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by

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Abstract

A brief review of recent literature on corporate governance is provided, which is then concluded with a proposed corporate governance framework as a starting point for further development. We propose that it is stakeholder concentration that determines the quality of corporate governance. Next objective of this paper is the more ambitious one of addressing the role of accounting and finance disciplines to serve corporate governance. We test empirically if the use of some accounting and finance tools would have alerted management, auditors and regulators as well as investors to the impending collapse of failed firms *ahead of time*. If performance deterioration is not verifiable by using such acclaimed tools of these disciplines, then the advocacy of these disciplines is untenable and their contribution is overstated. Careful application of accounting-cum-finance tools, it appears, would have pre-identified the financial weakening of troubled firms, well ahead of time to catastrophic failures.

JEL Classification: G34 & O16

Key words: Corporate governance, Accounting and finance tools, Bankruptcy potential, Corporate governance framework, Z-score, Free cash flows, Financial ratios

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1. INTRODUCTION

This paper outlines a model of governance that extends the rule-making and institution building aspects of civil society to the narrower framework provided by accounting-cum-finance discipline framework. The empirical results are obtained using the tools of accounting and finance disciplines: these are specific models namely the bankruptcy prediction model and the free cash flow model, as two available tools along with the usual financial ratio analyses. The implications of the findings from our research highlight the central theme that careful analyses of readily available information in today's tools-of-the-trade within the established accounting and finance disciplines could have indicated impending potential failures a year ahead of the failures.

Corporate governance as a serious and urgent research issue has become established over the last ten years since 1997,[1] especially after the public spectacle of failures of once-esteemed public firms during the first four years of the new century.[2] Increasing number of codes of best practice have been developed by leading international bodies such as the OECD, the Commonwealth and CalPERS (refer Demirag *et al.*, 2000, for a fuller list of publications), and the reforms put in the stock

[1] Concern about the quality of governance of corporations by professional management has been a mainstay of oversight rules and laws in the US for almost 120 years, especially from the period of anti-trust merger mania during 1885-95, and as attempts to rein in management excesses during the Depression in the 1930s. Nevertheless, the broader scope of governance regulations emerged only in the 1990s, and got spurred after the high-profile fraudulent behaviour of Arthur Anderson and Enron in 2001. Outside of the US, concern for governance is a more recent phenomenon from about mid-1990s.

[2] Examples are: Australia (One-tel; Ansett); China (Citic groups); England (Maxwell Corp; BP); France (BNP; Societe General); Italy (Parmalat); Germany (a construction giant); Japan (an investment firm); Korea (Samsung); US (Arthur Anderson; Enron; Worldcom).

exchanges, securities commissions, accounting professions have now become global. The increasing integration of financial markets, the growth in multinational corporations and regional economic developments all argue and motivate market players to adopt good corporate governance practices in the face of recent spate of large corporate collapses in Western countries such as the cases of HIH Insurance in Australia, Parmalat in Europe, Enron and WorldCom in the United States (U.S.) as well as non-Western economies.[3] The issue of corporate governance is even more important in transitional economies (see Roland, 2000). Attention to corporate governance is largely motivated by public interest in the economic health of corporations and society in general. Studies in Finance indicate that firms adopting good governance practices appear to earn a premium over the returns to investors from those firms that do not adopt good governance code of practices.

No sooner has the world learned fresh lessons about good governance rules to prevent the repeat of failures of institutions to safeguard investors, new cases have emerged that cast doubt that the lessons of previous years have been learned. A number of new cases have emerged – Parmalat, Societe General, in Europe and an investment house in Japan in 2006 that draw public attention to the international nature of governance. While new laws and regulations as well as oversight institutions have been established to improve governance, what about investor protection? There is a vast store of information churned relating to the 143,000 public firms on the stock markets to study this phenomenon. Are these data any use in governance prediction? This is the motivation of this study. This paper aims to examine for evidence: Is it at

[3] Even the courts of justices have become alerted to the dangers of corporate misbehaviour. In October, 2006, a U.S. court handed a 24-year jail term to the former chief executive of Enron for his role in fostering corporate fraud in that firm, which went bankrupt as a result.

all possible to assess tell-tale signs of impending failures of public firms – indeed with similar data of private firms - using the tools of accounting and finance?

The rest of the paper is divided as follows. Section 2 contains a review of what is governance as it is understood by different researchers. In Section 3, we present a framework based on stakeholder concentration as driving governance.

2. CORPORATE GOVERNANCE FRAMEWORK

2.1 Slow Evolution of Systems

Tackling bad governance has been after the fact as humans improve things only after a given process fails dramatically, a historical fact. Corporate governance systems evolved over centuries reactively in response to corporate failures or systemic crises: the South Sea Bubble and the Tulip Mania of 18th and 20th centuries revolutionized business laws and practices in England. The securities laws in the U.S. were changed due to the stock market crash of 1929. The Enron-Worldcom flop did the same in 2001 in the U.S. The history of corporate governance has also been punctuated by series of well-known company failures: collapse of the Bank of Credit and Commerce International and Barings Bank, Enron, WorldCom, HIH, OneTel, Parmalat (and the list goes on). These were consequences of incompetence, fraud certainly and abuse of power as much as from lack of oversight rules, and were met by new elements of an improved system of corporate governance.

Although corporate governance issues have been seen historically to be the province of lawyers and finance professionals, economists have begun to make important contributions in this area. Lawyers writing in this area tend to focus on the fiduciary duties of the directors and the need to have independent directors, who will

represent the interests of minority shareholders without linking it to the role of the capital markets, whereas economists see good corporate governance as a means of improving the efficiency of the capital markets, so that sustainable economic growth can occur in this era of increasingly global capital markets (*The Economist*, 7th April 2001, pp. 1-18).

Thus whilst there is general agreement that corporate governance plays a very significant role in an individual company beyond the interests of shareholders, how to implement good governance procedures remains elusive, and is very much influenced by the disciplinary (silo) viewpoint of the implementer.

The ***economic view*** of corporate governance is that it has an impact on the vitality and integrity of the market system: uniquely the market system is today universally accepted even by Cuba, Iran and North Korea. Guillen (2000) states corporate governance plays a key role by providing a framework for the division of labour and financial results in the firm. A well-functioning corporate governance system can contribute to economic efficiency and perhaps even social equity whereas, on the other hand, a poorly conceived framework can wreak havoc in the economy by misallocating resources or failing to check the opportunistic behaviour by agents (the insiders in firms).

We now look at some important definitions in this approach are highlighted in the following quotes:

> *"Corporate governance is a field in economics that investigates how to secure/motivate efficient management of corporations by the use of incentive mechanisms, such as contracts, organizational designs and legislation. This is often limited to the question of improving financial performance, for example, how the corporate owners can secure/motivate that the corporate managers will deliver a competitive rate of return", (*Mathiesen, 2002, P. 35).

> *"Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment",* (Shleifer and Vishny 1997, p. 737).

The economist's view of corporate governance is: managers are the custodians of the assets – mostly funded by public funds coming directly in investments or indirectly from bank loans - with prime responsibility to use those assets efficiently to achieve a firm's socially-approved objectives. Economists believe that creating value for the shareholders is the essence of good corporate governance while not neglecting the responsibility of the firms to its other constituets: employees; suppliers; financiers; importantly the customers who buy the firm's products. While managers often go the slippery road of considering good governance as interference with the management's right to conduct the affairs of the firm, they often resent the demands of the shareholders expectations. Research suggests that investors value corporate governance in both developed and emerging economies but the amount of premium the investors want to pay for the role of the board and accounting standards vary in respect to developed and emerging countries (Fitzroy and Hulbert, 2003) (see Appendix 1).

Despite the workings of the market mechanism and the premium investors are willing to pay for good corporate governance, recent high profile cases of governance failure led to corporate misconduct whereby the public, the employees and pensioners have lost billions in investment and savings at the expense of gains to insiders, much of it by fraud. These events have demonstrated that the current corporate governance mechanisms have not kept up with the free-market philosophies of the puritanical economists. Therefore, the development of robust governance tools and incentive structures in the light of rapid changes in the markets and financial innovation are

needed to limit present inconsistencies because confusion assumes prime importance, despite the attractions of agents' incentive compensations.

The ***legal viewpoint*** of corporate governance is that it refers to the procedures and rules, explicit and implicit, as well as the set of disincentives that provide the incentive framework for companies to attract financial and human capital, perform efficiently and avoid corruption. These evolved over time, and are *still evolving* in response to corporate failures and systemic crisis. Those subscribing to such an approach are of the view that corporate governance is a modern expression on an issue which companies have been facing for decades i.e., that of "accountability". Corporate governance is seen as how those entrusted with day-to-day management of a company's affairs are held accountable to shareholders and other stakeholders by ensuring that the organisation has appropriate corporate structures to underpin such accountability.

Some important definitions in this approach are highlighted in the following quote:

> *"Corporate governance is the system by which business corporations are directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among different participants in the corporation, such as, the board, managers, shareholders and other stakeholders, and spells out the rules and procedures for making decisions on corporate affairs. By doing this, it also provides the structure through which the company objectives are set, and the means of attaining those objectives and monitoring performance",* (OECD April 1999).[4]

The ***societal (social) viewpoint*** of corporate governance is that it is about communications i.e., how the company presents itself to the wider world - shareholders, potential investors, employees, regulations and other groups with a legitimate interest in its affairs (www.pwcglobal.com/uk/eng/ins-sol/survey-rep/surv).

[4] OECD's definition is consistent with one presented by Cadbury, 1992; page 15.

This view rests on the premise that, whilst corporate governance is principally concerned about the relationship between shareholders, management and the board in determining the direction and performance of the corporation (Monks and Minow, 2001, p.1), its scope should be even broader, encompassing other issues like the ethical standards, crisis management, reporting to stakeholders not only in strict compliance with legal issues in a country, but also in terms of social responsibility. Some important definitions in this approach are highlighted in the following quotes:

> *"Corporate governance - which can be defined narrowly as the relationship of a company to its shareholders or, more broadly, as its relationship to society*" (from an article in *The Financial Times*, 1997.

> *"Corporate governance is about promoting corporate fairness, transparency and accountability"* (Wolfensohn, 1999)

Some commentators take too narrow a view in defining corporate governance, and say corporate governance is the fancy term for the way in which directors and auditors handle their responsibilities towards shareholders. Others use the expression as if it were synonymous with shareholder democracy (Maw *et al*., 1994, page 1).

2.2 Core Aspects of the Discipline Based Models

Despite the varied approaches of academic discipline based models, most definitions of corporate governance refer to two things:

- *the mechanisms by which corporations are directed and controlled; and*
- *the mechanisms by which those who direct and control a corporation are supervised*. [5]

[5] Weil, Gotshal and Manges LLP, Comparative Study of Corporate Governance Codes relevant to the European Union and its Member States. ©Australian Securities & Investments Commission, July 2002 Page 5.

This is a micro view of governance. This core view of corporate governance indicates that it relates to how the various constituencies that define the business enterprise serve, and are served by, the firm. Thus corporate *governance is concerned with the relationship between shareholders and other stakeholders, the board of directors and management*. It represents the explicit as well as implicit relationships between the corporation and its employees, customers, creditors, suppliers, and host communities (and the dynamics of the relationships among these constituencies) fall within the boundary of an embracing definition of corporate governance. Some principles of corporate governance are of universal value, most importantly, transparency and disclosure principles. Thus corporate governance is about balancing two objectives: promote business enterprise (economic), and assure accountability of business to shareholders (legally) and to society (socially) (www.gcgf.org/library/speeches/).[6] Defining corporate governance therefore calls into question not only the definition of the corporate form, but also its purposes and its accountability to each of the relevant constituencies.

An applied finance view of corporate governance is also emerging in which corporate governance is viewed as a set of accounting and finance practices used by management to steer the firm to increase the value creation of the firm after meeting the demands of the stakeholders. This view is based on practice and application.

2.3 Globalisation

Globalisation and the increasing volume of Foreign Direct Investment (FDI) flowing into most developing countries have led to a convergence of what used to be differing corporate governance frameworks based on legal, economic and social

[6] Michel Magdi Iskander, Director, PSD, World Bank.

dimensions. FDI has become a very important international issue mainly due to the shareholders and other stakeholders now being global rather than local. Thus a shareholder of an U.S. company residing in Finland may be very concerned with sharing the profits obtained by using shoddy materials in China. FDI is one of the main issues facing those who deal with the international political economy and business studies (Sarkar and Sarkar, 1999). This and other factors that motivate the need for good corporate governance are pointed to by Subramaniam and Ratnatunga, 2003:

1. Increase globalisation of financial markets
2. Growth in multinational corporations
3. Regional economic developments

Investors in most countries are accepting the reality that holding an international equity portfolio leads to higher returns and lower risk compared to a purely domestic portfolio: but what of governance? Simultaneously, non-finance companies realise that broadening the investor base will lower their cost of capital and may also reduce volatility in stock prices. Further, the pattern of privatization, high equity issuance and loosening of traditional inter-company ties has led to some remarkable changes in the equity ownership of some countries. For example, in France, the combined share of foreign shareholders and financial institutions rose from 27% in 1993 to 55% in 1997. The importance of corporate governance in banking is pointed out by Ariff and Hoque, 2007. The institutional investors have forced companies to adapt their behaviour in order to be able to tap global capital markets leading to international convergence in corporate governance. Another change is favouring corporate governance norms is the globalisation of product markets. An OECD paper in 1999 aptly put it this way:

'If countries are to reap the full benefits of the global capital market, and if they are to attract long-term 'patient' capital, corporate governance

arrangements must be credible and well understood across borders. Even if corporations do not rely heavily on foreign sources of capital, adherence to good corporate governance practices will help improve the confidence of domestic investors, may reduce the cost of capital and ultimately induce more stable sources of financing.' (SEC, July, 2002).

2.4 Approaches to Governance

As we have discussed, corporate governance models differ widely due to differences in the disciplinary (silo) approach. Another reason for differences is the business context within which these models develop. The basic contextual factor is shareholder concentration, which not only includes the percentage holdings of various stakeholder groups in terms of the ownership of the total number of shares that are publicly traded, but also includes aspects of concentration in terms of the power of the CEO, shareholder identity, liquidity of the market and level of mutual shareholdings (see Appendix 2).

These contextual factors have resulted in the development of different models of corporate governance around the sphere. Among the developed countries, the main ones have been seen to be those of the *English Speaking Countries*, with discrete controls, and on the other hand German and Japanese models, which reflect a more concentrated ownership structure. Developing countries like India have a corporate governance system which is a hybrid of the arms-length market-based systems of the UK and the U.S. and the insider-dominated-bank-based systems of Germany and France (Sarkar and Sarkar, 1999). Two corporate governance models are analysed below – The *Anglo-Saxon* and *The Continental European* models.

In the *Anglo-Saxon* or market-based system, markets play a decisive role. The government is at arm's length relationship with corporations while creating a strong competitive environment in which firms operate (anti-trust affirmative actions). Firms

are put under pressure in the product and factor markets, whilst managers are put under pressure in the managerial labour markets. The belief underlying this system of corporate governance is that competition and working of the market system will force companies and managers to act truly in the best interest of shareholders.[7] This model of corporate governance is more prominent in the U.S. and the U.K.

However, when it comes to the performance measurement, the role and values of other stakeholders need to be understood. One of the tasks of the board is to determine the nature of other stakeholders and their importance compared to shareholders. The second model considered is The Continental European model which is also known as the stakeholder model. The focus of the Continental model is on the need to satisfy societal expectations, in particular, the interest of employees and other stakeholders (suppliers, creditors, tax authorities and the community). This view dominates in continental Europe (particularly Germany, France and Netherlands) and in certain countries in Asia.[8] (Please refer to the Appendix 2 for the differences between the abovementioned corporate governance models).[9]

3. A HOLISTIC CORPORATE GOVERNANCE FRAMEWORK

It can be seen, therefore, that each disciplinary approach has different focus aspects in terms of control and governance procedures, and that those contextual factors such as stakeholder concentration plays a part in what control mechanism is chosen for good

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[7] Carati G., Rad, A.T., (2000), *"Convergence of Corporate Governance Systems", Managerial Finance*, Vol. 26, No. 10, pp. 66-83.

[8] Gregory H.J., (2000), *"The Globalization of Corporate Governance",* Weil, Gotshal & Manges LLP, http://rru.worldbank.org/documents/globalisation_of_corporate_governance.pdf, accessed on 26th September, 2003

[9] Ooghe, H., Vuyst V.D., *"The Anglo-Saxon versus the Continental European Corporate Governance Model: Empirical Evidence of Board Composition in Belgium",* Vlerick Leuven Gent Management School, http://www.vlerick.be/research/workingpapers/2001-6.pdf, accessed on 6th September, 2003.

governance. A holistic corporate governance framework therefore should combine these two approaches by considering the contextual factors of socio-economic environment of a given country.

This approach would indicate that when shareholder concentration is low (i.e. no one stakeholder group including the CEO controls the company) then good governance can be achieved legally via the proper preparation of financial statements and economically via capital market efficiency. If social issues are raised these would pertain mainly to environmental issues in that all group of stakeholders are ultimately affected by the quality of the societal/global environment. When there is more stakeholder concentration (medium) then legally, accountability issues arise where corporate governance procedures are required to ensure that the organisation has appropriate corporate structures are in place so that those entrusted with day-to-day management of a company's affairs are held accountable to shareholders and other stakeholders. Issues such as internal audits and minority interests arise in such situations. The economic incentives on the managers are incentive based, with good performance (high rates of return) appropriately rewarded by the stakeholders. Some social issues will emerge at this point whereas there will emerge consensus of opinion amongst some stakeholder groups on issues such as ethics, environment, child labour etc. (for example these have resulted in the establishment of ethical investment funds in Australia by Rothschild Australia, Westpac, Tower, AMP, HESTA, UniSuper and VicSuper).

Where there is high stakeholder concentration, then less reliance can be placed legally on financial statements and other accountability and audit measures: see Figure 1. The recent examples of spectacular corporate collapses have been due mostly to significant concentration of power with the CEO. The failure of the firms can, at least in part, be attributed to failure of corporate governance designed to work

well within less concentrated contexts, being unable to cope in high stakeholder concentration environments.

Figure 1: Holistic Corporate Governance Model

STAKEHOLDER CONCENTRATION	**HIGH**	***Fiduciary Duties of Directors***	***Shareholder Value***	***Triple-Bottom Line Accounting***
	MED	***Accountability of Managers and Internal Audit***	***Economic Incentives to Managers***	***Social Audits of Managerial Actions***
	LOW	***Financial Statement Controls***	***Capital Market Efficiency***	***Environmental Accounting***
		LEGAL	**CONOMIC**	**SOCIAL**
		FOCUS OF CONTROL MECHANISMS		

Inappropriate corporate governance mechanisms could lead to corporate failure represents a waste of scarce resources within an economy. Sporadic and reactionary attention paid to corporate governance, role and activities of the board of directors in controlling and monitoring of the management of the firm is insufficient. The examples of corporate collapses in the 1990s and later in the exuberant years of Thatcherite-American-type capitalism illustrates, investors and others are concerned at how well firms are being managed and whether they are being managed in a manner that delivers value to the society. Implications from Enron have thus been noted - need for the board to be active, involved, knowledgeable, and be willing to take on management and also bear responsibility for performance of the firm (Fitzroy and Hulbert, 2003). Power concentrated in the hands of two men, Lay and Skilling, at

the top of the firm ensured that fraud could be perpetrated with the revealed shady advice provided by the accounting-auditing firm, Anderson.

In Australia, the failures in 2001 of the insurance giant HIH, the third largest Telco namely One-Tel, and of the second largest airline, Ansett, have led to concerns about the lack of due diligence during takeovers and the inadequacy of protection of workers and of customers. It has led to workers' entitlements being put at the top of the queue of creditors. It is also clear in the context of such collapses that, though the existence of a market for takeovers has been seen as improving corporate governance (World Bank, 1999), in practice HIH's takeover of FAI and Air New Zealand's takeover of Ansett, without adequate due diligence, contributed to poor corporate governance outcomes just a few years after the events. Similar stories could be told of Parmalat in 2004.

At first glance therefore it appears that when stakeholder concentration is high, more specific legal controls are required. The essential common points in the various codes or guides put out around the world deal with such specific controls may be noted:

- That corporate governance is a means of ensuring that the exercise of economic power by the corporate sector is grounded in accountability – whether that is accountability to shareholders or to the broader community;
- That boards have supervisory and managerial functions;
- That there should be separation between the supervisory and managerial roles.

Some of the practices suggested in the codes for that purpose include for example:

- Separation of the roles of the Chairman and CEO;
- The appointment of independent directors; and
- The use of board committees, particularly in the areas where the interests of management and the interests of the company may come into conflict - e.g. audit, remuneration and nomination.

Most codes also call for comprehensive disclosure to shareholders on all aspects of corporate governance – a must these days signed by the CEO in the annual reports in many Western countries - in particular, on the issues of director and executive remuneration, independence of directors, and share ownership.

The question in our research is simple. Whether there is any correlation between performance (creation of value) and corporate governance in terms of the firm's ownership and the board. The literature provides us with mixed results with no consistent findings for any formulation of a definitive theory of ownership and firm performance. According to analysts at the U.S. investment bank, Morgan Stanley, share prices falls at just five companies – WorldCom, Tyco, Qwest, Enron and Computer Associates – have together inflicted a collective $460 billion loss on stock market capitalisation.

Of the empirical studies, Morck *et al.* (1988) stands out for the insights it provides. While it offer some support for a relationship between insider ownership and firm value, they find that the magnitude of the block holding *is* a relevant variable. Their results indicate that firm value increases with insider ownership to 5 per cent, but declines within the band of 5 per cent to 25 per cent. Beyond 25 per cent, the results are inconclusive. Looked at from the international perspective, international investor confidence has already been severely dented. At the end of March 2002, foreign investors owned US$1.75 trillion worth of U.S. equities, nearly 13 per cent of the outstanding capitalisation of stocks. Now, investors afraid that the U.S. economic miracle of the previous five years may have been just a mirage of false accounting, are beginning to bail out of these assets and shift their capital abroad. An international survey of research on corporate governance and firm performance by Gugler (2001) also finds mixed results on the relationship between these two variables. The way

researchers approach this issue and the way regulators approach reform of corporate governance varies between the Anglo-American model and elsewhere.

According to a report in *Far Eastern Economic Review* citing Corporate Accountability (Holland, 2002), U.S. scandals make investors wary, rattle the global economy and shake up regional currencies. Investors expect good corporate governance. An earlier 1996 survey by McKinsey reported that investors surveyed would place an average premium of 11% on stocks of well-governed companies. The reciprocal, of course, is that investors will punish individual companies, or broader markets, or even whole national capital markets, for serious governance deficiencies (recall the marked down values of Japan and ASEAN economies in the late 1997-9). In the new century, these cautionary studies cannot be dismissed as academic over-cry. We are living through this reality in the most sophisticated and developed economies the world have ever seen (SEC, July, 2002). In Wall Street parlance, smart investors *discount* for fraud, meaning they now assume dishonesty in corporate auditing and have *priced it in* when they calculate a stock's value. Others have fled the market entirely.

The Jensen and Meckling's (1986) agency model of the firm has as a central theme the alignment of the interests of directors and owners through the acquisition of substantial holdings by directors. Corporate governance has been linked to the ambition to ensure, through adequate investment in the corporate sector, a long-term economic growth and, if possible, social welfare. From this perspective, it becomes evident that the importance of good corporate governance extends far beyond the interest of shareholders in any individual company. When stakeholder concentration is high, triple-bottom bottom line accounting is required in the social context, where companies are recognised as existing to create wealth or long-term value on an

economically, socially and environmentally sustainable basis, i.e. ‘sustainable value creation’.

4. DO ACCOUNTING AND FINANCE SERVE GOVERNANCE?

Corporate governance mechanisms are required to ultimately prevent corporate failure. Do accounting and finance tools assist in improving corporate performance? We explore this second issue of this paper in this section. The research design to answer this important question begins with the identification of a number of grand failed firms, and then investigate if the information and analytical framework developed in the two disciplines could have predicted the failures *ahead of time*. If the concepts do not help in this regard, then the role of accounting and finance is diminished for governance issues. Since the 1920s there has been an interest on the part of a number of researchers to try to identify those ratios or groups of ratios at firm levels, which predict failures within a class of firms, relative to each other. If this prediction can be made early enough, then corrective actions could be undertaken by the various stakeholder groups.

4.1 Discriminant Analysis

In 1968, Edward Altman published full details of a model he developed using a statistical technique referred to as discriminant analysis. More than 50 research studies have been published, each one using a similar approach, sometimes with a slight modification, for example, to the way the companies were chosen or the way the ratios were chosen. The measure he developed is widely accepted today as a good guide for estimating ahead of time the likelihood of failures.

During the last two decades there have been numerous examples of the misuses of company failure prediction models. The main problems seem to be

concerned with the strict mathematical requirements of discriminant analysis, as the methodology produces a model which is neither kind nor forgiving. However, we are not after the Holy Grail that has proved to be elusive - i.e. a model to *consistently* single out companies that *will* fail from those that *might* fail. Instead we are after an *indicator* that will raise alarm bells so that stricter governance procedures can be implemented once early warning signs are known. Our goal is more like that of a fire department that responds to all phone calls of a fire, false or not.

In financial studies, discriminant analysis is applied to two groups of financial ratios. One group derived from the last set of accounts of companies prior to failure, and the other from the accounts of on-going companies. The statistical procedure is then designed to produce a single score (Z score) which can be used to classify a company as belonging to the failed group or the on-going group (see Robertson and Mills, 1991).

During the development of Altman's 1968 model, 33 companies were selected for the failed group. The criteria for selection required each company to be in manufacturing. The asset size ranged from \$0.7m to \$25.9m. The dates of the last set of accounts ranged from 1946 to 1965. The on-going group was selected using a paired sample, each failed company being paired with an on-going company both in terms of industry and size. From an initial list of 22 financial ratios, the final model consisted of five ratios that, when combined in a specific manner, was able to discriminate between the bankrupt and the non-bankrupt companies in his study. Later, he created what he calls the four-variable version (see Table 1). This version is appropriate for both public and private firms, and for both manufacturers and service companies.

The variables together with their respective weights are shown as follows:

$$\text{Z-Score} = 6.56\,(XI) + 3.26\,(X2) + 6.72\,(X3) + 1.05\,(X4) \qquad (1)$$

Table 1: Determining the Cut-off for Altman's 4-Variable Model

The Z Score Bankruptcy Classification Model				
Ratio Names	Description	Coefficient	Mean Ratio Values Altman's Sample Cos.	
			Bankrupt	Non-bankrupt
X1 =	Working Capital / Total Assets	6.56	(0.061)	0.414
X2 =	Retained Earnings / Total Assets	3.26	(0.626)	0.355
X3 =	EBIT / Total Assets	6.72	(0.318)	0.154
X4 =	Net Worth / Total Liabilities	1.05	0.494	2.684
Cut off Values			Mean Scores	
Safe if greater than: Z	2.60		Non-bankrupt	7.70
Bankrupt if less than: Z	1.10		Bankrupt	(4.06)

When calculating a company's Z Score one needs to simply take the figures for the four ratios, which Altman calls XI, X2, X3 and X4 from its financial statements and then, multiply their values by the coefficients Altman has derived in his formula (for U.S. firms). Finally, one adds up the results and compares against the cut-off scores, where Z is the sum of the ratios times the weights and the individual ratios are defined as:

X1 = Working capital/Total assets (2)

X2 = Retained earnings/Total assets (3)

X3 = Profit before interest and tax/Total assets (4)

X4 = Net Worth/ Total Liabilities (5)

To make the model operational, the failed group and the on-going group are combined and then ordered according to their individual Z scores. It is then possible to specify two limits as follows:

- An upper limit, where no failed companies are misclassified and,
- a lower limit, where no on-going companies are misclassified.

The area between the upper (2.60) and lower (1.10) limit is what Altman describes as the 'zone of ignorance' or the 'grey area', where a number of failed companies and/or on-going companies could be misclassified. The mean values of the ratios of Altman's sample companies in the bankrupt and non-bankrupt categories are also provided in our Table 4 later.

Of the many problems cited in using the Altman Model, one in particular must be further explored. That is, it is not valid to use the model to observe trends. It has been argued by Robertson and Mills (1991) that corporate prediction models are developed to operate on a single year's data. This means that the latest year's data is used to predict the possibility of failure in the next year. Barnes (1984, p. 13) is particularly critical of the idea of observing Z score trends when he states that "*It involves using discriminant coefficients for one period for financial ratios and Z scores for another*.".

However, Altman (1970) gives an example of using trends over a five-year period, and concludes that the degree of seriousness is measured by the yearly change in the values. Let us be quite clear, the *degree of seriousness* in a discriminant analysis model is measured by a comparison against a specific cut-off, not by comparing the yearly change in ratio values. Two further examples of the use of trends can be found, the first in Inman (1982, p. 38) where he states "*… we can monitor the rate of change by examining earlier figures*", and the second in Robertson (1984) where he suggests that observing trends in Altman's Z scores provides additional useful information. Finally, Moyer (1977) attempted to overcome the need for trends when he re-estimated Altman's 1968 model to develop separate models,

one year, two years and three years prior to failure. We believe that as we are using Alman's Z-Score as an indicator, analysing its trend would prove useful.

Altman's 1968 model has been used in the decision-making process to aid troubled company to turnaround. A report by Altman and Lafleur (1981) describes how the underlying actions taken at GTI were designed to increase the overall Z score. In a response to a book review, which contained a chapter on Altman and Lafleur, Altman (1984) suggests that '(i)t takes an extremely insightful manager to utilise a passive model and make it active in such a way as to stimulate his future decisions in order to assess various business strategies.'. Hence, this model has wide acknowledgment.

Let us now assess if the Altman model could have been used as an indicator in the spectacular collapses that have heralded the new interest in corporate governance, in terms of the dramatic collapses have brought about much debate on issues of overly creative (and often fraudulent) accounting and poor corporate governance.

Is the Altman Z-Score (which remember was developed based on U.S. data from 1920-1960) still applicable in the U.S. (for Enron, WorldCom), and also in a country that was independent of the data, by analysing the major collapses in Australia during that period (Ansett Airlines, OneTel)? Table 2 shows that Ansett and Enron were classified as bankrupt and OneTel and WorldCom as being in the grey area.

Z-Scores could have been used to justify more stringent corporate governance procedures in attempts to avert collapse of the companies.

Table 2: The Z-Score in the Year Before Crisis Year (Computed based on data over 5 years in each case)

Year of Crisis	Ratio	X_1	X_2	X_3	X_4
	Weight	*6.56*	*3.26*	*6.72*	*1.05*
2002	**Ansett**	-0.071	-0.003	0.063	0.233
	Z-Score	*0.188 (Bankrupt): Below safe score*			
2000	**Enron**	0.03	0.05	0.04	0.21
	Z-Score	*0.86 (Bankrupt): Below safe score*			
2000	**One.Tel**	0.18	-0.197	-0.18	1.92
	Z-Score	*1.32 (Grey area): Below safe score*			
2001	**WorldCom**	-0.00005	0.042	0.038	1.26
	Z-Score	*1.71 (Grey area): Below safe score*			

4.2 Valuation Model and Ratio Analysis

In the next two tables two different statistical approaches are used to address the same issue. The theoretical value of each of these firms is estimated using two different approaches: the Net Tangible Asset Model widely used by market analysts and the Free Cash Flow approach using a version widely used by academics (and increasingly by the industry specialists) based on Damodaran (2002). The free cash flow model estimates an intrinsic value of the shares of a firm:

$$V_0 = \frac{FCFE_1}{K_E - g} \quad (6)$$

Where, V_0 : the theoretical value expected of a share unit given,

$FCFE_1$: free cash flows, which are economic profits of firm after all outlays,

K_E: the required rate of return as per capital market theory, and

g: the growth rate in the economic profits of the firm.

The free cash flow to equity holders (FCFE) is computed from modelling the firm's earnings, then adjusting these earnings for current activities and long-term

investment and financing activities.[10] These numbers derived from this finance model are then compared with the actual share prices in the year *before* the collapse of these four firms. In the lower portion of the Table 3, the reader will find the ratio of the intrinsic values to the market price.

Table 3: Comparisons of Market Price with Other Model Prices (Computed using data over five years before crisis)

	Ansett	**Enron**	**OneTel**	**WorldCom**
Year of Crisis	**2002**	**2000**	**2000**	**2001**
Market price	Unlisted	$65.97	A$ 0.470	$15.03
Free Cash flow	A$ 7.49	$20.65	A$ 0.071	$3.83
Net Tangible asset	A$ 42.30	84.93	0.4284	$18.19
	Comparative Ratios			
FCF price/ market price	No	0.313	0.149	0.26
NTA / market price	No	1.29	0.92	1.21

For example, in the year before the failure of OneTel, the financial model using free cash flows approach revealed that the market price of A$0.47 is seven times higher than the intrinsic value of A$0.071. In the case of Enron, the intrinsic value is a third of the market value. Had an analyst applied the free cash flow model, she would have identified that the firm's share price is awfully overvalued by the market. The comparative statistics of free cash flow to the market price revealed that Enron's intrinsic value was just 31.3 per cent of the market price, a foreboding tell-tale of the trouble to come in the following year. The more popular Net Tangible Asset model is

[10] See Damodaran (2002) for a clearer exposition of this model. It has been established by researchers that valuation using this model has produced more accurate expected pricing of shares than any previous models.

unable to provide an alarm bell about the insufficiency of the assets to meet the high value placed by the market.

These statistics would appear to suggest that there is yet another method of raising alarm bells by applying the more reliable free cash flow model that have now become popular since 1998 to judge if the share prices driven by the euphoria are indeed a case of overpricing.

In Table 4 are further statistics that examine some *critical* accounting ratios normally available to any analyst. The critical ratios of the four failed companies are compared with the critical ratios of (a) bankrupt and (b) non-bankrupt firms. For example, the 'Quick Assets/Current Liabilities' of bankrupt firm is 0.838 (i.e. 83.8% of liabilities): Except in the case of the OneTel, this ratio of each of the other failed companies is smaller than this critical value suggesting that this ratio could set an alarm bell about the liquidity of Ansett, Enron and WorldCom in the year before the failures of these companies. Similar evidence is seen from the statistics on 'MVE/(MVE+Debt)'.

This ratio is far lower than the critical value of 0.999 (almost 1.00), which suggests that the market value is far short of the value expected to support the shareholders and bondholders. The next ratio 'Total Debt/Total Assets' corroborates this as well suggesting that these later-to-fail-firms had too much debt relative to the non-failing firms. The application of above critical ratios on a selective basis could have forewarned an analyst of the dangers inherent as revealed in the financial statements even though there were creative accounting distorting mainly the 'earnings' of these potential failures in the year ahead. In short, our analyses using (a) Z-scores, (b) recently-available Finance valuation models and (c) critical ratio models indicate that it would have been possible to predict the potential failures or at least raise alarm bells in the year ahead simply using the available techniques.

Table 4: Financial Ratio Analysis of Failed Companies
(Using data over five years prior to crisis year)

Financial ratios	Ansett	Enron	OneTel	Worldcom	Mean of Distribution	
					Bankrupt	*Non-bankrupt*
	Rate of Return measures					
Cash Flow/Net Worth	0.713	0.1198	0.355	0.024	0.119	0.316
Net Income/Net Worth	-0.019	0.0781	-0.308	0.023	-0.591	0.091
Quick Assets / Total assets	0.271	0.2454	0.385	0.278	0.258	0.273
	Liquidity Positions					
Current Assets/ Current Liabilities	0.775	1.0695	1.670	0.999	1.860	2.381
Quick Assets/ Current Liabilities	0.705	0.566	1.470	0.730	0.838	1.231
	Financial Leverage					
MVE / (MVE + Book Debt)	na	0.5678	0.663	0.501	0.995	0.999
Total Debt / Total Assets	0.811	0.56	0.342	0.422	0.785	0.476
	Activity					
Accounts Receivables/Sales	0.143	0.10315	0.334	0.150	0.188	0.147
Sales /Total Assets	0.952	0.6499	0.455	0.339	0.836	0.783
SD of Net Income to net worth	0.245	3.347	0.266	0.030	3.330	0.179
Total Assets	3,689	65,503	1,435	103914	153.76	769.05
	Stock Return and Volatility					
Common Stock Return	na	-1.614	-0.302	0.0043	-0.045	0.003
Variance of Stock Return	na	0.0101	0.0027	0.0207	0.011	0.004

5. CONCLUSION

Though the topic ‘Corporate Governance’ gained worldwide prominence, as yet it is variously-defined, and consequently blurred at the edges. It is evident undoubtedly that corporate governance is relevant as a subject, as an objective, or as a regime to be

followed for the good of shareholders, employees, customers, bankers and indeed for the reputation and standing of a nation and its economy (Maw *et al*., 1994). Whatever corporate governance arrangement a public company chooses, they have to rest on a sound platform. They have to be well understood and accepted by those who provide the firm with key resources, namely, capital. Anything less will not only hurt the firm, it will also hurt the entire capital market and eventually the economy's prospects for prosperity.

It can be argued from the above discussion that every company operates under its own specific conditions though, and in order to operate efficiently, firms need to adapt their governance system to these circumstances as it has become very challenging for organisations to create value and gain shareholders' confidence for broadening the investment base both in domestic and international markets in a turbulent world, *ex post* the collapses of big corporate bodies, Enron, WorldCom, OneTel, Ansett, HIH, Parmalat and so on. It is also evident that globalisation may have initiated the adoption of a few common corporate governance standards across regimes but there is little evidence to show that these standards have or will be implemented widely. As the Chairman of SEC: (Australian Securities & Investments Commission, July 2002, p. 12) mentioned:

> *"It is a time for serious commitment to enhancing and embracing international accounting standards; for sensibly redressing conflicts of interest which have beset corporate managers, auditors, analysts and other intermediaries and professional service providers; for examining ways to motivate and empower shareholders – including institutions and fund managers – to accept greater responsibility for enforcing corporate accountability; and for examining methodologies by which Boards might better secure high governance standards."*

Therefore the design and development of corporate governance systems should aim at protecting the vulnerable from exploitation by those who manage and control

corporation while making it punitive for the professionals managing the accounts from falsifying the books. Though the evidence of a strong positive link between governance and firm performance is limited, there does seem to be a link between active boards and performance (Fitzroy, 2003). However, corporate governance - viewed not as merely a legal ritual to manage directors' liabilities, but as a living economic dynamic, integrated into the business – can help build a solid foundation to create wealth and protect shareholder interests. Corporations should strive to achieve a culture of governance and resist the temptation to give formal, rather than substantive compliance to the principles of good governance (ASEC, July 2002). Professionals monitoring and certifying a firm to be a safe entity should engage the more recently developed models that use information to warn of impending failures just as much as the society's role in safeguarding the stakeholders' welfare must be enhanced by letting the larger society have a say in this issue beyond the corporations.

APPENDIX: I: AVERAGE PREMIUM INVESTORS ARE WILLING TO PAY FOR GOOD GOVERNANCE[11]

(Selected Countries only)

Country	Premium %
Venezuela	28
Indonesia	27
Thailand	26
Malaysia	25
Italy	22
Japan	20
Germany	20
United States	18

[11] Source: Coombes, P. and M. Watson (2000), Three surveys on corporate governance, McKinsey Quarterly, 4.

APPENDIX –II: DIFFERENCE BETWEEN ANGLO AMERICAN AND EUROPEAN MODELS:

Shareholder concentration

A first difference between the two models is that Anglo-American countries have a low concentration of shareholders, whereas in Continental Europe shareholder groups hold large percentages of the total number of shares that are publicly traded. Further, Anglo-American countries have a large number of listed companies, whereas in Continental European countries only a small proportion of the total numbers of firms are listed. For example, in the UK, which follows the Anglo-American model, institutional investors' share of stock market investment rose from 19% in 1963 to 59% thirty years later.[12]

Shareholder identity

A second difference between the two corporate governance models is the identity of the shareholders. In the United States and the United Kingdom most of the shares are in the hands of the agents of financial institutions (more than 50%) rather than private persons (20-30%). This is in sharp contrast with the pattern in Germany, France, and Italy where private companies (20-40%), financial institutions themselves (10-30%), and private persons (15-35%) hold most of the shares. For example in Italy, the five largest shareholders in listed companies typically hold nearly 90% of the shares, compared to 21% in Britain.[13]

Liquidity of the market

A third difference between the Anglo-American and the Continental European business context is the number of listed companies as a percentage of the total number of companies in a country. In the United States and the United Kingdom, many companies are listed and their shares are publicly traded. This means that many companies have little personal contact with their shareholders. In Continental European countries, on the other hand, fewer companies are publicly traded. Because

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[12] *"Converging cultures: trends in European Corporate Governance",* 1997, www.pwcglobal.com/uk/eng/ins-sol/survey-rep/surv-converging.html, accessed on 26th September, 2002.

[13] *"Converging cultures: trends in European Corporate Governance",* 1997,www.pwcglobal.com/uk/eng/ins-sol/survey-rep/surv-converging.html, accessed on 26th September, 2002.

more companies are private, a strong (personal) relationship exists between the management of the company and its shareholders. In many cases, these two functions are not separated.

Mutual shareholdings

Due to the number of mutual shareholdings and the limited extent of information disclosure, the ownership structure in Continental European countries is not as transparent as in Anglo-American countries. Regulations such as anti-trust laws and the "arm's length rule" between parent and daughter companies have further limited the complexity of the ownership structure in Anglo-American countries as compared to Continental countries.

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