises have affected the association between corporate governance and firm performance (see Aebi et al. 2012; Erkens et al. 2012; Peni and Vähämaa 2012; Gupta et al. 2013; van Essen et al. 2013). For example, Peni and Vähämaa (2012) revealed mixed results in the US banking industry, in which corporate governance had a positive relationship with profitability, while a negative effect was found between good governance and stock performance in the middle of the crisis. Therefore, this study provides an additional evidence regarding the governance-performance association pre-, during, and post- the financial crisis of (2007-2009) in the UK context.

Corporate Governance Practices and Mechanisms: Hypotheses Development

With regard to the theoretical framework of this study, only the agency theory and resource dependency theory have successfully explained the proposed corporate governance arrangements although many different theories have been previously proposed to explain corporate governance (Mallin 2012)[2].. Agency theory has been first introduced by Alchian and Demsetz (1972), and then developed by Jensen and Meckling (1976), and it consists on the separation of ownership and control. In this theory, principals, shareholders or owners of the company, hires the agents, executives and management team, to operate the company in the principals' best interests, and thus, protect the ownership rights of shareholders. However, this theory suggests also that managers can be self-interested, and they might make decisions against the principals' interests (Ross 1973; Jensen and

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[1] The crisis has started in the United States, resulted in the collapse of well-known financial institutions such as Lehman Brothers, leading to extra pressure on governments around the world to rescue financial systems, especially banks, financial services, insurance companies and real estate investment trusts (Erkens et al., 2012; Ressas and Hussainey, 2014).

[2] Among the fundamental theories, Agency Theory (Alchian and Demsetz, 1972; Jensen and Meckling, 1976) is the first to explain corporate governance dilemma, extended into Resource Dependency Theory (Pfeffer and Salancik, 1978), followed by Stakeholder Theory, Transaction Cost Theory and Stewardship Theory (Davis, Schoorman and Donaldson, 1997). Other theories have been developed later, such as Class Hegemony Theory, Managerial Hegemony Theory, Institutional Theory, Political Theory and Network Governance Theory (see Mallin, 2012).

Meckling 1976; Davis et al. 1997; Padilla 2002; Clark 2004) (Abdullah and Valentine 2009). On the other hand, resource dependency theory focuses on the key role that the board of directors plays, through their linkages to external environment, in securing access to resources that are essential to firm success, such as information, skills, access to suppliers, buyers, public policy makers, social groups as well as legitimacy. (Pfeffer and Salancik 1978; Johnson et al. 1996; Hillman et al. 2000).

In the current study, the relationship between various corporate governance arrangements and three proxies of firm performance is summarised in a conceptual framework[3], as shown in *Figure 1*.
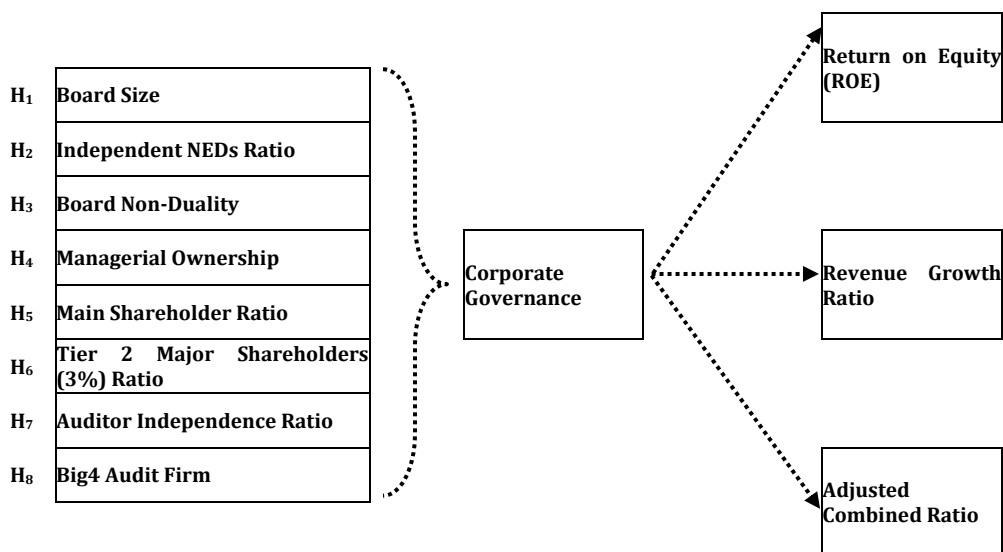

Figure 1: A Framework of the impact of Corporate Governance on Firm Performance

(***Source***: *the researcher's interpretation of the suggested framework of the relationship between various corporate governance arrangements and three proxies of firm performance.*)

Board Size: Previous studies, such as Huang et al. (2011) and Andreou et al. (2014), showed a significant negative effect of board size on firm performance, due to the difficulty to coordinate and the inability to make decisions quickly. Dedu and Chitan (2013). However, (Saravanan 2012) argued that larger boards can play a significant monitoring role as they are less likely to be dominated by management (Hussainey and Al-Najjar 2012), while Kathuria and Dash (1999) argued that the contribution of an additional board member decreases as the size of the board increases. On the other hand, (Bhagat and Black 1997; Connelly and Limpaphayom 2004; Wintoki et al. 2012; Andreou et al. 2014) found no meaningful relationship between board size and performance.

Therefore, according to the agency theory, the following hypothesis has been assumed:

H_1: *There is a negative relationship between board size and firm performance.*

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[3] A conceptual framework is a schematic presentation of the variables under investigation.

Independent Non-Executive Directors: The board should consist of a mixed number of executive and non-executive directors (Clifford and Evans 1997; Weir and Laing 2001)[4]. in which the majority of the board, excluding the chairman, should comprise independent non-executive directors (Cadbury 1992; FRC 2014)[5]. It is claimed, according to the resource dependence theory, that non-executive directors might have more connections with external organisations, and thus, can secure more external resources for the company (Chen et al. 2011). It is also argued, according to agency theory, that independent non-executive directors are more effective than executive directors at monitoring and evaluating the activities of the CEO and management team, as they wish to protect their reputations (Fama 1980; Fama and Jensen 1983). Therefore, non-executive directors are positively associated with firm performance (Daily and Dalton 1993; Dare 1993; Diacon and O'Sullivan 1995; Dahya and McConnell 2007). However, Vegas and Theordorou (1998) and Weir and Laing (1999) found no relationship between the proportion of non-executive directors and corporate performance in the UK, while Yermack (1996) and Bhagat and Black (1999) found a negative relationship between the proportion of non-executive directors and corporate performance,.

Therefore, consistent with the resource dependence theory and agency theory, it has been supposed that:

> *H₂: There is a positive relationship between the proportion of independent NEDs and firm performance.*

CEO / Chair Non-Duality: In the UK, the Cadbury Committee recommended that no one individual has unfettered powers of decision[6], and thus, there should be a clear separation of responsibilities at the head of the company to ensure a balance of power and authority (Cadbury 1992; Diacon and O'Sullivan 1995; FRC 2014). Therefore, it has been argued that this separation would improve operating performance (Bhagat and Bolton 2008; Andreou et al. 2014). In a study of UK insurance companies, Diacon and O'Sullivan (1993) stated that a non-dual CEO-Chairman had a substantial positive influence on firm performance in UK life insurance companies. (Fama and Jensen 1983; Gul and Leung 2004) argued that, otherwise, the board of directors might not be able to independently and efficiently oversee management activities, as the board itself might be controlled by the CEO.

Therefore, consistent with agency theory, the following hypothesis has been tested:

> *H₃: There is a positive relationship between board non-duality and firm performance.*

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[4] Executive directors are full-time employees of the company, who are responsible for the day-to-day management (Weir and Laing, 2001), while non-executive directors are not employees of the company or affiliated with it in any other way (Clifford and Evans, 1997).

[5] The UK Corporate Governance Code states that boards should identify in the annual report each non-executive director who is considered to be independent (FRC, 2014).

[6] The function of the chairperson is to run board meetings and oversee the process of hiring, firing, evaluating, and compensating the executive team, including the CEO.

Managerial Ownership: Jensen and Meckling (1976) suggested that directors with an increasing number of owned shares can expand their benefits and, thus, they have extra motivation to enhance firm performance, the '*incentive alignment effect*' (Morck et al. 1988; Huang et al. 2007). Prior studies found that firm performance is positively associated with board ownership, in which increased ownership helps to align the interests of shareholders and managers from the agency perspective, and improve corporate performance (Jensen and Meckling 1976; Yermack 1996; Saker and Saker 2000; Huang et al. 2007). However, the strength of this relationship will decline with the increase in managers' ownership, the '*entrenchment effect*', in which managers are more likely to reduce the level of information about their governance practices, and thus, shareholders find it hard to control such managers' activities (Hermalin and Weisbach 1988; Morck et al. 1988; McConnell and Servaes 1990; Holderness et al. 1999; Hussainey and Al-Najjar 2012). In contrast, Demsetz (1983) and Fama and Jensen (1983) claimed that market discipline will force managers to make positive efforts towards firm performance at very low levels of ownership. On the other hand, Randoy et al. (2003) found no significant relationship between the level of executive ownership and firm profitability, contrary to the predictions of agency theory.

Therefore, in line with the predictions of agency theory, it was assumed that:

H₄: There is a positive relationship between the ownership ratio of executive directors and firm performance.

Large Shareholders: Agency theory suggests that, due to the resources they invest in the company, large shareholders have the motivation and power to reduce the managers' '*entrenchment effect*', ensuring they operate in the shareholders' interests and, thus, enjoy lower agency costs, leading to higher performance, unlike firms with diffused ownership (Fama and Jensen 1983; Bethel and Liebeskind 1993; Shleifer and Vishny 1997; Hussainey and Al-Najjar 2012). Prior studies have found that large shareholdings are significant and positively linked to corporate performance (Shleifer and Vishny 1986; McConnell and Servaes 1990; Smith 1996; Del Guercio and Hawkins 1999; Saker and Saker 2000). On the other hand, Agrawal and Knoeber (1996), Karpoff et al. (1996), Short and Keasey (1999)and Faccio and Lasfer (2000) found no such significant relationship, while in other studies, this relationship was vague and unclear as to whether it was positive or negative (Pound 1988; Short 1994; Huang et al. 2007; Andreou et al. 2014). However, previous studies have assumed that large shareholders act in concert, while, according to (Zwiebel, 1995 cited in Ducassy and Guyot 2017), they can align with, take a neutral attitude, or even disagree with the main shareholder. In fact, Earle et al. (2005) argue that the marginal contribution of block shareholders in the monitoring process is insignificant although it can reduce the positive impact of the main shareholder, since large shareholders have different preferences, beliefs and competences (Cronqvist and Fahlenbrach 2008). Therefore, large shareholders should not be considered homogeneous, and the degree of homogeneity

between them is of particular significant in order to explain prior conflicting results. For example, Ducassy and Guyot (2017) have found a positive effect on the firm value with the presence of a majority shareholder (Main Shareholder) while no significant impact from the presence of a second shareholder (Tier 2 Block Shareholders).

Based on agency theory, as well as the previous discussion, the following hypotheses have been examined:

H₅: *The presence of a majority shareholder (main shareholder) leads to improved performance.*

H₆: *The presence of second tier shareholders[7] has no effect on firm performance with the presence of the main shareholder.*

External Auditor: The use of external auditor is considered one of the important elements of monitoring systems, and in the UK, external auditors assist the company to evaluate its accounting procedures, and report on the true and fair state of its financial status (Marnet 2004, 2005). The UK Corporate Governance Code advises that the objectivity and independence of the auditor must be maintained at all times, although they might provide non-audit services, such as consulting services, in addition to their main audit services (FRC 2014). In this regard, the ratio of audit fee to the total fees paid to the auditor might be used as a proxy for audit independence, in which the higher the audit fees compares to the total fees, the greater the independence of the auditor (Huang et al. 2011). Indeed, it has been argued that independent auditors enhance the credibility and reliability of financial statements, thus contributing to effective corporate governance (DeFond et al. 2000), since an audit is one type of monitoring activity that have been exist to provide feedback to shareholders on the behavior of managers, in which the cost of audit services represents an agency cost (Colbert and Jahera 1988). In this regard, independent auditors are more efficient in monitoring the opportunistic behavior of managers, according to the agency theory. However, Schroeder and Hamburger (2002) argued that more non-audit services might help auditors to gain competencies and capabilities that are essential to the audit process, where DeFond et al. (2002) found a positive relationship between the ratio of non-audit services to total fees and firm performance and, thus, a negative impact for the independence ratio.

On the other hand, the Big Four auditors are likely to improve the quality of information disclosure in the firm since, compared to local firm, they are more independent, and have a greater reputation and greater legal liabilities for errors (see Dye 1993; Michaely and Sahaw 1995). The largest international accounting firms (the Big Four) are: PricewaterhouseCoopers, Deloitte Touche Tohmatsu, Ernst &

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[7] Block Shareholders are large shareholders who own at least 5% of outstanding shares, while Tier 2 Block Shareholder are the difference between the ratio of major shareholders and the ratio of main shareholder.

Young, and KPMG. According to [Mitton (2002)](#) and [Baek et al. (2004)](#), better disclosure was associated with higher firm performance, as greater disclosure lowers information asymmetry and thereby mitigates agency conflicts between managers and shareholders ([Bushman and Smith 2001](#); [Hope and Thomas 2008](#)). For example, [Liu et al. (2012)](#) found a positive and significant coefficient on the Big Four dummy, which indicates that firms with better disclosure quality would suffer less stock price volatility during a crisis period.

Therefore, based on the agency theory, the following hypotheses have been investigated:

> **H_7: There is a positive relationship between the independence ratio of external auditors and firm performance.**

> **H_8: There is a positive relationship between the audit firm being from the Big4 and firm performance.**

To sum up, in accordance with agency theory and resource dependence theory, it can be supposed that most proposed corporate governance arrangements are positively associated with firm performance, except for board size which is expected to affect performance negatively while the presence of second tier block shareholders has been found to have no effect on firm performance.

DATA AND METHODOLOGY

This study collected panel data in order to investigate the impact of various corporate governance arrangements on the performance of both listed and non-listed insurance companies over a period of 10 years using multiple regression analysis, as it has been widely used in prior studies (see [Diacon and O'Sullivan 1995](#); [Core et al. 1999](#); [Bhagat and Bolton 2008](#); [Huang et al. 2011](#)). FAME, a database that contains comprehensive information about companies in the UK and Ireland, has been used to extract the sampling frame for this study, which included all the 657 active insurance firms in the UK at the end of the year 2014. The majority of those companies were private limited, while there were only 36 companies are public quoted in London Stock Exchange (LSE) and/or other international stock markets, while the rest were mainly private limited and few mutual, which is justified since companies that would like to trade in the UK have to submit annually a detailed financial report to the regulatory authorities ([Diacon and O'Sullivan 1995](#)).

Given the statistical technique employed, firms for which the UK was not the main market, and firms with no insurance data available from the annual reports, were both excluded. For public-quoted companies, the firms also had to have been listed for at least a year before the date of their accounting year end for 2003 to ensure that performance, capital structure and ownership were not affected due

to a new listing ([Short and Keasey 1999](#)). One more criterion is that firms with year-end other than 31st December have been also excluded in order to make sure data is comparable among all firms. Therefore, a final sample of 67 firms, with only 20 listed companies, and 647 firm-year observations in total, has been selected, which started in 2004 following the release by the Financial Reporting Council (FRC) of the UK corporate governance code 'The Combined Code' in 2003, and ends in 2013, as this was the most recent year for which data was available at the time of data collection. Finally, due to the lack of a reliable secondary data source, all corporate governance data, major shareholders information, and most performance data, including insurance-related indicators, such as premiums, claims and combined ratio, were hand-collected from the annual reports of the companies within the sample. Other data sources have been also used, such as FAME database and Bank of England's reports.

For the purpose on this research, corporate governance arrangements, performance measures, and control variables were all calculated by the researcher as follows:

Corporate Governance Variables

For the purpose on this research, corporate governance arrangements were calculated as follows:

Board Size: Board size is defined as the total number of directors on the board ([Huang et al. 2011](#)). However, the natural logarithm of board size was used, as the relationship between board size and performance is convex rather than linear ([Yermack 1996](#)), as follow:

> *BRDSIZE_LN = Ln (Board Size)*

Independent Non-Executive Directors Ratio: This ratio indicates the proportion of independent non-executive directors to the total number of directors on the board ([Diacon and O'Sullivan 1995](#); [Olatunji and Stephen 2011](#)), as follows:

> $INED = \dfrac{Number\ of\ Independent\ NEDs}{Board\ Size}$

Board Non-Duality: This was a dummy variable that equalled '0' if the CEO was also the chairman of the company, and '1' otherwise ([Diacon and O'Sullivan 1995](#)).

> *BRDNONDLTY = '0' if CEO is also Chair, '1' if separated.*

ED Ownership Ratio: This ratio comprised the outstanding shares held by executive directors to the total outstanding shares ([Huang et al. 2007](#)).

> $EDOWN = \dfrac{Number\ of\ Shares\ held\ by\ EDs}{Outstanding\ Shares}$

Main Shareholder Ratio: This ratio represented the proportion of shares held by the main shareholder. However, (Ducassy and Guyot 2017) have used a binary variable on the presence of a majority shareholder at the 50% threshold.

$$MAINSHRHLDR = \frac{Number\ of\ Shares\ held\ by\ the\ Main\ Shareholder}{Outstanding\ Shares}$$

Tier 2 Block Shareholders (5%) Ratio: This ratio represented the proportion of shares held by block shareholders who owned 5% of shares at least to the total outstanding shares, after subtracting the main shareholder ratio. However, (Ducassy and Guyot 2017) have used a binary variable on the presence of a second shareholder at the 10% threshold.

$$T2BLKSHRHLRS = \frac{(Number\ of\ Shares\ held\ by\ Block\ Shareholders - Number\ of\ Shares\ held\ by\ the\ Main\ Shareholder)}{Outstanding\ Shares}$$

External Auditor Independence Ratio: This ratio represented the proportion of audit fees divided by the total fees paid to the external audit firm, which is the reverse ratio of auditor dependence ratio, estimated by (Huang et al. 2011) as the non-audit fees to the total fees.

$$AUDITORIND = \frac{Audit\ Fees}{Total\ Fees\ (Audit + Non - Audit)}$$

Big4 Audit Firm: A dummy variable that takes the value of one for firms that adopt a Big Four accounting firm as the auditor and zero otherwise (Liu et al. 2012).

$$AUDITORBIG4 = \text{'1' if Audit Firm is one of the Big Four, '0' otherwise.}$$

Performance Variables

Since accounting-based measures, rather than market-based measures, ban be used in both listed and non-listed companies, and consistent with prior studies, the return on equity (ROE) and two new insurance-related performance measures, the revenue growth ratio and the adjusted combined ratio, have been used in this study.

Return on Equity (ROE): The return on equity (ROE), calculated as the ratio of net income to total shareholders' equity, measures the return for each sterling pound invested in the company, and is also a popular measure in governance literature. (see Tsoutsoura 2004; Anderson and Gupta 2009; Sami et al. 2011; Vintila and Gherghina 2012).

$$ROE = \frac{Net\ Income}{Shareholders'\ Equity}$$

Revenue Growth Ratio: Revenue Growth Ratio indicates the average growth in both premiums earned and net investments. However, prior research has used the premium growth ratio only as an insurance-related ratio ([Armitage and Kirk 1994](); [Diacon and O'Sullivan 1995]()), although investments are an important source of revenue for insurance companies. Therefore, consistent with ([Aggarwal et al. 2016]()), which have used the growth in total revenues, this study also uses the growth ratio of total revenue, including both premiums and net investment income.

$$RVNGRTH = \frac{Change\ in\ Total\ Revenue\ (this\ year - last\ year)}{Total\ Revenue\ last\ year}$$

Where: Total Revenue = Premiums Earned + Net Investment Income

Adjusted Combined Ratio: The combined ratio[8] is a measure of profitability used by an insurance company to indicate how well it is performing in its daily operations, and comprises the sum of claims, legal expenses and underwriting costs divided by earned premiums ([Fiegenbaum and Thomas 1990](); [Nathanson 2004](); [Chen et al. 2014]()). This ratio is expressed as a percentage, in which a ratio below 100% means that the insurance company has achieved an underwriting profit, while a ratio above 100% indicates an underwriting loss ([Browne and Hoyt 1995](); [Insurance Information Institute 2002](); [Nathanson 2004](); [Okura and Yamaguchi 2014]()). However, the company might still make a profit even if its combined ratio is over 100%, since this ratio does not include return from investments ([Insurance Information Institute 2013]()). Therefore, the adjusted combined ratio [9] is used in order to properly correlate corporate governance with a reliable indicator of an insurer's profitability. An Adjusted Combined Ratio comprises the sum of incurred losses and expenses divided by the sum of earned premiums and investments.

$$ADJCOMBND = \frac{Total\ Operating\ Expenses + Total\ Claims\ Paid}{Premiums\ Earned + Net\ Investment\ Income}$$

Control Variables

This study recognised that other variables might affect governance-performance relationship in different ways. Therefore, a number of control variables were included in this study, as follows:

Firm Size: Previous research has repeatedly shown that company size has an impact on corporate performance in the way that the effectiveness of the different corporate governance arrangements varies according to the size of the company ([Diacon and O'Sullivan 1995](); [Chen 2001](); [Hardwick et al.]()

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[8] Combined Ratio is defined as the sum of Loss Ratio and Expense Ratio ([Nathanson, 2004]()).

[9] The adjusted combined ratio is the sum of claims, legal expenses and underwriting costs, divided by earned premiums and net investment income.

2003; O'Sullivan and Diacon 2003). Moreover, Short and Keasey (1999) argue that larger firms may find it easier to benefit from more funding resources, either internally or externally. For the purpose of this study, firm size is calculated as the logarithm of total assets in order to capture the potential economies of scale and scope accruing to large firms (Ang et al. 2000).

FRMSIZE_LN_A = Ln (Total Assets)

Financial Leverage: Debt, as one of financing sources, may affect performance since it reduces free cash flow (Jensen 1986), and high debt means that debtholders monitor highly leveraged firms more closely and put pressure on such firms to adapt good governance practices (Broberg et al. 2010) (cited in Munisi and Randøy 2013). Therefore, for the purpose of this study, financial leverage is calculated as the ratio of total assets to total equity (Glotova et al. 2014), in which the higher the ratio the higher the reliance on debt to finance the firm assets, and as a result, the higher the pressure on the company board to adapt good governance.

$$LVRG\_AE = \frac{Total\ Assets}{Total\ Shareholders'\ Equity}$$

Insurance Line (Life, Non-Life & Composite): In line with previous studies that have controlled for industry segments (Ang et al. 2000; Hussainey and Al-Najjar 2012; Munisi and Randøy 2013; Al-Najjar and Hussainey 2016), this study has used two dummy variables to control for insurance line of business; one to indicate selling life insurance and the other to indicate selling non-life insurance. Therefore, life dummy is assigned '1' and non-life dummy is assigned '0' for life insurance firms, while for non-life insurance firms, non-life dummy is assigned '1' and the other one '0' (Diacon and O'Sullivan 1995). On the other hand, firms selling both life and non-life products (composite status) were assigned '1' for both variables.

Life Company (Selling Life Products Only) $\Longrightarrow$ LIFE =1 & NONLIFE =0

Non-Life Company (Selling Non-Life Products Only) $\Longrightarrow$ LIFE =0 & NONLIFE =1

Composite Company (Selling Both Life & Non-Life Products) $\Longrightarrow$ LIFE =1 & NONLIFE =1

Listing Status (Listed, Non-Listed): One dummy variable was used to control for the listing status (Coluzzi et al. 2012; Chen 2015), since our sample contains both listed and non-listed companies, in which the value is "1" where the firm is listed in the London Stock Exchange (LSE) and/or outside the UK, and "0" otherwise.

LSTD_OR = '1' If listed in London Stock Exchange or other stock markets, '0' if not listed

The Global Financial crisis of 2007-09: Since that corporate governance and firm performance as well as governance-performance relationship have been affected by economic booms and recessions (see [Padgett and Shabbir 2005](); [Tan et al. 2011]()), one dummy variable is therefore used to control for the effects of the most recent crisis, the Global Financial Crisis of 2007-09[10] ([Acharya et al. 2009](); [Guillén 2009](); [Edmonds et al. 2010](); [Steiner 2012]()). Therefore, the value of this dummy is equal to '1' when there was a crisis last year, and '0' otherwise, as follows:

FINCRIS0709 = '1' If Crisis (this year), '0' Otherwise (if there was no crisis this year)

Insurance Cycle (Soft & Hard Market): Similar to other industries, the insurance industry is exposed to cycles of expansion and contraction, called 'the underwriting cycles', which are usually measured by the ratio of premiums to losses ([Boyer et al. 2012]()). The underwriting cycles typically last from two to ten years comprising two phases, the soft market and the hard market. In the soft market, periods of extremely cheap insurance pricing, broader coverage and increased competition result in low premiums and substantial underwriting losses, while in the hard market, periods of much higher insurance prices, strict underwriting criteria and less competition lead to higher premiums ([Niehaus and Terry 1993](); [Browne and Hoyt 1995](); [Kunreuther et al. 2011](); [Lee and Chiu 2012](); [English 2013](); [Wang et al. 2013](); [Browne et al. 2014](); [Sephton and Mann 2014]()).

Consistent with previous studies, the average combined ratio, equal to total losses divided by total premiums, is used as a proxy to indicate the stage of underwriting cycle, i.e. whether insurance industry is experiencing a soft or hard market ([Grace and Hotchkiss 1995](); [Lei and Browne 2015]()). For Having considered data availability, this ratio is calculated for all UK insurance companies that are members of the Association of British Insurers (ABI), which represent 90% of the whole UK insurance industry ([ABI 2014]()), was used as an indicator to show the trend in the underwriting cycle ([Grace and Hotchkiss 1995](); [Lei and Browne 2015]()), in which the underwriting cycle is considered to be a soft market if the UK combined ratio was equal or higher than 100% (± 5%), and a hard market if less (*Figure 2*).

YEAR	UK Combined Ratio*	UK Soft Market	Lagged UK Soft Market
2004	92.40%	0	/
2005	93.70%	0	0
2006	93.20%	0	0
2007	100.70%	1	0
2008	98.30%	1	1
2009	106.30%	1	1
2010	103.40%	1	1
2011	96.50%	1	1
2012	99.50%	1	1
2013	97.90%	1	1

Figure 2: UK Underwriting Cycle 2004-2013
UK Combined Ratios 2004-2013 have been obtained from the Association of British Insurers (ABI)

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[10] The U.S. experienced this type of systemic failure during 2007-2008 and continued to struggle with its consequences on 2009 ([Acharya et al., 2009]()).

Therefore, this dummy variable is equal to '1' when the insurance market was experiencing a soft market this year, and zero otherwise, as follows:

LAG_SOFTMRKT = '1' If Soft Market this year, '0' Otherwise (Hard Market)

UK Corporate Governance Codes (2003-2012): Since environmental factors, such as legal efficiency and regulations can exogenously determine the choice of corporate governance practices, according to Himmelberg (2002), five dummy variables have been added in order to control for the effects of releasing an updated version of the UK Combined Code; 2003, 2006, 2008, 2010 and 2012, as a key exogenous factor for governance studies in the UK. For the purpose of this study, '1' is assigned to each dummy variable from the year after the release year of its respective updated code until the release year of following update, and '0' otherwise, as follows:

UKCGCODE03 = '1' if YEAR=2004-2006, '0' otherwise.

UKCGCODE06 = '1' if YEAR=2007-2008, '0' otherwise.

UKCGCODE08 = '1' if YEAR=2009-2010, '0' otherwise.

UKCGCODE10 = '1' if YEAR=2011-2012, '0' otherwise.

UKCGCODE12 = '1' if YEAR=2013, '0' otherwise.

DATA ANALYSIS AND DISCUSSION

Robustness Checks

Prior to selecting which panel regression model to use, and in order to identify potential endogenous variables, some robustness tests have to be carried out, such as multicollinearity, heteroscedasticity and serial correlation (*Table 1*).

Table 1: A Summary of Robustness Checks

Model	Model 01 (ROE)	Model 02 (RVNUGRTH_w)	Model 03 (ADJCOMBND_w)
Multicollinearity Test (VIF) *[if VIF<10 => there is no Multicollinearity problem]*	Mean VIF = 2.50	Mean VIF = 2.50	Mean VIF = 2.50
Modified Wald Test for Groupwise Heteroscedasticity *[if<0.05 => there is no Heteroscedasticity]*	Prob>chi2 = 0.0000	Prob>chi2 = 0.0000	Prob>chi2 = 0.0000
Wooldridge Test for Autocorrelation in Panel Data *[If<0.05 => Variables are not serially correlated]*	Prob>F = 0.0000	Prob>F = 0.6968	Prob>F = 0.0014

First, this study calculated the **Variance Inflation Factor (VIF)** to identify the presence of multicollinearity, e.g. whether two or more variables are highly correlated, which might affect the estimation of the regression parameters (Hair et al. 2009). It can be easily seen from *Table 1* that the

test indicated no multicollinearity problems, since the variance inflation factor (VIF) results for all regression models was less than 10 (Wooldridge 2002; Gujarati 2003). **Heteroscedasticity** was also tested in this study, as it can invalidate statistical tests of significance that assume that the modelling errors are uncorrelated and uniform, and that their variances do not vary with the effects being modelled (Johnston 1972). *Table 1* shows the results of the Modified Wald Test, indicating no problem with heteroscedasticity among the three models. Finally, **serial correlation, or autocorrelation**, in linear panel-data models can bias the standard errors and cause the results to be less efficient (Drukker 2003). Therefore, the Wooldridge test for autocorrelation in panel data was used, and no serial correlation was found among the first and third regression models in this study (*Table 1*). However, the test shows there is a serial correlation in the second model, which can be corrected, according to (Jaggia and Kelly-Hawke 2008), using generalized least square (GLS) procedures such as the Cochrane-Orcutt or Prais-Winsten two-step or iterative procedures, which are based on a particular estimator for the correlation coefficient (see Ramanathan 2002; Greene 2003; Gujarati 2003; Stock and Watson 2003; Wooldridge 2003)

Model Specifications

Some specification tests were carried out in order to select the most appropriate panel model for each regression (*Table 2*). Those tests are the Hausman test, the Breusch-Pagan Lagrange Multiplier test (LM), the F-test, and finally, testing for time fixed effects (see Hausman 1978; Breusch and Pagan 1979; Gujarati 2003; Lomax 2007; Torres-Reyna 2007; Greene 2008).

Table 2: Results of Specification Tests

Specification Test	Model 01 (ROE)	Model 02 (RVNUGRTH_w)	Model 03 (ADJCOMBND_w)
Hausman test for fixed versus random effects model *[If ≤0.05 ⟹ Fixed Effects]*	Prob>chi2 = 0.9718	Prob>chi2 = 0.9993	Prob>chi2 = 0.0014
Breusch-Pagan LM test for random effects versus OLS *[if≤0.05 ⟹ use Random Effects]*	Prob>chibar2 = 0.0000	Prob>chibar2 = 0.0053	-
F-Test for fixed effects versus OLS *[if Prob>F ≤0.05 ⟹ use Fixed Effects]*	-	-	Prob>F= 0.0000
Testparm (Testing for Time-Fixed Effects) *[if≤0.05 ⟹ time fixed_effects needed]*	-	-	Prob>F= 0.2998
Decision	Random Effects	Random Effects	Fixed Effects

Firstly, by using the **Hausman test** in order to choose between fixed and random effects, the results cannot reject the null hypothesis for the first and second models, while the fixed effects model was chosen for the third model since its result was less than 0.05 (*Table 2*). Secondly, the **Lagrange Multiplier test (LM)** for random effects showed that both the first and second models rejected the null, suggesting that panel regression was necessary, rather than OLS regression (*Table 2*). On the other hand, the **F-Test** was used to test the third model for fixed effects, and found that the fixed

effects model had to be used, not the OLS regression (*Table 2*). Finally, using **Testparm** for time-fixed effects, there was no need to add such dummies into the third model (*Table 2*).

Results and Discussion

For each model, variables were statistically evaluated by their P-value (in brackets), which was considered statistically highly significant at 0.001 (***), significant at 0.01 (**) or marginally significant at 0.05 (*). The coefficient value, on the other hand, represents the average change in the dependent variable for one unit of change in the predictor variable while holding other predictors in the model constant. Finally, it was assumed that, for the purpose of this study, causality ran from corporate governance to firm performance even though, in some cases, this relationship could reverse causality in which, for example, directors may increase their ownership in higher performing firms.

Model 01

ROE_{it} = β_0 + β_1*BRDSIZE_LN + β_2*INED + β_3*BRDNONDLTY + β_4*EDOWN + β_5*MAINSHRHLDR + β_6*T2BLKSHRHLDRS + β_7*AUDITORIND + β_8*AUDITORBIG4 + β_9*FSIZE_LN_A + β_{10}*LVRG_AE + β_{11}*LIFE + β_{12}*NONLIFE + β_{13}*LSTD_OR + β_{14}*LAG_FINCRIS0709 + β_{15}*LAG_SOFTMRKT + β_{16}*UKCGCODE03 + β_{17}*UKCGCODE06 + β_{18}*UKCGCODE08 + β_{19}*UKCGCODE10 + β_{20}*UKCGCODE12 + α + μ_i + ε_{it}

Model 02

$RVNGRTH_{it}$ = β_0 + β_1*BRDSIZE_LN + β_2*INED + β_3*BRDNONDLTY + β_4*EDOWN + β_5*MAINSHRHLDR + β_6*T2BLKSHRHLDRS + β_7*AUDITORIND + β_8*AUDITORBIG4 + β_9*FSIZE_LN_A + β_{10}*LVRG_AE + β_{11}*LIFE + β_{12}*NONLIFE + β_{13}*LSTD_OR + β_{14}*LAG_FINCRIS0709 + β_{15}*LAG_SOFTMRKT + β_{16}*UKCGCODE03 + β_{17}*UKCGCODE06 + β_{18}*UKCGCODE08 + β_{19}*UKCGCODE10 + β_{20}*UKCGCODE12 + α + μ_i + ε_{it}

Model 03

$ADJCOMBND_{it}$ = β_0 + β_1*BRDSIZE_LN + β_2*INED + β_3*BRDNONDLTY + β_4*EDOWN + β_5*MAINSHRHLDR + β_6*T2BLKSHRHLDRS + β_7*AUDITORIND + β_8*AUDITORBIG4 + β_9*FSIZE_LN_A + β_{10}*LVRG_AE + β_{11}*LIFE + β_{12}*NONLIFE + β_{13}*LSTD_OR + β_{14}*LAG_FINCRIS0709 + β_{15}*LAG_SOFTMRKT + β_{16}*UKCGCODE03 + β_{17}*UKCGCODE06 + β_{18}*UKCGCODE08 + β_{19}*UKCGCODE10 + β_{20}*UKCGCODE12 + α_i + ε_{it}

Where:

> *ROE & RVNGRTH: are the dependent variables, and* **BRDSIZE_LN, INED, BRDNONDLTY, EDOWN, MAINSHRHLDR, T2BLKSHRHLDRS, AUDITORIND, AUDITORBIG4**: *are the independent variables.*
> **FSIZE_LN_A, LVRG_DE, LIFE, NONLIFE, LSTD_OR, LAG_FINCRIS0709, LAG_SOFTMRKT, UKCGCODE03, UKCGCODE06, UKCGCODE08, UKCGCODE10, UKCGCODE12**: *are the control variables.*
> β_0: *is the intercept term, and* β_1 *to* β_{18}: *are the regression coefficients for independent variables.*
> α_i: *is a group-specific constant term.*
> μ_i: *is a group-specific random element.*
> ε_{it}: *is the error term,* $_i$: *is index for entity, and* $_t$: *is index for time.*

Main Regression Results

Table 3 below represents the main regression results for corporate governance arrangements and control variables with each of the three performance proxies.

Table 3: Regression Results

	VARIABLES	Model 01 RE ROE	Model 02 RE Robust RVNGRTH	Model 03 FE ADJCOMBND
H1	Board Size LN	0.046 (0.148)	-0.129 (0.615)	-0.055 (0.700)
H2	Independent NED Ratio	-0.026 (0.633)	0.281 (0.560)	-0.048 (0.843)
H3	Board Non-Duality	0.0593** (0.043)	0.018 (0.930)	-0.138 (0.306)
H4	ED Ownership Ratio	0.119 (0.164)	0.038 (0.945)	-0.524 (0.217)
H5	Main Shareholder (>50%)	0.007 (0.859)	0.165 (0.427)	-0.576** (0.012)
H6	Tier 2 Block Shareholders (>10%)	0.026 (0.368)	0.047 (0.824)	0.000 (0.997)
H7	External Auditor Independence Ratio	0.047 (0.256)	-0.580* (0.094)	-0.177 (0.369)
H8	Big Four Audit Firm	-0.103** (0.018)	-0.262 (0.465)	-0.057 (0.765)
	Firm Size (Assets LN)	0.005 (0.516)	0.046 (0.422)	-0.290*** 0.000
	Financial Leverage (Assets to Equity Ratio)	-0.001 (0.308)	-0.001 (0.741)	-0.003 (0.468)
	LIFE	-0.0828* (0.070)	-0.456** (0.019)	-0.487 (0.128)
	NONLIFE	-0.056 (0.250)	-0.494** (0.034)	-0.385 (0.358)
	Listed (UK or Outside)	0.036 (0.437)	-0.229 (0.369)	0.000 (.)
	Financial Crisis 2007-09	-0.0980*** 0.000	-1.197*** 0.000	0.400*** 0.000
	Underwriting Cycle - Soft Market	-0.018 (0.452)	-0.262 (0.286)	0.004 (0.965)
	UK Corporate Governance Code 2003 (Dummy)	0.0573** (0.039)	0.534** (0.025)	-0.231** (0.036)
	UK Corporate Governance Code 2006 (Dummy)	-0.010 (0.702)	0.635** (0.010)	-0.077 (0.474)
	UK Corporate Governance Code 2008 (Dummy)	0.101*** (0.005)	1.334*** 0.000	-0.362*** (0.009)
	UK Corporate Governance Code 2010 (Dummy)	-0.022 (0.350)	0.430** (0.011)	0.043 (0.632)
	UK Corporate Governance Code 2012 (Dummy)	0.000 (.)	0.000 (.)	0.000 (.)
	Country FE	-	-	**YES**
	Year FE	-	-	-
	R-squared (within)	0.1300	0.0801	0.1622
	R-squared (between)	0.1168	0.0755	0.0008
	R-squared (overall)	0.1172	0.0763	0.0125

pval in parentheses

*† p<0.10 (marginally significant), * p<0.05, ** p<0.01, *** p<0.001*

H₁: Board Size: As seen in *Table 3*, the natural logarithm of board size had no impact on firm performance, which meant that the first hypothesis (H₁) was rejected, and that board size did not affect firm performance in any way. This result was consistent with previous studies of (Bhagat and Black 1997; Connelly and Limpaphayom 2004; Wintoki et al. 2012; Andreou et al. 2014) found no meaningful relationship between board size and performance, meaning that board size does not matter but board quality does, such as the ratio of independent non-executives, board non-duality, board tenure, board age, the financial and/or insurance experience, etc.

H₂: Independent Non-Executive Ratio: It is clear from *Table 3* that the ratio of independent non-executive directors also had no relationship with firm performance, which rejected the second hypothesis (H₂). This result was consistent with the findings of Vegas and Theordorou (1998) and Weir and Laing (1999) found no relationship between the proportion of non-executive directors and corporate performance in the UK. It means that independence and external experience of non-executives could not help improving firm performance, while the dependence and experience of executives might do.

H₃: Board Non-Duality: Hypothesis (H₃) was confirmed, as the results showed that board duality had a significant positive impact on firm performance, as seen in *Table 3*. This result was consistent with agency theory and prior research suggesting that no one director should have unlimited power in the decision-making process as, otherwise, the board might not be able to manage the company independently and effectively (see Fama and Jensen 1983; Cadbury 1992; Diacon and O'Sullivan 1995; Gul and Leung 2004; FRC 2014).

H₄: Managerial Ownership: It can be seen from *Table 3* that ED ownership ratio had no statistically significant impact on firm performance, which rejected the suggested hypothesis (H₄). This result is therefore inconsistent the alignment of interest hypothesis (Jensen and Meckling 1976), by which managers who own shares in the company would reduce agency costs and improve firm performance by aligning their interests to other shareholders' and, thus, they have less incentive for opportunistic behaviour.

H₅: Main Shareholder (>50%), and H₆: Tier 2 Block Shareholders (>10%): Based on the results of *Table 3*, main shareholder had a marginally significant effect on firm performance, measured by the adjusted combined ratio, while the second tier shareholders have no statistically significant impact, which confirm both hypotheses (H₅) and (H₆). From *Table 3*, it can be seen that a 1% increase in the main shareholder ratio leads to about 0.6% decrease in the adjusted combined ratio, which means an increase in the underwriting result of the company. This result is generally consistent with the findings of Fama and Jensen (1983), Shleifer and Vishny (1986), and Leech and Leahy (1991), who claimed that large shareholders have more incentive and greater ability to monitor the managers for the shared interest of all shareholders. More specifically, this result is consistent with the results of Ducassy and Guyot (2017), who found a positive influence on the firm value with the presence of a

majority shareholder. On the other hand, the marginal contribution of the second tier block shareholders in the monitoring process is insignificant (Earle et al. 2005; Ducassy and Guyot 2017).

H₇: External Auditor Independence Ratio, and H₈: Big4 Audit Firm: *Table 3* shows a marginally significant negative effect of a Big Four audit firm, and a significant negative effect of the auditor independence ratio on performance, which rejected both hypotheses (H_7) and (H_8). This result was consistent with prior studies that found a positive relationship between the ratio for non-audit fees, i.e. a negative impact of the independence ratio, and firm performance (DeFond et al. 2002; Schroeder and Hamburger 2002). However, regarding the influence of a Big Four audit firm, the result was inconsistent with the studies of Dye (1993); Michaely and Sahaw (1995), who argued that Big Four auditors are likely to improve the quality of information disclosure in the firm compared to local firm, in which better disclosure was associated with higher firm performance (Mitton 2002; Baek et al. 2004).

Regression Results for Sub-Samples

Table 4 below includes the expected sign of each relationship, a summary of the main regression results for the whole sample, and the regression results by quoting type (listed, non-listed), and by the Financial Crisis of 2007-09 (prior, throughout and following).

Table 4: Summary of the Regression Results for the Whole Sample and Sub-Samples

	VARIABLES	Expected	Main	Listed	Non-Listed	Before FC	During FC	After FC
H1	Board Size LN	-	.	+	.	.	+	.
H2	Independent NED Ratio	+	.	.	.	.	.	.
H3	Board Non-Duality	+	+	.	.	.	.	+
H4	ED Ownership Ratio	+	.	+	.	.	.	+
H5	Main Shareholder (>50%)	+	+	-/+	+	+	.	.
H6	Tier 2 Block Shareholders (>10%)	.	.	.	.	.	+	.
H7	External Auditor Independence Ratio	+	-	-	.	-	.	.
H8	Big Four Audit Firm	+	-	.	.	.	-	.
	Firm Size (Assets LN)	+	+	-	.	+/-	+	+
	Financial Leverage (Assets to Equity Ratio)	-	.	-	-	+	.	-

- ### *Regression Results for Listed and Non-Listed Insurance Companies*

When comparing listed and non-listed companies, the results shown in (*Table 5*) indicate that listed companies were more sensitive to the changes in corporate governance arrangements than non-listed companies. This result might be explained, according to (Desender 2009; Desender et al. 2013), by the agency theory that clarifies how large controlling shareholders, with none or low managerial ownership, solve the managers-shareholders conflicts as they have both ability and incentives to monitor management team themselves, rather than using the board to add an additional layer of monitoring, This is clear from *Table 6*, in which the ratio of major shareholders of non-listed companies is 84.79%, compared to listed companies, 48.20%., while the executive ownership for listed companies is around 15.04% However, as soon as the managerial ownership is started to increase, the strength of this relationship will decline by what it is called 'entrenchment effect', in which managers are more likely to reduce the level of information about their governance practices, and thus, shareholders find it hard to control such managers' activities themselves (Hermalin and Weisbach 1988; Morck et al. 1988; McConnell and Servaes 1990; Holderness et al. 1999; Hussainey and Al-Najjar 2012).

Table 5: Summary of Regression Results for Listed and Non-Listed Insurance Companies

	VARIABLES	Model 01 (ROE) RE L | NL		Model 02 (RVNUGRTH) RE L | NL		Model 03 (ADJCOMBND) FE L | NL	
H1	Board Size LN	0.199***	0.030	0.366	-0.196	-0.613	0.039
		(0.001)	(0.429)	(0.749)	(0.463)	(0.142)	(0.795)
H2	Independent NED Ratio	0.115	-0.007	2.026	0.229	0.861	-0.157
		(0.389)	(0.905)	(0.403)	(0.610)	(0.360)	(0.518)
H3	Board Non-Duality	-0.050	0.044	-1.093	0.053	0.247	-0.136
		(0.524)	(0.169)	(0.104)	(0.794)	(0.637)	(0.309)
H4	ED Ownership Ratio	0.932***	0.168	2.700**	-0.417	-1.135	-0.254
		0.000	(0.102)	(0.038)	(0.491)	(0.293)	(0.604)
H5	Main Shareholder (>50%)	-0.0957***	0.108*	0.222	0.079	-0.628**	0.027
		(0.007)	(0.072)	(0.611)	(0.803)	(0.044)	(0.963)
H6	Tier 2 Block Shareholders (>10%)	-0.005	0.023	-0.101	-0.290	0.042	-0.076
		(0.886)	(0.765)	(0.739)	(0.130)	(0.800)	(0.782)
H7	External Auditor Independence Ratio	-0.086	-0.090	-2.079**	0.274	0.378	-0.129
		(0.281)	(0.108)	(0.033)	(0.476)	(0.350)	(0.557)
H8	Big Four Audit Firm	0.054	0.036	0.554	-0.832	0.449	-0.357
		(0.404)	(0.518)	(0.189)	(0.138)	(0.271)	(0.130)
	Firm Size (Assets LN)	-0.0290***	0.010	-0.206	0.131***	-0.200	-0.303***
		(0.003)	(0.313)	(0.152)	(0.010)	(0.320)	0.000
	Financial Leverage (Assets to Equity Ratio)	0.00261*	-0.001	-0.010	-0.002	-0.006	-0.002
		(0.061)	(0.301)	(0.581)	(0.670)	(0.688)	(0.521)
	Country FE	-	-	-	-	YES	YES
	Year FE	-	-	-	-	-	-
	R-squared (within)	0.1441	0.1073	0.2838	0.0571	0.2407	0.1773
	R-squared (between)	0.6669	0.1115	0.0031	0.1718	0.0001	0.0097
	R-squared (overall)	0.4028	0.1143	0.1896	0.0720	0.0146	0.0357

pval in parentheses
*† p<0.10 (marginally significant), * p<0.05, ** p<0.01, *** p<0.001*
Where: Listed, NL: Non-Listed

As can be seen from *Table 5*, in listed companies, board size and managerial ownership had a positive effect, while the main shareholder with more than 50% ratio had a negative effect on the return on equity, but a positive effect on the adjusted combined ratio. In non-listed companies, however, only the main shareholder had a positive effect on firm performance in non-listed companies (*Table 5*).

Table 6: Descriptive Statistics for Listed and Non-Listed Insurance Firms

VARIABLES	Listed			Non-Listed		
	Mean	Median	Max	Mean	Median	Max
Return on Equity	17.30%	16.28%	76.63%	11.95%	11.41%	86.43%
Revenue Growth Ratio	-10.86%	-3.67%	524.12%	14.94%	4.79%	621.92%
Combined Ratio	165.15%	107.24%	1435.71%	154.11%	102.18%	1496.88%
Adjusted Combined Ratio	117.04%	85.88%	375.70%	96.83%	88.25%	375.70%
Firm Size (Assets LN)	15.68	15.32	19.73	14.42	14.34	18.19
Financial Leverage (Assets to Equity Ratio)	14.90	5.90	91.72	15.30	5.41	91.72
Board Size	9.89	10.00	17.00	8.20	8.00	22.00
Independent Non-Executive Directors	49.69%	50.00%	90.00%	33.31%	33.33%	77.78%
Board Non-Duality	0.93	1.00	1.00	0.81	1.00	1.00
Busyness Board	72.51%	72.73%	100.00%	64.58%	66.67%	100.00%
Board Outside Directorships Average	12.43	4.09	232.75	4.86	3.75	19.50
Average Board Remuneration	353.49	335.80	1,271.24	201.77	157.58	917.67
Board Remuneration to Net Income	20.69%	1.33%	207.63%	41.04%	3.28%	207.63%
Executive Compensation to Net Income	27.39%	1.11%	150.26%	125.29%	150.26%	150.26%
Board Ownership	11.15%	0.37%	59.09%	30.09%	59.09%	59.09%
Executive Ownership	5.34%	0.14%	29.55%	15.04%	29.55%	29.55%
Main Shareholder Ratio	32.75%	14.32%	100.00%	84.56%	100.00%	100.00%
Main Shareholder (>50%)	30.85%	0.00%	100.00%	84.80%	100.00%	100.00%
Block Shareholders (5%) Ratio	41.14%	32.17%	100.00%	84.79%	100.00%	100.00%
Tier 2 Block Shareholders Ratio	8.75%	5.04%	49.40%	0.23%	0.00%	19.24%
Tier 2 Block Shareholders (>10%)	33.51%	0.00%	100.00%	1.54%	0.00%	100.00%
Tier 2 Block Shareholders (Average>10%)	7.45%	0.00%	100.00%	1.54%	0.00%	100.00%
Major Shareholders (3%) Ratio	48.20%	40.47%	100.00%	84.79%	100.00%	100.00%
Tier 2 Major Shareholders Ratio	15.45%	13.43%	49.40%	0.23%	0.00%	19.24%
External Auditor Independence Ratio	90.16%	100.00%	100.00%	94.05%	100.00%	100.00%
Big Four Audit Firm	64.67%	60.74%	100.00%	76.65%	78.59%	100.00%

According to *Table 6*, the average board size in listed companies was higher, 10, with around half of the board being independent non-executives, 49.69%, while in non-listed companies the average number was 8 directors with only 33.31% of the board were considered independent non-executive directors (*Table 6*). Therefore, provided listed companies have lower ratio of powerful shareholders, expanding board size, assuming that more independent directors to be added, has led to reduced agency costs, and thus, improved firm performance, as such boards are easy to coordinate and make

decisions quickly, and at the same time, less likely to be dominated by management (see Huang et al. 2011; Hussainey and Al-Najjar 2012; Andreou et al. 2014; Malik and Makhdoom 2016).

Regarding board ownership and controlling shareholders, since the majority shareholders in listed companies have a relatively low ratio, 41%, in which even if they have the willing to monitor, such ratio would lower their ability to monitor management team effectively. With this regard, increasing managerial ownership would help to align managers' interests with those of shareholders, leading to reduces agency costs, and thus, improved firm performance (*Table 6*).

On the other hand, the ratio of main shareholder owning 50% of outstanding shares at least, 32.75%, has been found to negatively affect firm performance in listed companies, while the marginal contribution of block shareholders owning 10% at least, 33.51%, was negative although insignificant statistically. Such high ratio of block shareholders has confirmed the low degree of homogeneity with the main shareholder leading to the negative effect on firm performance as a result (*Table 6*).

- ## *Regression Results Before, During & After the Global Financial Crisis (2007-2009)*

With regard to the financial crisis of 2007-09, it can be noticed from *Table 7* that shareholders and audit firms have affected firm performance before and during the crisis while board of directors had a significant effect on firm performance during and after the crisis. This is consistent with the findings of Peni and Vähämaa (2012) which have argued that good corporate governance might have mitigated the negative effect of the crisis.

Table 7: Summary of Regression Results Before, During and After the Global Financial Crisis of 2007-09

	VARIABLES	Model 01 (ROE) RE			Model 02 (RVNUGRTH) RE			Model 03 (ADJCOMBND) FE		
		B	D	A	B	D	A	B	D	A
H1	Board Size LN	0.047	0.113*	0.037	0.163	-0.707	0.059	-0.024	-0.735	0.036
		(0.467)	(0.078)	(0.414)	(0.682)	(0.166)	(0.866)	(0.924)	(0.168)	(0.892)
H2	Independent NED Ratio	0.151	0.012	0.024	0.004	0.570	0.099	-0.532	-1.179	-0.143
		(0.195)	(0.915)	(0.786)	(0.995)	(0.448)	(0.907)	(0.289)	(0.201)	(0.778)
H3	Board Non-Duality	0.025	0.063	0.0775*	-0.135	0.453	-0.214	-0.044	-0.398	0.138
		(0.615)	(0.275)	(0.089)	(0.592)	(0.364)	(0.449)	(0.831)	(0.394)	(0.603)
H4	ED Ownership Ratio	-0.037	0.253	0.299**	0.127	-0.024	-0.113	1.844	-0.586	-1.508
		(0.842)	(0.126)	(0.019)	(0.840)	(0.983)	(0.878)	(0.170)	(0.816)	(0.205)
H5	Main Shareholder (>50%)	0.054	0.037	-0.034	0.603*	0.396	-0.313	-0.158	-0.344	-0.721
		(0.427)	(0.583)	(0.483)	(0.054)	(0.423)	(0.192)	(0.648)	(0.735)	(0.128)
H6	Tier 2 Block Shareholders (>10%)	0.010	0.121*	-0.008	0.220	0.446	-0.226	-0.258	-0.645*	0.182
		(0.882)	(0.086)	(0.825)	(0.632)	(0.380)	(0.407)	(0.208)	(0.078)	(0.287)
H7	External Auditor Independence Ratio	-0.142*	-0.052	0.027	-0.089	-1.169	0.000	0.325	-0.276	0.116
		(0.059)	(0.612)	(0.654)	(0.863)	(0.305)	(1.000)	(0.159)	(0.707)	(0.720)
H8	Big Four Audit Firm	-0.120	-0.015	-0.004	-0.216	-1.302**	-0.440	0.000	0.000	-0.048
		(0.228)	(0.874)	(0.938)	(0.735)	(0.010)	(0.302)	(.)	(.)	(0.844)
	Firm Size (Assets LN)	0.0311**	0.011	-0.004	-0.145*	0.144	0.132**	-0.573***	-0.860***	-0.263**
		(0.035)	(0.433)	(0.707)	(0.093)	(0.196)	(0.049)	(0.000)	(0.000)	(0.034)

VARIABLES	Model 01 (ROE) RE			Model 02 (RVNUGRTH) RE			Model 03 (ADJCOMBND) FE		
	B	D	A	B	D	A	B	D	A
Financial Leverage (Assets to Equity Ratio)	-0.002	0.000	0.001	0.0182***	-0.009	-0.0123**	-0.004	-0.018	-0.013
	(0.166)	(0.885)	(0.277)	0.000	(0.375)	(0.019)	(0.225)	(0.442)	(0.233)
Country FE	-	-	-	-	-	-	YES	YES	YES
Year FE	-	-	-	-	-	-	-	-	-
R-squared (within)	0.1501	0.0967	0.0209	0.0429	0.0952	0.0240	0.4305	0.2114	0.0853
R-squared (between)	0.1088	0.1869	0.1760	0.3137	0.1531	0.1536	0.0356	0.0005	0.0164
R-squared (overall)	0.1006	0.1441	0.1132	0.1401	0.1084	0.0609	0.0145	0.0009	0.0177

pval in parentheses
*† p<0.10 (marginally significant), * p<0.05, ** p<0.01, *** p<0.001*
Where B: Before, D: During, A: After

More specifically, *Table 7* shows that main shareholder, owning at least 50% of outstanding shares, had a marginal positive effect, while the independence ratio of audit firm has a marginal negative impact on firm performance before the financial crisis. On the other hand, during the financial crisis, board size and the marginal contribution of block shareholders, owning at least 10% of outstanding shares, had a marginal positive effect, while a significant negative effect has been observed when the external auditor is one of the Big Four audit firms (*Table 7*). Finally, it is observed from *Table 7* that board non-duality and managerial ownership had a clear positive impact on firm performance after the financial crisis.

Table 8: Descriptive Statistics for the Global Financial Crisis (2007-09)

VARIABLES	Before			During			After		
variable	Mean	Median	Max	Mean	Median	Max	Mean	Median	Max
Return on Equity	18.67%	17.84%	86.43%	9.65%	9.99%	81.19%	12.98%	11.89%	83.04%
Revenue Growth Ratio	0.42	0.21	5.24	-0.28	-0.12	6.22	0.11	0.02	5.65
Combined Ratio	142.00%	100.00%	1350.00%	160.00%	104.00%	1442.00%	165.00%	105.00%	1497.00%
Adjusted Combined Ratio	90.00%	81.00%	376.00%	118.00%	90.00%	376.00%	101.00%	90.00%	376.00%
Insurance Capacity	1.97	1.27	5.62	1.91	1.18	5.62	1.57	1.06	5.62
Firm Size (Assets LN)	14.66	14.36	19.49	14.67	14.38	19.69	14.97	14.78	19.73
Financial Leverage (Assets to Equity Ratio)	15.95	5.96	91.72	14.40	5.38	91.72	15.22	5.32	91.72
Board Size	8.86	8.00	17.00	8.66	8.00	22.00	8.63	9.00	17.00
Independent Non-Executive Directors	35.18%	36.36%	77.78%	37.73%	40.00%	83.33%	40.48%	42.86%	90.00%
Board Non-Duality	0.80	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00
Busyness Board	54.44%	50.00%	100.00%	64.64%	66.67%	100.00%	77.00%	80.00%	100.00%
Board Outside Directorships Average	3.37	3.00	11.43	8.02	3.71	232.75	8.94	5.17	232.75
Average Board Remuneration	194.45	135.57	738.07	244.33	187.32	972.47	285.80	210.79	1,271.24
Board Remuneration to Net Income	47.45%	3.21%	207.63%	34.12%	2.18%	207.63%	27.13%	2.42%	207.63%
Board Ownership	20.30%	0.07%	59.09%	25.59%	1.01%	59.09%	26.41%	1.48%	59.09%
Executive Ownership	9.98%	0.04%	29.55%	12.61%	0.49%	29.55%	13.28%	1.29%	29.55%
Main Shareholder Ratio	71.63%	100.00%	100.00%	69.08%	100.00%	100.00%	68.08%	100.00%	100.00%

VARIABLES	Before			During			After		
Main Shareholder (>50%)	70.56%	100.00%	100.00%	68.02%	100.00%	100.00%	68.68%	100.00%	100.00%
Block Shareholders (5%) Ratio	73.12%	100.00%	100.00%	71.74%	100.00%	100.00%	71.44%	100.00%	100.00%
Tier 2 Block Shareholders Ratio	1.72%	0.00%	49.40%	2.72%	0.00%	39.43%	3.41%	0.00%	40.06%
Tier 2 Block Shareholders (>10%)	6.67%	0.00%	100.00%	11.17%	0.00%	100.00%	13.58%	0.00%	100.00%
Tier 2 Block Shareholders (Average>10%)	0.56%	0.00%	100.00%	2.54%	0.00%	100.00%	5.66%	0.00%	100.00%
Major Shareholders (3%) Ratio	75.04%	100.00%	100.00%	73.88%	100.00%	100.00%	73.55%	100.00%	100.00%
Tier 2 Major Shareholders Ratio	3.41%	0.00%	49.40%	4.80%	0.00%	46.50%	5.47%	0.00%	44.82%
External Auditor Independence Ratio	72.90%	74.25%	100.00%	73.29%	75.00%	100.00%	73.21%	74.12%	100.00%
Big Four Audit Firm	93.41%	100.00%	100.00%	92.39%	100.00%	100.00%	92.91%	100.00%	100.00%

It is clear from *Table 8* that all performance measures, such as ROE, Revenue Growth and Adjusted Combined Ratio, have declined during the financial crisis. The average board size has also shrank from 8.86 to 8.66 as well as the board remuneration due to lower performance during the crisis (*Table 8*). However, *Table 8* shows that expanding board size during the crisis has been accompanied by an increase in the independent non-executives, the ratio of board non-duality, board outside directorships, and board ownership ratio, leading to more independent board with extra external resources and aligned managerial interests with those of shareholders.

On the other hand, the main shareholder had the highest ratio before the crisis (*Table 8*), which means more incentives as well as the ability of the main shareholder to monitor management team and reduce agency costs, thus helped to improve performance (Desender 2009; Desender et al. 2013). During the crisis, *Table 8* shows that marginal contribution of block shareholders has doubled from 6.67% to around 11% while the main shareholder has reaches the lowest value, 68%, which might explain the positive effect of the second tier block shareholders during the crisis. Finally, it can be noticed from *Table 8* that independence ratio of audit firm had the lowest level before the crisis, while the ratio of Big Four audit firms has declined to the lowest value during the crisis.

CONCLUSION

Research Findings

The aim of this study was to examine the impact of corporate governance on firm performance in the UK insurance industry during the period 2004-2013 in the first stage, and to see if there are any differences by quoting type and/or during turbulent periods, in the second stage.

In the main findings, board non-duality and the ratio of main shareholder showed a positive impact on firm performance, while being one of the Big Four audit firms as well as the auditor independence ratio affected firm performance negatively. On the other hand, no relationship was found between the board size, proportion of independent non-executive directors (INED), managerial ownership, the second tier block shareholders and firm performance.

Firstly, being listed in a stock market would make insurance firms more sensitive to the changes in corporate governance arrangements than non-listed companies, except for the presence of a majority shareholder that has affected non-listed companies positively. In a listed company, board size and managerial ownership have a positive impact, and the independence ratio of audit firm has a negative impact, while the presence of a majority shareholder has a positive effect the adjusted combined ratio, but a small negative effect on the return on equity. On the other hand, regarding the global financial crisis of 2007-09, shareholders and audit firms have affected firm performance before and during the crisis while board of directors had a significant effect during and after the crisis.

Research Contributions & Policy Implications

One of the key contributions of this research is a hand-collected dataset for both listed and non-listed insurance companies in the UK over a 10-year period stretching between 2004 and 2013. Another contribution is that two new insurance-related performance measures, the revenue growth ratio and the adjusted combined ratio, have been used to measure firm performance. One last contribution is the findings for sub-samples, which show different effects of corporate governance arrangements by the quoting type (Listed, Non-Listed), and by the stage of the Global Financial Crisis of 2007-09 (before, during and after).

Regarding policy implications, regulators and policy-makers should benefit from these results to revise the recommendations for corporate governance arrangements that prove to be effective on firm performance, as well as those arrangements that have different or unexpected effects among listed or non-listed firms, and/or during the turbulent periods. Investors, in turn, should also be aware of those specific corporate governance arrangements that would have higher effect on performance of UK insurance firms in which they are considering to invest in.

Research Limitations

This study has several limitations that might affect the significance of research findings. Firstly, as both listed and non-listed companies are included within the sample, only accounting-based performance measures have been used in this study, since market-based measures, such as Tobin's Q, can only be estimated for listed companies. Secondly, it could be argued that the financial crisis 2007-09 has on-going effects past 2009 in addition to the possible effects of the Eurozone crisis 2010-12, as well as the

on-going effects of the regular changes to the UK corporate governance code during the study period 2004-2013, with further anticipated, as per April 2016, and July 2018. Therefore, there is the possibility that such changes and extended effects have controlled the way that corporate governance affected performance, rather than assuming pure influence over the years 2004-2013. One more limitation related to the study period which needs to be extended beyond 2013 to make sure our findings still hold true (Data is currently being updated to 2018)

Further Research

This study has presumed that corporate governance affects firm performance, although reverse causality may occur in some cases, e.g. when successful firms reward directors with extra shares. Thus, further research could explore the direction of causation in order to see, for example, if there is any relationship between past performance and corporate governance (see Eisenberg et al. 1998). Other corporate governance arrangements can also be further investigated, such as the impact of the 2nd Tier Major Shareholders (at least 3% each). Finally, the interacting relationship between conflicting arrangements, such as executive ownership,, main shareholder, and the 2nd tier block shareholders, should also be considered (see Yoo and Jung 2014).

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