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UNIVERSITY OF KWAZULU-NATAL

**EFFECT OF BOARD SIZE ON RETURN ON EQUITY OF DUAL
LISTED SOUTH AFRICAN COMPANIES**

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ABSTRACT

More and more South African companies have taken the route to list their securities in developed economies in addition to the Johannesburg Securities Exchange. As a result of listing on exchanges in developed countries that have adopted stringent corporate governance regimes, together with the fact that those countries' securities exchanges have listing regulations that are different from those of the Johannesburg Securities Exchange, has caused these dual-listed companies to adjust their board structure and composition to comply with these regimes and regulations. South African companies are also operating in an environment that has a strong transformation agenda that seeks to transform corporations by giving historically disadvantaged South Africans corporate ownership and equal representation in all levels of economic activity. Most corporate boards in South Africa do not represent the demographics of society. The transformation of boards due to international listings, global corporate governance developments and local legislative framework has lead to changes in board composition and structure.

This study examines the effect of corporate board size on South African dual-listed companies in relation to shareholder value. This study is extended to study the effect of corporate board size to other variables that may affect board size to determine their impact on shareholder value.

Data was sourced largely from annual reports and other publicly available documents (e.g. investor presentations). Statistical methods such as correlation and significance tests were utilised to test if a relationship exist between primarily board size and return on equity of dual listed South African companies. The overall period of investigation is over a four-year span (2005-2008). Available data was manipulated to create a one year lag between independent (board size and secondary variables) and dependent (ROE, PM, TAT, EM and Tobin's Q) variables. Dependent variables were averaged over the 2006-2008 period one year ahead of the independent variables period of 2005-2007.

The findings show no evidence of any association between board size and the firm performance as measured by the return on equity. However, interestingly, there is evidence that independent directors are negatively associated with the return on equity. This unexpected finding regarding board size and the negative association of independent board members with shareholder value is explained. The study also provides evidence that a greater proportion of non-executive owner directors are better at maximizing shareholder value than independent directors.

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LIST OF ACRONYMS

BOD	: Board of Directors
BEE	: Black Economic Empowerment
BBBEE	: Broad Based Black Economic Empowerment
DTI	: Department of Trade and Industry
EBIT	: Earnings Before Interest and Taxes
EM	: Equity Multiplier
HD	: Historically Disadvantaged
JSE	: Johannesburg Securities Exchange
LSE	: London Securities Exchange
NASDAQ	: National Association of Securities Dealers Automatic Quotation System
NPAT	: Net Profit After Taxes
NYSE	: New York Securities Exchange
OTC	: Over the Counter
PBIT	: Profit Before Interest and Taxes
PBT	: Profit Before Taxes
ROA	: Return On Assets
SOX	: Sarbanes-Oxley Act
SEC	: Securities Exchange Commission
PM	: Profit Margin
ROE	: Return On Equity
SENS	: Stock Exchange News Service
TAT	: Total Asset Turnover
US	: United States of America

1 CHAPTER ONE - INTRODUCTION

1.1 INTRODUCTION

Effective boards direct the business and affairs of the corporation in a manner that creates shareholder value. The need to focus on shareholder value however must be balanced against the growing worldwide focus on corporate governance issues. Corporate governance tends to focus on compliance with relevant regulations and fiduciary duties, whilst a shareholder value creation mandate, on the other hand requires a constant search for growth opportunities in both organic and acquisitive transactions. The potential contradictory nature of these divergent mandates, therefore, calls for a delicate balance to be struck in order to meet both objectives. The board's structure, size and composition needs to be constituted appropriately to achieve this balance.

Corporate governance has increasingly come to the fore as a key area of interest for shareholders, governments, global society and other stakeholders. The pace of corporate governance policy development differs from region to region due to economic, political and social variables. Developed economies have tended to be at the forefront of corporate governance policy development. The pace of corporate governance development has quickened since corporate scandals involving Enron, Worldcom and Anderson, Tyco, Imclone and others. Major policy changes in developed economies have come in the form of the Sarbanes-Oxley (2002), King I (1994), King II (2002) & King III (2009), Higgs (2003) and Smith (1996) reports.

The focus on corporate governance issues may well result in a perception that boards of directors have sought to substantially comply with good corporate governance principles whilst the performance issues which could result in increased shareholder value may have been somewhat neglected. As a result of increased

shareholder activism¹, effectively practised by institutional investors², there is a closer monitoring of company performance by shareholders. There is, therefore, considerable pressure on a board of directors to ensure a proper balance between adopting good corporate governance practices on the one hand, and focussing on company performance which will result in an increase in shareholder wealth on the other.

The evolution of corporate governance regulation in developed economies has affected South African (SA) companies that are listed on the local and foreign securities exchanges. Most South African companies that are dual-listed are listed on NYSE, LSE and NASDAQ either as primary or secondary listings. The dual-listed companies are affected by both the new JSE regulations and regulations of the foreign exchanges. Sarbanes-Oxley (2002) governance regulations affect firms that are listed on the NYSE and NASDAQ. LSE listed companies are affected by the Higgs (2003) and Smith (1996) reports. The regulations imposed by these exchanges require SA companies to adjust their corporate structure and ownership. This study examines the effect of these adjustments on company board composition and structure and company performance.

¹ Shareholder activism is defined to include monitoring and attempting to bring about changes in the organizational control structure of firms not perceived to be pursuing shareholder-wealth maximizing goals (Smith, 1996).

² Institutional investors may be defined as specialised financial institutions that manage savings collectively on behalf of small investors toward a specific objective in terms of acceptable risk, return maximization, and maturity of claims (Davis and Steil, 2001).

1.2 MOTIVATION FOR STUDY

The advent of globalisation is continuing to significantly affect the way corporations conduct their business. Globalisation has altered the rules of ‘the game’ for corporations to an extent that markets are opening up at an unprecedented pace, requiring corporations to become agile to survive. South African corporations have not sat back and have gone out to challenge global companies in the market by establishing business ventures outside of the South African borders. Moreover, to have a realistic chance of succeeding in the outside market, they had to raise capital in external markets. The preferred method for raising capital for attractive companies is to list in the securities exchanges. Due to external listings South African dual-listed companies face new external factors of ownership, corporate governance, political and social factors that may lead to changes in boards. Due to the lack of significant research activity the stakeholders (investors, shareholders, society and government) in these corporations could not be predict the effect of the changes in boards of South African dual-listed companies. This study was motivated by this existence of a gap in the existing body of knowledge in developing countries like South Africa, in respect of the effect of corporate boards restructure necessitated by the exposure to new markets, ownership changes brought to bear by listing in markets outside and as well as maintaining a local (South Africa) listing.

1.3 PROBLEM STATEMENT

Numerous scholars (for example, Ayyagaro (2004), Kumar and Ramchand (2003) and Dahya and McConnell (2003)) have researched the workings of corporate boards and their effect on the shareholder value in developed countries. Only a handful of research has been undertaken on corporate boards in developing countries especially with respect to cross-listing (dual-listings). This lack of body of knowledge on the corporate boards’ workings, the majority of which are dual-listed, in major exchanges is problematic for all stakeholders. However, only Williams and Ho (2000) have undertaken research on the board structure and board diversity of publicly listed South African companies. This study, therefore, addresses the problem of

lack of knowledge on how dual-listed stocks from a developing economy with uniquely complex environment such as South Africa would perform for the shareholders.

1.4 OBJECTIVES

This study is structured in a way that it focuses on areas that have not been extensively researched by other scholars with respect to the context of South African dual-listed companies. The objectives of the study are broken down as follows;

- to measure the overall effect of board size, composition and overall structure on ROE
- to determine if corporate governance changes have an effect on shareholder value
- to determine the impact of the combined effect of transformation on the ROE
- to provide a body of knowledge that benefits the investors, shareholders and stakeholders at large
- to provide new knowledge to stakeholders of South African dual-listed companies

1.5 LIMITATIONS OF THE STUDY

This study although relevant to emerging economies must be interpreted with caution since some of the unique South African complexities may not be relevant to other economies for which the study is being extrapolated to. The main contributors to vast differences with other similar emerging economies are;

- Low corporate boards skills among the historically disadvantaged (HDs)
- Dependent and independent data used in this study is averaged over a three-year period
- The proportion of international directors in the diversity measure is minimal
- The majority of HD are independents
- Some proposed explanations have not been tested

1.6 SUMMARY

Globalisation has seen the barriers to global markets disappear enhancing the ability of corporations to reach markets that were previously unreachable. Corporations from emerging economies such as South Africa have not sat back and have gone out to challenge global companies in the market by establishing business ventures outside of the 'local' borders. To have a realistic chance of succeeding in these markets, they had to raise capital in external markets through dual-listing in the foreign securities exchanges. Due to external listings South African dual-listed companies face new external factors of ownership, corporate governance, political and social factors that may lead to changes in boards. Due to the lack of significant research activity the stakeholders (investors, shareholders, society and government) in these corporations the effect of the changes in boards of South African dual-listed companies could not be predicted. This study was motivated by this existence of a gap in the existing body of knowledge in developing countries like South Africa, in respect of the effect of corporate boards structure necessitated by the exposure to new markets, ownership changes brought to bear by listing in markets outside and as well as maintaining a local (South Africa) listing. This study although relevant to emerging economies must be interpreted with caution since some of the unique South African complexities may not be relevant to other economies for which the study is being extrapolated to.

2 CHAPTER TWO - LITERATURE REVIEW

2.1 INTRODUCTION

Composition of corporate boards has recently come into focus as shareholders seek to maximize firm value under more global conditions. Along with issues of corporate governance, board's optimal composition is becoming more critical. Some literature has shown that companies that are significantly diversified tend to out-perform those that are less diversified. Board diversification can be seen from the perspective of gender, age and nationality among other characteristics. Another element of interest and related to corporate board composition is board size. The key board composition elements that have been researched by many scholars are discussed below.

2.2 BOARD SIZE

This study to determine the impact of board size on the return of equity (ROE) is preceded by conflicting evidence from research undertaken by different scholars. Research by Lipton and Lorsch (1992) suggest that boards consisting of more than nine members may be less effective than smaller boards due to coordination problems and the director free-riding phenomenon. Supporting evidence by Yermack (1996) and by Eisenberg, Sundren and Wells (1998) suggest that smaller boards are associated with higher firm value. Alonso, Azofra-Palenzuela & Lopez-Iturriaza (2002) examine the influence of the size of the board, the composition and the activity on firm value. The empirical evidence of this study points at a negative relationship between the size of the board and firm performance, an uncertain effect of the independence of the directors and a clear link among firm profitability or the changes in the ownership structure and the makeup of the board of directors.

Kyereboah-Coleman and Biekpe (2005) investigate the relationship between some measures of corporate governance such as board size, board composition, and Chief Executive Officer (CEO) duality and firm performance of listed non-financial institutions in Ghana. It found that board size is positively related to Tobin's Q (proxy for firm value) and Return on Assets (ROA) but negatively related to sales growth rate. There is also evidence of the negative association between board composition and firm performance.

The opposing view argued by Coles, Daniel and Naveen (2004) is that certain classes of companies actually are likely to benefit from larger boards while others are likely to benefit from boards with greater insider representation. They argue that specific types of companies for which larger board size positively impacts firm value are diversified companies and companies for which the company-specific knowledge of insiders is relatively important, such as research and development (R&D) companies. Related research by Klein (1998) provides evidence that high leverage may have greater advising requirements hence supporting the need for larger board size and more independent board members on the board. Adams and Mehran (2005) research of the banking industry board structure (size and composition) suggests that banks with larger boards do not under-perform banks with smaller boards in terms of Tobin's Q³. Adams and Mehran's (2005) findings suggest that constraints on board size in the banking industry may be counter-productive.

Lehn, Petro & Zhao (2004) examine the determinants of the size and structure of corporate boards using a unique sample of 81 publicly traded United States of America (US) firms that survived over the period of 1935 through 2000. The study found that board size is directly related to firm size and inversely related to proxies for growth opportunities, whereas insider representation is inversely related to firm size and directly related to proxies for growth opportunities. They also found no robust relation between firm performance and either board size or structure when the board characteristics are treated as endogenous variables. The results

³ Tobin's Q: (Market value of assets)/Estimated replacement cost, (Brealey & Myers, 2000, p 831).

are consistent with the proposition that board size and structure are endogenously determined in ways consistent with value maximization. (Lehn, et al, 2004)

Raheja (2003) examine the interaction of inside and outside corporate board members in a firm where the board is responsible for monitoring projects and making CEO succession decisions. The study found that firms where the incentives of insiders are better aligned with shareholders require smaller size boards. It also found that firms with smaller boards perform better and that firms where outsiders' incentives are relatively better aligned with the shareholders require a higher proportion of outsiders on the board.

Kamran, Hossain and Adams (2004) examine the effect of board composition on corporate earnings quality by utilising data from a developed country (New Zealand) whose institutional environment is different from that of the U.S. The main finding of this study is that the informativeness of earnings is negatively related to the size of the board of directors. They also found that a smaller board size is positively, and a larger board size is negatively, associated with earnings informativeness, suggesting that smaller board is more effective than larger board in monitoring the quality of earnings.

2.3 DIVERSITY

Adams and Ferreira (2004) find that firms facing more variability in their returns have fewer women on their boards of directors. Diverse boards were also found to have more board meetings. Farrell and Hersch (2003) find evidence suggesting that the increase in female board representation during the past decade in the US is due to a greater demand for diversity per se, rather than an increase in a pool of qualified female board candidates or value enhancing explanations. This approach to board diversification would lead to additions to board without any departures and would thus lead to larger board size. This phenomenon is examined as a secondary observation since the political changes in South Africa came with pressure for more

transformation (The Empowerment Act, 2003). Research undertaken by Williams and Ho 2000, tests the association between gender and race diversity on boards of directors of listed South African companies and intellectual capital performance and suggests that there is a positive association between the percentage female and non-white directors and a firm's intellectual capital performance. They also found that both female and non-white directors as outsiders had a positive influence on a firm's intellectual capacity performance and that there was no association between the percentage of non-white inside directors on the boards and intellectual capital performance. These findings may be relevant for the this research and have to be observed in relation to the effect of board size on return of equity as they may indirectly affect the board size.

2.4 BEHAVIOURAL THEORIES

A couple of theories that to some degree explain the behaviour of individual, grouping and organisational behaviour exist. These theories are examined to establish a basis for comparison with the discussions of the primary and secondary findings of this study.

2.4.1 Organizational theory

Corporate boards as part of the organisations are subject to existing organisational theories that many scholars have researched in detail. The observations of these scholars are examined in relation to the study of corporate boards of dual-listed South African companies. Beer (1998: 98) views organisations as “complex open social systems that adapt and cope to survive and prosper”. An open system means that organisations are subject to influence by the external environment largely through the influence of the society on its members. Successful adaptation requires an effective exchange with the environment. The value of the organisation's outputs must exceed the cost of resources utilised to produce those outputs. The complexity of organisations is a result of a variety of organisational facets, its design, people, culture, leadership behaviour

and human resource policies and practices as well as its various sub-units – divisions, group and geographic entities – are interdependent and are engaged in a process of mutual adaptation to achieve congruence (Beer, 1998). He further suggests that organisational behaviour is shaped by four forces – the organisation’s environment and the choice its leaders make about strategy, the organisation’s design, the people selected and promoted and the behaviour of the leaders and their top team. Without people who possess capabilities and a personal predisposition needed to implement the strategy and structural design, the organisation cannot be effective. Selective recruitment is therefore critical for effectiveness (Beer, 1998).

Beer (1998) argues that over time organisations develop a distinct and persistent pattern of behaviour or culture. Schein (1996: 64) argues that “the critical thing to understand about culture dynamics is that leaders cannot arbitrarily change culture in the sense of eliminating dysfunctional elements, but they can evolve culture by building on its strengths while letting its weaknesses atrophy over time”. Organisational behaviour is resistant to change due to human cognitive processes and defensive routines Beer (1998). People make sense of past behaviour by forming beliefs that rationalise them and by escalating commitment to them. They also avoid embarrassment and threat to self and other. Corporate boards as part of organisations are also impacted by the company-wide culture and human behaviour (Beer, 1998).

The individual in a group is a carrier of the wider culture and brings along norms, values, and perceptions that are introduced into the group. If a majority of the individuals in a group share the same beliefs, it is easy for the attitude from a wider culture to be accepted and adopted as a norm in a group. What individuals have learned from the broader societal culture and their experiences becomes a background factor in determining the social system that will emerge in the group (Cohen, Fink, Gadon & Willits, 2001).

Misselhorn (2001) proposes a management framework model with managerial leadership at the centre of the interactions between the sub-groupings that exist in organisations. This model can be applied to examine corporate boards' culture and behaviour. This model recognises that any organisation consists of individuals, groupings, structures and designs, culture and climate and communication and relationships that are interdependent and are linked by managerial leadership and are constantly having to react to external environmental factors. In the case of corporate board, board leadership enables the functioning of individual directors, establish formal groupings such as board committees and establishes structures and designs (King III, 2009). The board develops its own culture over time through the interaction of all the groupings and constantly communicates with all stakeholders through formal and informal relationships (King III, 2009).

2.4.2 Group dynamics

In terms of accepted good corporate governance principles, a board of directors can appoint any number of committees to assist the board in carrying out its duties. According to Misselhorn (2001: 297) one of the biggest problems with work groups (or committees) is the phenomenon of 'groupthink'. It is important for this study to be constantly aware of the negative tendencies of groupthink when examining board composition. The concept of "groupthink" is that in a group or in a committee there can be a development of such cohesion in a group that rationality and objectivity is sometimes compromised in the desire to preserve group "solidarity and identity" Misselhorn (2001: 297). A group, because of its cohesion, can abandon rational and objective thought and actions, and focus on outsiders to that group, who are often seen as 'the enemy'. Relevant information and facts are preserved for the sole use of members belonging to that particular sub-group. The morality and ethics of others are questioned and the morality and ethics of members of the group are elevated. Individuals sanction and block their own contributions for fear of being out of step with the group. Group membership is considered to be more important than finding the right answer. This phenomenon would negatively affect the effectiveness of groupings such as corporate boards and/or

committees of boards, that are supposed to fulfil a very important monitoring role. Corporate boards are more at risk of ineffectiveness caused by groupthink due to numerous groupings that exist. For example, the audit committee is composed of largely independent directors and executive directors constitute a separate grouping. The problem with this tendency is that it does not enhance an organisation's diversity. Heterogeneous groupings bring multiple perspectives to the discussions, thus increasing the likelihood that the group will identify creative solutions. Cohen, Fink, Gadon and Willits (2001) emphasize that the leadership style of the designated leader can have important consequences for what emerges from a group. The values, feelings and attitudes of the formally designated leader determine his leadership style. Latest trends in corporate governance are to improve board diversity which subsequently would enhance the board's ability to maximise shareholder value without compromising corporate social responsibility.

2.5 RESOURCE-BASED THEORY

Resource-based theory developed in an effort to understand how organisations achieve sustainable competitive advantages. Barney (1991) and Mahoney and Pandian (1992), have produced numerous works regarding the effect of resources on the competitive advantage. According to Barney (1991), a firm's resources consist of all assets both tangible and intangible, human and nonhuman that are possessed or controlled by the firm and that permit it to devise and apply value-enhancing strategies. The theory focuses on the idea of costly-to-copy attributes of the firm as resources of business returns and the means to achieve superior performance and competitive advantage. According to Barney (1991), competitive advantage occurs only when there is a situation of resource heterogeneity (different resources across firms) and resource immobility (the inability of competing firms to obtain resources from other firms. Barney (1991: 116) argues that in order to provide competitive advantage a resource "must be valuable, rare, imperfectly imitable and non-substitutable". Barney (1991) suggests that a firm is said to have a competitive advantage when it implements a value creating strategy not simultaneously being implemented by any current or potential

competitors. According to Mahoney and Pandian (1992), competitive advantage is a function of industry analysis, organizational governance and firm effects in the form of resource advantages and strategies. (Barney 1991)

A resource-based view of the firm accepts that attributes related to past experiences, organisational culture and competences are critical for the success of the firm (Conner & Prahalad, 1996). Conner (1991: 140) suggests that “an in-house team is likely to produce technical knowledge, skill, or routine that fits better with the firm’s current activities”.

The availability and quality of the resources has a huge impact on the quality of the output achievable. In the case of corporate boards the key resource is of the human nature. As a result the effectiveness of corporate boards is largely dependent on the quality of directors at its disposal.

2.6 RESOURCE DEPENDENCE THEORY

Resource dependence theory developed by Pfeffer and Salancik (1978) is based on the notion that the external environment is a source of scarce resource on which organisations depend for survival. Pfeffer and Salancik (1978) utilize the previous environmental literature to develop resource dependence theory. Resource dependence theory infers that a firm’s strategic options are determined to a great extent by the environment implying that there is little or no strategic choice. Hrebiniak and Joyce (1985), differ with pure environment dependence theory as espoused by Pfeffer and Salancik (1978), proposing that strategic choice and environmental determinism is not mutually exclusive on the basis of having found that some organisations are more effective than others in the same environment, proving that strategic choice does exist. They reasoned, “control over scarce resources is central to the relationship between choice and determinism” (Hrebiniak and Joyce, 1985: 343). According to Pfeffer (1992), the resource dependence theory

suggests that larger boards are associated with higher levels of firm performance, because larger boards have a better ability to form environmental links and secure critical resources (Pfeffer and Salancik 1978)).

2.7 CORPORATE GOVERNANCE

Corporate governance is concerned with the provision of “effective leadership based on an ethical foundation” (King III, 2009: 19). The notion of ethical foundation means that “all deliberations, decisions and actions are based on the four values underpinning good governance” (King III, 2009: 20) and must ensure that each director adheres to the duties of a directors, and ensures that the strategy is aligned with the purpose of the company, the value drivers of its business and the legitimate interests and expectations of its stakeholders and must satisfy itself that the strategy and business plans are not encumbered by risks that have not been thoroughly examined and must ensure that strategy will result in sustainable outcomes taking into account the society, environment and economics. (King III, 2009). The four ethical values espoused in King III (2009) are responsibility, accountability, fairness and transparency and are based on moral duties.

In the wake of corporate scandals afflicting the likes of Enron, Tyco, Adelphi and others in the US, laws were passed mandating that the audit committees of the boards of directors of firms listed on the national exchanges have a majority of independent members (Sarbanes-Oxley, 2002). Harris and Raviv (2005) examine the direct effects of agency problems on corporate decision-making and indirect effects of agency problems on communication between insiders and outsiders. Harris and Raviv (2005) found evidence that shareholders prefer an insider-controlled board. They also found evidence that outside board control may reduce firm value. The reason for the latter finding is that outsiders generally have less information on the firm than insiders.

Chan and Li (2000) found empirical evidence that shows that top management of another publicly traded firm serving on an audit committee has a significantly positive relation on firm value. Their presence on the audit committee enhances firm value. A dependent director serving on the audit committee is found to be significantly negatively related to the independence of the audit committee. Chan and Li (2000) found no evidence of a relation between finance-trained directors and firm value.

Corporate governance models around the world differ on who the board is responsible to. The model expressed in the First King Report (1994) and the Second King Report (2002) accepts a stakeholder model of governance, which emphasizes that the board is accountable not only to the company, but to stakeholders, and consequently the board should take into account the legitimate expectations and interests of all of stakeholders in its decisions. A stakeholder approach to corporate governance looks after the interests of all the company's stakeholders, thus ensuring the cooperation and support of all stakeholders on which the company depends for its sustainable success. In this way, the company creates trust between itself and its internal and external stakeholders, without whom no company can operate sustainably. In short, stakeholders entrust the company with its license to operate.

Black (2001) researched the corporate governance behaviour effect on market value of firm's shares in Russia. Prior research on this topic in the US had largely yielded evidence of either no effect or an insignificant effect of corporate governance on market value. The background on Black's (2001) work on Russian firms was that Russia has weak laws governing behaviour by firms and insiders. Governance differences between firms are much larger than in the US. Black (2001) found a strong correlation between governance and firm value.

Brown and Caylor (2004) examine which underlying corporate categories are most highly associated with firm performance. They found that firms with relatively poor corporate governance are relatively less profitable and pay out less cash to their shareholders.

Erickson, Park, Reising and Shin (2003) examine the impact of board composition on firm value in the presence of ownership concentration and comprehensive minority protection in Canada. This research found that firm value has a negative relationship with outside directors in Canada suggesting that outside directors are generally not effective monitors in a Canadian type governance environment. They further found that firm value has an impact on board independence confirming the endogeneity of corporate board structure.

Research undertaken by Dahya and McConnell (2003), on the effect of outside directors on corporate board's decisions found that an increase in outside directors leads to an increase in likelihood of an outside CEO appointment. The appointment of outside directors and the appointment of outside CEO may have an impact on board size and firm performance.

Asako (2003) found evidence that an increase in the outside director ratio increases board efficiency as undesirable firm-wide projects are rejected and as management incentives are reduced. Berkman, Cole, Lee & Veeraraghavan (2002) investigate the relationship between the independence of board of directors and firm performance in India. The study found that the proportion of independent directors on the board is negatively related to the firm performance, while the degree of negative relationship gradually decreases as the level of inside director ownership increases.

Hutchinson (2001) examines the variables that influence the board structure adopted by firms and the subsequent relationship to the firm's performance. The results of this study show that firms' investment

opportunities are strongly associated with a higher proportion of executive directors on the board. However, when testing the efficiency of the board as a monitoring device, the results show that the negative relationship between a firm's investment opportunity set and firm performance is weakened at higher levels of non-executive director board domination.

Bohren and Strom (2005) examine how firm behaviour relates to a wide range of externally observable board characteristics, such as the directors' equity stakes in the firm, the board's independence of the CEO, board size, directors' tenure, directorships held in other firms (network), director age heterogeneity, gender mix, governance mechanisms, industry type and firm size. The study found that higher board diversity produced by larger board size, stronger gender mix, and more employee directors are all negatively and often significantly related to performance. The study also found that outside ownership concentration is very seldom a significant determinant of firm performance, insider ownership often is.

Ferris, Jagannathan and Prichard (2002) examine how the number of directorships held by directors affects the quality of monitoring of corporate management. The study found no evidence of multiple directors shirking their responsibility to serve on board committees and no statistical significance of a relation between multiple directorships harm firm performance.

2.7.1 Corporate Governance in Global Context

Developed economies have tended to lead global governance policy development. The pace of governance policy has quickened since corporate scandals involving Enron, Worldcom and Anderson. Major policy changes in developed economies have come in the form of the Sarbanes-Oxley (2002), Dey (1994), Cadbury (1992), Higgs (2003) and Smith (1996) reports.

The Sarbanes-Oxley Act of 2002 commonly called Sarbanes-Oxley, Sarbox or SOX, is a United States federal law enacted on July 30, 2002, requiring publicly traded companies to improve accountability and internal controls as a reaction to a number of major corporate and accounting scandals including those affecting Enron, Tyco International, Adelphia, Peregrine Systems and WorldCom (Daines, 2001).

The hearings on the corporate scandals that followed Enron led to the passage of the Sarbanes-Oxley Act, 2002. The Act is nearly a mirror image of Enron: the company's perceived corporate governance failings are matched virtually point for point in the principal provisions of the Act. The main provisions of the Sarbanes-Oxley Act included the establishment of the Public Company Accounting Oversight Board to develop standards for the preparation of audit reports; the restriction of public accounting firms from providing any non-auditing services when auditing; provisions for the independence of audit committee members, executives being required to sign off on financial reports, and relinquishment of certain executives' bonuses in case of financial restatements; and expanded financial disclosure of firms' relationships with unconsolidated entities (Sarbanes-Oxley Act, 2002).

There is a raging debate in the US about the effectiveness of SOX. Fogel and Geier (2007) researched the effect of the SOX Act on shareholder value. They found no hard evidence that outside board members increased financial returns to shareholders. They argue that rather than foist outside directors on boardrooms, the Securities Exchange Commission (SEC), the New York Stock Exchange and NASDAQ should promote a model whereby shareholders comprise the majority of public company boards, and independent directors comprise the minority (Fogel & Geier, 2007).

Also in the United Kingdom in 2002 Higgs (2003) was asked to lead an independent review of the role and effectiveness of non-executive directors. Higgs (2003) report recommends changes to the Combined Code to

require a greater proportion of independent, better-informed individuals on the board. These developments were going to have an impact on developing economies like South Africa. Dual-listed companies with listings in the US and United Kingdom are faced with stringent corporate governance requirements irrespective of whether these trends were required in South Africa or not (Engelbrecht, 2009).

Internationally, the ‘comply or explain’ principle has also evolved into different approaches. At the United Nations, for instance, it was ultimately agreed that the UN code should be on an ‘adopt or explain’ basis. In the Netherland Code the ‘apply or explain’ approach was adopted. It is believed that this language more appropriately conveys the intent of the King Code from inception rather than ‘comply or explain’. The ‘comply or explain’ approach could denote a mindless response to the King Code and its recommendations whereas the ‘apply or explain’ regime shows an appreciation for the fact that it is often not a case of whether to comply or not, but rather to consider how the principles and recommendations can be applied (Engelbrecht, 2009).

“The 56 countries in the Commonwealth, including South Africa and the 27 states in the EU including the United Kingdom, have opted for a code of principles and practices on a ‘comply or explain’ basis, in addition to certain governance issues that are legislated’ (Engelbrecht, 2009: 5).

Sustainability issues have gained in importance internationally since the publication of King II. The United Nations has published the Global Compact and the Principles for Responsible Investment. There has also been the European Union Green Paper for Corporate Social Responsibility (CSR) and the OECD Guidelines for Multinational Companies. The Swedish government has prescribed that its state-owned enterprises must have sustainability reports following the Global Reporting Initiative’s (GRI) G3 guidelines (Engelbrecht, 2009).

In the United Kingdom, the CSR relevant part of the Companies Act came into operation in October 2007. It requires that directors consider in their decision-making, the impacts of the company's operations on the community and the environment. As has been pointed out in 'The Reform of United Kingdom Company Law', the intention of corporate law reform in this area was to:

- encourage companies to take an appropriate long-term perspective;
- develop productive relationships with employees and those in the supply chain; and
- to take seriously their ethical, social and environmental responsibilities (Engelbrecht, 2009).

"In Germany, in terms of the German Commercial Code, management reports must include non-financial performance indicators and companies should demonstrate that their decisions have taken CSR into account in an effective way" (Engelbrecht, 2009: 14). In January 2009, the Norwegian government launched a national White Paper on CSR. The Paper deals with the responsibility of companies in Norway to report on sustainability performance. "The White Paper explains how the GRI G3 guidelines can be used to fulfill the company's responsibilities to make transparent disclosure about sustainability issues" (Engelbrecht, 2009: 14). In December 2008, the Danish parliament passed a law on CSR reporting for its companies, mandating that companies disclose their CSR activities or give reasons for not having any, following the principle of 'comply or explain'. Denmark encourages the use of accepted tools such as the GRI G3 guidelines and the UN Global Compact Communication on Progress. "A recent survey shows that over 80% of the global Fortune companies now have sustainability performance reports" (Engelbrecht, 2009: 10).

The United Kingdom and the US have traditionally been in favour of the unitary board where all directors - executive and non-executive - carry the same legal responsibility. In continental Europe it has been more common for the directors' functions to be split between a high level supervisory board and a management or

executive board. Boards are, at the very least, expected to fulfill three functions: monitoring management, ensuring accountability, and shaping strategies. Post-Enron there is universal agreement over the need for good corporate governance. In a two-tier system the management board is responsible for day-to-day operations and the supervisory board has responsibility for reviewing and approving the financial statements, and has hiring, firing and remunerating power over the management board. This sounds like a combination of a substantial part of the roles of the audit, remuneration and nomination committees. Sarbanes-Oxley (2002) has enhanced the responsibilities of the audit committee in the US. If the duties of the audit committee are beefed up and if initiatives like the Higgs report increase the responsibilities of non-execs in the United Kingdom, then the greater the chance that a wedge could be driven between executive and non-executive directors (Engelbrecht, 2009).

2.7.2 Corporate Governance in South African Context

Corporate activity in South Africa is controlled through a legislative framework that was enacted a couple of decades ago in the form of the Companies Act (Republic of South Africa, 1973). This legislation remained unchanged for many years. After the democratic landscape changes that took place around 1994 other progressive legislation was enacted to deal with transformation of the political and social landscape. The Employment Equity Act (Republic of South Africa, 1998) is a very important piece of the legislative framework that is intended to redress the social and economic imbalances that existed prior to the dawn of the democratic era. The Employment Equity Act is directed at designated employers⁴ (public and private) companies in South Africa. The Companies Act (Republic of South Africa, 1973) was amended in 2006 and passed into law in December 2007, some thirty years later. The overhauled and modernised Companies

⁴ Designated employer: a person or company that employs 50 or more employees and a person or company that employs less than 50 employees but has total annual turnover that is equal to or above the applicable annual turnover for a small business, Employment Equity Act 1998, Chapter 1, Republic of South Africa.

Amended Act (Republic of South Africa, 2008) brings significant impact to South African based companies of all sizes.

There have been two stages to align South African company law with modern trends – these can be traced within the Companies Amendment Act (Republic of South Africa, 2008) and the new Companies Bill. Whilst the amendment Act has now been enacted, the Companies Bill is expected to replace the Companies Act (Republic of South Africa, 1973) and take effect in 2010. The Broad Based Black Economic Empowerment Act (Republic of South Africa, 2003) was introduced to establish a legislative framework for the promotion of black economic empowerment which seeks to promote the achievement of the constitutional right to equality, increase broad-based and effective participation of black people in the economy and promote a higher growth rate, increased employment and more equitable income distribution and to establish a national policy on broad-based black economic empowerment so as to promote the economic unity of the nation protect the common market, and promote equal opportunity and equal access to government services. In September 2003, a broad legislative reform programme was initiated by the Department of Trade and Industry (DTI) that includes a review of existing securities regulations and of corporate structures and practices in the area of corporate governance. In June 2004, a policy document on corporate law reform was published entitled ‘South African Company law for the 21st Century: Guidelines for Corporate Law Reform’ (DTI Report on Corporate Law Reform, 2004).

The first Code of Corporate Practices and Conduct was published in 1994 in the form of the King I report on corporate governance for the South Africa. The King I (1994) report advocated an integrated approach to good governance in the interest of a wide range of stakeholders. The King II (2002) report published in 2002 was necessitated by the evolving global environment and legislative developments. King II (2002) advocates a move away from the single bottom line (i.e. profit for shareholders) to a triple bottom line, which embraces

the economic, environmental and social aspects of a company's activities. The environmental aspects include the effect that the product or services produced by the company have on the environment. Social aspects involve values, ethics and the reciprocal relationship with stakeholders other than the shareowners of the company. Economic aspects refer to the financial performance of the company (King II, 2002).

King II (2002) requires that companies audit their risk exposure annually and disclose it to their shareholders. It has therefore become of paramount importance that organisations that seek to conform to international best business practices implement sound corporate governance structures. The dual-listed South African companies are affected by both the new JSE regulations and regulations of the foreign exchanges. The JSE Limited (JSE) requires listed companies to comply with King II (2002). The King III (2009) code, as with King I (2001) and II (2002), is also based on the 'apply or explain' approach.

South Africa has benefited enormously as a result of its listed companies following good governance principles and practices, as is evidenced by the significant capital inflows into South Africa prior to the global financial crisis of 2008. South Africa, unlike other economies has Black Economic Empowerment (BEE) legislation that seeks to transform corporations by giving historically disadvantaged South Africans corporate ownership. This BEE legislation has an effect on the composition, diversity and size of the board of all publicly listed South African companies. The effect of these variables on company performance is covered by this study. The pressures of representation at board level are mounting as society demands fast pace of transformation for corporations. The main challenge faced by corporations is the perceived lack of high calibre black and female directors. South African companies are affected by King I (2001), King II (2002) and King III (2009) reports. All these developments have moved the board focus to an integrated approach to good governance in the interest of a wide range of stakeholders and recently to a triple bottom line approach, which embraces the economic, environmental and social aspects of a company's activities.

2.8 CROSS-LISTING

O'Connor (2005) investigates whether cross-listing in the US causes greater firm value. Cross listing (dual-listing) of shares is when a firm lists its equity shares on one or more foreign stock exchange in addition to its domestic exchange. The findings show evidence of positive valuation benefits for both emerging market firms trading in the US on Over the Counter (OTC) and securities exchanges.

Ayyagari in 2004, examine if cross-listing on US exchange results in a change of ownership and control structure for foreign firms. No evidence of mass transformation was observed. Most of the firms that cross-list have concentrated shareholding and continue to do so after cross-linking.

Kumar and Ramchand (2003) examine important corporate governance attributes such as board structure, concentration of ownership and voting rights, and CEO incentives at the time of cross-listing and changes in these after the listing. They found that in a significant number of such cross-listing firms there is a reduction in the dominant shareholders' ownership, often within a year of the listing. Controlling agency costs appear to be reduced by changes in the dominant shareholder's ownership rather than changes in the board structure. They found that increased international institutional ownership motivates a reduction in the ownership of the domestic controlling shareholder.

2.9 ORGANISATIONAL CHANGE

Two overarching opposing perspectives about organisational change exist. Agency theory, propagated by economists, emphasizes the importance of linking top management's incentives to the creation of economic

value for shareholders. Behavioural theories emphasize the importance of participation which develops commitment the change. Agency theorists use capital markets as a means for regulating the behaviour of managers.

2.9.1 Agency relationships

Boards of directors and company management are appointed directly and indirectly by shareholders to maximize shareholder value. The relationship between executive management and directors is one of agency. In all agency relationships, there is a possibility of conflict of interest between the principal and the agent. Several mechanisms have evolved to mitigate potential agency problems. First, compensation plans tie the income of managers to the success of the firm. In many companies, a major part of the total compensation of top executives is typically in the form of stock options, which means that the managers will not do well unless the stock price increases, benefiting the shareholders. Secondly, properly constituted board of directors can force out management teams that are underperforming. Board of directors that are dominated by executive directors may be rendered ineffective from providing the monitoring function that they are supposed to fulfil. The monitoring role of directors is derived from the agency theory (Fama and Jensen, 1983). The theory argues that the board can reduce agency costs and maximize shareholder value by being actively involved in the monitoring of managerial and firm performance.

To prevent this situation and to increase the corporate governance of boards, a recent trend is for boards to have a majority of independent directors. For example, in pursuit of shareholder protection listing requirements of major exchanges such as LSE, NASDAQ and NYSE have been changed to force companies that list to at least have half to a majority of independent directors. Bodie, Kane and Marcus (2003), assert that outsiders such as institutional investors monitor the companies closely and tend to expose poor management.

2.9.2 Management of Change

The environment under which organisations operate is dynamic and that means organisations need to consistently respond to these dynamics. The main function of managers in organisations is to manage change. Similarly corporate boards are also required to be dynamic to keep up with internal and external environmental factors. Managing change in groups and in organisations is a complex task and requires a broad focus. Many scholars (e.g. Schein (1980), Senge (1990), and Misselhorn (2001)) propose theories on the topic of organisational change and agree that a systems thinking approach needs to be adopted and view organisational change as a complex integrated system rather than a series of simple cause-effect relationships. They highlight the danger of simplistic approaches to organisational and behavioural change Misselhorn (2001). Drivers of organisational change need to constantly scan the environment to see what is happening in practice to get feedback on the external environmental dynamics that effected any earlier actions. Without feedback there can be no inspiration to change. Corporate boards also have to gather feedback from all stakeholders in order to chart a relevant path going forward that is in line with market expectations (Misselhorn, 2001).

2.10 MEASUREMENT METRICS

2.10.1 Return on equity

Despite the recent emphasis on environmental sustainability, investors still expect to realise growth in the value of their investment in companies. There are numerous measures of company performance. According to Bodie (2003) return on equity is one of the two most basic factors in determining a company's growth rate of earnings, the other being the return on assets (ROA). Since investors own the equity in the firm they are more concerned with ROE which is a basic test of how effectively a company's management uses investors'

money - ROE shows whether management is growing the company's value at an acceptable rate. It is the ratio of net profits to common equity. A common systematic approach to measure ROE was introduced by Du Pont Chemical Corporation in the US almost a decade ago. The Du Pont system is a financial analysis and planning tool that uses basic accounting relationships, and is designed to provide an understanding of the factors that drive the return on equity of the firm. In the Du Pont system the return of equity is decomposed into specific income statement and balance sheet items as shown in *Figure 2.2, 2.3 and 2.4* below.

$$ROE_{Du\ Pont\ ID} = PM \times TAT \times EM$$

Figure 2-1: Du Pont Identity

(Source: Firer, 2004: 67)

this can further be expressed in the form

$$ROE_{Du\ Pont\ ID} = \frac{Profit}{Sales} \times \frac{Sales}{Assets} \times [1 + Debt/Equity]$$

Figure 2-2: Expanded form of Du Pont Identity

(Source: Bodie, 2003: 457)

$$where \quad PM = \frac{Profit}{Sales}, \quad TAT = \frac{Sales}{Assets} \quad and \quad EM = [1 + Debt/Equity]$$

Figure 2-3: Expanded form of Du Pont Identity

(Source: Bodie, 2003: 458)

The traditional Du Pont Identity tells us that ROE depends on the firm's profitability, the management of its assets and the extent to which financial leverage is used.

For analytical purposes the profit margin ration is further split into a product of three factors, an operating profit margin, an interest factor and a tax factor yielding an expanded equation as follows:

$$ROE = \frac{PBIT}{Sales} \times \frac{Sales}{Assets} \times \frac{PBT}{PBIT} \times \frac{NPAT}{PBT} \times [Debt/Equity + 1]$$

Figure 2-4 : Expanded form of Du Pont Identity

where PBT = profit before taxes, PBIT = profit before interest and taxes and NPAT= net profit after taxes

(Source: Bodie, 2003: 458)

The decomposition of the ROE using the Du Pont system is a convenient way of systematically approaching financial statement analysis (Bodie, 2003). In this study it is used extensively in examining the underlying factors contributing to overall shareholder value.

Like any other measurement metric, ROE has some limitations which need to be kept in mind when using it as it can easily be distorted by accounting practices. Consequently, one needs to compare companies that are in the same industries or use similar accounting practices to be able to have a meaningful comparison (Bodie, 2003).

Another balance sheet concept that is of interest in determining firm value, is the replacement costs of its assets less its liabilities. The basis for this concept is that the market value of the firm cannot get too far above its replacement cost, because if it did, competitors would try to replicate the firm. The competitive pressure of other similar firms entering the same industry would drive down the market value of all firms until they came into equality with the replacement cost. (Bodie, 2003). According to this view, in the long run the ratio of market price to replacement cost will tend toward 1. The ratio of market price to the replacement cost is known as Tobin's Q, after the Nobel Prize-winning economist James Tobin (Bodie, 2003). Although the replacement cost is a balance sheet concept, Tobin's Q by virtue of incorporation of market price takes into account market sentiment cannot be measured scientifically. In this study Tobin's Q is examined in parallel to ROE to gauge the effect of market sentiment.

2.10.2 Financial leverage

Boards of directors determine a vision for the organisation that gives guidance in terms of the extent of acceptable utilisation of borrowed capital. (Firer, 2004). The concept of financial leverage can be described as the degree to which a company utilises borrowed capital instead of equity to capitalize its operations. (Firer, 2004). Financial leverage can increase the shareholder's return on investment since it allows the company to benefit from the tax deductibility of interest payment. The idea behind it is to use debt to magnify the rate of return on shareholders equity. Financial leverage also exposes the company to the risk of potential loss (Firer, 2004).

2.11 SUMMARY

The work of many scholars that studied corporate boards' composition, structure and size is examined. Moreover, theories such as resource-based theory, resource dependence theory and behavioural theories were revisited in with respect to their possible relevance to this study. Research by Lipton and Lorsch (1992) suggest that boards consisting of more than nine members may be less effective than smaller boards due to coordination problems and the director free-riding phenomenon. Supporting evidence by Yermack (1996) and by Eisenberg, Sundren and Wells (1998) suggest that smaller boards are associated with higher firm value. Coles, Daniel and Naveen (2004), present an alternative view that certain classes of companies actually are likely to benefit from larger boards while others are likely to benefit from boards with greater insider representation. They argue that specific types of companies for which larger board size positively impacts firm value are diversified companies and companies for which the company-specific knowledge of insiders is relatively important, such as research and development (R&D) companies. Related research by Klein (1998) provides evidence that high leverage may have greater advising requirements hence supporting the need for larger board size and more independent board members on the board.

The unique legislative framework applicable is South Africa with regards to Employment Equity Act and Broad Based Black Empowerment Act has a significant impact on the size, structure and composition of corporate boards South African dual-listed companies. Employment Equity Act is intended to redress the social and economic imbalances that existed prior to the dawn of the democratic era. Broad Based Black Economic Empowerment Act of 2003 was introduced to establish a legislative framework for the promotion of black economic empowerment.

In the wake of corporate scandals afflicting the likes of Enron, Tyco, Adelphi and others in the US, laws were passed mandating that the audit committees of the boards of directors of firms listed on the national exchanges have a majority of independent members. Corporate governance models that have been developed around the world differ on who the board is responsible to. The model expressed in the King I (1994) and the King II (2002) accepts a stakeholder model of governance, which emphasizes that the board is accountable not only to the company, but to stakeholders, and consequently the board should take into account the legitimate expectations and interests of all of stakeholders in its decisions. King III (2009) on corporate governance in South Africa became necessary because of the new Companies Act no. 71 of 2008 ('the Act'). The governance basis espoused by King III (2009) is on an 'apply or explain' basis.

3 CHAPTER THREE – RESEARCH METHODOLOGY

3.1 INTRODUCTION

Research work is largely based on primary and secondary data. Most primary data is generated by using a research survey that is sent to potential respondents. Most secondary data used in research is not generated for the current study. The predominant research method applied on the secondary data is archival in the sense that most the empirical data will be based on existing data archives. Access to the secondary data archives is dependent on whether the data is publicly available or is held privately. This study is based on publicly listed firms so most of that research data is publicly available through annual reports, investor presentations and from Stock Exchange News Service (SENS) on the JSE.

3.2 RESEARCH METHODOLOGY

This research is based on existing secondary data from the numerous publicly available sources. The predominant research method applied on the secondary data is archival in the sense that most the empirical data will be based on existing data archives. Data was sourced largely from annual reports and other publicly available documents (e.g. investor presentations). Statistical methods such as correlation and significance tests were utilised to test if a relationship exist between primarily board size and return on equity of dual listed South African companies. The overall period of investigation is over a four-year span (2005-2008). Available data was manipulated to create a one year lag between independent (board size and secondary variables) and dependent (ROE, PM, TAT, EM and Tobin's Q) variables. Dependent variables were averaged over the 2006-2008 period one year ahead of the independent variables period of 2005-2007. The lagging of the data for dependent and independent data is undertaken to allow effect of board changes to take effect before measuring the outputs. The averaging of both the dependent and independent is undertaken to smooth the noise in yearly board movements and to highlight a general trend.

3.3 INDEPENDENT VARIABLES

The primary independent variable of this study is board size. However, the realization that board size is in itself impacted by other factors, other secondary variables were also researched as independent variables to determine their impact on the shareholder value and to possibly explain the findings arrived at in relation to board size. The secondary independent variables examined are board diversity, independent directors, audit committee, international and female directors, females, and historically disadvantaged directors (HD). Board diversity is modelled by summing the number of females, historically disadvantaged and international directors.

3.4 DEPENDENT VARIABLES

The primary dependent variable examined in this study is the return on equity (ROE). Given Du Pont Identity that decomposes the return on equity into three parts; profit margin, total asset turnover and financial leverage as in **Figure 3-1** below.

$$ROE_{Du\ Pont\ ID} = PM \times TAT \times EM$$

Figure 3-1: Du Pont Identity

(Source: Firer, 2004: 67)

The three parts of the return on equity, PM, TAT and EM were treated as secondary dependent variables to gain a deeper understanding of the overall return on equity result.

Tobin's Q is also included as a secondary dependent variable for the purposes of comparison and enhancement of the understanding of the ROE effect. Tobin's Q is a measure of firm performance that takes into account market sentiment as represented by market capitalization.

3.5 SAMPLE

The research sample consisted of 28 dual-listed companies that are listed in South Africa and in other security exchanges outside of South Africa. The sample comprises a census of 28 SA dual-listed companies that are listed in developed economies. The census of 28 is a sub-population systematically chosen from a total population of 55 dual-listed South African companies. The companies that are not South African companies were excluded from the research sub-population because although they have operations in South Africa they may not be less affected by the prevalent transformation drive. Local companies that have moved their primary listings from the JSE to other big securities exchanges were still treated as local companies in this study.

3.6 DATA SOURCES

Secondary data from largely company annual reports is used in this study. All the data was sourced from secondary data that is already in the public domain in the form of annual reports and other similar documents. The variables that were analysed with respect to board size are ROE and Tobin's Q to represent firm performance variable. Although the key focus of this study is to measure the influence of board size on ROE, Tobin's Q is also analysed with respect to board size to compare the effect of equity market perception of company value compared to ROE calculation. Similarities and or differences between ROE and Tobin's Q would be analysed to explain the observations made on the ROE. The Du Pont Identity is used in order to be able to decompose the ROE to gain further understanding of the factors at play.

3.7 HYPOTHESIS BASIS

This research takes place under conflicting evidence from research undertaken by different scholars concerning the effect of board size on firm performance. Although there is conflicting evidence on board size, there is more evidence of a smaller boards being associated with higher firm value. Hence in this study is expected to find evidence that corroborates the existing negative correlation between board size and the return on equity. The null hypothesis can be expressed as;

H₀: Hypothesis 1: Board size is not negatively associated with the ROE

H₁: Hypothesis 1: Board size is negatively associated with the ROE

Although the primarily focus of this study is to determine the effect of board size the return on equity for dual-listed stocks other variables that indirectly impact board size were given secondary focus. From the discussion in chapter 2 regarding board diversity the expectation for this research is that board diversity will be shown to have a positive association with company return on equity. Hence the null hypothesis can be expressed as;

H₀: Hypothesis 2: Board diversity is not positively associated with firm's return on equity

H₁: Hypothesis 2: Board diversity is positively associated with firm's return on equity

The aggregated diversity measure discussed in the literature review may dilute the impact of the most important variable in the South African transformation context. These variables are the proportion of female, overall historically disadvantaged (HD) directors and internationals in the board. Due these variables' close relationship with the concept of board diversity one can hypothesize that the proportion of HDs would have a

positive association with return on equity in South African dual-listed firms. Hence these null hypotheses are adopted;

H₀: Hypothesis 2a: The proportion of female in the board is not positively associated with firm's return on equity

H₁: Hypothesis 2a: The proportion of female in the board is positively associated with firm's return on equity

H₀: Hypothesis 2b: The proportion of HD in the board is not positively associated with firm's return on equity

H₁: Hypothesis 2b: The proportion of HD in the board is positively associated with firm's return on equity

H₀: Hypothesis 2c: The proportion of internationals in the board is not positively associated with firm's return on equity

H₁: Hypothesis 2c: The proportion of internationals in the board is positively associated with firm's return on equity

Scholars that have researched the impact of outside directors found evidence of that outside directors benefit shareholder value. Although this study examines primarily the board size impact on firm performance the effect of the increase in proportion of independent directors on firm value is important variable to look at as a secondary variable of board size. Based on the evidence of previous studies it is expect that an increase in proportion of independent directors will have a negative association with firm's return on equity. The null hypothesis can be expressed as follows;

H₀: Hypothesis 3: Proportion of independent directors in boards is not negatively associated with firm value

H₁: Hypothesis 3: Proportion of independent directors in boards is negatively associated with firm value

3.7.1 Hypothesis testing

The t-test significance test is used to test the significance of the hypotheses being tested. For a sample size of 28 the t-test significance threshold is 2.056. For specially treated sample such as 21 samples for non-financial companies the t-test significance threshold goes up slightly to 2.093. For a small sample of 7 for financial companies the t-test significance threshold goes up to 2.571. Since all hypotheses can be positive or negative all the hypotheses tests done in this study are two-tailed meaning you reject the hypothesis on both sides of the distribution. That means that the null hypothesis is accepted if it false within the upper and lower ranges of the threshold otherwise it is rejected. **Table 5** in section 4 depicts the applicable t-test significance threshold.

3.8 SUMMARY

This study is based on a sample size of twenty-eight dual-listed South African companies. The research methodology is based of Du Pont's Identity. In this identity ROE is the primary dependent variable. However, ROE is decomposed into its building blocks in order to get a clearer picture of the contribution of different variables. Statistical methods such as correlation and significance tests were utilised to test if a relationship exist between primarily board size and return on equity of dual listed South African companies. The overall period of investigation is over a four-year span (2005-2008). The primary hypothesis being tested in this study is that board size is negatively associated with the ROE. Other secondary hypotheses relating to board diversity, proportion of females, HDs and internationals in boards and proportion of independent directors were also tested.

4 CHAPTER FOUR – PRESENTATION OF RESULTS

4.1 INTRODUCTION

The results of the data analysis of this study are presented in the tables in this chapter. The data presented summarises is for analysis over a three year period on a sample of twenty-eight (28) dual-listed South African companies.

Summary of Independent Variable Statistics

All the statistics in this table are based on averages over the period from 2005 to 2007. The averages over the three year period were used to dampen the short-term variability.

Table 4-1: Descriptive statistics for complete sample (n=28)

VARIABLE	MIN	AVERAGE	MAX	STANDARD DEVIATION
BOD size	7.33	14.23	19.00	2.87
Local directors	4.67	12.65	18.00	3.20
Male directors	7.33	12.56	17.67	2.75
Female directors	0.00	1.68	4.33	1.05
International directors	0.00	1.58	6.00	1.48
HD directors	0.00	3.99	9.67	2.31
Independent directors	1.33	6.95	14.00	2.55
Female independent directors	0.00	1.10	2.67	0.80
HD independent directors	0.00	2.73	5.00	1.23
Audit committee size	2.00	4.53	8.00	1.17
Executive directors	1.00	3.48	9.33	1.80
Non-executives (non-independent)	0.67	3.38	9.67	2.42
Remuneration committee size	3.00	4.33	7.00	0.93

Table 4-2: Raw Data All Companies (n=28)

	Board size	Females ratio	Intl ratio	Diversity	Exec ratio	Indep Ratio	HD ratio	Audit size %	Remun comm size %	Indep females	Indep HDs	PM	TAT	EM	ROE	ROA	Tobin's Q
Afrox	11	0.09	0.47	6.00	0.19	0.44	0.25	0.28	0.28	0.33	3.00	0.12	1.04	1.95	25.15	12.88	2.59
Anglo American	16	0.09	0.11	4.67	0.26	0.51	0.13	0.32	0.28	0.67	1.67	0.23	0.60	1.93	26.91	13.98	1.96
Anglogold	17	0.08	0.18	8.00	0.22	0.46	0.16	0.34	0.22	0.00	2.33	-0.19	0.35	3.32	-22.58	-6.79	2.00
Anglo Platinum	18	0.05	0.05	8.00	0.22	0.25	0.22	0.25	0.27	1.00	2.00	0.29	0.81	1.94	45.14	23.23	3.96
ARM	16	0.12	0.06	10.67	0.41	0.49	0.47	0.24	0.18	2.00	5.00	0.30	0.48	1.33	19.10	14.37	2.08
Barlworld	19	0.07	0.19	8.67	0.49	0.47	0.19	0.18	0.26	1.33	3.00	0.05	1.32	2.67	17.22	6.46	1.41
DDT	13	0.08	0.03	3.00	0.31	0.41	0.15	0.31	0.28	1.00	2.00	0.03	1.83	2.98	15.00	5.04	6.08
First Rand	15	0.09	0.00	4.67	0.20	0.71	0.22	0.37	0.47	1.33	2.67	0.28	0.06	21.66	36.47	1.68	1.08
Goldfields	14	0.02	0.44	3.33	0.15	0.66	0.20	0.34	0.37	0.00	2.00	0.06	0.39	1.50	3.53	2.35	2.21
Harmony	10	0.20	0.13	9.00	0.27	0.53	0.57	0.43	0.33	1.33	3.33	0.00	0.24	1.50	0.01	0.00	1.49
Highveld	13	0.05	0.28	6.00	0.23	0.28	0.13	0.28	0.28	0.67	1.67	0.24	1.58	1.83	68.49	37.37	2.58
Impala	13	0.24	0.08	9.33	0.36	0.45	0.45	0.32	0.29	2.00	3.00	0.34	0.64	1.44	31.27	21.73	3.55
Invested Plc	17	0.12	0.06	6.33	0.24	0.46	0.20	0.40	0.18	1.00	3.33	0.26	0.05	14.55	18.95	1.30	1.05
Liberty	12	0.06	0.08	4.33	0.17	0.50	0.22	0.44	0.33	0.67	1.67	0.06	0.25	17.05	26.71	1.57	1.10
Method	16	0.14	0.00	9.33	0.12	0.49	0.45	0.34	0.24	2.50	3.50	0.06	0.03	10.47	1.72	0.16	1.02
Metorex	7	0.00	0.36	2.67	0.45	0.18	0.00	0.27	0.41	0.00	0.00	0.28	0.42	1.86	22.01	11.80	2.16
Naspers	13	0.16	0.00	7.00	0.16	0.79	0.39	0.42	0.39	2.00	5.00	0.17	0.52	1.71	15.16	8.84	2.45
Nedbank	18	0.11	0.19	10.33	0.11	0.45	0.32	0.45	0.30	0.33	3.00	0.15	0.09	14.76	18.65	1.26	0.74
Old Mutual	12	0.00	0.00	2.00	0.20	0.54	0.20	0.43	0.37	0.00	2.00	0.08	0.09	14.91	10.82	0.73	1.42
PPC	12	0.08	0.17	5.33	0.42	0.33	0.14	0.31	0.31	0.00	1.00	0.25	1.20	2.20	65.98	30.02	4.97
SAB	13	0.10	0.21	5.00	0.15	0.44	0.08	0.33	0.33	1.00	1.00	0.12	0.61	1.95	14.14	7.25	7.74
Sappi	13	0.11	0.16	5.67	0.24	0.71	0.24	0.34	0.32	1.33	3.33	0.02	0.90	2.63	4.40	1.67	1.11
Sanlam	18	0.24	0.07	13.67	0.11	0.78	0.26	0.22	0.28	2.67	4.67	0.12	0.14	11.54	20.22	1.75	1.04
Santam	15	0.13	0.00	7.00	0.13	0.47	0.33	0.27	0.30	2.00	4.00	0.10	0.75	3.33	24.02	7.22	1.31
Sasol	15	0.27	0.13	13.00	0.29	0.47	0.53	0.24	0.33	1.50	3.50	0.17	0.81	1.86	25.91	13.96	2.28
Telkom	11	0.24	0.00	12.33	0.09	0.33	0.88	0.39	0.55	0.33	3.67	0.17	0.83	1.97	27.78	14.08	2.35
Tongaat	18	0.09	0.00	4.67	0.35	0.33	0.17	0.24	0.24	1.00	2.00	0.23	0.81	2.32	42.80	18.47	1.64
Woolworths	12	0.23	0.17	9.67	0.31	0.60	0.37	0.26	0.34	2.00	3.33	0.05	1.82	2.56	24.63	9.61	1.89
Min	7.33	0.00	0.00	2.00	0.09	0.18	0.00	0.18	0.18	0.00	0.00	-0.19	0.03	1.33	-22.58	-6.79	0.74
Average	14.23	0.12	0.12	7.17	0.25	0.49	0.28	0.32	0.31	1.10	2.73	0.14	0.65	5.47	22.39	9.23	2.32
Max	19.00	0.27	0.44	13.67	0.49	0.79	0.88	0.45	0.55	2.67	5.00	0.34	1.83	21.66	68.49	37.37	7.74
Stdev	2.87	0.08	0.11	3.20	0.11	0.15	0.19	0.08	0.08	0.80	1.23	0.12	0.52	6.03	18.94	10.18	1.65

Table 4-3: Raw Data - Financial companies (n=7)

	Directors	Fem ratio	Exec ratio	Intl ratio	Indep Ratio	HDratio	Audit	Remun	Indep HDs	Non-exec ratio	non-exec/indep	PM	TAT	EM	ROE	Tobin's Q
First Rand	15	0.1	0.20	0.00	0.71	0.22	0.37	0.47	2.67	0.13	0.19	0.28	0.06	21.66	36.47	1.08
Invested Plc	17	0.1	0.24	0.06	0.46	0.20	0.40	0.18	3.33	0.28	0.61	0.26	0.05	14.55	18.95	1.05
Liberty	12	0.1	0.17	0.08	0.50	0.22	0.44	0.33	1.67	0.33	0.67	0.06	0.25	17.05	26.71	1.10
Methold	16	0.1	0.12	0.00	0.49	0.45	0.34	0.24	3.50	0.24	0.50	0.06	0.03	10.47	1.72	1.02
Nedbank	18	0.1	0.11	0.19	0.45	0.32	0.45	0.30	3.00	0.43	0.96	0.15	0.09	14.76	18.65	0.74
Old Mutual	12	0.0	0.20	0.00	0.54	0.20	0.43	0.37	2.00	0.26	0.47	0.08	0.09	14.91	10.82	1.42
Sanlam	18	0.2	0.11	0.07	0.78	0.26	0.22	0.28	4.67	0.11	0.14	0.12	0.14	11.54	20.22	1.04
Min	11.67	0.00	0.11	0.00	0.45	0.20	0.22	0.18	1.67	1.67	0.14	0.06	0.03	10.47	1.72	0.74
Average	15.33	0.11	0.16	0.06	0.56	0.27	0.38	0.31	2.98	2.98	0.51	0.14	0.10	14.99	19.08	1.06
Max	18.00	0.24	0.24	0.19	0.78	0.45	0.45	0.47	4.67	4.67	0.96	0.28	0.25	21.66	36.47	1.42
Stdev	2.58	0.08	0.05	0.07	0.13	0.09	0.08	0.09	1.00	1.00	0.28	0.09	0.07	3.68	11.05	0.20

Table 4-4: Raw Data - Non-Financial companies (n=21)

	Directors	Females ratio	Exec ratio	Intl ratio	Diversity	Indep Ratio	HD ratio	Audit	Remun	Indep HDs	non-exec ratio	non-exec/indep	PM	TAT	EM	ROE	ROA	Tobin's Q
Afrox	10.67	0.09	0.19	0.47	6.00	0.44	0.25	0.28	0.28	3.00	0.38	0.86	0.12	1.04	1.95	25.15	12.88	2.59
Anglo American	0.58	0.09	0.26	0.11	4.67	0.51	0.13	0.32	0.28	1.67	0.13	0.25	0.23	0.60	1.93	26.91	13.98	1.96
Anglogold	5.03	0.08	0.22	0.18	8.00	0.46	0.16	0.34	0.22	2.33	0.26	0.57	-0.19	0.35	3.32	-22.58	-6.79	2.00
Anglo Platinum	0.58	0.05	0.22	0.05	8.00	0.25	0.22	0.25	0.27	2.00	0.53	2.07	0.29	0.81	1.94	45.14	23.23	3.96
ARM	0.00	0.12	0.41	0.06	10.67	0.49	0.47	0.24	0.18	5.00	0.10	0.21	0.30	0.48	1.33	19.10	14.37	2.08
Barloworld	0.00	0.07	0.49	0.19	8.67	0.47	0.19	0.18	0.26	3.00	0.04	0.07	0.05	1.32	2.67	17.22	6.46	1.41
DDT	0.58	0.08	0.31	0.03	3.00	0.41	0.15	0.31	0.28	2.00	0.23	0.56	0.03	1.83	2.98	15.00	5.04	6.08
Goldfields	1.00	0.02	0.15	0.44	3.33	0.66	0.20	0.34	0.37	2.00	0.15	0.22	0.06	0.39	1.50	3.53	2.35	2.21
Harmony	4.04	0.20	0.27	0.13	9.00	0.53	0.57	0.43	0.33	3.33	0.23	0.44	0.00	0.24	1.50	0.01	0.00	1.49
Highveld	0.58	0.05	0.23	0.28	6.00	0.28	0.13	0.28	0.28	1.67	0.50	1.82	0.24	1.58	1.83	68.49	37.37	2.58
Impala	0.58	0.24	0.36	0.08	9.33	0.45	0.45	0.32	0.29	3.00	0.08	0.18	0.34	0.64	1.44	31.27	21.73	3.55
Metorex	0.58	0.00	0.45	0.36	2.67	0.18	0.00	0.27	0.41	0.00	0.36	2.00	0.28	0.42	1.86	22.01	11.80	2.16
Naspers	1.15	0.16	0.16	0.00	7.00	0.79	0.39	0.42	0.39	5.00	0.05	0.07	0.17	0.52	1.71	15.16	8.84	2.45
PPC	12.00	0.08	0.42	0.17	5.33	0.33	0.14	0.31	0.31	1.00	0.25	0.75	0.25	1.20	2.20	65.98	30.02	4.97
SAB	2.00	0.10	0.15	0.21	5.00	0.44	0.08	0.33	0.33	1.00	0.38	0.88	0.12	0.61	1.95	14.14	7.25	7.74
Sappi	1.00	0.11	0.24	0.16	5.67	0.71	0.24	0.34	0.32	3.33	0.08	0.11	0.02	0.90	2.63	4.40	1.67	1.11
Santam	0.58	0.13	0.13	0.00	7.00	0.47	0.33	0.27	0.30	4.00	0.27	0.57	0.10	0.75	3.33	24.02	7.22	1.31
Sasol	0.58	0.27	0.29	0.13	13.00	0.47	0.53	0.24	0.33	3.50	0.27	0.57	0.17	0.81	1.86	25.91	13.96	2.28
Telkom	4.36	0.24	0.09	0.00	12.33	0.33	0.88	0.39	0.55	3.67	0.61	1.82	0.17	0.83	1.97	27.78	14.08	2.35
Tongaat	2.08	0.09	0.35	0.00	4.67	0.33	0.17	0.24	0.24	2.00	0.33	1.00	0.23	0.81	2.32	42.80	18.47	1.64
Woolworths	0.00	0.23	0.31	0.17	9.67	0.60	0.37	0.26	0.34	3.33	0.11	0.19	0.05	1.82	2.56	24.63	9.61	1.89
Min	0.00	0.00	0.09	0.00	2.67	0.18	0.00	0.18	0.18	0.00	0.00	0.07	-0.19	0.24	1.33	-22.58	-6.79	1.11
Average	1.86	0.12	0.27	0.14	7.15	0.46	0.29	0.30	0.31	2.64	2.64	0.72	0.14	0.85	2.14	23.55	12.03	2.76
Max	12.00	0.27	0.49	0.44	13.00	0.79	0.88	0.43	0.55	5.00	5.00	2.07	0.34	1.83	3.33	68.49	37.37	7.74
Stdev	2.80	0.08	0.11	0.12	2.97	0.15	0.21	0.06	0.08	1.31	1.31	0.68	0.13	0.47	0.60	21.15	10.48	1.71

The t-statistic significance tests undertaken in this study are determined by sample size and degrees of freedom (dF) are shown in **Table 4-5** below.

Table 4-5: T-Test Significance

SAMPLE SIZE	T-VALUE
7	2.571
21	2.093
28	2.056

Table 4-6: Board size trend over three year period

YEAR	HD	FEMALES	INTERNATIONALS	BOARD SIZE
2005	3.25	1.26	2.07	14.04
2006	4.00	1.63	1.87	14.43
2007	4.47	1.77	2.00	13.50

The correlation coefficients and the corresponding t-value of the complete sample were computed and tabulated in **Table 4-7** below.

Table 4-7: Correlation coefficients & t-values (n=28, t-value threshold = 2.056)

Dependent Variable	ROE		PM		TAT		EM		Tobin's Q		ROA	
	ρ	t-value	ρ	t-value	ρ	t-value	ρ	t-value	ρ	t-value	P	t-value
Board Size	-0.0143	-0.073	0.0195	0.100	-0.1551	-0.800	0.2060	1.074	-0.2084	-1.086	-0.0973	-0.498
Independent female ratio	-0.4257	-2.399**	-0.3063	-1.641	-0.2925	-1.560	0.3158	1.697	-0.4173	2.341**	-0.5546	3.399**
female ratio	-0.0564	-0.288	0.0276	0.141	0.0425	0.217	-0.1430	-0.737	-0.0021	-0.011	0.0009	0.005
International ratio	-0.0301	-0.154	-0.1204	-0.618	0.1942	1.010	-0.3298	-1.781	0.1959	1.019	0.1166	0.598
HD ratio	-0.1345	-0.692	-0.0032	-0.016	-0.0849	-0.434	-0.1078	-0.553	0.0087	0.044	-0.0379	-0.194
audit comm ratio	-0.2949	-1.574	-0.1799	-0.932	-0.5217	-3.118**	0.4766	2.764**	-0.2523	-1.330	-0.4221	2.374**
Indep HD ratio	-0.2713	-1.437	-0.0781	-0.400	-0.1448	-0.746	0.0398	0.203	-0.2533	-1.335	-0.2473	-1.301
Exec ratio	0.2341	1.228	0.2693	1.426	0.4053	2.261**	-0.3755	-2.066**	0.3426	1.859	0.3605	1.971
non-exec/indep	0.4351	2.464**	0.3067	1.643	0.1420	0.732	-0.1707	-0.883	0.3291	1.777	0.4845	2.824**

** : statistically significant correlation based on t-test statistic

After undertaking a sector analysis it was discovered that companies that are in the financial sector have a much higher utilisation of financial leverage. It was then decided to further split the sample into financial and non-financial sub-samples. The correlation coefficient and t-value of the non-financial sub-group are tabulated in **Table 4-8**. None of the correlation coefficients were found to be statistically significant.

Table 4-8: Correlation coefficients & t-values non-financial (n=21, t-value threshold = 2.093).

Dependent Variable	ROE		PM		TAT		EM		Tobin's Q		ROA	
	ρ	t-value	ρ	t-value	ρ	t-value	ρ	t-value	ρ	t-value	P	t-value
Board Size	0.0285	0.124	-0.0386	-0.168	0.0242	0.105	0.2704	1.224	-0.1110	-0.487	0.0265	0.115
Independent directors	-0.5414	-2.807**	-0.4228	-2.034	-0.1485	-0.654	-0.0069	-0.030	-0.2720	-1.232	-0.5471	-2.849**
female directors	-0.0483	-0.211	0.0127	0.056	0.0077	0.034	-0.1499	-0.661	-0.1288	-0.566	-0.0422	-0.184
international directors	-0.0854	-0.373	-0.1367	-0.602	-0.0242	-0.106	-0.2062	-0.918	-0.0273	-0.119	-0.0496	-0.216
HD directors	-0.1065	-0.467	0.0352	0.153	-0.1475	-0.650	-0.2701	-1.223	-0.2852	-1.297	-0.0667	-0.291
Directors in audit committee	-0.3683	-1.727	-0.2597	-1.172	-0.4253	-2.049	-0.2318	-1.039	0.0883	0.386	-0.3196	-1.470
Independent female directors	-0.0448	-0.195	0.1320	0.581	0.1004	0.440	-0.0306	-0.133	-0.1545	-0.681	-0.0471	-0.206
Independent HD directors	-0.2696	-1.221	-0.1183	-0.519	-0.0460	-0.201	-0.2696	-1.221	-0.4423	-2.149**	-0.2403	-1.079
Exec ratio	0.2025	0.9014	0.2757	1.2501	0.2009	0.8940	-0.0405	0.1766	-0.0703	-0.3072	0.2024	0.9010
Non-exec/indep ratio	0.4723	2.336**	0.3611	1.688	0.0494	0.216	-0.1017	-0.445	0.1859	0.825	0.4837	2.409**

** : statistically significant correlation coefficient based on t-test statistic

Analysis of the financial sector companies yielded **Table 4-9** below which had no significant t-statistic.

Table 4-9 : Correlation coefficients & t-value for finance firms (n=7, t-value threshold = 2.571).

Dependent Variable	ROE		PM		TAT		EM		Tobin's Q		ROA	
	ρ	t-value	ρ	t-value	ρ	t-value	ρ	t-value	ρ	t-value	P	t-value
Board Size	-0.0961	-0.216	0.33878	0.805	-0.4278	-1.058	-0.4146	-1.019	-0.7457	-2.503	0.52609	1.383
Independent directors	0.44746	1.119	0.22434	0.515	0.10749	0.242	0.18197	0.414	0.19117	0.436	0.52609	1.383
female directors	-0.0599	-0.134	0.10159	0.228	-0.0989	-0.222	-0.5123	-1.334	-0.5199	-1.361	0.23749	0.547
international directors	0.13949	0.315	-0.0347	-0.078	0.31971	0.754	-0.1024	-0.230	-0.7474	-2.516	0.36511	0.877
HD directors	-0.6258	-1.794	-0.4203	-1.036	-0.3763	-0.908	-0.5828	-1.604	-0.4752	-1.208	-0.649	-1.908
Directors in audit	0.166	0.166	-0.036	-0.036	0.248	0.248	1.043	1.043	0.007	0.007	-0.0877	-0.197
comm	0.07391	0.07391	-0.016	-0.016	0.11008	0.42277	0.767	2.673**	0.00335	0.706	0.306	0.719
Directors in	0.588	1.626	0.149	0.337	0.151	0.342	0.767	2.673**	0.301	0.706	0.306	0.719
Remuneration comm												
Independent female												
directors	-0.1805	-0.410	-0.0483	-0.108	-0.1773	-0.403	-0.4728	-1.200	-0.2009	-0.459	-0.049	-0.110
Independent HD												
directors	-0.2189	-0.502	0.16174	0.366	-0.3447	-0.821	-0.5895	-1.632	-0.3894	-0.945	0.07592	0.170
Exec ratio	0.30372	0.713	0.56375	1.526	-0.1629	-0.369	0.52707	1.387	0.53124	1.402	0.11212	0.252
Non-exec/indep ratio	-0.2448	-0.564	-0.2158	-0.494	0.08269	0.186	-0.1063	-0.239	-0.4549	-1.142	-0.2418	-0.557

** : statistically significant correlation coefficient based on t-test statistic

Summary of Independent Variable Statistics

All the statistics in this table are based on averages over the period from 2006 to 2008. The averages over the three year period were used to dampen the short-term variability.

Table 4-10: Independent variable descriptive statistics for financial sector sub-group (n=7)

VARIABLE	MIN	AVERAGE	MAX	STANDARD DEVIATION
BOD size	11.67	15.33	18.00	2.58
Local directors	11.00	14.38	16.67	2.23
Male directors	11.33	13.52	15.67	1.55
Female directors	0.00	1.81	4.33	1.39
International directors	0.00	0.95	3.33	1.19
HD directors	2.33	4.19	7.33	1.80
Independent directors	6.00	8.67	14.00	2.80
Female independent directors	0.00	1.21	2.67	1.03
HD independent directors	1.67	2.98	4.67	1.00
Audit committee size	4.00	5.71	8.00	1.28
Executive directors	2.00	2.48	4.00	0.77
Non-executives	2.00	3.90	7.67	1.95
Remuneration committee size	3.00	4.67	7.00	1.28

Table 4-11: Dependent variable descriptive statistics for total sample (n=28)

VARIABLE	MIN	AVERAGE	MAX	STANDARD DEVIATION
PM	-0.19	0.14	0.34	0.12
TAT	0.03	0.65	1.83	0.52
EM	1.33	5.47	21.66	6.03
ROE (Du Pont Identity)	-22.58	22.39	68.49	18.94
ROA	-6.79	9.23	37.37	10.18
Tobin's Q	0.74	1.92	4.97	0.97

Summary of Dependent Variable Statistics for financial sector companies

Table 4-12 : Dependent variable descriptive statistics for financial sector companies (n=7)

VARIABLE	MIN	AVERAGE	MAX	STANDARD DEVIATION
PM	0.06	0.14	0.28	0.09
TAT	0.03	0.10	0.25	0.07
EM	10.47	14.99	21.66	3.68
ROE (Du Pont Identity)	1.72	19.08	36.47	11.05
ROA	0.16	1.21	1.75	0.58
Tobin's Q	0.74	1.06	1.42	0.20

Table 4-13 : Correlation Coefficients – whole sample (n=28).

This table depicts Pearson's correlation coefficient and it is a summary of the key variables that were analysed for the whole sample. The Pearson correlation coefficient measures the strength and direction of a linear relationship between the variables.

	Dir	Female ratio	Exec ratio	Intl ratio	Div-ersity	Indep ratio	HD ratio	Audit com ratio	Indep HDs	Non-exec ratio	Nonexec/Indep Ratio	PM	TAT	EM	ROE	ROA	Tobin's Q
Directors	1	.085	-.153	-.325	.338	.158	-.091	-.290	.321	-.160	-.241	.000	-.163	.215	-.045	-.130	-.220
Female ratio	.085	1	-.121	-.331	.835(**)	.261	.744(**)	-.099	.644(**)	-.132	-.221	.023	.051	-.165	-.054	.018	.046
Exec_ratio	-.153	-.121	1	.108	-.151	-.368	-.227	-.445(*)	-.297	-.293	-.022	.306	.350	-.384(*)	.232	.364	.331
International ratio	-.325	-.331	.108	1	-.216	-.168	-.358	-.184	-.007	-.397(*)	.113	.179	-.123	.201	-.332	-.026	.121
Diversity	.338	.835(**)	-.151	-.216	1	.138	.707(**)	-.229	.689(**)	-.008	-.083	-.001	-.048	-.099	-.069	.014	.003
Indep_ratio	.158	.261	-.368	-.168	.138	1	.133	.228	.576(**)	-.711(**)	-.811(**)	-.311	-.290	.312	-.424(*)	-.551(**)	-.417(*)
HD_ratio	-.091	.744(**)	-.227	-.358	.707(**)	.133	1	.192	.659(**)	.082	-.057	-.006	-.086	-.112	-.133	-.034	.012
Auditcom Ratio	-.290	-.099	-.445(*)	-.184	-.229	.228	.192	1	-.022	.147	-.060	-.179	-.508(**)	.483(**)	-.286	-.416(*)	-.248
Remuncom Ratio	-.559(**)	.080	-.188	-.007	-.082	.122	.315	.343	1	-.114	.194	.207	.061	-.040	.097	.084	-.029
Indep_HDs	.321	.644(**)	-.297	-.397(*)	.689(**)	.576(**)	.659(**)	-.022	1	-.374(*)	-.479(**)	-.079	-.146	.040	-.270	-.247	-.253
Nonexec Ratio	-.160	-.132	-.293	.113	-.008	-.711(**)	.082	.147	-.374(*)	1	.903(**)	.139	.043	-.010	.330	.318	.173
Nonexec_indep ratio	-.241	-.221	-.022	.179	-.083	-.811(**)	-.057	-.060	-.479(**)	.903(**)	1	.313	.141	-.171	.435(*)	.484(**)	.329
PM	.000	.023	.306	-.123	-.001	-.311	-.006	-.179	-.079	.139	.313	1	-.038	.012	.716(**)	.658(**)	.417(*)
TAT	-.163	.051	.350	.201	-.048	-.290	-.086	-.508(**)	-.146	.043	.141	-.038	1	-.582(**)	.407(*)	.538(**)	.369
EM	.215	-.165	-.384(*)	-.332	-.099	.312	-.112	.483(**)	.040	-.010	-.171	-.038	-.582(**)	1	-.052	-.479(**)	-.533(**)
ROE	-.045	-.054	.232	-.026	-.069	-.424(*)	-.133	-.286	-.270	.330	.435(*)	-.052	.407(*)	1	1	.865(**)	.541(**)
ROA	-.130	.018	.364	.121	.014	-.531(**)	-.034	-.416(*)	-.247	.318	.484(**)	-.479(**)	.538(**)	-.479(**)	1	.865(**)	.541(**)
Tobin's Q	-.220	.046	.331	.196	.003	-.417(*)	.012	-.248	-.253	.173	.329	.417(*)	.369	-.533(**)	.541(**)	.753(**)	1

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

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

Table 4-14 : Correlation coefficients – non-financial companies (n=21)

This table depicts Pearson's correlation coefficient and it is a summary of the key variables that were analysed for non-financial sector companies. The

Pearson correlation coefficient measures the strength and direction of a linear relationship between the variables.

	Dir	Female ratio	Exec ratio	Intl ratio	Div-ersity	Indep ratio	HD ratio	Audit com ratio	Indep HDs	Non-exec ratio	Nonexec/indep Ratio	PM	TAT	EM	ROE	ROA	Tobin's Q		
Directors	1																		
Female ratio	-0.20	1																	
Exec_ratio	0.25	-0.47	1																
Intl Ratio	-0.365	-0.477(*)	-0.16	1															
Diversity	0.167	0.783(**)	-0.382	0.382	1														
Indep_ratio	0.074	0.245	-0.302	0.088	0.088	1													
HD_ratio	-0.136	0.724(**)	-0.248	0.205	0.205	0.205	1												
Auditcom Ratio	-0.475(*)	0.201	-0.470(*)	0.342	0.342	0.342	0.342	1											
Remuncom Ratio	-0.613(**)	0.203	-0.325	0.033	0.109	0.028	0.443(*)	0.504(*)	1										
Indep_HDs	0.189	0.562(**)	-0.237	-0.442(*)	0.658(**)	0.597(**)	0.713(**)	0.143	-0.011	1									
Nonexec Ratio	-0.184	-0.071	-0.354	0.063	0.028	-0.728(**)	0.079	0.007	0.320	-0.364	1								
Nonexec-indep ratio	-0.240	-0.217	-0.105	-0.486(*)	0.916(**)	0.368	0.047	0.195	0.368	0.047	0.916(**)	1							
PM	-0.072	0.018	0.368	0.047	0.368	0.047	0.368	0.047	0.368	0.047	0.368	0.047	1						
TAT	0.018	0.091	-0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	1					
EM	0.288	-0.137	-0.134	-0.205	-0.149	-0.008	-0.276	-0.215	-0.200	-0.046	-0.037	-0.105	-0.612(**)	0.382	1				
ROE	-0.010	0.024	0.189	-0.081	-0.044	0.393	-0.104	-0.354	0.454(*)	0.269	0.393	0.454(*)	0.382	0.382	0.382	1			
ROA	-0.013	0.054	0.199	-0.045	0.031	0.389	-0.063	-0.308	0.964(**)	0.240	0.389	0.964(**)	0.344	0.344	0.344	0.344	1		
Tobin's Q	-0.125	-0.079	-0.025	-0.18	-0.285	-0.267	-0.285	0.091	-0.002	-0.442(*)	0.255	0.185	0.147	0.216	0.216	0.216	0.216	0.197	1

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

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

Table 4-15: Correlation coefficients – Financial companies (n=7)

This table depicts Pearson's correlation coefficient and it is a summary of the key variables that were analysed for financial sector companies. The

Pearson correlation coefficient measures the strength and direction of a linear relationship between the variables.

	Dir	Female ratio	Exec ratio	Intl ratio	Div-ersity	Indep ratio	HD ratio	Audit com ratio	Indep HDs	Non-exec ratio	Nonexec/indep Ratio	PM	TAT	EM	ROE	ROA	Tobin's Q
Directors	1	.673	-.428	.462	.852(*)	.147	.376	-.481	-.478	.855(*)	-.066	.019	.378	-.439	-.394	-.080	.143
Female ratio	.673	1	-.500	.295	.831(*)	.532	.190	-.755(*)	-.278	.769(*)	-.391	-.337	.126	.194	-.264	.246	.512
Exec_ratio	-.428	-.500	1	-.427	-.771(*)	-.151	-.706	.398	.117	-.458	-.085	-.094	.543	-.140	.535	.317	.128
Intl Ratio	.462	.295	-.427	1	.451	-.315	.047	.263	-.266	.096	.678	.690	-.011	.305	-.097	.133	.350
Diversity	.852(*)	.831(*)	-.771(*)	.451	1	.287	.529	-.678	-.456	.880(**)	-.136	-.077	-.084	-.086	-.611	-.201	.115
Indep_ratio	.147	.532	-.151	-.315	.287	1	-.230	-.768(*)	.465	.447	-.876(**)	-.892(**)	.209	.086	.176	.445	.525
HD_ratio	.376	.190	-.706	.047	.529	-.230	1	-.217	-.331	.370	.130	.182	-.414	-.363	-.592	-.633	-.656
Auditcom Ratio	-.481	-.755(*)	.398	.263	-.678	-.768(*)	-.217	1	.153	-.844(*)	.796(*)	.763(*)	.008	.101	.429	.066	-.167
Remuncom Ratio	-.478	-.278	.117	-.266	-.456	.465	-.331	.153	1	-.476	-.286	-.354	.149	.151	.767(*)	.588	.306
Indep_HDs	.855(*)	.769(*)	-.458	.096	.880(**)	.447	.370	-.844(*)	-.476	1	-.458	-.387	.157	-.359	-.589	-.218	.073
Nonexec Ratio	-.066	-.391	-.085	.678	-.136	-.876(**)	.130	.796(*)	-.286	-.458	1	.994(**)	-.244	.171	-.066	-.221	-.224
Nonexec-indep ratio	.019	-.337	-.094	.690	-.077	-.892(**)	.182	.763(*)	-.354	-.387	.994(**)	1	-.195	.108	-.101	-.239	-.237
PM	.378	.126	.543	-.011	-.084	.209	-.414	.008	.149	.157	-.244	-.195	1	-.446	.566	.601	.474
TAT	-.439	.194	-.140	.305	-.086	.086	-.363	.101	.151	-.359	.171	.108	-.446	1	.149	.365	.506
EM	-.394	-.264	.535	-.097	-.611	.176	-.592	.429	767(*)	-.589	-.066	-.101	.566	.149	1	.849(*)	.531
ROE	-.080	.246	.317	.133	-.201	.445	-.633	.066	.588	-.218	-.221	-.239	.601	.365	.849(*)	1	.884(**)
ROA	.143	.512	.128	.350	.115	.525	-.656	-.167	.306	.073	-.224	-.237	.474	.506	.531	.884(**)	1
Tobin's Q	-.749	-.553	.539	-.752	-.673	.180	-.465	.026	.301	-.399	-.382	-.451	-.209	.082	.118	-.115	-.197

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

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

4.2 LIST OF TESTED HYPOTHESIS

H₀: Hypothesis 1: Board size is not negatively associated with the ROE

H₁: Hypothesis 1: Board size is negatively associated with the ROE

H₀: Hypothesis 2c: The proportion of internationals in the board is not positively associated with firm's return on equity

H₁: Hypothesis 2c: The proportion of internationals in the board is positively associated with firm's return on equity

H₀: Hypothesis 2b: The proportion of HD in the board is not positively associated with firm's return on equity

H₁: Hypothesis 2b: The proportion of HD in the board is positively associated with firm's return on equity

H₀: Hypothesis 2c: The proportion of internationals in the board is not positively associated with firm's return on equity

H₁: Hypothesis 2c: The proportion of internationals in the board is positively associated with firm's return on equity

H₀: Hypothesis 3: Proportion of independent directors in boards is not negatively associated with firm value

H₁: Hypothesis 3: Proportion of independent directors in boards is negatively associated with firm value

4.3 SUMMARY

The twenty-eight companies researched in this study are presented in *Table 4-2* as raw data for all companies. The raw data for financial companies is presented in *Table 4-3*. The raw data for non-financial companies is presented in *Table 4-4*. Dependent and independent variable statistics are presented. Tables showing the t-test statistics for the key variables are presented. The next chapter discusses the results presented in this chapter in detail.

5 CHAPTER FIVE – DISCUSSION OF RESULTS

5.1 INTRODUCTION

The study of corporate boards has to deal with numerous complex variables to do justice to the topic in full. No study has and can cover every aspect of corporate boards entirely. Variables affecting the board vary depending on the economics, environmental factor and societal factors. Corporate board size, composition and structure are adjusted accordingly in an attempt to optimize board effectiveness. This study primarily examines the effect of board size and return on equity of South African dual-listed companies. The results presented in chapter 4 regarding board size are discussed in this section. The effects of secondary variables relating to board size are also discussed and largely provide an explanation of some anomalies.

5.2 BOARD SIZE

This research is primarily targeted at examining whether there is a significant relationship between board size and company performance as represented by ROE (and Tobin's Q) for South African dual listed companies. Board size is regarded as an important determinant of corporate governance (Pearce & Zahra, 1992). The significance test of null hypothesis test yields a t-value of -0.073 (shown in *Table 4-7*). For a two-tailed t-test the criterion to accept the null hypothesis is that it must fall between -2.056 and 2.056. Therefore the null hypothesis that board size is not negatively associated with the ROE is accepted. The primary finding of this research is that no evidence of a negative association between board size and the return on equity (as calculated using Du Pont Identity). There is also no evidence of a significant association between Tobin's Q with corporate board size for South African dual-listed companies. This finding is not consistent with research by Lipton and Lorsch (1992), Yermack (1996) and Eisenberg

(1998) that suggest that smaller boards are associated with higher firm value. The board size trend shown in *Table 6* shows that South African dual-listed companies have marginally reduced the average board size from 14.03 in 2005, 14.43 in 2006 to 13.50 by 2007. The reduction of board size during this period suggests that boards are responding to the globally accepted trend that boards should be smaller. This is despite an increase in females and HD, a trend depicted in *Table 4-7*. The tendency to reduce board size whilst managing to increase females as show in *Table 4-6* in an environment that favours bringing more females, HDs and independent directors this indicates that retiring directors were replaced largely by females and HDs or some retiring board members were not replaced to achieve size reduction. This suggests that South African dual-listed are and have a fine balancing act to satisfy stakeholders. These results can be interpreted to mean that board size cannot be used to predict firm performance of South African dual-listed companies. It therefore follows that variability in firm performance (proxied by ROE) of dual-listed companies would be explained by other factors other than board size.

Related research by Klein (1998) provides evidence that high leverage may have greater advising requirements hence supporting the need for larger board size and more independent board members on the board. In this study the board size effect on shareholder value is tested for companies that have high leverage. The high leverage dual-listed companies from the sample are companies that offer financial services. The average equity multiplier of this sub-group (financial companies) is found to be 14.99 compared to the 2.11 for non-financial companies. Although the board size of financial sector companies is on average marginally higher that that of non-financial companies, no significant association is found between board size and the return on equity (ROE) for dual-listed financial companies.

Further analysis of the Du Pont Identity into three building blocks (PM, TAT, EM) was undertaken to gain better understanding of the underlying ROE behaviour. The findings are that a no significant association exists between board size and PM, TAT and EM, the individual components of Du Pont's Identity⁵ and the ROA.

Although Pearce and Zahra (1992) argue that board size is an important determinant of corporate governance an observation emanating from this is that corporate governance requirements of the securities exchanges of the developed economies like NYSE and LSE are having a direct impact on the size of the board size. Although in pursuit of the majority independent directors, boards may at first reduce executives and non-executive owner directors at some point the board size may have to be increased once the minimum desirable number of executives and direct owners has been reached.

This study reveals that company owners view their presence on boards as very important since despite the trend to increase independent directors they still constitute 25% in the boards of the South African dual-listed companies. Given the research by scholars such as Dalton et al. (1998) that highlights the importance of owner directors in fulfilling the oversight role in boards this trend can be expected to continue. *Output 1* in Appendix A illustrates the results of board size regression analysis. This analysis confirms as expected that board size is determined by the size of the executive and independent directors. However, it is interesting that non-executive owner directors' presence on boards seems to more important than factors such as board diversity (gender and racial) since these factors were found not to influence board size.

⁵ Du Pont's Identity leads to computation of ROE by multiplying PM x TAT x EM (Firer et al, 2004, p 67)

5.3 INTERNATIONAL DIRECTORS

The dual listing of South African companies outside of South Africa, whether in developed or emerging economies, means their shares are accessible to investors from outside of South Africa. This would naturally mean that these shareholders would expect to have directors appointed that represent their interest. Interestingly the study finds that over the three year period the number of international directors has remained at an average of two directors. Moreover, it is found that international directors as an independent variable do not have a significant effect on shareholder value. This finding is comparable with Click and Harrison (2000) who found evidence of shareholder value destruction with increasing multinationality in the US. This may, however, be meaningless data as a result of internationals being a minority in boards of South African dual-listed companies. Although, not statistically significant there is some evidence that international directors tend to be negatively associated to financial leverage (EM) as evidenced by a t-value of -1.781 as shown in *Table 4-7*.

5.4 BOARD DIVERSITY

The significance test of the correlation factor for board diversity yields a t-value of -0.069 (*Table 4-12*) which does not pass the test against t-test threshold of ± 2.056 indicates that null *hypothesis 2*: board diversity is not positively associated with firm's return on equity cannot be rejected. That means that board diversity is not positively associated with the higher return on equity for dual-listed South African firms. This finding is contrary to the existing body of knowledge as informed studies by Williams and Ho (2000), and Adams and Ferreira (2004) that suggests that firm performance should benefit from board diversity. Over the three year period (2005 to 2007) board diversity increased largely due to an increase in average females (1.25 – 1.77) and in an average of HDs (3.25 - 4.47). To explain this dichotomy it is proposed that female and historically disadvantaged directors that are part the board do not add to board

effectiveness from a diversity point of view. This means that they do not bring their different perspectives to enhance board deliberations to have a significant effect on shareholder value. This may also be due to the fact that females constitute such a low minority in boards such that a significant diversity threshold is not reached. They may also be fearing that their views may not be accepted in a predominantly 'old school' environment. This study shows that there are on average 1.68 female directors in dual-listed company boards. This argument also applies for historically disadvantaged directors that are represented by on average 3.99 directors including females per dual-listed company. This finding is interesting given the legislative framework put into place in the post apartheid era to redress the social and economic imbalances that existed prior to 1994.

This may be a result of first, of the unwillingness of the main shareholders to adopt the transformation agenda and deserves further research. Secondly there may be a lack of suitable skilled human resources to fulfil the board needs. Thirdly as discussed in 5.4 the global environment may be expecting South African dual-listed companies to follow accepted trends by reducing board size thus limiting scope to increase diversity in board. Fourthly, there may strong groupings in the boards that allow undesirables such as 'groupthink' to exist. Groupthink is discussed in chapter 2 under group dynamics. In fact, one can argue that given the role of females and HDs in boards they are already a group of non-executive independents in audit committee that is led by a senior independent. The senior independent may not be part a clique but the rest of the new independents may feel sidelined and not given space to contribute meaningfully. The second reason has been advanced in general for lack of transformation of corporate boards. This is in line with the resource dependence theory which is based on the notion that environments are the source of scarce resources and organizations are dependent on these finite resources for survival. The corporate governance inspired requirement of financial literacy for independent directors in the audit committee is

an example of skills that may be scarce among the previously disadvantaged groups in the South African context. It is, however, interesting to note that the only company in the sample that was a parastatal⁶ has the highest HD ratio at 88%, way ahead of the sample average of 28%. This dichotomy may be to the fact the government by its nature represents society, hence it uses society to look after its investments. Non-government investments, in the contrary are held by a wide spectrum of individuals who can afford and have the urge to directly monitor their investments. Since the ownership of the non-government private dual-listed companies is largely owned by global and local investors that are not necessarily concerned with transformation diversity cannot be expected to progress at a faster pace. Another factor that may be at play is the tendency of managers to attract, select and recruit people based on how similar they are to those already in the organisation, increases the strength of that particular culture. Similarly this tendency may affect board recruitment of directors thus not enhancing the tendency to diversify (Misselhorn, 2001).

The results of the significance tests on the correlation factor between ROE and females, HDs and internationals show that there is no evidence of any association. Hence the null *hypothesis 2a*: the proportion of female in the board is not positively associated with firm's return on equity, *hypothesis 2b*: the proportion of HD in the board is not positively associated with firm's return on equity and *hypothesis 2c*: the proportion of internationals in the board is not positively associated with firm's return on equity are accepted meaning that there is no positive association between ROE and proportion of female directors, proportion of historically disadvantaged directors and international directors.

⁶ Parastatal : A parastatal is defined as an organisation or agency owned, or controlled wholly or partly by the government (Cullen, Gilmour and Holmes, 2005).

5.5 INDEPENDENT DIRECTORS

In this study outside directors (outsiders) are referred to as independent directors. Prior research on outsider board members' influence by other scholars leads to the expectation that the proportion of independent directors would be positively associated with firm performance. This expectation that is largely driving corporate governance, assumes that appropriately qualified and experienced independent directors (outsiders) are well placed to fulfil the required oversight function and will also not neglect the corporate social responsibility (CSR) agenda.

The null hypothesis tested in this study is that the proportion of independent directors is not negatively associated with the return on equity. The correlation significance test with t-value of -2.399 (compared against a threshold t-value of +2.056) indicates that the null hypothesis (H_0 : hypothesis 3: the proportion of independent directors is not negatively associated with the return on equity) must be rejected. The alternate hypothesis 3: the proportion of independent directors is negatively associated with the return on equity must be accepted. The finding thus is that the proportion of independent directors is negatively associated with return on equity for dual-listed South African firms. *Figure 5-1* below illustrates this finding where a strong negative relationship can be seen.

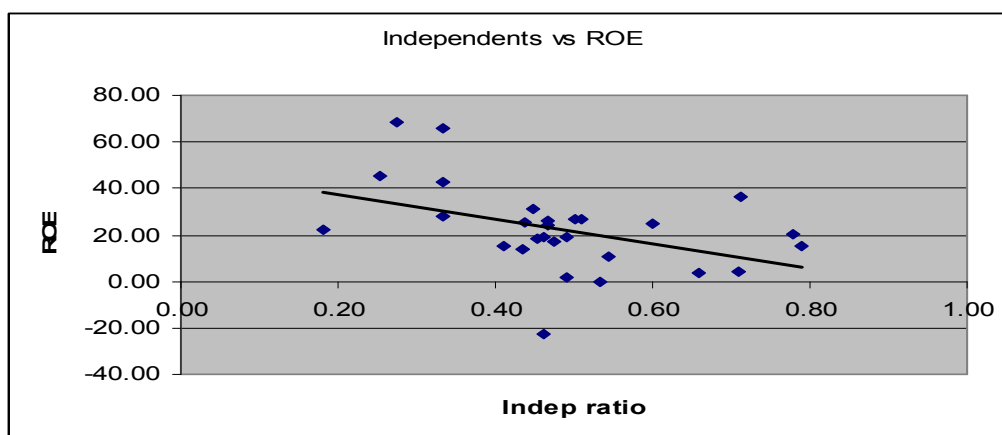


Figure 5-1: Independents effect on ROE

This finding is inconsistent with a large body of knowledge that is in agreement that independent directors (outsiders) are good for shareholder value maximization. On the contrary, this study agrees with evidence presented by Fogel and Geier (2007) that the Sarbanes-Oxley legislation introduced following the Enron scandal which resulted in requirement for majority independent (outsider) boards is not maximizing shareholders value. Fogel and Geier (2007) argue that rather than 'foist' outside directors on boardrooms, the SEC, the NYSE and NASDAQ should promote a model whereby shareholders comprise the majority of public company boards, and independent directors comprise the minority.

A further analysis of the secondary variables in the Du Pont Identity show that the independent directors are associated with low profit margin (PM), low asset utilisation efficiency (TAT) and a higher financial leverage (EM) hence the overall negative effect on the ROE. Also the ROA which is the product of profit margin and the total asset turnover is found to be significantly negatively associated with the proportion of independent directors. To explain the finding with respect to the return on equity, the proposal is advanced that, due to independent director focus in an area that is within their immediate control which is the financial leverage term, and neglect profit margin which is largely directly controlled by the executive directors. The strong control by independent directors may in fact be over-controlling executive decisions leading to a loss of agility that is required in the market. The drop in asset turnover efficiency can be expected if you combine increased borrowing in an environment where profit margin generation is not optimal because borrowing increases the assets (denominator) which in this instance does not have the corresponding revenue (numerator) growth. Market sentiment as measured by Tobin's Q is also found to be negatively associated with an increase in the proportion of independent directors in corporate board of

dual-listed South African companies. This suggests that investors associate the increase in independent director proportion to lower shareholder value.

5.6 EXECUTIVE DIRECTORS

The preceding explanation of the behaviour of independent directors leads to a counter explanation for executive directors. The assumption that independent directors focus largely on optimising the financial leverage term of Du Pont Identity means executives should have a positive impact on profit margin and the asset utilisation efficiency.

The impact of the proportion of executive directors on boards is examined. A significant positive association between the asset utilisation efficiency (TAT) and the proportion of executive directors is found. This finding suggests that more the proportion of executive directors the better optimized the revenue generation for given total assets. Put differently, this finding suggests that the more the executive directors the more company has the ability to generate revenue from a given asset base. *Figure 5-2* below gives a graphical representation of this finding.

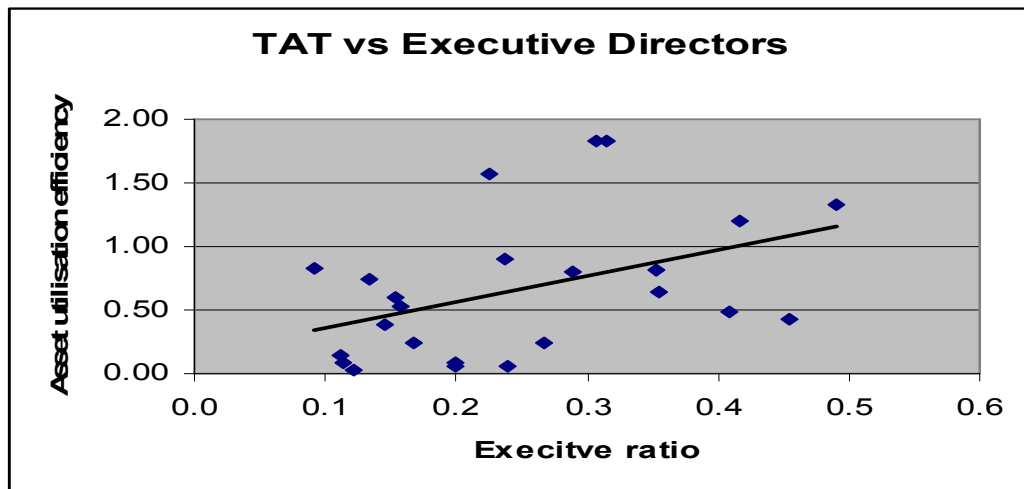


Figure 5-2 : Executive effect on TAT

This finding is consistent with the evidence from research by Hutchinson (2001) who examined the variables that influence the board structure adopted by firms and the subsequent relationship to the firm's performance. He finds that firms' investment opportunities are strongly associated with a higher proportion of executive directors on the board.

As expected, evidence of a significant negative association between financial leverage (EM) and the proportion of executive directors. The interpretation of this finding is that the more executives in the board the less the utilisation of financial leverage. Although a positive correlation between profit margin (PM) and the proportion of executive directors exist is found it is shown in *Table 4-7* (t-value = 1.426) not to be significant.

The notion of distinct lines of impact of board sub-groups as discussed whereby the executive focuses on impacting the profit margin and the total asset utilisation to the neglect of the financial leverage and vice versa for independent directors does not augur well for the concept of unitary board structure that South African dual-listed companies espouse. Although boards are deliberately structured to have sub-committees according to their functions when the board meets as a unitary structure the characteristics of unity in assuming board responsibility should be evident. At the board meeting executives and independent directors should assume a holistic board responsibility. Any segregation suggests that there are underlying characteristics of a two-tier board structure where independent directors are only concerned about their monitoring role from a corporate governance perspective and the executives only concerned with 'sweating the assets'.

5.7 NON-EXECUTIVE SHAREHOLDER DIRECTORS

Non-executive owner directors do not display this tendency to focus on some of the three terms of the Du Pont Identity to the detriment of the other. In contrast, there is some evidence of a positive association between non-executive owner directors' proportion to independent directors and the overall return on equity. A proportion of non-executive owner directors to independent directors is utilised to take into account the tendency of replacement of owner directors by outsiders assuming that the size of the executive is endogenously determined. Evidence of a strong positive association between the proportion of non-executive owner directors to independent directors and return of equity (ROE) is found with a t-value of 2.464 as shown in *Table 4-7* above. The ROA is also found to be positively associated with the proportion of non-executive owner directors to independent directors. These findings suggest that the higher the ratio of non-executive owner directors to independent directors the higher the shareholder value maximization. This indicates that owner directors are better than independent directors at maximizing shareholder value. The plausible explanation for this could be the fact that non-exec owner directors like executive directors maximize the profit margin and total asset utilization. That seems to be what largely increases return on equity for the shareholders as it indirectly maximises the utilisation of debt that the company has acquired. Moreover non-executive owner directors would be more likely to strength the unitary board structure by virtue of their unwavering interest in maximizing firm value. This line of thinking, supported by evidence of non-executive owner directors being better than independent directors at maximizing shareholder value conflicts with the recent trends to have majority independent director boards.

Figure 5-3 below illustrates the maximizing effect of the of non-executive owner directors.

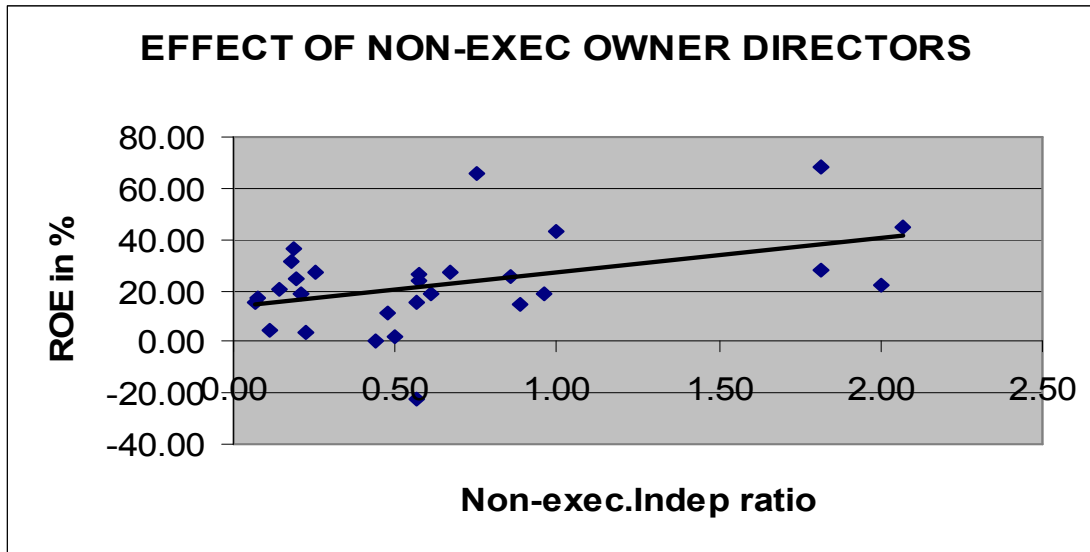


Figure 5-3: Effect of non-exec owners on ROE

5.8 AUDIT COMMITTEE

The recent corporate governance trends, emanating from proposals by King II (2002) & King III (2009), Sarbanes-Oxley (2002) and Higgs (2003) among leading scholars, are to have majority independent boards and audit committees that comprise only independent directors. These trends lead to an expectation that audit committees would tend to get bigger as more independent directors are introduced onto boards. On the contrary, over the three year period in review (2005-2007) audit committee size has remained unchanged at an average size of 4.3.

A secondary finding is that the size of the audit committee as a percentage of the total board is negatively associated with TAT (total asset turnover) component of proportion of Du Pont's Identity as evidenced by a t-value of -3.118 from *Table 4-7*. This suggests that the bigger the audit committee the lower the asset

utilization efficiency to generate revenue as shown in *Figure 5-4* below. Another secondary finding related to the audit committee is that the size of the audit committee is positively associated with the equity multiplier (EM). Similarly the ROA is found to be negatively associated with the size of the audit committee. This suggests that the bigger the audit committee the higher the utilization of financial leverage in the firm.

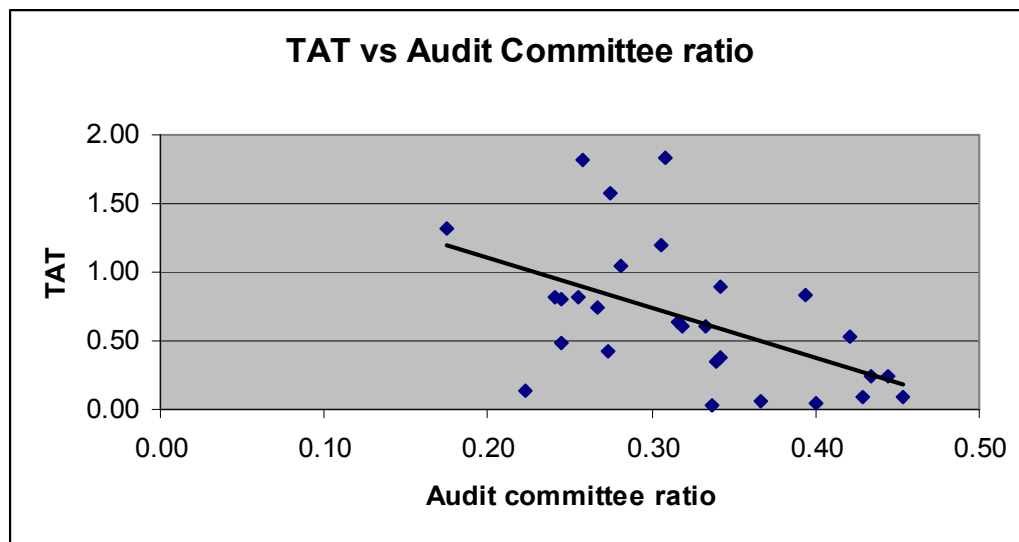


Figure 5-4: Effect of Audit committee on TAT

Figure 5-5 illustrates this finding. The foregoing finding relating to audit committee size is consistent with the behaviour observed for the independent directors given that audit committees comprise of largely independent directors. The explanation advanced for the negative association between independent directors and the return on equity would apply in the case of the audit committee as well since it (audit committee) is constituted of independent directors.

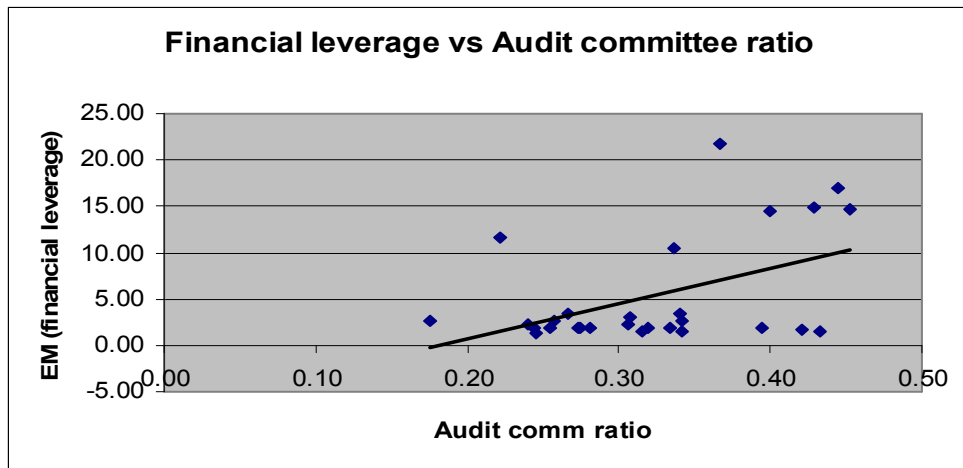


Figure 5-5: Financial leverage for all firms

However, a closer scrutiny of *figure 5-5* shows a tendency of the scatter to deviate showing two sub-trends. The one trend with high gearing (EM) readings pulls the trend upward whilst the trend for the rest of the data seems to be flat straight line. The upward pulling cluster of scatter data is due to companies that are in the financial sector such as banks and insurance companies that are highly geared. The higher usage of financial leverage by financial institutions is not unexpected, but needs to be understood to skew the financial leverage tendencies. Exclusion of financial companies yields a slightly negative financial leverage tendency towards audit committee ratio as illustrated in *figure 5-6* below.

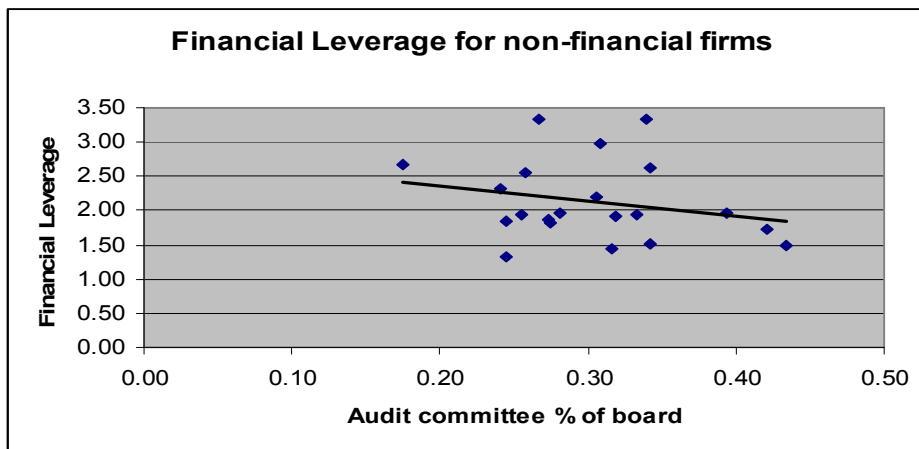


Figure 5-6: Financial leverage for non-finance firms

In financial companies the size of the audit committee in relation the board size is associated with an increase in the usage of financial leverage. *Figure 5-7* below illustrates this behaviour.

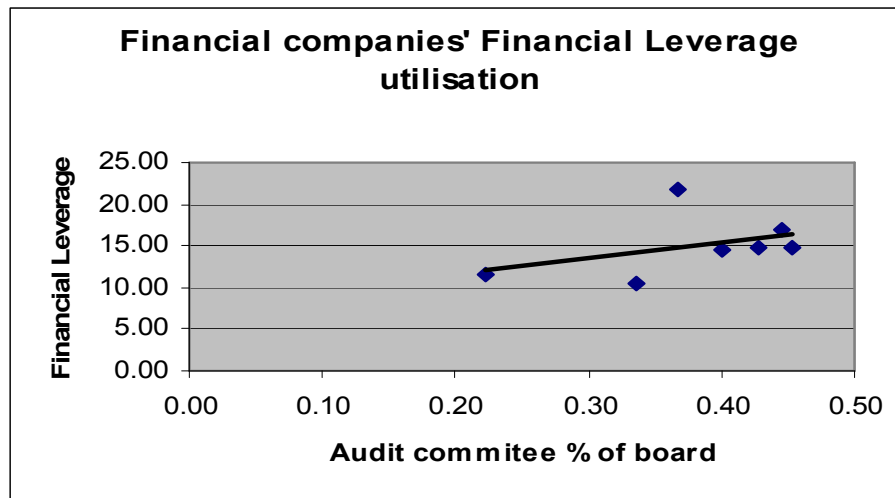


Figure 5-7: Financial leverage of financial firms

The overall lack of any significant association between size of the audit committee and the return on equity (ROE) suggests that a bigger audit committee would not add any value for the shareholders. The recommendation by King II (2002) and King III (2009) that audit committee size be at least three independent directors seems to be justified.

5.9 SUMMARY

This research is primarily targeted at examining whether there is a significant relationship between board size and company performance as represented by ROE (and Tobin's Q) for SA dual listed companies. The primary finding of this research is consistent with the alternate *hypothesis 1* that there is no evidence of a negative association between board size and the return on equity (as calculated using Du Pont Identity). Since this is a two-tailed test the significance test of the correlation factor suggests that there is no significant association between board size and ROE in both the negative and positive sense. There is also no evidence of a significant association between Tobin's Q with corporate board size for South African dual-listed companies. This finding is not consistent with research by Lipton (1992), Yermack (1996) and Eisenberg (1998) that suggest that smaller boards are associated with higher firm value. This tendency to reduce board size in an environment that favours bringing more females, HDs and independent directors this means that retiring directors were replaced largely by females and HDs.

6 CHAPTER SIX – CONCLUSION & RECOMMENDATIONS

6.1 CONCLUSION

South African companies that are listed in multiple exchanges operate under a unique set of external factors due to international listing regulations, global corporate governance developments and legislative requirements. This study focuses on examining the effect of board size on the return on equity for South African dual-listed companies. This study is undertaken based on average secondary data from the period 2005-2007 and 2006-2008 for independent variables and dependent variables respectively. The one year lag was introduced to allow for changes in board structure to take effect before measuring the impact on the dependent variables. The research sample constituted 28 South-African dual-listed companies from a total population of 55. The period from 2001 has been characterised by major corporate scandals that have put into focus the corporate board structures and their effectiveness. The corporate scandals involving Enron, World-Com, Andersen and others underlined the lack of monitoring by corporate boards globally. In reaction to these scandals major policy changes in developed economies have come in the form of the Sarbanes-Oxley (2002), Dey (1994), Cadbury (1992), Higgs (2003) and Smith (1996) reports.

Not many scandals have been reported in emerging economies such as South Africa. Notwithstanding, South Africa has kept pace with developed economies in respect of improving corporate governance in corporate boards. The King I (2001), King II (2002) & King III (2009) reports capture the general trends toward corporate governance. Board independence, unitary board, non-duality of CEO and chairman roles and the independence of audit and remuneration committees have been emphasised by these reports. Most of the securities exchanges have adopted similar recommendations as listing requirements. The King

reports have concentrated on altering the reporting regime from bottom line to a triple bottom line report that includes environmental focus and corporate social responsibility. The King III report emphasises the issue of sustainability and the concept of apply or explain. South African companies listed in other exchanges have to adopt regulations of the exchanges where they are listed.

Furthermore, South African companies operate in a unique legislative framework that seeks to address societal imbalances that were historically perpetuated by the apartheid regime prior to 1994. The Employment Equity Act (1998) seeks to address the existing economic imbalances by actively deliberately increasing the participation of historically disadvantaged (HDs) in corporate ownership and increasing representation of females, Africans and persons with disabilities in companies to mirror population demographics in the long term. The Empowerment Act of 2003 focuses on the issue of BBBEE (broad based black⁷ economic empowerment) and seeks to deal directly with of corporate ownership by historically disadvantaged persons.

The primary purpose of this study is to determine the effect of board size on shareholder value and also includes the effect of other structure metrics. Return on equity and Tobin's Q metrics were measured to represent shareholder value and market sentiment respectively. The return on equity is further delineated into three terms in line with Du Pont Identity to gain a further insight to the recorded ROE behaviour.

The primary finding of this study is that there is no significant evidence of any association between corporate board size and the return on equity for South African dual-listed firms. This finding goes against

⁷ Black people: a generic term referring to Africans, Indians and Coloureds, (Employment Equity Act 1998, Chapter 1).

a large body of evidence that suggests that the smaller the board the better the firm performance. The market sentiment as represented by Tobin's Q also indicates no significant association with board size.

Board diversity, females and historically disadvantaged directors were found to have no significant association with the shareholder value as measured by return on equity. This finding is unexpected since the existing body of knowledge development by other researchers shows that board diversity should be associated with shareholder value maximization. The possible explanation put forward is that the levels of representation of these groups in South African dual-listed firms are so minimal that they are below a key threshold above which their representation would start having a significant effect. Other possible contributing factors are, firstly, these minorities largely fulfil an independent role which as shown elsewhere in this report is associated with an erosion of shareholder value. Secondly, due to the previous lack of representation of HDs in corporate boards the current lack of solid experience is limiting their ability to contribute meaningfully to maximize shareholder value.

Interestingly, this study shows evidence of a negative association between independent directors with the return on equity. The main contributing factors are the negative profit margin (PM) and the asset utilization efficiency (TAT). This study proposes that independent directors largely focus in areas where they have the most influence such as financial leverage, which does not need extensive operational knowledge. The profit margin and total asset turnover are in a sense left for executive directors to influence due to lack of understanding of the operations.

The study also finds that there is a significant positive association between executive directors and total asset utilisation efficiency (TAT) and to an extent profit margin. There is a significant negative association

between the proportion of executives in the board and the utilisation of financial leverage. This observation is in line with the proposed explanation that executives impact largely the profit margin (PM) and total assets turnover (TAT) terms of Du Pont Identity. The executive directors have a significant negative association with the financial leverage term (EM).

Evidence of a strong positive association between the proportion of non-executive owner directors to independent directors and return of equity (ROE) is found. The ROA is also found to be positively associated with the proportion of non-executive owner directors to independent directors. These findings suggest that the higher the ratio of non-executive owner directors to independent directors the higher the shareholder value maximization. This means owner directors are better than independent directors maximizing shareholder value. The plausible explanation for this could be the fact that non-executive owner directors like executive directors maximize the profit margin and total asset utilization. This seems to be what largely increases return on equity for the shareholders as it indirectly maximises the utilisation of debt that the company has acquired.

The role of the audit sub-committee of corporate boards also has not escaped the recent corporate governance developments. The general trend is for audit committees to comprise of independent directors that have the requisite skills to provide the internal control and risk oversight. This study examines the effect of the size of the audit committee on the shareholder value. The study shows that the size of the audit committee as percentage of the total board is negatively associated with TAT (total asset turnover), profit margin components and hence overall Du Pont's Identity. This finding is consistent and comparable with the observed negative association between independent directors and shareholder value. The similarity is that both reflect the increased presence of independent directors.

Lastly, this study presents evidence of a negative association between independent historically disadvantaged (HDs) directors and Tobin's Q meaning that market sentiment towards introduction of independent HDs into corporate boards of South African dual-listed companies despite the lack of evidence of shareholder value (ROE) erosion recorded.

In summary the primary finding regarding board size suggests that in South African dual-listed companies with many variables simultaneously affecting group dynamics of the board, board size cannot be used to predict the effect of shareholder value. The negative impact of independent directors on shareholder value suggests that shareholders need to recruit independent directors that have previous operational experience in order to introduce an oversight role as far as operations are concerned or seriously need to optimise the number of executive directors in companies and in corporate boards. The lack of impact of diversity on shareholder value shown by this study says that not enough has been done to increase representation of females and historically disadvantaged directors.

6.2 RECOMMENDATIONS

Recommendation 1-regarding board size

This study finds no evidence of a significant association between board size a shareholder value represented here by ROE and Tobins' Q. This suggests that there must be better predictors of shareholder value than board size for South African dual-listed companies. ***It can thus be recommended that stakeholders, investors and shareholders should not use board size of dual-listed South African stocks to predict return on equity.***

Recommendation 2- regarding board diversity and independents

This study also finds that board diversity is not positively associated with firms ROE. This is despite many scholars that have shown evidence of a positive association between the board diversity and ROE. This finding for dual-listed South African companies, is consistent with the finding for independent directors which are largely comprised of female HD that contribute significantly to the board diversity. ***Board diversity achieved through independent directors that have no scope to contribute meaningfully will not benefit investors that would have expected better shareholder value maximisation. The same argument applies for independents that that are only focused on audit committees.***

Recommendation 3: - executives

The impact of the proportion of executive directors on boards is examined. A significant positive association between the asset utilisation efficiency (TAT) and the proportion of executive directors is found. This finding suggests that more the proportion of executive directors the better optimized the revenue generation for given total assets. ***It can thus be recommended that the executive contingent in the board must be optimized guarding against cutting to satisfy corporate governance guidelines for***

more independent directors. Executive directors are the ones who are responsible for maximizing the asset turnover thus generating much needed revenue.

Recommendation 4: - regarding non-exec owner directors

Evidence of a strong positive association between the proportion of non-executive owner directors to independent directors and return on equity (ROE) exists. The ROA is also found to be positively associated with the proportion of non-executive owner directors to independent directors. These findings suggest that the higher the ratio of non-executive owner directors to independent directors the higher the shareholder value maximization. *Never sacrifice owner directors for a large contingent of independents as the findings suggest that they are better than both executives and independent in maximising shareholder value.*

6.3 SUMMARY

The conclusions and recommendations arrive at in this study provides new knowledge about the effect of board size and related variables to return on shareholders equity in an emerging economy with complex external variables. The problem of lack of knowledge on how dual-listed stocks from an emerging economy as stated in section 1.3, has been addressed with this study.

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APPENDIX A- REGRESSION ANALYSIS

Output 1: Board size Regression analysis

SUMMARY OUTPUT		Regression Statistics		ANOVA		Coefficients		Standard Error		t Stat		P-value		Significance F		Lower 95%		Upper 95%		Lower 95.0%		Upper 95.0%	
	df	SS	MS	F																			
Multiple R		0.966107332																					
R Square		0.933363378																					
Adjusted R Square		0.9217744																					
Standard Error		0.811191035																					
Observations		28																					
Regression	4	211.9883053	52.99707632	80.53888766	3.48444E-13																		
Residual	23	15.13471058	0.658030895																				
Total	27	227.1230159																					
Intercept		0.57235065	0.776460963	0.737127398	0.468498374																		
Execs		0.946619217	0.09057312	10.45143657	3.30172E-10																		
Diversity		-0.012800147	0.0540832	-0.236675109	0.815004035																		
Independents		1.010511781	0.073830081	13.68699263	1.53395E-12																		
Non-exec		0.974314851	0.082048241	11.87490242	2.72355E-11																		

Output 2: ROE Regression analysis

SUMMARY OUTPUT		ANOVA		Coefficients		Standard Error		t Stat		P-value		Lower 95%		Upper 95%		Lower 95.0%		Upper 95.0%	
<i>Regression Statistics</i>																			
Multiple R	0.47596679																		
R Square	0.226544385																		
Adjusted R Square	0.129862433																		
Standard Error	17.34791733																		
Observations	28																		
		<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>													
Regression		3	2115.552639	705.1842128	2.343192093	0.098374245													
Residual		24	7222.80566	300.9502358															
Total		27	9338.358298																
Intercept	65.52043237																		
Diversity	-0.405609827																		
Indep Ratio	-45.33191576																		
Audit comm. ratio	-56.59458976																		