

# **Audit Committee Characteristics and Firm Performance during the Global Financial Crisis**

## **1. Introduction**

This paper investigates the impact of the Audit Committee during times of financial crises. Specifically, do audit committee characteristics affect the financial decision making and risk management of a firm performance during a significant-adverse-economic event such as the recent Global Financial Crisis (GFC). Financial decision making and risk management is manifest in the market performance of the firm during the GFC. The Audit Committee (AC) is one of the major controls over the financial and risk decision-making processes in a post-Enron world.. The primary role of the Audit subcommittee of the Board of Directors is overseeing the firms' financial reporting process, the review of financial reports, internal accounting controls, the audit process and more recently, its risk management practices (Klein 2002a, p.378). The AC is possibly the single most important board of directors' subcommittee due to its specific role of protecting the interest of shareholders in relation to financial oversight and control (Mallin 2007). Similar to trends worldwide (DeZoort et al. 2002) the Australian Corporate Governance Principles and Recommendations (CGPR) (Council 2007) require the S&P300 companies to have an independent audit committee consisting of at least three independent directors.

Adopting better corporate governance practices is expected to improve the monitoring of management and reduces information asymmetry problems. There is a significant literature employing this framework that links independence, size and other characteristics of the board of directors and audit committees to improved firm performance and value (Klein 1998). Higher levels of independence and expertise on board and audit committees increases firm value (Chan and Li 2008). The common wisdom is that the level of independence of AC

members is associated with improved monitoring of the financial reporting process (Bronson et al. 2009). However, other research shows that lack of independence on the AC actually improves monitoring quality. Where the AC has a high percentage of past associates and ex-employees, also known as Grey directors, it is less likely the auditor will issue an going-concern report (Carcello and Neal 2000; Carcello and Neal 2003b; Carcello and Neal 2003a). Finally, smaller not larger AC's are associated with higher financial reporting quality (Wright 1996; Abbott and Parker 2000; Klein 2002a; Carcello and Neal 2003a).

However, most of the prior governance research was conducted under normal market conditions and this may in part explain some of the inconsistent results in governance research. We argue that if governance has a role in increasing firm performance and value, as suggested by the prior theory and evidence, then this effect should be most evident when the firm faces adverse circumstances. Often firms manage shocks that are endogenous while on other occasions they are completely exogenous such as the GFC. We expect that the governance impact of ACs during the GFC should manifest in greater monitoring and transparency, improved financial decision making, and improved risk assessment. This in turn impacts positively on performance and therefore value. If governance matters, we expect firms that perform better during the GFC have different corporate governance structures to minimize corporate risk and validate disclosures. Given that both the cause and product of the GFC were financial in nature, it is the AC that should be driving the governance response.

The results show that AC characteristics are associated with higher firm performance during the GFC. We compare the worst and best performing S&P300 firms and find size of the AC and the experience and knowledge the Chairperson significantly affect performance. A multivariate logit and regression on AC attributes indicates that number of members on AC

with more expertise impacts positively on firm performance. This implies that having more members with financial expertise resulted in better firm performance during the GFC when such expertise was needed in decision making.

The remainder of the paper proceeds as follows. Section two reviews prior literature and distills the key theoretical relationships between corporate governance AC characteristics and firm performance and presents the testable hypothesis. Section three describes the research design which includes the sample, variable measures and the empirical methods used to the relationship between corporate governance and performance. Section four tests the hypothesis and presents the results of the data analyses. Finally, section five offers a discussion of the results and their implications as well as a conclusion to the paper.

## **2. Background and Hypotheses**

The study examines a number of Audit Committee characteristics that have been researched in normal market setting to understand their relevance, if any, to firm performance during the GFC. The characteristics we examine include the number of independence AC members, size of AC, education level of AC members and experience of the AC members to identify if any of these characterises impact differentially on the performance of high and low performing firms during the GFC.

### ***2.1 Role and Impact of Audit Committees***

Audit Committees are part of the required corporate governance structure of the ASX300 listed firms. Wild (1996) finds that better quality of disclosed financial reporting improves firm performance. Therefore the role of the Audit Committee becomes very

important to firms, but also to other constituencies, such as shareholders. Over time the role of the AC has evolved and has progressively been re-defined from a voluntary monitoring mechanisms employed in high agency cost situations to improve the quality of information flows to shareholders (Pincus, Rusbarsky, and Wong 1989) to become a key competent of the oversight function (SEC 1999, 1) and the focus of increased public and regulatory interest (Abbott and Parker 2000). In the post-Enron era the AC has been charged with overseeing the accounting, audit and financial reporting processes of the company (Act 2002, Section 2) with the expectation that a suitably qualified and committed independent AC will be a reliable guardian of the public interest (Abbott, Parker, and Peters 2002). In Australia the ASX corporate governance guidelines define the AC's role to include the oversight of the company's financial reporting integrity and to oversee the independence of the external auditor (Council 2007, p. 26)<sup>1</sup>. For US firms the AC is required to discuss and review the firm's risk assessment and hedging strategies (NYSE Listing Rules). Thus the AC's primary role has evolved to overseeing the financial reporting and risk management processes.

The AC is the core monitoring mechanism for shareholder and other constituencies especially in the light of many accounting scandals e.g., Enron, Worldcom, Paramalat and in Australia HIH and Onetel. Prior literature, states that ACs promote and strengthen the existence of an internal audit function (Turley and Zaman 2004; Turnbull 1999). Regulators have put additional requirements for the composition and the financial knowledge of the directors sitting on the board and on the audit committee (Bradbury 1990). They are also placing additional conditions concerning the independence of the board of directors and the composition of the audit, compensation and governance committees (Act 2002). Interestingly, SOX does not set any particular requirements for the board as a whole entity, but does require

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<sup>1</sup> As we are investigating the ASX300 firms in this thesis, we need to clarify that the ASX CG guidelines states that the role and responsibilities should be set out in the AC charter, which every ASX300 firms is required to have(Council 2007, p.26).

that the audit subcommittee should be entirely composed of independent directors and should include at least one financially knowledgeable member. The regulatory trends clearly indicate that effective corporate governance includes the role of the audit committee and the independence of the board of directors.

Empirical evidence supports the regulatory focus on governance to enhance the relevance and reliability of financial information. Graham et al. (2005) find that 78% of the interviewed managers admitted to sacrifice long-term value in order to smooth earnings. This suggests that managers are involved in earnings management and could jeopardize the quality of financial reports. Beasley (1996) finds that the presence of an AC doesn't affect the likelihood of fraud, but more independent members on the board of directors should decrease the possibility of fraud. However, other researchers find a significant inverse relationship between the number of AC members and financial reporting quality; the lower of number of AC members, the higher the quality (Wright 1996; Abbott and Parker 2000; Klein 2002a; Carcello and Neal 2003a). A study by Abbott et al. (2004) confirms that a AC consisting of independent members and who meet at least twice a year decreases the possibility that the firm will associated with misleading and fraudulent reporting (Abbott, Parker, and Peters 2004a).

One of the newer guidelines for US market and the ASX is the inclusion of experienced members. Research shows that the addition of financial experts (Audit managers) and financial literates (MBA and graduated in commerce and accounting) is likely to change the structure and focus of AC's discussions (McDaniel, Martin, and Maines 2002). This would contribute positively to the quality of the financial reporting process and risk management practices and subsequently a better share price (Wild 1994; Wild 1996). A view supported by a recent study from Kirkpatrick et al. (2009) which finds that independent

members on the ACs contribute to a better share price because independent members do have better understanding of risk appetites of firms, shareholders do value solid risk practises and reward firms with higher share price.

Another stream of research has shown that increased reporting quality also increases firm performance, measured as the variability of the earning reports before and after the instalment of an AC. The returns variability increased significantly after the instalment, which suggests that the AC contributes to a better performing firm (Wild 1996).

Independence is often heralded as the single most important board and AC characteristic however the evidence is somewhat mixed. Bhagat and Black (2002) find no relationship between the ratio of outsider versus insider board members and firm performance. Klein (1998) suggests that the inclusion of outside directors on the board of directors will increase shareholder returns and corporate performance, but no relation has been found between the overall board independence and firm performance. Chan and Li (2008) find evidence that the presence of independent and expert members on board and committees increases firm value. This view was also supported by Rosenstein and Wyatt (1990), who found the inclusion of outsiders on the board is associated with an abnormal stock return.

Despite the large quantum of research investigating the relation between firm performance and corporate governance practices, the conclusions remain mixed. For example, Gompers, Ishii, and Metrick (2003) investigated the impact of corporate governance on firm performance in the 1990s, and found a significant impact; firms with stronger shareholder rights (corporate governance structures) relates to higher firms valuations by shareholders higher firm value, higher profits, higher sales growth, lower capital

expenditures, and made fewer corporate acquisitions. However, an identical study by Core, Guay, and Rusticus (2005) shows that firms with strong shareholder rights do not outperform those with weak shareholder rights.

These conflicting results are common in the governance literature. However most of the sample periods are normal in that they are not period of financial uncertainty. For example, Gompers, Ishii, and Metrick's (2003) sample was drawn from 1990 to 1999, a period of recovery from the 1987 crash and prior to the Dot Com collapse of 2000. Core, Guay, and Rusticus's (2005) sample was drawn from the 1997 fiscal year prior to the 2000 market collapse. This raises the question what corporate governance characteristics are likely to impact firm performance when firms are under exogenous financial pressure. Given the empirical evidence and regulatory focus on ACs we ask the question "what attributes of the AC matter more when the outcomes from financial and risky decisions as well as the clarity of financial report are critical to the financial market's ability to pick winners and losers?"

### ***2.1 Characteristics of Audit Committees***

Given the requirement for firms to have an audit committee, any differential in performance related to governance will be related to the differences in AC characteristics. The key AC attributes identified in the literature fall into four categories: size and structure, proportion of internal and external members, experience and education. We will discuss each of these in turn.

The size of Board and AC increases with the number of meetings (Raghunandan and Rama (2007). This increase in meeting frequency and number of members is argued to provide more effective monitoring and hence better firm performance. Controversially, larger

audit committees can also lead to inefficient governance, thus yielding more frequent AC meetings (Vafeas 1999). Sharma, Naiker and Lee (2009) find evidence that the number of AC meetings is negatively associated with multiple directorships, audit committee independence, and an independent AC chair. They find a positive association between the higher risk of financial misreporting and AC size, institutional and managerial ownership, financial expertise and independence of the board. We argue that the number of members on AC and number of meetings potentially impact on firm performance.

The independence of the board is strongly linked with the level of monitoring of management and reduction in agency costs (Fama and Jensen 1983). Similarly, the independence of the AC also facilitates more effective monitoring on financial reporting (Beasley 1996; Carcello and Neal 2003b) and external audits (Carcello and Neal 2003a; Abbott, Parker, and Peters 2004a; Abbott, Parker, and Peters 2002). However, independence has a downside risk. Being completely independent from management, could mean that the independent audit committee members are more likely to make objective decisions and require less negotiations and deliberations and thus require fewer meetings negatively impacting the level of monitoring.

The literature has also examined the positive role of so called grey-directors who have firm and industry specific knowledge. Grey directors are directors who are ex or current employees of a firm and thus are insider rather than independent directors. Klein (1998) finds that inside directors can be a valuable board member if properly used. Her study shows a positive cross-sectional link between the percentage of insiders on finance and investment committees and firm performance. This flies in the face of mainstream of research which argues effective governance is positively related to majority independent directors and AC members.

When considering the structure of AC, the role and characteristics of the Chair needs to be examined. The literature and regulators argue that the Chair of the AC should be independent and the most experienced person on the AC. However, Sharma et al. (2009) show that some firms appoint a inside director as the AC chair. Ultimately, this can lead to more dependency of AC's. Similarly other studies investigate the presence of executives (CEO) on the AC and conclude that independent directors on audit committees lead to reduced monitoring by debt-holders when the leverage is low (Cotter and Silvester 2003). In contrast Beasley (2001) finds a board chairman or CEO on the AC reduces the effectiveness of an AC and concludes that the presence of a CEO on the AC has a negative impact on the independence of the AC and leads to less effective monitoring by the AC.

Owners of share blocks also form part of the external governance structure but their influence is often exerted through the internal governance structure. When blockholders own more than 5% of the shares of a firm, their presence on the board and committees can lead to governance issues. Klein (2002b) finds a negative association between AC independence and the presence of alternative monitoring mechanisms, such as blockholders. This contradicts the listing rules of NYSE and ASX where complete independency is required or requested.

In summary the evidence on the impact of independence on the effectiveness of the AC is mixed. What we do know is that the percentage of independent directors and grey directors, the independence of the AC Chair, presence of the CEO and representation of blockholders on the AC all impact on the effectiveness of the AC as a governance mechanism to enhance firm performance. However, we do not know what differential impact these characteristics will have in periods of financial crisis such as the GFC.

The final set of AC characteristics to consider relate to financial expertise and education. The literature separates managerial experience from governance experience (i.e. serving on other AC's or boards). Expertise is specifically recognised by regulators with a minimum of one AC member required to be an financial expert under BRC and SOX recommendations (Abbott, Parker, and Peters 2004b)<sup>2</sup>. ASX guidelines explicitly require that the AC include members who are all financially literate in that they are able to read and understand financial statements and at least one member should have relevant qualifications and experience (i.e. qualified accountant or other finance professional with experience of financial and accounting matters) and that some members should have an understanding of the firm's industry (Council 2007). Recent research confirms that accounting expertise within board that are characterised by strong governance contributes to greater monitoring by the AC and leads to an enhanced conservatism (Krishnan and Visvanathan 2008).

Having experienced members on the AC contributes to significantly less misreporting and more effective monitoring (Raghunandan and Rama 2007; Dechow, Sloan, and Sweeney 1996). Greater independent director experience and greater audit knowledge results in more reliable reports (Dezoort 1998) and the empirical evidence indicates that markets react more positively to the appointment of a new AC member who is an expert (DeFond, Hann, and Hu 2005; Davidson, Xie, and Xu 2004). Within the AC the Chairperson fulfils a key leadership role and hence should be the most qualified person of the whole AC. Where the AC chair has sufficient auditing background, it is very likely that the chair and the CFO will form a good working relationship (Spira 1999). Although it is recognised that the chair of AC should have experience, Dezoort (1998) finds evidence 76% of AC Chair's do not have any auditing experience. While experience arguably contributes to AC effectiveness, when members have

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<sup>2</sup>NYSE (Listed Company Manual section 303A.07) and Nasdaq (Rule 4350-4), SEC Regulation S-K [section 407(d)(5), ASX Corporate Governance Recommendations 4.2.

multiple directorships they can be overstretched and won't be able to fulfil their fiduciary duties effectively and consequently AC effectiveness is negatively impacted (Core, Holthausen, and Larcker 1999; Vafeas 2003). We investigate the impact on AC effectiveness of factors such as the number of experienced AC members, average directorships among AC members, whether the Chair of the AC is experienced, years of experience of the AC Chair as manager or on the board of directors, the percentage of members have managerial experience, and the percentage of AC members with external directorships at other firms or institutions.

Experience does not always equate with financial literacy and financial expertise. Both experience and education are needed to become a financial expert (Giacomino, Akers, and Wall 2009). Regulators recognise this and require all audit committee members to be able to read and understand the financial reports.<sup>3</sup> However, the research is very thin on this topic in part due to low incentives to disclose information of backgrounds and careers on directors prior to the post-Enron governance regulatory boom. One study by Chan and Li (2008) classified two groups, those with and those without finance trained directors. They find significant impact for finance-trained directors as members of independent audit committee (Chan and Li 2008). DeZoort (1998) shows that a majority of the directors surveyed had a Master's degree, but still a large portion of directors lacked any professional certification or licensing. As stated earlier, ASX requires at least one AC member to be financially qualified hence we examine both the number of members with finance or accountancy qualifications and whether the AC Chair is qualified.

The literature has identified fourteen AC characteristics that impact on firm performance, albeit with mixed evidence as to the direction of the relation. Nevertheless, almost all this

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<sup>3</sup>NYSE (Listed Company Manual section 303A.07) and Nasdaq (Rule 4350-4), SEC Regulation S-K [section 407(d)(5), ASX Corporate Governance Recommendations 4.2.

body of literature examines economical healthy periods without any financial distress. While the financial distress caused by the GFC is mainly exogenous, the result of unhealthy risk-management practices and non-transparent leveraged financial products in combination with poorly supervised and regulated financial markets, a firm's ability to manage through the GFC will be related to the quality of their corporate governance systems. The AC has a key role in financial decision making, risk management and reporting integrity and thus firms with a better quality AC should be better positioned when the GFC hit (i.e. stronger balance sheet) and make better decisions to respond to the impact of the GFC. As the GFC impacted financial markets, the quality of the financial decision making, the primary role of the AC, will be enhanced and hence performance improved if the AC exhibits more of the good governance characteristics identified in the prior research. Our main hypothesis is therefore:

**Hypothesis:** Governance enhancing Audit Committee characteristics will positively impact financial performance during the Global Financial Crisis.

### **3. Research Design**

#### ***3.1 Sample and Data***

The sampling frame includes all firms listed on the ASX300 during the period of financial crisis, 2008-2009 with the balance date of June 30th. In terms of the fall in the aggregated value of the all ordinaries index, this period represents the first full year of the global Financial Crisis (GFC)<sup>4</sup>. The stock price and financial data were obtained from the Bloomberg and Aspect databases respectively. Whilst these databases contain a comprehensive selection of ASX listed firms, discrepancies between the databases resulted in missing observations and the removal of these firms from the sample. The inconsistencies

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<sup>4</sup> Further research might need to extend this study period for a better oversight of the impact of the financial crisis.

primarily related to changes in firm names and the associate code changes, bankruptcies, and missing governance data from annual reports. All corporate governance data was obtained manually from annual reports as ASX300 companies are required to include a corporate governance report in their annual report.

Two sub samples of good and bad performing firms are identified by selecting the top and bottom 25% performers from the ASX300, a total of 150 firms<sup>5</sup>. Secondly, we collected the audit committee characteristics and control variable data for the 150 firms. Firms in the financial, banking, insurance<sup>6</sup>, and mining industries<sup>7</sup> (ASX Sector GICS codes 15(1040), 40) were excluded from the sample. Table 1 summarises that these data criteria results on a final sample of 99 firm observations.

(Table 1 about here)

### ***3.2 Firm Performance***

This study focuses which AC characteristics (if any) drive firm performance (dependent variable). Specifically, whether in the period of the GFC financial turmoil, AC quality affects firm performance. Consistent with prior research (Klein 1998; Bhagat, Black, and Belgium 2002; Bhagat and Bolton 2008; Brown and Caylor 2009) we defined financial

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<sup>5</sup> The selection of firm performance on the sample has been made first to maintain the maximum difference of firm performance and therefore easier to show the differences in characteristics.

<sup>6</sup> Firms in the financial industries are excluded due to their high debt structure and unique accounting practises that make comparisons with other industries difficult (Peasnell et al. 1998; Klein 2002b). More importantly for this research, they are excluded because of the special conditions applied by the Federal Government in guaranteeing their deposits. The effect of such a guarantee is that it is likely to mask any audit committee effect on their performance.

<sup>7</sup> Mining companies are excluded due to the unique industry including the fact that many companies are junior explorers for whom the market pricing is unexplained; producers' cash flows are affected more directly by global pricing and exchange rates, and valuation characteristics are influenced by operational flexibility (Kelly, Grundy, and Raaballe 2004) and their values may represent special case of the present value methodology .

performance as the change in stock price over one year from the beginning of the impact of the GFC to the first recovery of the market.

$$\text{Firm Performance} = \Delta\text{Stockprice}(\text{period of sample})$$

We define top performers as the upper quartile of the firm performance measure and bottom performers as the lower quartile. The dependant variable PERF is coded as 1 for the top performers and 0 for the bottom performers.

### ***3.3 Audit Committee Characteristics***

The independent variables of this study are the audit committee characteristics and are summarised in Table 2. We draw heavily on the large body of prior work<sup>8</sup> to define the measures for each of the 15 variables defined in Table 2 to proxy for AC characteristics. With the exception of GREY, each of the variables that are not binary are reduced to a binary form assigning 1 where the variable is greater than or equal to the median for all companies and 0 otherwise. For GREY we expect the direction to be the opposite to independence hence we code GREY as 1 if less than the median and 0 otherwise. We test if each variable impacts on performance and also conduct robustness tests with an index of audit committee governance and reduced principal components dimensions.

(Table 2 about here)

### ***3.4 Control Variables***

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<sup>8</sup> See Chan and Li 2008; Carcello and Neal 2000; Carcello and Neal 2003b; Carcello and Neal 2003a; Abbott and Parker 2000; Abbott, Parker, and Peters 2004a; Abbott, Parker, and Peters 2004b, 2002; Cotter and Silvester 2003; Klein 1998, 2002b; Klein 2002a; Bradbury, Mak, and Tan 2006; Bronson et al. 2009; Sharma, Naiker, and Lee 2009; DeFond, Hann, and Hu 2005.

The control variables used in this study are related to firm size, risk (both operational and financial) and the industry influence on firm performance and audit committee characteristics. Kinney and McDaniel (1989) find that larger firms tend to have better internal controls, better information systems, more resources for hiring fully qualified personnel, and therefore increased reporting quality. Increased reporting quality in turn leads to an improvement of firm performance (Wild 1996). We control for size effects with the variable TOTASS, measured as the logarithm of the book value of total assets (Klein 2002b; Sharma, Naiker, and Lee 2009; Carcello and Neal 2003a; Bronson et al. 2009). Any performance measure based on share returns needs to be adjusted for the systematic risk of the firm. We use the beta from FINANLSYIS and in some cases the industry beta to control for systematic risk. The GFC is more likely to impact firms with high leverage so we also included a control for leverage, LEV, which was the total liabilities divided by total assets. The GFC hit the market as a whole but some sectors were impacted more than others.<sup>9</sup> Hence we also include the normal control for the n-industry sectors with n-1 dummy variables, INDUSTRY, based on the two-digit GICS code.<sup>10</sup>

### ***3.5 Logit Model and Analysis***

The following Logit-cross-sectional-regression model is used to test the hypothesized relation between Audit Committee characteristics and the dichotomous firm performance variable PERF. We test whether each of the AC characteristics and the controls are significantly different to zero in two-tailed tests.

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<sup>9</sup> Our sample shows signs of different sectors do perform better than others.

<sup>10</sup> Global Industry Classification Standard, managed by the Standard & Poors.

$$\begin{aligned}
PERF_i = & \gamma_0 + \gamma_1 NUMMEM_i + \gamma_2 NUMMEET_i + \gamma_3 INDEP_i + \gamma_4 GREY_i + \gamma_5 CHAIR_i + \gamma_6 BLOCK_i \\
& + \gamma_7 CHAIREDU_i + \gamma_8 CHAIREXP_i + \gamma_9 EXTERDIR_i + \gamma_{10} INDEDU_i + \gamma_{11} DIRSHIP_i \\
& + \gamma_{12} YREXP_i + \gamma_{13} TOTASS_i + \gamma_{14} LEV_i + \gamma_{15} BETA_i + INDUSTRY_i + \varepsilon_i
\end{aligned}$$

We also conduct additional sensitivity and robustness tests. Omitted variables potentially bias coefficients and irrelevant variable can result in poor model fit. Likelihood and Wald tests are conducted to test for these problems. We also tested whether the individual AC characteristics explained firm share returns by running a regression on share returns. Another potential problem is multicollinearity between the AC characteristics which potentially inflates standard errors and although coefficients are unbiased could impact hypothesis testing. To address this issue we conduct two additional analyses. Firstly, we construct an index of AC governance characteristics by summing the 15 AC scores for each company. We reran the share return analysis using the index as the independent variable. Secondly, we ran an exploratory factor analysis to reduce the AC characteristics to key uncorrelated principal components. We re-run the regression analysis on the reduced independent variable set as additional robustness analysis.

#### 4. Results

A summary of the performance and industry characteristics of the sample are reported in Table 3. There are 40 bad performers and 59 good performing firms. The average overall performance of the bottom performers was -95.6%, where the top performers had a positive performance of 16.9% on average. While the total sample (top and bottom combined) exhibited a loss in firm performance of -28.5% which implies that the market as a whole (restricted to our sample), lost more than quarter of their firm performance in the year of the GFC. The results in Table 3 suggest there were also sector effects. The Materials sector is one of major contributors of the bad performers group, while firms in top performing group were

mostly coming from the Industrials, Consumer discretion, Consumer Staples, Healthcare, and Information Technology sectors. The Energy and Utilities sectors are both almost undivided.

(Table 3 about here)

Table 4 presents the mean and standard deviation of the AC attributes and control variables for the full sample and the upper and lower quartiles of performers. Three variables, CEO, ChairInd and MembEduc, all have next to or zero variance. Only one firm, a poor performer, had the CEO on the AC which is a good sign for AC independence. In addition the AC Chair for all firms was independent and all members of the AC had finance or accounting education. As these three variables do not distinguish firms they are dropped from the Logit and Regression models.

(Table 4 about here)

Comparing the binary coded AC attributes with each other, we find that both performance groups have similar mean levels for most of the variables. Nevertheless on the surface the poor performing group have slightly fewer AC members, have fewer meetings, more independence, a lower level of GREY members, lower education for the chair, lower external directorships and lower average directorships across the audit committee. The data behind the binary variables shows that the mean number of members on the AC is 3.3. The percentage of independent (92%) and grey AC members (6.0%) is higher in the bad performers group than at the top performers group, where the percentage of independent and grey members is 90% and 5.6%, respectively. The bad performing group of firms do have on average more meetings than better performing firms, with an average of 4.4 meetings against

4.2 meetings. It is also more likely to find a Chair of the board of directors and a Blockholder on the bad performing firms' Audit Committee.

The percentage of Chair of Board of directors is approximately 55% for the bad performers group and 45% for the top performers. As stated earlier, the presence of a CEO on the AC is completely zero for the bad performing group of firms and a small 2% for better performing firms. The percentage of Blockholders on AC nearly 8% for the lower performing group and 5% for the better performing group suggesting that troubled firms have more meetings and have more influential outsiders on the AC than better performing firms.

The number of members with external directorships differs between the better performing firms with 84% compared to the 76% for lower performing firms. Likewise for the number of AC members with the right qualifications, where 56% of the number of AC members is qualified against 50% of lower performing firms. The level of experience is with 96% lightly in favour of top performing firms compared to 94% percent for bad performing firms. Finally, the average number of directorships among the AC members is 2.1 for better performing firms and 2.0 for bad performing firms. The overall this suggests that better performing firms have better qualified and more experienced AC members than worse performing firms.

In relation to the characteristics of the AC Chair we find 80% of the better performing groups do have an AC Chairperson with financial qualifications, compared to 73% of bad performing firms. Likewise for the level of experience of AC Chairperson the better performing firms have slightly higher experienced AC Chairs, with 98.3% against 97.5% for the worse performing group of firms. Controversially, the years of experience for the AC Chair is higher for bad performing firms with 22.4 years on average, against 20.8 years for

better performing firms. This is unexpected, as the level of experience and education is higher for the better performing firms. A possible explanation could be that AC Chairs who have the right educational qualifications do study longer and that may contribute to a later career start. Finally, the control variable for size, Total Assets, is larger for better performing firms (average of 2,362 million AUD), than for bad performing firms (average of 3,434 million AUD).

Overall the differences between top and bottom performing firms are not significantly large. Only the number of AC members with external directorships and the average number of directorships are significantly lower for the poor performers relative to the highest performers at the 10% level (unreported ANOVA). The descriptive statistics indicates that firms are complying with most ASX Corporate Governance recommendations (Council 2007, p.11), which recommends at least three members on AC, majority of members is independent, an independent chairman, who is not the chairman of the board, consists of only non-executive members and at least one member is a financial expert.

#### ***4.1 Test of Hypotheses***

We estimate a logit regression to test which AC characteristics impact firm performance. Table 5 reports the results for this analysis. The log likelihood test is significant at the 1% level and indicates that the model as a whole (i.e. all the slopes coefficients as a group) are significantly different to zero. Thus the overall model is valid and the variables do influence firm performance. The reported two-tailed Wald test examine if the each independent variable's estimated parameter is statistically different from zero. Good performance is positively related to number of members (NumMem) on AC (significant at 5% level), having block holders on the AC (significant at 5% level), and level of external directorships

(significant at 10% level). However, if the AC chairperson has more years on management and boards then this negatively impacted performance. Of the control variable only Beta is significantly related to performance with higher beta negatively impacted performance. The dummy control variable for the materials sector was also significantly positive (significant at 1% level).

The interpretation of the valid coefficients is different than with a normal regression as the Logit model is a probability regression. Therefore the coefficient of the Logit model shows a probability log odd ratio of the likelihood of the independent variable that is related to the dependent variable, in this case firm performance. Holding all other variables constant, our model predicts the log odd for firm performance would change 5.33 for every one unit change in the number of AC members. The positive coefficient increases the probability of a good performing firm. That is, the higher the number of AC members, the more likely a firm performs better. A low frequency of GREY members (which is reverse coded so a high score means low frequency) has a 2.74 positive impact on performance albeit just under the 10% significance level. This result is in line with the traditional wisdom and regulatory thrust in recent periods. Regulatory bodies require AC's to be independent which would mean a lower frequency of GREY members. Similarly holding all other variables constant, our model predicts the log odd for firm performance would change 6.869 for every one unit change in number of blockholders on the AC. The positive coefficient increases the probability of a good performing firm. The implication is that increasing the number of block holding AC members is more likely to result to good performance. Those AC members with vested interests help performance during the GFC. The negative coefficient for the ExterDir suggest performance drops 1.99 for each unit change in the number of AC members with external directorships. It would appear that having more AC members spread across more

organisation reduces performance. Finally the negative coefficient on YrExp, which is the incumbents AC chairperson's tenure in management and board, suggest that tenure has a negative impact on performance during the GFC. As expected systematic risk, beta, is negatively related to performance with the poor performers being riskier. They are also more likely to be in the materials sector.

(Table 5 about here)

#### ***4.2 Robustness Tests***

We also preformed a prediction evaluation test to assess the logit model's goodness of fit. The percentage correct prediction statistic assumes the event is expected to occur, when the estimated probability is greater than or equal to 0.5 (the cut off value). Table 6 presents the results for the prediction evaluation test and shows that the estimated model predicts 90% of the bad performing and 88.1% of the good performing firms correct. Overall, the estimated model correctly predicts 88.9% of the total observations.

(Table 6 about here)

To further test the robustness of the model we performed a comparative regression where we modeled share returns to be a function of the AC characteristics. The results are reported in Table 7 and show that higher share returns are positively related to the number of AC members consistent with the Logit model. Firms with a higher proportion of independent AC members with finance and accounting degrees (IndEdu) are likely to perform better during the GFC suggesting that financial expertise on the AC helps financial decision making and risk assessment during period of financial distress. Having an experienced Chair on the AC (ChairExp) has a negative effect on performance which is contrary to expectation. This may

be picking up the tenure factor that leads to complacency and poorer decision making when it counts such as during the GFC. Consistent with the logit model beta is negatively related to share return as expected. Taking the logit and regression models together it would seem size of the AC and beta are the consistent drivers of performance during the GFC. Aspects of education, independence, tenure and experience can positively and negatively impact performance. The next section will perform additional tests to explore the validity of the model.

(Table 7 about here)

#### ***4.2 Sensitivity Analysis***

While unreported variance inflation factors (for the regression model) and bi-variate correlations did not evidence any strong relationships between the variables, we conducted additional testing to control for potential multicollinearity and dimensionality in the independent variables. To address this issue we first we produced an index of AC governance by summing the individual binary variables for each company. We then regressed this and the control variables on share returns. The results reported in Table 8 show that GovIndex is positively related to share returns. That is the more of the governance enhancing AC characteristics that a firm exhibits (i.e. a higher total summed GovIndex) the better the firm performed. Leverage is negatively related to share return in the reduced model. However beta is no longer significant ( $p = 0.147$ ) but is still negatively related to share return.

(Table 8 about here)

Our second approach to reduce the dimensionality in the AC characteristics was a principal components factor analysis to condense the variables together into one or more factors. The downside of reducing the number of variables is the loss of variance, as the factors create their own factor scores and one score cannot represent the underlying data of other variables to the fullest.

To perform a factor analysis a minimum correlation among some of the variables is required so the three low/no variance variables were excluded from this analysis. Based on a scree plot and the Eigen values we identify three factors as reported in Table 9. The three factors extracted capture the expertise, commitment and independence dimensions in the AC characteristic variables and explain a total of 48% of the variance in the data set. Expertise is the financial and accounting expertise that is greater if there are more meetings, more GREY members (negatively coded variable), fewer block holders (who may not be qualified) and a more experienced chair. Commitment refers to the time available for board business and is higher if there are more meetings, the AC members have more directorships and the chair has more financial expertise but lower if the chairman of the board is also in the AC. Independence is enhanced if the proportion of independent AC members is higher, there are fewer GREY members (negatively scaled) and lower block holdings.

(Table 9 about here)

The three factors are entered into the regression model in place of the underlying AC characteristics to explain firm performance. The results are presented in Table 10 and show that only the EXPERTISE factor is significantly related to return performance. Higher performance is positively related to the EXPERTISE score. Leverage has a negative impact on return consistent with the prior model. Beta again is not quite significant but is still

negatively related to performance as expected. These results confirm the prior evidence that AC characteristics impact firm performance during the GFC.

(Table 10 about here)

## **5. Discussion and Conclusion**

The primary objective of this research is to examine whether governance makes a difference to firm performance when an adverse exogenous event such as the GFC occurs. Due to the financial nature of the GFC, the specific governance attribute of interest is the Audit Committee. This study examines a range of AC characteristics or attributes that have been studied under normal market conditions and examines and understand their relevance, during the GFC. The characteristics include the number of independence members, size of AC, educated members, experienced members, to identify any differences and/or similarities in relation to firm performance during the GFC.

While most of the corporate governance literature focuses directly on firm performance measures during economical uptimes, only a few of them measures firm performance during a period of economical trouble. Corporate governance is mainly introduced due to problems aligning the interests of professional managers with the interests of shareholders (agency theory) and it seems reasonable that its greatest contribution will be in times of distress. The paradigm shift from the dominant shareholder, to other constituencies, such as employees, communities, suppliers, etc, has motivated the drive for stronger corporate governance. Legislation and regulations have supported this drive.

One consistent area where regulations and listing rules have focused has been the Audit Committee (Act 2002; Council 2007; Robinson and Owens-Jackson 2009; Bronson et al.

2009). Fifteen attributes of Audit Committees were identified in the corporate governance and audit committee literature. These attributes are expected to influence firm performance directly or indirectly. The Audit Committee itself is expected to contribute to the quality of financial reporting and risk evaluation/monitoring and thus leads to firm performance. Prior empirical evidence found a direct relationship between the quality of financial reports and the appreciation of shareholders as measured by the share price (Wild 1994; Wild 1996). Based on the literature and the economical situations the following proposition was derived: Audit Committee attributes explains the differential firm performance during the Global Financial Crisis.

Consistent with prior research, this study used a Logit model to indentify the differing characteristics between two groups of performers (Klein 2002b; Beasley 1996; Carcello and Neal 2003a; Abbott, Parker, and Peters 2004b). In this case, firm performance is the dependent variable and the attributes the independent variables. The model was tested using a sample of the S&P 300 on the Australian Stock Exchange over the year 2008, where a selection was made between the top quartile and bottom quartile performing firms based on their share returns over the years 2007-2008. A dummy variable for firm performance was created where the top performers (25 % of the sample) were assigned a one, and a zero for those in the bottom quartile of performance.

Four control variables moderated the analysis. The literature indentifies that firm size (measured as the log of the book value of total assets), beta systematic risk, financial leverage, and industry (sector dummy) as the key variables that may also influence firm performance significantly. In order to measure and indentify the impact of the AC attributes on firm performance more clearly, these variables were included in the model as control variables.

Sensitivity analysis is also included in this study to be sure that variables are measuring the correct aspects of what they should measure. Because some of the measures are closely related to each other, an exploratory factor analysis was undertaken to determine if the measures could be clustered and provide new insights on the previous results. Further analysis included the new factors in the same model against firm performance.

The results indicate that only some of the AC characteristics are associated with firm performance. The number of AC members and the presence of block holders on the AC positively impact firm performance. However, having a longer tenure Chair on the AC and more external directorships held by AC members impacts negatively on performance. We also found share returns were related to number of AC members and financial expertise among the independent members but negatively impacted by the chairperson's experience level. An index of AC characteristics, GovIndex, produced similar results consistent with AC governance impacting performance positively. Beta and leverage as expected impacted negatively on share returns.

A huge number of studies have investigated the impact of corporate governance on firm performance and share returns in the last decades. However unlike these studies, only a few of these were conducted over data where the economical recession was ongoing, like the Korean crisis. The research period for this study is considered unique as the global financial crisis is considered to be the most severe economic recession since the Great Depression of the 1930s.

Results demonstrate clearly that Audit Committee attributes have a positive impact on firm performance during the GFC. The significant results should help to re-focus the

corporate governance literature from independence to more experienced and financial literate members on Audit Committees.

Results from this study make several contributes to the literature. Prior studies looked at the influence of board committees on firm performance under normal economic conditions. To the best knowledge of the researcher, no prior study has, theoretically and empirically, examined the interaction of audit committee characteristics and firm performance in periods of extreme economic distress. This study contributes to different and distinct streams of research.

Corporate governance regulations adopted by regulators (e.g. Sarbanes-Oxley act of 2002, Australian Treasury act of 2002) are empirically tested in the proposed model (i.e. audit committee independence, financial expertise and minimal size). The results support the view from literature that knowledge and experience drives better financial reporting. *Ceteris Paribus*, better financial reporting increases firm performance.

The major contribution to the audit committee research is that it has an influence on firm performance during the global financial crisis. The similarity of the results with previous literature and research using other capital markets data demonstrates the generalizability of the findings to different markets. Replication of this research using data from other international stock exchanges may provide insight into market response to Audit Committee characteristics and its impact on firm performance and its contribution in preventing firms going bust during an economic recession.

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**TABLE 1 SUMMARY OF SAMPLE SELECTION**

<b>Year</b>	<b>2008</b>
All Firms 30 June Balance Date	300
Selection on firm performance	150
Less	
Missing Data	17
Excluded Industries	34
<b>Sample</b>	<b>99</b>
Top Performers	59
Bottom Performers	40

*Notes:*  
Data missing from Bloomberg, Aspect databases or Annual reports.  
Excluded industries from ASX Sectors are financial, banking, insurance, and mining industries.

**TABLE 2: VARIABLES**

<b>VARIABLE</b>	<b>DEFINITION</b>
<i>PERF</i>	1=top 75 performer, 0=bottom 75 performer
<i>NUMMEM</i>	The number of members on AC.
<i>INDEP</i>	The number of independent members on AC.
<i>GREY</i>	The number of grey members on AC.
<i>NUMMEET</i>	The number of meetings of AC in one year.
<i>CHAIR</i>	1=Chairman on AC, 0=Otherwise.
<i>CEO</i>	1=CEO on AC, 0=Otherwise.
<i>BLOCK</i>	1=Blockholder on AC, 0=Otherwise
<i>CHAIRIND</i>	1=Chairman Independent; 0=Otherwise
<i>EXTERDIR</i>	The Number of AC members with external directorships.
<i>MEMBEDU</i>	The number of AC members with finance or accountant degree.
<i>INDEDU</i>	The number of AC independent members with a finance or accountant degree.
<i>DIRSHIP</i>	The number of directorships divided by the number of AC members.
<i>CHAIREDU</i>	1=Chairman of AC holds a finance or accountant degree, 0=Otherwise.
<i>CHAIREXP</i>	1=Chairman of AC is experienced, 0=Otherwise.
<i>YREXP</i>	AC Chairman Number of years experience as working as manager or for boards/committees.
<i>TOTASS</i>	The log of the book value of Total Assets of sample year.
<i>LEV</i>	Leverage – debt to assets – for the year before
<i>Industry</i>	Industry Sector Code (GICS) Dummy

**TABLE 3: PERFORMANCE AND INDUSTRY BREAKDOWN**

	<u>Bottom Performers</u>	<u>Top Performers</u>	<u>Total Sample</u>
Share Return <sup>a</sup>	-95.61%	16.93%	-28.54%
<b>GICS Sector</b>			
10 Energy	5	7	12
15 Materials	26	8	34
20 Industrials	5	10	15
25 Consumer Discretion	0	10	10
30 Consumer Staples	2	7	9
35 Health Care	0	11	11
45 Information Technology	0	3	3
50 Telecom Services	0	1	1
55 Utilities	2	2	4
N	40	59	99

<sup>a</sup> Share performance over a one year period

**TABLE 4: DESCRIPTIVE STATISTICS**

Variable	Poor Performers <sup>a</sup>				Top Performers <sup>b</sup>				Total Sample			
	Mean	Std. Dev.	Min.	Max.	Mean	Std. Dev.	Min.	Max.	Mean	Std. Dev.	Min.	Max.
NumMem	.93	.267	0	1	.95	.222	0	1	.94	.240	0	1
NumMeet	.65	.483	0	1	.71	.457	0	1	.69	.466	0	1
Indep	.78	.423	0	1	.71	.457	0	1	.74	.442	0	1
LowGrey	.85	.362	0	1	.81	.393	0	1	.83	.379	0	1
Chair	.55	.504	0	1	.46	.502	0	1	.49	.503	0	1
Block	.08	.267	0	1	.05	.222	0	1	.06	.240	0	1
CEO	.00	.000	0	0	.02	.130	0	1	.01	.101	0	1
ChairInd	1.00	.000	1	1	1.00	.000	1	1	1.00	.000	1	1
ChairEdu	.73	.452	0	1	.80	.406	0	1	.77	.424	0	1
ChairExp	.98	.158	0	1	.98	.130	0	1	.98	.141	0	1
ExterDir	.43	.501	0	1	.64	.483	0	1	.56	.499	0	1
MembEduc	1.00	.000	1	1	1.00	.000	1	1	1.00	.000	1	1
IndEdu	.85	.362	0	1	.93	.254	0	1	.90	.303	0	1
DirShip	.50	.506	0	1	.66	.477	0	1	.60	.493	0	1
YrExp	.63	.490	0	1	.61	.492	0	1	.62	.489	0	1
GovIndex	9.93	1.900	5	13	10.34	1.667	6	13	10.17	1.767	5	13
BETA	1.266	.363	.920	2.000	.999	.312	.500	2.000	1.107	.357	.500	2.000
TotalAss	8.996	.615	7.942	10.152	9.082	.693	7.821	10.438	9.047	.661	7.821	10.438
Lev	.510	.223	.111	1.317	.488	.221	.041	1.093	.496	.221	.041	1.317

<sup>a</sup> Sample size of bad performing firms: 40.

<sup>b</sup> Sample size of top performing firms: 59.

**TABLE 5: AC CHARACTERISTICS AND FIRM PERFORMANCE**

$$PERF_i = \gamma_0 + \gamma_1 NUMMEM_i + \gamma_2 NUMMEET_i + \gamma_3 INDEP_i + \gamma_4 GREY_i + \gamma_5 CHAIR_i + \gamma_6 BLOCK_i + \gamma_7 CHAIREDU_i \\ + \gamma_8 CHAIREXP_i + \gamma_9 EXTERDIR_i + \gamma_{10} INDEDU_i + \gamma_{11} DIRSHIP_i + \gamma_{12} YREXP_i + \gamma_{13} TOTASS_i \\ + \gamma_{14} LEV_i + \gamma_{15} BETA_i + INDUSTRY_i + \varepsilon_i$$

Coefficient	Variable <sup>a</sup>	Predicted Sign	Estimated Coefficients	Standard Errors	Wald
$\gamma_0$	Constant		74.136	47323.359	.000
$\gamma_1$	NumMem		5.331	2.173	6.018 **
$\gamma_2$	NumMeet		-1.099	1.186	.858
$\gamma_3$	Indep		-.230	1.536	.023
$\gamma_4$	Grey <sup>b</sup>		2.874	1.890	2.312
$\gamma_5$	Chair		-1.713	1.079	2.518
$\gamma_6$	Block		6.869	3.182	4.660 **
$\gamma_7$	ChairEdu		-1.323	1.225	1.166
$\gamma_8$	ChairExp		4.782	3.172	2.273
$\gamma_9$	ExterDir		-1.998	1.166	2.939 *
$\gamma_{10}$	IndEdu		-1.992	1.613	1.525
$\gamma_{11}$	DirShip		.728	1.265	.331
$\gamma_{12}$	YrExp		-3.009	1.602	3.529 *
$\gamma_{13}$	TotalAss		1.359	1.154	1.386
$\gamma_{14}$	Lev		-1.079	2.259	.228
$\gamma_{15}$	BETA		-10.888	3.416	10.161 ***
	Industry <sup>d</sup>		Yes		
Pseudo R <sup>c</sup>	0.797				
Chi-Square Test of Model's Fit	88.35	P=(0.000)			

\*\*\*, \*\*, \* Significant at the 0.01, 0.05, and 0.10 levels (two-sided test), respectively

<sup>a</sup> CEO, CHAIRIND and MEMBEDUC characteristics are excluded due to low/no variance.

<sup>b</sup> GREY is coded in reverse so that 1= less than median GREY members and 0= median or greater GREY members

<sup>c</sup> Nagelkerke R Square

<sup>d</sup> Industry Fixed Effect for Materials Sector significantly positive at the 1% level.

**TABLE 6: PREDICTION EVALUATION OF FIRM PERFORMANCE**

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	Estimated Equation		
	Dep=0	Dep=1	Total
P(Dep=1)≤C	36	7	41
P(Dep=1)>C	4	52	56
Total	<hr/> 40	<hr/> 59	<hr/> 99
Correct	<hr/> 36	<hr/> 52	<hr/> 88
% Correct	<hr/> 90.0	<hr/> 88.1	<hr/> 88.9

Note: Cut-off value = 0.5

---

**TABLE 7: AC CHARACTERISTICS REGRESSION ON SHARE RETURN**

$$\begin{aligned}
RETURN_i = & \gamma_0 + \gamma_1 NUMMEM_i + \gamma_2 NUMMEET_i + \gamma_3 INDEP_i + \gamma_4 GREY_i + \gamma_5 CHAIR_i + \gamma_6 BLOCK_i \\
& + \gamma_7 CHAIREDU_i + \gamma_8 CHAIREXP_i + \gamma_9 EXTERDIR_i + \gamma_{10} INDEDU_i + \gamma_{11} DIRSHIP_i \\
& + \gamma_{12} YREXP_i + \gamma_{13} TOTASS_i + \gamma_{14} LEV_i + \gamma_{15} BETA_i + INDUSTRY_i + \varepsilon_i
\end{aligned}$$

Coefficient	Variable <sup>a</sup>	Predicted Sign	Estimated Coefficients	Standard Errors	t-stat
$\gamma_0$	Constant		.768	2.036	.377
$\gamma_1$	NumMem		1.183	.492	2.404 **
$\gamma_2$	NumMeet		.233	.264	.880
$\gamma_3$	Indep		-.133	.320	-.416
$\gamma_4$	Grey <sup>b</sup>		.029	.335	.086
$\gamma_5$	Chair		.193	.218	.883
$\gamma_6$	Block		.388	.511	.759
$\gamma_7$	ChairEdu		-.170	.264	-.644
$\gamma_8$	ChairExp		-1.746	.892	-1.957 *
$\gamma_9$	ExterDir		.485	.314	1.545
$\gamma_{10}$	IndEdu		1.074	.402	2.675 ***
$\gamma_{11}$	DirShip		-.160	.331	-.485
$\gamma_{12}$	YrExp		.122	.236	.516
$\gamma_{13}$	BETA		-.631	.384	-1.641 *
$\gamma_{14}$	TotalAss		-.053	.224	-.238
$\gamma_{15}$	Lev		-.562	.604	-.930
	Industry <sup>c</sup>		Yes		
Adj R <sup>2</sup>	0.197				
F-Test	2.046	P=(0.011)			

\*\*\*, \*\*, \* Significant at the 0.01, 0.05, and 0.10 levels (two-sided test), respectively

<sup>a</sup> CEO, CHAIRIND and MEMBEDUC characteristics are excluded due to low/no variance.

<sup>b</sup> GREY is coded in reverse so that 1= less than median GREY members and 0= median or greater GREY members

<sup>c</sup> Industry Fixed Effect for Materials Sector significantly positive at the 10% level.

**TABLE 8: AC GOVERNANCE INDEX REGRESSION ON SHARE RETURN**

$$RETURN_i = \gamma_0 + \gamma_1 GovIndex_i + \gamma_2 TOTASS_i + \gamma_3 LEV_i + \gamma_4 BETA_i + INDUSTRY_i + \varepsilon_i$$

Coefficient	Variable <sup>a</sup>	Predicted Sign	Estimated Coefficients	Standard Errors	t-stat
$\gamma_0$	Constant		-0.813	1.704	-0.477
$\gamma_1$	GovIndex		.145	.066	2.178 **
$\gamma_2$	TotalAss		.041	.203	.204
$\gamma_3$	Lev		-1.128	.568	-1.987 **
$\gamma_4$	BETA		-.539	.368	-1.464
	Industry <sup>a</sup>		Yes		
Adj R <sup>2</sup>	0.124				
F-Test	2.154	P=(0.021)			

\*\*\*, \*\*, \* Significant at the 0.01, 0.05, and 0.10 levels (two-sided test), respectively

<sup>a</sup> Industry Fixed Effect for Materials Sector significantly positive at the 10% level.

**TABLE 9: AC ROTATED PRINCIPLE COMPONENT MATRIX<sup>ab</sup>**

	Component		
	Expertise	Commitment	Independence
NumMem	.465	.231	-.014
NumMeet	.179	.542	-.042
Indep	.056	-.023	.882
Grey	-.388	.274	.671
Chair	.027	-.448	.015
Block	-.495	.254	-.574
ChairEdu	-.115	.465	.116
ChairExp	.718	.079	.107
ExterDir	.310	.623	.277
IndEdu	.749	.043	.010
DirShip	.251	.756	.125
YrExp	.066	.106	.271

<sup>a</sup> Extraction Method: Principal Component Analysis

Variance explained 48%

<sup>b</sup> Rotation Method: Varimax with Kaiser Normalization.

**TABLE 10: REGRESSION OF FIRM SHARE RETURN ON FACTORS**

$$RETURN_i = \gamma_0 + \gamma_1 PC1_i + \gamma_2 PC2_i + \gamma_3 PC3_i + \gamma_4 TOTASS_i + \gamma_5 LEV_i + \gamma_6 BETA_i + INDUSTRY_i + \varepsilon_i$$

Coefficient	Variable <sup>a</sup>	Predicted Sign	Estimated Coefficients	Standard Errors	t-stat
$\gamma_0$	Constant		1.105	1.969	.561
$\gamma_1$	Expertise		.229	.112	2.036 *
$\gamma_2$	Commitment		.173	.126	1.378
$\gamma_3$	Independence		-.069	.109	-.629
$\gamma_4$	TotalAss		-.010	.218	-.045
$\gamma_5$	Lev		-1.045	.575	-1.818 **
$\gamma_6$	BETA		-.575	.374	-1.537
	Industry				
Adj R <sup>2</sup>	0.114				
F-Test	1.901	P=(0.038)			

\*\*\*,\*\*, \* Significant at the 0.01, 0.05, and 0.10 levels (two-sided test), respectively

<sup>a</sup> Industry Fixed Effect for Materials Sector significantly positive at the 10% level.