

Determinants of board composition in Australia and the impact of corporate governance regulation

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Abstract

This study investigates the relation between firm characteristics and board composition in Australia for a sample of the same 432 listed firms in 2001 and 2007 and the impact of the Principles of Good Corporate Governance and Best Practice issued by the Australian Stock Exchange in 2003. Two features of this regulation were (a) it recommended independent boards for all firms, without regard to firm characteristics (an approach commonly described as ‘one size fits all’) and (b) it allowed non-compliance through ‘if not why not’ reporting. Using various designations of independence and firm size subsamples we find for ‘Top 100’ firms in 2001 up to 49% (Adjusted R^2 48.8) of variation in board independence may be explained by firm characteristics, but generally the explanatory power was much lower. Evidence is provided that although more firms had majority independent boards the relation between board composition and firm characteristics may have weakened over the period. This highlights a potential concern that the regulation has imposed unnecessary costs or inappropriate governance mechanisms on Australian firms.

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1. Introduction

The objective of this paper is to provide evidence on the relation between firm characteristics and board composition in Australia, and evaluates any changes subsequent to the issuance of the Principles of Good Corporate Governance and Best Practice (PGCG&BP) by the Australian Stock Exchange in 2003. While these regulations included a recommendation of a majority of independent directors for the “Top 500” boards (‘one size fits all’ approach), there was provision for firms not to comply with the recommendations as long as this was disclosed and an explanation provided. With more firms moving to majority independent boards but the average level of board independence remaining approximately the same, how has this impacted the relation between firm characteristics and board composition?¹

In the aftermath of high profile corporate failures such as Enron Corporation, Parmalat SpA and HIH Insurance Ltd, the governance of corporations has been subjected to considerable scrutiny. There have been number of regulatory responses, including legislation such as the Sarbanes-Oxley Act (2002) in the United States, the Companies Act 2006 in the United Kingdom and the Corporate Law Economic Reform Program (Audit Reform and Corporate Disclosure) Act 2004 (also known as CLERP 9) in Australia. There have also been responses from market operators such as the New York Stock Exchange which included Corporate Governance Listing Standards in the NYSE Listing Company Manual (S303A) in 2004 and the Combined Code on Corporate Governance, incorporating suggestions for good practice from the

¹ Matolcsy, Tyler and Wells (2008), from a very similar sample find a 9% increase in the number of boards with more than 50% of independent directors but a little change in the mean and median percentage of independent directors on the sample firm boards.

Higgs report (2003) in the United Kingdom.² Similarly, the Australian Stock Exchange issued the PGCG&BP in 2003. These regulatory developments which addressed governance issues such as board composition and auditors were essentially a response to criticism and public perceptions of governance failure. However, there was no empirical evidence that governance problems were endemic, nor was there any theoretical or empirical support for the regulations mitigating the risk of problems in the future but doubtless they were influenced by the recommendations in reviews of corporate governance in the 1990's.

In this study we examine the relation between board independence and firm characteristic. This aspect of corporate governance was selected as the requirement for a majority of directors to be independence and the implication of the higher the level of independence the better, was common to the regulatory reforms in many countries. Furthermore, it featured prominently in reviews of corporate governance in the 1990's in the United States (The Blue Ribbon Committee) the United Kingdom (The Cadbury Report) and Australia (The Bosch Committee) and is typically identified as a central component of good corporate governance.

While the changes in board composition were documented in Matolcsy (2008) the effect of the relation between firm characteristics and board composition has not, to our knowledge, been examined in a pre and post corporate governance regulatory environment. Empirical evidence from pre-regulation Australian studies (Arthur 2001 and Cotter 2003) and internationally (Boone 2007) have found board composition to be associated with firm characteristics, but it is unclear if firm characteristics drive the level of board independence for

² The Combined Code is produced by the Financial Reporting Council, the independent UK regulator, also responsible for the statutory oversight and regulation of auditors and of the professional accountancy and actuarial bodies. Similar to Australia there is a 'comply or explain' (if not why not) provision.

all size firms and for various designations of independence. While board composition and its impact on firm outcomes would appear to be both the original motivation for regulation and extensively researched post regulation (see Coles et al 2008), there is relatively little analysis of the impact of firm characteristics on board composition (see Linck et al 2008). This paper extends current research by examining the relation in a pre and post regulatory environment. Further we include medium and small companies in the sample, which have not been scrutinized in previous Australian research.

In an unregulated corporate governance environment, board composition (on average) should be optimal. Even in cases where boards are thought to be captured by interested parties, if the benefits of changing the board were greater than the cost, the board composition would change. But board composition should be related to firm characteristics, including other governance mechanism employed by the firm to control agency conflicts (Bathala and Rao 1995). Given the firm characteristics and the costs and benefits of other mechanisms, boards may be expected to be so composed as to provide efficient corporate governance (Linck et al 2008).

This paper is motivated by two distinct factors; the limited research in Australia on the association between board composition and firm characteristics particularly in the post corporate governance regulatory environment and the generally negative reaction by directors in Australia to the regulatory changes indicating, at least anecdotally, that one size did not fit all.³

³ CLERP 9 but primarily the Australian Stock Exchange (ASX) Principles of Good Corporate Governance and Best Practice Recommendations in March 2003

There has been limited research on the relation of firm characteristics and board composition in Australia. Arthur (1997, 2001) found board composition was associated with CEO tenure, information asymmetry and the comparative advantage of independent directors as monitors. Although Arthur's sample was from 1989 and included only 125 companies, it added to the evidence suggesting optimal board composition is not independent of the firm characteristics. More recent research in Australia, Cotter (2003) have examined firms up to 1997 but neither included medium or small firms in their sample. Consistent with Arthur (1997) Cotter (2003) found independent boards positively associated with low management ownership and an absence of substantial shareholders and independent audit committees with low debt levels. Larcker, Richardson and Tuna (2007), demonstrated that board characteristics are not independent of firm characteristics and other corporate governance mechanisms. Lim (2007) find growth firms with relatively less assets in place require more independent directors than firms with more assets in place, consistent with Anderson (1993). This study further examines this relation and provides evidence for regulators to better base future corporate governance requirements.

Regulations both in Australia and overseas imply the 'optimal' board structure is majority independent with independent chairs, audit, remuneration and nomination committees.⁴ These

⁴ Corporate Law Economic Reform Program No. 9 (CLERP 9) became law on 30 June 2004. It applies to financial years commencing on or after 1 July 2004 requiring: the inclusion of a remuneration report (for all directors and the top 5 remunerated executives), a non-binding shareholder vote on the remuneration report (shareholder approval required for retirement benefits greater than 7 times final average salary or years of service if less than 7 years), disclosure non-audit work undertaken by an auditor and if this work is compatible with auditor independence, auditor rotation (generally 5 years), operating and financial performance discussion and analysis, additional information necessary to give a "true and fair view", ASIC fines for breaches of continuous disclosure requirements ('on the spot' fines up to \$100,000 for companies and civil penalties to \$1 million for companies and \$200,000 for individuals), CEO and CFO to declare financial statements are in accordance with the Act and Accounting Standards and other minor provisions (e.g. whistleblowers protection) not relevant here. Also see footnote 2 above re ASX Corporate Governance Council; Principles of Good Corporate Governance and Best Practice Recommendations.

regulations suggest a ‘one size fits all’ approach to board composition (or in Australia, one size fits all top 500 or 300 companies).⁵ Further, following the introduction of the Australian Stock Exchange (ASX) Principles of Good Corporate Governance and Best Practice Recommendations in March 2003 (hereafter PGCG), complaints of forced changes were voiced by many, probably the most vocal, the chair and CEO of Harvey Norman, Mr Gerry Harvey. Consistent with Jensen and Meckling (1976) Harvey argued his high percentage ownership in the company was all the corporate governance needed to align his actions as manager, with the interests of all shareholders and derided regulations imposing a uniform structure on all but small listed companies.⁶ Other executive chairs in Australia, such as Frank Lowy (Westfield,) James Packer (PBL), Kerry Stokes (Seven Network) and Rupert Murdoch (News Corp) all hold, or represent large shareholdings in their company and appear to have received lower ratings because of the lack of an independent chair.

This research contributes to the corporate governance academic and professional debate in three significant areas: First, there have been no studies that link board composition to firm characteristics in a pre and post regulatory environment. In Australia we do not know of any studies that examine small and medium size firms to see if the relation between board composition and firm characteristics is consistent for all firms regardless of size. The insight

⁵ The original ASX requirement was for audit committees for the “Top 500” companies, but this was subsequently reduced for to the “Top 300” companies (companies at the time with market capitalization above approximately \$100 million Australian).

⁶ Howath Rating Report (in conjunction with the University of Newcastle) uses an undisclosed formula on corporate governance to rate Australian companies. The formula appears to penalize companies without independent chairs and majority independent boards. The ratings are reported in the media and have been used by Beekes and Brown 2005.

provided from this study will enhance our understanding of the influence of firm characteristics on board composition.

Second, it provides regulators with evidence of the appropriateness of a ‘one size fits all’ corporate governance model. The report of the HIH Royal Commission, released in April 2003 made 61 policy recommendations, 17 related to corporate governance. Improved disclosure of directors’ remunerations, auditor independence declaration, non-audit services disclosure (identification, fees and an explanation of how they do not compromise audit independence), restrictions on retired auditors becoming directors of former clients⁷, auditor rotation⁸ and management discussion and analysis⁹ were all recommendations of Commissioner, Justice Owens. Many of the recommendations were incorporated into the Corporations Act 2001 by the Audit Reform and Corporate Disclosure Bill 2003 (CLERP 9).¹⁰ This study provides evidence to regulators by highlighting that board composition and firm characteristics are related and a ‘one size fit all’ regulations may not be appropriate. In fact such regulation may lead to sub-optimal board composition because they under or over compensate for other monitoring and/or advising governance measures. This can manifest in inadequate governance or unnecessary costs.

⁷ Justice Owen recommended only one former auditor being appointed a director and a four year cooling off period, CLERP 9 has reduced this to two year and dispensed with the proposal that a cooling-off period should also apply to retired partners who were not directly involved in the audit of the former client.

⁸ Justice Owen recommended extending the applicability of the audit rotation to include key senior audit personnel. CLERP 9 requires rotation of the lead engagement partner and review partner only.

⁹ Justice Owen recommended listed companies prepare an audited operating and financial review, CLERP 9 did not require the review to be audited.

¹⁰ Other recommendations were referred to the professional accounting and actuarial bodies, the Financial Reporting Council, the Australian Accounting Standards Board, the Audit and Assurance Standard Board, ASIC and APRA.

Third, independence boards may be desirable in certain circumstances (such as companies in financial distress), but the lack of say independent chairs in companies that have recently failed (HIH, OneTel, Harris Scarfe) does not necessarily indicate the need for these corporate governance mechanisms in all companies prevents financial failure.¹¹ Media reporting and political reforms following corporate failures, often concentrate on publicly observable common factors, but may ignore complex technical similarities such as firm characteristics.¹² Further corporate reform in Australia appears to have been driven by the political and legal professions without any consideration of the economic consequences.¹³

Consistent with predictions based on agency theory we find there is a positive association between board independence and firm characteristics which reflects the need for higher levels of monitoring by the board and the absence of alternate monitoring mechanisms. On the other side we find a negative association between board independence and firm characteristics which reflects the need for a lower level of monitoring by the board and the presence of alternate monitoring mechanisms. Further there was significant change in this association pre and post

¹¹ Following the Royal Commission into the failure of HIH Insurance, charges were laid by ASIC and two former directors Ray Williams (executive chair) and Rodney Adler were given prison sentences for a period of up to four and a half years for their actions as directors and APRA disqualified Frederick Lo, the former company secretary (and others) from being or acting as a director or senior manager of a general insurer. Adam Trescowthick, the former executive chair of Harris Scarfe was charged on 18 July 2003 with 37 counts following ASIC's investigations. Brad Keeling (joint executive chair) settled his civil claim against ASIC agreeing to pay ASIC's costs, compensation of \$92 million and accepted the ban from being a director for 10 years. Other defendants in the One.Tel proceedings are still before the courts.

¹² *Adler has his fingers in two corporate collapses.* "With so much attention on Rodney Adler's part in HIH's downfall, it is easy to forget Mr Adler was associated with another major corporate collapse.... founding director and shareholder in One.Tel." Transcript, ABC Radio "PM" Wednesday, 9 October 2002.

¹³ The Ramsey Report, the HIH Royal Commission (Justice Owen's recommendations), ASIC charges and subsequent sentencing of directors are examples of lawyers involvement in corporate governance. The exception appears to be the ASX Corporate Governance council with representation from twenty-one bodies, only one, the Law Council of Australia directly represent lawyers.

regulation for some firms, particularly small firms and firms that had minority independent boards in 2001, suggesting the regulation could be seen as both counterproductive and costly.

The remainder of this paper is organised as follows: Section 2 provides the theory development and hypotheses and Section 3 discusses the sample selection and research design, Section 4 outlines the results, the sensitivity testing for size, industry and alternate definitions of independence and the limitations and conclusion are in Section 5.

2. Directors as a Governance Mechanism: Theory and Hypothesis

The theoretical foundation of the role of directors is outlined by Fama and Jensen (1983). They contend that the agency problems are best mitigated by the contract structure that specify the nature of residual claims and separates the ratification and monitoring of the decisions ('decision control') from the initiation and implementation of the decisions ('decision management'). Because there is a separation of residual risk bearing from decision management, this leads to decision systems that separate decision management from decision control. These contracts determine which types of organisations survive and which organisations within those types survive.¹⁴ When combined with available production technology and external legal constraints the cost function is determined. Therefore the most successful organisations are the ones who create the most efficient 'nexus of contracts'.¹⁵ Central to the contract process is the

¹⁴ E.g. companies (public or private) partnerships (of various forms) trusts, mutual societies, sole traders etc.

¹⁵ Because within an economy all firms face similar legal constraints (unless they are protected in some way e.g. television licenses) and production technologies (unless trade is restricted, e.g. military patents which cannot be purchased on the open market).

board of directors. Adams and Ferreira (2007) divide the role of directors into two major functions: monitoring and advising. Monitoring should minimise sub-optimal behaviour by management (both at the decision ratification and monitoring outcomes phases) and requires directors to be independent of management, while advising (on initiation and implementation) does not have the same imperative. Shareholders, who are the residual risk bearers, are able to trade shares but have limited involvement in company management beyond the right to elect directors.¹⁶ The Australian regulatory framework partially reflects this theoretical foundation.

In Australia directors have a number of duties and responsibilities under statute, primarily the Corporations Act 2001 (including insider trading) but also the Securities Industry Act (share trading), Trade Practices Act (misleading and deceptive conduct) and the Occupational Health and Safety Acts and Regulations (employee safety). Directors' primary duty is fiduciary; to act with due care and diligence in the interest of the company, this also involves avoiding conflicts of interest (not gaining an advantage for themselves or causing detriment to the company).¹⁷ Any dealings between a director and the company must be disclosed to the board and the director may not be present while the matter is being considered by the board.¹⁸ Due diligence includes obtaining a general understanding of the company's business and monitoring management. Another important duty is the requirement not to trade while insolvent.¹⁹ Directors may delegate their powers but remain responsible for the exercise of that power. There is also a common law

¹⁶ Participate in a game in which they have limited control, except elect directors, approve changes in the company constitution, lowering of dividends, some minor provisions (such as the ratification of share issues in accordance with ASX Listing Rule 7.4) and since 2005 in Australia a non binding vote on remuneration.

¹⁷ Various sections of the Corporations Act 2001 as amended including 5.3, 179 & 160.

¹⁸ Corporations Act Sec 248(2) and 250(3).

¹⁹ On May 5, 2003 the Victorian Supreme Court found John Elliot guilty of allowing Water Wheel Holdings to trade while insolvent in contravention of Sec 558(G).

duty to establish and monitor internal control systems. Directors are also governed by common law rules, the company's individual constitution, guidelines issued by the Australian Companies and Securities Commission (ASIC) and for listed companies, the Australian Stock Exchanges (ASX) Listing Rules. Directors may also be influenced by a number of professional and other bodies that have seen fit to provide corporate governance guidance, including but not exclusively the Australian Institute of Directors, Chartered Secretaries Australia ("Leaders in governance"), Standards Australia (Good Governance Principles) and even CPA Australia. Finally the media (the fourth estate) or public opinion influences corporate activity. This cascade of corporate regulation is also present in the US and UK.

Following some recent high profile corporate collapses (e.g. One-Tel, HIH), attention in Australia has been drawn to company boards by both the 'Corporate Law Economic Reform Program (Audit Reform and Corporate Disclosure) Act 2004' (hereafter CLERP 9) and corporate governance guidelines issued by a number of committees and bodies, most notably the Australian Stock Exchange (ASX) Corporate Governance Council Principles of Good Corporate Governance and Best Practice Recommendations, March 2003. Recommendations by the PGCG appear to have been based on limited empirical evidence (board composition of failed companies), normative theories and a political process require public listed companies to have a majority of independent directors.²⁰

²⁰ Statements such as "bring together 21 groups from disparate business backgrounds and carrying the varying aims and priorities that accompany those constituencies." (Forward to PGCG) and the absence of any reference to any empirical research support the conclusion that PGCG requirements were based on normative theory and a political process.

Although neither contractually binding nor enforceable under the Corporations Law, they require listed entities to comply or provide an explanation of why they have not complied (“if not why not”). Before the issuance of the PGCG few board composition requirements were imposed.²¹ As discussed in Matolcsy (2008), the regulations appear to have had a significant influence on the aspects of board composition which may be considered inexpensive to implement and an impact on medium size companies.²²

The theoretical framework proposed by Fama and Jensen (1983) provides limited guidance on optimal board composition, but it is clear the nexus of contracts will be different for companies facing different circumstances. Company law has long required directors, but in most countries does not require independent (or even non-executive) directors. Before regulation, the composition of boards was the practical evolutionary solution to corporate governance at the highest corporate level. To suggest boards on average were sub-optimal, given the costs and benefits of all corporate governance measures, is to suggest market failure or a specific form, market capture by interested parties.²³

The empirical literature provides some insight into the relation of firm characteristics and ‘optimal’ board composition. For example, Denis and Sarin (1999) found ownership was the major determinate of board composition and changes in ownership lead to changes in composition, Vassallo (2005) hypothesized accounting numbers serve as an adequate monitor of

²¹ Corporations Law 2001 required a minimum of three directors for a public company [Subsection 201A(2)] two of who must be Australian residents. ASX Listing Rules 14.4 (introduced 1/7/96) require directors to be elected every three years.

²² Between 2001 and 2005 a substantial increase in the percentage of companies with remuneration committees was observed, while only medium size company boards became significantly more independent.

²³ A number of studies have shown an entrenched CEO was able to extract monopoly rents.

management's performance only in limited circumstances, specifically where P/B and P/E are low. He found strong support for net assets and earnings being good indicators of expected future performance in these circumstances, but where P/B and P/E were high additional monitoring was required. Further, Arthur (2001) suggested, although neither the Corporations Law nor other regulatory authorities provide many constraints, either directly nor indirectly on the composition and leadership of boards (in Australia in 1989), board composition would be influenced by a number of factors, that contributed to the reduction in contracting costs. These factors included; information asymmetry, the independent directors' comparative advantage in monitoring, and the bargaining ability of the CEO. Cotter and Silvester (2003) found more independent boards were associated with low management ownership and an absence of substantial shareholders. Further in examining the independence of the audit committee they found an association between the independence of the audit committee and reduced monitoring by debtholders when leverage was low based on a sample of 107 large firms in Australia in 1997.

The most comprehensive study appears to be Lincks et al (2008) which examined nearly 7,000 firms from 1990 to 2004. They found although their model explained as much as 45% of the observed board structure, small and large firms have dramatically different board structures. Firms with high growth opportunities, high R&D, high stock return volatility and high managerial ownership are associated with less independent boards, while firms that are larger, firms that the CEO has greater influence over and insiders have greater opportunity to extract private benefits have more independent boards.

To date, there is no theoretical and/or empirical evidence that there is an optimal composition for all companies which could be ‘templated’ by regulation. Despite this, the PGCG Principle 2 clearly templates board composition.

The primary recommendation, regarding board composition, examined in this paper Principle 2: Structure of the Board to add value Recommendation 2.1, A majority of the board should be independent directors.²⁴ Other composition requirements of an independent chair and independent committees flow from this.

While the Corporations Act does not require any of the ten principles including independent directors, it has long been recommended, listed companies should have a majority of non-executive directors with an appropriate mix of skills and experience (Bosch Committee 1995).²⁵ Independent directors have been defined as those not having been employed or contracted to the company in the last three years, not a material supplier, customer, substantial shareholder or in any other relationship with the company and has not served on the board for an ‘extended’ period.²⁶ Legally the role of chair and CEO is not required to be separated, but corporate governance recommendations (Bosch 1995, Investment and Financial Services Association 1999) have strongly suggested the separation of roles to avoid possible conflicts. CLERP9 amendments do not contain any provisions concerning to director independence per se,

²⁴ See Appendix 1 for the full list of Principles and Recommendations.

²⁵ The term ‘independent’ director is relatively new. PGCG 9.1 lists three categories of directors: executive, non-executive or independent.

²⁶ ASX Corporate Governance Council outlines a number of factors that potentially operate to disqualify a director from being classified as independent, but boards may determine a director is independent even if one of the factors exists.

but require a two year cooling of period for former auditors.²⁷ Given the miss-alignment between the empirical evidence on optimal board composition and the current regulatory development, we predict a relation between board independence and firm characteristics that theory would support should influence independence.

3. Sample Selection and Research Design

3.1 Sample Selection and Data

The sample consists of 439 firms drawn from the UTS Corporate Governance Database for the years 2001 and 2007.²⁸ The sample includes all companies that have been in the “S&P Top 100 Index” (large) during the sample period and a random selection from other listed companies divided into S&P 101-300, (medium) 301-500 (small) and below 500 (very small). Thus companies that have joined or left an Index are included in that Index as a means of addressing any survival or recent bias. Independence is examined in these two years and where lagged firm characteristics are required the data from 2000 and 2006 is used. Although the PGCG applies to all S&P Top 500 companies there may appear no reason to eliminate any companies. Due to specific reporting requirements or financial structure, consistent with prior studies we have eliminated some companies because of their reporting requirements, financial structure or unavailability of data.²⁹ ³⁰ In this study foreign domiciled firms and trusts are

²⁷ A mandatory two year cooling off period before a retired partner, director or member of the audit company can become a director or take a senior management position with the former client and a prohibition against more than one retired auditors on the clients board or senior management.

²⁸ Company size is measured by market capitalization and listed on the Connect 4 database.

²⁹ E.g. Matolcsy and Wright 2006 deleted investment trusts and managed funds because of their special reporting requirements.

³⁰ Corporate Governance rules apart from audit committees apply to the S&P Top 500 companies.

eliminated because of their unusual firm financial characteristics or because of their special reporting requirements. Regulated industries, such as applies to utility firms in the US (Meeks 1995 and Ferguson 2002) or the finance industry in Australia and industries with special reporting requirements such as managed funds (Lim 2007). De-listed firms and firms without annual reports are also eliminated. This provides a total 439 firm. Table 1 summarises the sample selection process and the descriptive statistics of the sample.

Table 1 (about here)

3.2 Research Design: Definition of Variables

In this study the dependent variable is the percentage of independent directors.³¹ Other board composition recommendations are contained in the PGCG, but central to each is the independence of the board. While seventy eight percent of boards in this study are majority independent in 2001 and eighty eight percent in 2007 as shown in Matolcsy (2008) the median level of board independence remained at seventy five percent over the period.³² Because the PGCG were released in April 2003, this study compares the board composition in the pre-regulation period of 2001 to the post-regulation period of 2007. Although the regulation requests a majority of the board to be independent, the clear implication is the more independent the board the better. This study begins by adopting the simple executive / non-executive dichotomy rather than a more sophisticated, but also more subjective classification of executive / grey / independent (e.g Lim 2007), or measures of other director attributes such as outside director ‘expertise’ (e.g Gul and Leung 2004). Later sensitivity analysis examines independence by

³¹ While the PGCG requires a majority of the board to be independent, the recommendation is clearly for more independent..

³² Matolcsy (2008) Table 2 shows the mean level of independence increased significantly as did the mean and medium levels of independence for more restrictive designations of independence (Tables 7, 8 & 9)

excluding non-executive directors with related party transactions and affiliation with a substantial shareholder, associations specifically identified in the PGCG as potentially compromising independence. From 2004 Australian companies have been required to provide the independence and executive status of directors, before this time only executive status was required, although independence was sometimes nominated or may have been able to be estimated from the limited information (voluntary) disclosed. Because of the change in reporting requirements it is likely some estimates and disclosures of independence will differ from the disclosed independent status in the latter years. Although the PGCG provide directions as to matters that may indicate non-independence, the classification is ultimately at the discretion of the board. In a prior study the highest correlation with self classification was non-executive not affiliated with a substantial shareholder. The more common exclusion of related parties resulted in a lower correlation than the simple non-executive dichotomy. The percentage of non-executive directors is therefore used first as the dependent variable.

The independent variables are the firm characteristics which indicate the need for a board composition that reduces agency costs by separating the ‘decision control’ (ratification and monitoring of the decisions) from the ‘decision management’ (initiation and implementation of the decisions) or firm characteristics that provide a substitute for board independence.

Firm size would be expected to have the major impact on governance factors including the percentage of independent directors. Firm size is also critical in the application of the PGCG, with most of the regulation applying to the top 500 companies and the change in audit committee requirements applying to the top 300. Large firms face higher political costs and are likely to

compensate with more independent directors. Equally larger companies can afford larger boards, director and board cost represent a smaller percentage of their total expenses (or profits) and the larger the board the greater the room for independent directors and the greater the chance of majority independent boards.³³ Because of both the regulation and the economic impact of size, the sample is subdivided according to market capitalization and more specific size/complexity firm characteristics are included in the right hand variables.

Board size is likely to be a significant determinate of the level of board independence. Larger firms usually have larger boards, but this is not the only factor determining board size. Matolcsy (2008) showed board size has remained remarkably stable over the period, with median boards of 5 and mean boards of 5.79 and 5.80 in 2001 and 2007 respectively (Table 2). The larger the board, the greater the opportunity to appoint independent directors. While most boards would include the CEO many may also have the CFO and possibly the operations manager (say the chief engineer or geologist) depending on the qualifications and experience of the CEO. It may be difficult to justify the need to include more executives on the board when they are available to be in attendance when their expertise is required. It is therefore predicted the larger the board the more independent the board.

While board size provides the opportunity for more independent directors, shareholder concentration (Cooke, 1992; Ho and Wong, 2001; Chua and Gray, 2002) provides an alternate monitoring mechanism. This is consistent, but not the same as Gerry Harvey's concept of corporate governance, where he contends his interest as a majority shareholder reduces (or

³³ For boards with three or four directors, a second executive director robs the board of majority independence. While boards of seven or more allows at least three directors to be executives.

removes) the agency problem. Board representation by a director affiliated with a substantial shareholder may align the board's incentives with all shareholders, or it may only align it with specific shareholders. Therefore board representation may or may not indicate the need for particular board composition but the higher the shareholder concentration, the less need for independent directors to protect these more powerful shareholders' interests. Institutional investors may have a policy of not being involved in management and simply selling shares in companies that do not perform in accordance to their expectations, but the discipline imposed by a high level of shareholder concentration leads to the prediction of lower levels of board independence.

Larker et al (2007) draws comprehensively on previous research and provides a number of governance and firm characteristics which are significantly associated with managerial decision making and organizational performance. Consistent with their findings, other researchers (e.g. Denis and Sarin 1999) have found size to be significantly associated with board composition. It is unclear which aspect of size is the driving factor in corporate governance. In this study complexity and size are measured using subsidiaries and assets. Larger firms are exposed to more public scrutiny (Watts and Zimmerman 1978), and may reduce the costs associated with this with more independent boards. Large firms are likely to have more complex operations and require a larger range of expertise on the board resulting in larger boards. The complexity of the business operations is also likely to influence the range of skills needed by the directors, although size may be closely associated with complexity, consistent with Lim (2007) the number of subsidiaries and foreign subsidiaries has been chosen as the proxies for complexity. While Lim (2007) found more complex companies had a positive and significant

relation to cash but not equity CEO compensation, this study predicts more complex firms need more independent boards to separate the ‘decision control’ from the ‘decision management’. Consistent with Gul (2007) and Arthur (2001) the natural log of total assets are used as the accounting measure of size.

Measures of profitability, the most common, return on equity and or return on assets have been extensively used in previous studies (Lang and Lundholm, 1993; Camfferman and Cook, 2002; Bushman and Smith 2001). Some have also included an earnings noise measure, being the standard deviation of the return over the last three years.

Leverage has been used in a number of studies (Harris and Raviv 1988) and recently in Hong Kong Ferguson et al (2002) and in Australia Lim (2006). Although high levels of debt provide a monitoring through debt contracts, financial institutions are likely to require directors nominated by the institution³⁴ or more independence of the board, again to need to separate the ‘decision control’ from the ‘decision management’. In a similar vein current ratio may also indicate an aspect of financial risk or distress. Gul and Leung 2004 – although they do not say why, use the current ratio in their Hong Kong study. Loss making firms, because of the imperative of survival have consistently been shown to exhibit different firm characteristics, and in the regulatory environment in Australia have been used as examples of ‘what not to do’.

Lim (2007) reports growth option measures (market to book) were associated with higher CEO compensation. Smith and Watts (1992) find the cost of monitoring managers is positively

³⁴ It may be argued directors nominated by financial institutions with a significant debt investment in a company may not be considered to be independent.

related to growth opportunities, and removing duality will have greater capital market impact for high growth firms versus low growth firms. Although high growth firms may need a management structure that has the ability and authority to respond rapidly to changing market conditions, the need to separate the 'decision control' from the 'decision management' would appear greater in these firms. Therefore we predict a positive relation between growth options (as measured by the market-to-book ratio) and the independence of the board.

Auditor quality has been used extensively in financial accounting research and voluntary disclosure studies in New Zealand (Hossain et al., 1995) and Australia (Coulton and Taylor, 2003; Lim, 2007).

The more highly levered a firm the more likely lenders will require monitoring by independent directors. While compliance with debt covenants is the responsibility of the trustee, using audited financial statements, the more independent the board the less likely the firm will engage in transactions aimed at circumventing covenants. Given the equal legal liability of all directors, independent directors are more likely to ensure the company does not trade while insolvent.

Finally the industry in which a company primarily operates may also influence the independence of the board. Industries that face less public scrutiny and more straight forward operations would be expected to have more independent boards. Because of the relatively recent deregulation of telecommunications & utilities and the impact of financial firms they may be

expected to have more independent boards than energy & mining, manufacturers and retailers. The industry descriptive statistics for 2001 and 2005 are shown in Tables 5

Section 2 summarised the theoretical discussion on the firm characteristics that are expected to influence board compositions. Specifically, the theoretical literature cited discusses the firm characteristics that could lead to the need for more independent boards. As discussed above, the firm characteristics suggested to drive the need for independent boards were firms that are larger, face more political costs, have higher leverage and more growth options, it is relatively more difficult to monitor the managers through the ex-post accounting-based performance measures, and thus these firms are expected to have a higher proportion of independent directors. Theory suggests conflicting opinion regarding substantial shareholding and high quality auditors, either may serve as a substitute for monitoring provided by independent directors or may pressure firms to adopt 'best practice' and are therefore likely to be associated with boards that reflect the most up to date corporate governance thinking. All firm characteristic variables are measured the year prior to that in which the board composition is measured as they are expected to influence the composition of the board (rather than the reverse).

Thus these firm characteristics may provide some explanation as to board composition, and this study tests whether the composition differ in firms with different firm characteristics and differ before and after the introduction of the corporate governance regulations. The measurement of the firm characteristics is described in the table below.

Summary of Variables

Variable	Predicted relation	Variable name	Proxy used
Board size	Positive	Board Size	Number of directors on the board
Top 20 shareholding	Negative	Top20 SH _{t-1}	Percentage of shares owned by the top 20 shareholders
Complexity 1	Positive	Complexity 1 _{t-1}	Number of subsidiaries
Complexity 2	Positive	Complexity 2 _{t-1}	Number of foreign subsidiaries
Size	Positive	Size _{t-1}	Natural log of total assets
Market to book	Negative	MktBk _{t-1}	Market value of equity / book value of equity
Leverage	Positive	Lev _{t-1}	Total Non-current Liabilities / Total Assets
Liquidity	Negative	Liq _{t-1}	Current assets / current liabilities
Auditor	Positive	Aud _{t-1}	1 if big 4/5, 0 otherwise
Loss	Positive	Loss _{t-1}	1 if net profit was negative, 0 otherwise
Industry	Positive	Financial	1 if firm is predominately in the sector according to the ASX two digit classification, 0 otherwise.
	Negative	Telco & Utility	
	Positive	Manufacturing	
	Negative	Retail	
	Positive	Service	

Correlation matrices for of the above variables for 2001 and 2007 and for the lagged variables in 2000 and 2006 are shown in Table 6. The relation between board independence and firm characteristics is tested for the hypothesis for all firms in the pre-regulation period (2001) and the post regulation period (2007) for market capitalization in four size categories and with four designations of independence.

4. Results

4.1 General Results

Consistent with Arthur (1997) and Cotter (2003) we find an association between firm characteristics and the level of board independence.

In Table 1 the relation between board independence (independence designated of non-executive) and firm characteristics is relatively weak with adjusted R2 of around 16% for both years and both OLS and step wise regressions. While if the designation of independence is non-executive without an association with a substantial shareholders (the designation closest to 'self classification) the improvement in R2 is substantial in 2001 but remains around the mid teens in 2007, as shown in Table 2. Results for two other independent designations of independence (non-executive without related parties and without both related parties and substantial shareholder association) unreported have R2 of around 10% or lower.

When the sample is divided by size and independence designation Table 3 shows the best association is for Top 100 firms with independence designated as non-executive and no association with a substantial shareholder the R2 of mid forties are revealed. This result is consistent with the associations found by Wright (2006) or (Lim 2007) and Linck (2008). For the top 100 firms, all designations of independence show a decreasing association of firm characteristics with the level of independence over the sample period except the more restrictive designation of independence as non-executive without both related party and association with a substantial shareholder. Table 4 reveals the reverse. The same reversal is seen for firms in the

Above 500 for the tightest designation of independence (R2 in 2001 of 0.048 and 0.085 (OSL and step wise) and 0.137 and 0.158 respectively in 2007).

While the results are not consistent across firm size and independence designation groups Table 5 reveals when 2007 is the interactive term the best association is when independence is defined as non-executive without substantial shareholder association. No single characteristic except Teleco and Utility industry group is significantly associated with all four independence designations.

Self classification of independence in 2007 for the subsample of the 352 firms in which the classification of director independence was possible reveals similar R2 of around the low teens with the (unreported) highest R2 achieved on the reduced sample (352 firms 2007) of 16.6% for independence designated as non-executive and not executive in last 3 years. The lowest R2 of 3.3% was for independence designated as non-executive and a director for less than 10 years.

The results do not show a consistent pattern either over time or for different designations of independence. In general all that can be said is the smaller the firm the weaker the association of the level of board independence to firm characteristics, but that association may have improved over time. Pooled results provide a more consistent story of a decreasing association but hide the richness of the data, Consistent with Matolcsy (2008) the story is not one of a consistent relation and reaction but one based on firm size. The introduction of a regulation setting minimum standards which may firms already met and allowing an 'if not why not' escape

was likely to produce mixed reactions. If success of the regulation was to be judged by the closer association of board independence with firm characteristics then this may have happened for larger firms, but the designation of independence becomes critical. Curiously it appears the firms not targeted by the regulation (Beyond 500) changed board composition to align with firm characteristics.

Further the PGCG appear to have had little impact on the relation between firm characteristics and the percentage of board independence. Over the six year period Table 3 shows a consistent explanatory power of only around sixteen percent, although the variables that are significant change over the period. The only variable to remain highly significant over the period is the 'financial industry. In Table 3 independence is designated as 'non-executive' Consistent with prior research three other independence designations were tested using more restrictive definitions. For non-executive directors with no related party transactions the explanatory power increased from three percent in 2001 to ten percent in 2007 while independence designated as non-executive with no related party transactions and no affiliation with a substantial shareholder the explanatory power increased from seven and eight percent to eleven and twelve percent. The designation most closely aligned with 'self classification' is non-executive with no affiliation with a substantial shareholder. Table 4 shows a decrease in the explanatory power from twenty four percent down to fifteen percent. Notwithstanding the change in R²

Attention now shifts to the multivariate analysis and considers the relation between firm characteristics and board independence in a pre and post regulatory environment. Board size, financial firms and leverage are positively related to independence in 2001. These remain in

2007 when auditors become significant. The original assertion that ‘one size does not fit all’ was driven by substantial increases and decreases.

4.2 Sensitivity Analysis

Given ‘independence’ is a state of mind, independence could only be determined by knowing the mind of each non-executive director.³⁵ Even an examination of board minutes would only reveal some of the discussion and votes taken. From this it may be possible to infer which non-executive directors are not acting independently. The definition is potentially reduced in the post regulation period where companies are required to label directors. Although guidelines are provided the definition of independence is likely to vary between companies.³⁶ Any classification by a researcher will be similarly subjective, but without the incentives some companies may have in their classifications. Further, classification is limited by the information supplied, beyond the basics required by cumulative regulation of company disclosure, some companies may have incentives to provide or not provide particular facts.³⁷ Further analysis of board composition variables, beyond percentage independence needs to be carried out. In Australia information on ‘related party transactions’ has been used to refine the classification beyond “executive” “non-executive”. The results in Table 6 show little relation between self classification of independence and firm characteristics, although top 20 shareholders, size and auditor were significantly associated.

³⁵ In all known jurisdictions executive directors are automatically classified as non-independent.

³⁶ ASX Corporate Governance Council PGCG p20 lists seven items that may be used in assessing independence, including substantial shareholding, executive or advisor in the last three years, not a major supplier etc.

³⁷ Prior to 2004 companies were required to provide the age (date of birth) of the directors, the number of meetings attended (and the number of eligible meetings the director could have attended), the remuneration, when the director was appointed, the executive position in the company (if any) and other directorships.

5. Limitations and Conclusions

While the definition of independence can always be challenged, the removal of non-executive directors with both related party transactions and substantial shareholdings does little except to reduce both the percentages in each size sub-sample and the relation between board composition and firm characteristics.

Unlike previous studies the relation between board independence and firm characteristics appears weak, both before and after the introduction of the PGCG regulation in 2003. The lack of a change in the relation is not unexpected given the lack of overall change in the independence of the board.

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Table 1: Board Independence (2001 & 2007; full sample of 432 firms for two years)

LHS variable is level of board independence, with independence designated as non-executive

		Panel A: 2001 full			Panel B: 2001 stepwise			Panel C: 2007 full			Panel D: stepwise		
	Pred	Coeff.	p-value		Coeff.	p-value		Coeff.	p-value		Coeff.	p-value	
Constant	+	0.328	0.011	**	0.393	0.000	***	0.523	0.000	***	0.596	0.000	***
Board Size	+	0.021	0.000	***	0.021	0.000	***	0.008	0.109		0.010	0.010	**
Top 20 SH %	-	-0.002	0.958					-0.052	0.192				
Complexity 1	+	-0.001	0.098	*				0.000	0.510				
Compelxity 2	+	0.001	0.233					0.000	0.641				
Size	+	0.011	0.157		0.009	0.067	*	0.006	0.307				
MktBk	+	-0.001	0.745					-0.003	0.386				
Lev	+	0.070	0.224					0.111	0.033	**	0.106	0.020	**
Liquidity	-	0.001	0.581					0.000	0.799				
Auditor	+	0.018	0.354					0.059	0.001	***	0.060	0.000	***
Loss	+	0.023	0.296					0.027	0.164				
Financial	+	0.110	0.000	***	0.097	0.000	***	0.123	0.000	***	0.115	0.000	***
Telco & Utility	-	-0.079	0.141		-0.082	0.111		0.090	0.046	**	0.080	0.058	*
Manufacturing	+	0.025	0.360					0.002	0.921				
Retail	-	-0.040	0.221		-0.060	0.043	**	0.034	0.230				
Service	+	0.013	0.593					0.027	0.176				
Adj R ²		0.159	0.000	***	0.164	0.000	***	0.150	0.000	***	0.157	0.000	***

*** p < 1%, ** p < 5%, * p < 10%

- Board Size : Number of directors on the board
- Top 20 SH % : % of shares owned by the largest 20 shareholders
- Complexity 1 : Total number of subsidiaries
- Complexity 2 : Number of foreign subsidiaries
- Size : Natural log of total assets
- MktBk : Market value of equity / book value of equity
- Lev : Non-current liabilities / total assets
- Liquidity : Current assets / current liabilities
- Loss : 1 if net profit was negative; 0 otherwise
- Financial : 1 if firm is predominantly in the financial services sector, 0 otherwise
- Telco & Utility : 1 if firm is predominantly in the telecommunication or utility sectors, 0 otherwise
- Manufacturing : 1 if firm is predominantly involved in manufacturing, 0 otherwise
- Retail : 1 if firm is predominantly involved in retail, 0 otherwise
- Service : 1 if firm is predominantly involved in service, 0 otherwise

Table 2: Board Independence (2001 & 2007; full sample of 432 firms for two years)

LHS variable is level of board independence, with independence designated as non-executive with no affiliation with a substantial shareholder

	Pred	Panel A: 2001 full		Panel B: 2001 stepwise		Panel C: 2007 full		Panel D: stepwise		***	***	***
		Coeff.	p-value	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value			
Constant	+	0.048	0.747	-0.010	0.937	0.407	0.001	0.335	0.001	***	***	***
Board Size	+	0.011	0.117	0.011	0.085	0.004	0.554					
Top 20 SH %	-	-0.320	0.000	-0.316	0.000	-0.239	0.000	-0.238	0.000	***	***	***
Complexity 1	+	-0.001	0.059	-0.001	0.053	0.000	0.605					
Complexity 2	+	0.003	0.040	0.002	0.047	0.002	0.094	0.002	0.019	*	**	**
Size	+	0.033	0.000	0.037	0.000	0.011	0.128	0.018	0.001	***	***	***
MktBk	+	0.007	0.042	0.009	0.014	0.001	0.860					
Lev	+	0.052	0.437			0.081	0.237					
Liquidity	-	0.000	0.867			0.003	0.240					
Auditor	+	0.014	0.530			0.073	0.002	0.075	0.002	***	***	***
Loss	+	0.032	0.217	0.032	0.189	0.038	0.129	0.046	0.059		*	*
Financial	+	0.031	0.361			0.047	0.164	0.052	0.090		*	*
Telco & Utility	-	-0.115	0.062	-0.137	0.021	0.080	0.182	0.089	0.120			
Manufacturing	+	0.032	0.315			-0.010	0.758					
Retail	-	0.000	0.993			0.082	0.029	0.083	0.021	**	**	**
Service	+	0.033	0.225			0.032	0.225	0.038	0.109			
Adj R ²		0.240	0.000	0.246	0.000	0.144	0.000	0.151	0.000	***	***	***

*** p < 1%, ** p < 5%, * p < 10%

- Board Size : Number of directors on the board
- Top 20 SH % : % of shares owned by the largest 20 shareholders
- Complexity 1 : Total number of subsidiaries
- Complexity 2 : Number of foreign subsidiaries
- Size : Natural log of total assets
- MktBk : Market value of equity / book value of equity
- Lev : Non-current liabilities / total assets
- Liquidity : Current assets / current liabilities
- Loss : 1 if net profit was negative; 0 otherwise
- Financial : 1 if firm is predominantly in the financial services sector, 0 otherwise
- Telco & Utility : 1 if firm is predominantly in the telecommunication or utility sectors, 0 otherwise
- Manufacturing : 1 if firm is predominantly involved in manufacturing, 0 otherwise
- Retail : 1 if firm is predominantly involved in retail, 0 otherwise
- Service : 1 if firm is predominantly involved in service, 0 otherwise

Table 3: Board Independence (2001 & 2007; 2001 Mkt cap Top 100 sample of 67 firms for two years)

LHS variable is level of board independence, with independence designated as non-executive with no affiliation with a substantial shareholder

	Pred	Panel A: 2001 full		Panel B: 2001 stepwise			Panel C: 2007 full		Panel D: stepwise	
		Coeff.	p-value	Coeff.	p-value		Coeff.	p-value	Coeff.	p-value
Constant	+	1.155	0.019 **	1.229	0.000 ***		0.776	0.093 *	0.620	0.059 *
Board Size	+	-0.004	0.730				-0.036	0.003 ***	-0.038	0.000 ***
Top 20 SH %	-	-0.728	0.000 ***	-0.693	0.000 ***		-0.454	0.001 ***	-0.416	0.001 ***
Complexity 1	+	-0.001	0.294				0.001	0.196	0.001	0.085 *
Complexity 2	+	0.003	0.040 **	0.002	0.009 ***		0.001	0.456		
Size	+	0.009	0.680				0.022	0.299	0.027	0.057 *
MktBk	+	-0.001	0.917				0.013	0.158	0.014	0.117
Lev	+	0.114	0.432				-0.050	0.720		
Liquidity	-	-0.016	0.362				-0.001	0.878		
Auditor	+	-0.153	0.148	-0.158	0.073 *		0.000	1.000		
Loss	+	0.000	0.995				-0.067	0.390	-0.093	0.182
Financial	+	-0.098	0.119				-0.046	0.526		
Telco & Utility	-	-0.060	0.568				-0.124	0.255		
Manufacturing	+	0.082	0.211	0.091	0.056 *		-0.063	0.371		
Retail	-	-0.161	0.152	-0.168	0.059 *		-0.111	0.330		
Service	+	-0.048	0.413				-0.054	0.364		
Adj R ²		0.458	0.000 ***	0.488	0.000 ***		0.309	0.001 ***	0.360	0.000 ***

*** p < 1%, ** p < 5%, * p < 10%

- Board Size : Number of directors on the board
- Top 20 SH % : % of shares owned by the largest 20 shareholders
- Complexity 1 : Total number of subsidiaries
- Complexity 2 : Number of foreign subsidiaries
- Size : Natural log of total assets
- MktBk : Market value of equity / book value of equity
- Lev : Non-current liabilities / total assets
- Liquidity : Current assets / current liabilities
- Loss : 1 if net profit was negative; 0 otherwise
- Financial : 1 if firm is predominantly in the financial services sector, 0 otherwise
- Telco & Utility : 1 if firm is predominantly in the telecommunication or utility sectors, 0 otherwise
- Manufacturing : 1 if firm is predominantly involved in manufacturing, 0 otherwise
- Retail : 1 if firm is predominantly involved in retail, 0 otherwise
- Service : 1 if firm is predominantly involved in service, 0 otherwise

Table 4: Board Independence (2001 & 2007; 2001 Mkt cap Top 100 sample of 67 firms for two years)

LHS variable is level of board independence, with independence designated as non-executive with no related party transactions and no affiliation with a substantial shareholder

	Pred	Panel A: 2001 full		Panel B: 2001 stepwise		Panel C: 2007 full		Panel D: stepwise			
		Coeff.	p-value	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value		
Constant	+	0.308	0.736	0.805	0.000 ***	0.982	0.120	1.092	0.000 ***		
Board Size	+	-0.006	0.781			-0.015	0.347	-0.017	0.182		
Top 20 SH %	-	-0.331	0.153	-0.289	0.164	-0.678	0.000 ***	-0.683	0.000 ***		
Complexity 1	+	-0.003	0.121	-0.002	0.113	0.000	0.917				
Complexity 2	+	0.007	0.004 ***	0.007	0.001 ***	0.004	0.037 **	0.004	0.004 ***		
Size	+	0.027	0.503			0.004	0.899				
MktBk	+	-0.029	0.067 *	-0.032	0.005 ***	0.025	0.056 *	0.025	0.032 **		
Lev	+	0.027	0.922			0.067	0.729				
Liquidity	-	-0.020	0.564			-0.003	0.774				
Auditor	+	-0.028	0.889			0.000	1.000				
Loss	+	0.099	0.490			-0.134	0.207	-0.126	0.179		
Financial	+	-0.131	0.270	-0.117	0.180	0.019	0.853				
Telco & Utility	-	0.112	0.579			-0.011	0.940				
Manufacturing	+	0.028	0.823			-0.124	0.200	-0.122	0.100		
Retail	-	0.136	0.523			-0.114	0.464				
Service	+	0.053	0.636			-0.096	0.239	-0.085	0.186		
Adj R ²		0.139	0.078 *	0.226	0.001 ***	0.278	0.003 ***	0.352	0.000 ***		

LHS variable is level of board independence, with independence designated as non-executive with no related party transactions and no affiliation with a substantial shareholder

Table 5: Change of Board Independence (2001 - 2007; 432 firms for two years; full regressions)

	Pred	Panel A		Panel B		Panel C		Panel D	
		Coeff.	p-value	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
Constant	+	0.328	0.006 ***	0.402	0.036 **	0.048	0.744	0.202	0.271
Board Size	+	0.021	0.000 ***	0.017	0.048 **	0.011	0.113	0.009	0.301
Top 20 SH %	-	-0.002	0.955	0.052	0.398	-0.320	0.000 ***	-0.190	0.001 ***
Complexity 1	+	-0.001	0.076 *	-0.001	0.188	-0.001	0.056 *	-0.001	0.162
Complexity 2	+	0.001	0.200	0.004	0.010 ***	0.003	0.038 **	0.005	0.002 ***
Size	+	0.011	0.129	-0.002	0.853	0.033	0.000 ***	0.015	0.183
MktBk	+	-0.001	0.726	-0.006	0.214	0.007	0.040 **	0.001	0.863
Lev	+	0.070	0.192	-0.103	0.230	0.052	0.432	-0.111	0.175
Liquidity	-	0.001	0.554	-0.002	0.345	0.000	0.866	-0.003	0.261
Auditor	+	0.018	0.319	0.042	0.156	0.014	0.526	0.023	0.412
Loss	+	0.023	0.261	0.026	0.427	0.032	0.213	0.021	0.498
Financial	+	0.110	0.000 ***	0.110	0.013 **	0.031	0.357	0.061	0.146
Telco & Utility	-	-0.079	0.113	-0.060	0.447	-0.115	0.060 *	-0.088	0.249
Manufacturing	+	0.025	0.325	0.040	0.325	0.032	0.311	0.052	0.182
Retail	-	-0.040	0.188	-0.069	0.161	0.000	0.993	-0.024	0.604
Service	+	0.013	0.566	-0.020	0.574	0.033	0.220	0.005	0.870
Year 2007	+	0.195	0.212	0.123	0.623	0.359	0.061 *	0.183	0.443
Year 2007 * Board Size	-	-0.013	0.081 *	-0.015	0.219	-0.007	0.474	-0.005	0.655
Year 2007 * Top 20 SH %	+	-0.050	0.391	-0.190	0.039 **	0.080	0.257	-0.038	0.667
Year 2007 * Complex 1	-	0.001	0.361	0.000	0.920	0.002	0.078 *	0.000	0.705
Year 2007 * Complex 2	-	-0.001	0.522	-0.002	0.468	-0.001	0.707	-0.001	0.520
Year 2007 * Size	-	-0.005	0.573	0.002	0.882	-0.021	0.065 *	-0.010	0.502
Year 2007 * MktBk	-	-0.002	0.677	0.023	0.002 ***	-0.007	0.263	0.015	0.041 **
Year 2007 * Lev	-	0.041	0.600	0.311	0.012 **	0.030	0.757	0.280	0.018 **
Year 2007 * Liquidity	+	-0.001	0.583	0.001	0.822	0.003	0.414	0.003	0.400
Year 2007 * Auditor	-	0.041	0.126	0.024	0.582	0.059	0.071 *	0.049	0.233
Year 2007 * Loss	-	0.003	0.911	-0.061	0.193	0.007	0.854	-0.026	0.565
Year 2007 * Financial	-	0.013	0.742	0.022	0.728	0.015	0.746	0.033	0.576
Year 2007 * Telco & Utili	+	0.169	0.016 **	0.223	0.046 **	0.195	0.023 **	0.226	0.034 **
Year 2007 * Manufact	-	-0.023	0.527	-0.004	0.948	-0.041	0.351	-0.050	0.364
Year 2007 * Retail	+	0.074	0.087 *	0.099	0.151	0.082	0.122	0.087	0.191
Year 2007 * Service	-	0.014	0.641	0.045	0.357	-0.001	0.979	0.012	0.802
Adj R ²		0.163	0.000 ***	0.081	0.000 ***	0.209	0.000 ***	0.120	0.000 ***

LHS variable is level of board independence

Panel A: independence designated as non-executive

Panel B: independence designated as non-executive with no related party transactions

Panel C: independence designated as non-executive with no affiliation with a substantial shareholder

Panel D: independence designated - non-exec with no related parties and no substantial shareholdings association

Table 6: Board Independence (Full sample of 352 firms for 2007)

LHS variable is level of board independence, independence designated as self classification

	Pred	Panel A: full		Panel B: stepwise	
		Coeff.	p-value	Coeff.	p-value
Constant	+	0.269	0.056 *	0.284	0.001 ***
Board Size	+	-0.003	0.689		
Top 20 SH %	-	-0.236	0.000 ***	-0.228	0.000 ***
Complexity 1	+	0.000	0.826		
Complexity 2	+	0.001	0.255		
Size	+	0.021	0.012 **	0.022	0.000 ***
MktBk	+	0.001	0.798		
Lev	+	0.005	0.949		
Liquidity	-	-0.001	0.697		
Auditor	+	0.077	0.004 ***	0.076	0.004 ***
Loss	+	0.020	0.497		
Financial	+	0.057	0.129		
Telco & Utility	-	-0.060	0.401		
Manufacturing	+	0.043	0.226		
Retail	-	0.030	0.484		
Service	+	0.045	0.137		
Adj R ²		0.114	0.000 ***	0.125	0.000 ***

*** p < 1%, ** p < 5%, * p < 10%