

CAPITAL STRUCTURE AND FIRM PERFORMANCE IN THE DEVELOPED FINANCIAL MARKET

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Abstract

The paper examines the role of debt in affecting the performance/value of a firm (DVF relationship) in the developed financial market. There is no consensus on the DVF relationship in this market. In addition, literature about the DVF relationship in the developed market lacks the interpretation of results by taking into account different business, management and financial theories. The study addresses the gap in the literature by utilizing the panel data of 60 companies for the year 2000 to 2003 from the developed (Australian) financial market. The result of the study suggests that higher debt has a negative relationship with the value of a firm supporting agency theory in this market. The result also supports the second trade off theory and the foundation of developed market as debt in the presence of the dispersed shareholding deteriorates the value of a shareholder. The results relevant to the role of control variables in affecting the value of a firm show that smaller board, liquid market and information efficiency improve the firm's performance in the developed financial market. The results of the study are of value to both academics and policy makers.

Keywords: Corporate governance, Debt, Firm performance, Board size, CEO duality

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1. Introduction

The role of debt is important in reducing the principal (shareholders) and agent (managers) conflict and improving the shareholder's value in the financial market (Jensen, 1986). The literature related to the DVF relationship shows a mixed relationship between the value of a firm and debt. Fama and French (1998) argue that higher debt causes an additional agency cost due to a divergence of interest between creditors and shareholders in the market. Mesquita and Lara (2003) find a negative relationship between equity and long term financing to the firm. Researchers such as Gleason et al. (2000) and Hammes (2003) in their studies on Polish and Hungarian firms support the similar findings about the relationship of debt with the firm's performance in these financial markets. Similarly, Myers and Majluf (1984), Rajan and Zingales (1995) and Zwiebel (1996) show their preference towards internal generation of funds compared to the external financing. Furthermore, Cheng and Shiu (2007) prove that the firms in the developed market use higher equity funds to meet their financing needs compared to using the option of debt financing. This shows that higher debt deteriorates the value of a firm in the developed market.

On the contrary, the literature pertinent to the role of debt in affecting the value of a firm also suggests a positive relationship between the both in the developed market. The supporters of this type of relationship include Nerlove (1968), Taub (1975),

Jensen (1986), Petersen and Rajan (1994), Hutchinson (1995) and Hadlock and James (2002). These researchers support a positive role of debt in affecting the value of a firm and argue that higher debt creates value by solving the free cash flow problem in a firm. Jensen (1986) further suggests that timing on which the debt is issued has an important implication in affecting shareholders' value. The use of debt can resolve the free cash problem if it is utilized to meet the deficit between the internal generation of funds and investment needs of the organization. In addition to the above mentioned diverging views, recent studies conducted by Cheng and Shiu (2007), Berger and Patti (2006) and Deesomsak et al. (2004) who performed a comparative study about the role of debt in affecting the value in developing and developed markets, the literature further lacks the following.

- a) A comprehensive study by using sophisticated econometric techniques, data set and additional test of robustness (endogeneity test) to confirm the validity of the DVF relationship model.
- b) The interpretation of the result relevant to the DVF relationship in the light of different business and management theories and the foundation of the outsider system.
- c) The relevance of major theories of capital structure in explaining DVF relationship in the developed market.

The paper addresses the gap in the literature by using challenging econometric techniques and comprehensive data set to testify the role of debt in

the developed market. Results of this study are interpreted in the light of different business, management and financial theories. Furthermore, results about the role of debt in affecting the value of a firm are also analysed by incorporating the foundation of the developed financial market (outsider system).

Based on the data for 60 publicly listed companies, this paper supports that debt is ineffective in managing the free cash flow problem deteriorating the firm's performance in the developed market. The finding supports agency theory, second trade off theory and the foundation of the developed financial market. The results about the role of control variables suggest that bigger board deteriorates the performance of a firm in the selected financial market. On the contrary, the market characteristics such as liquidity and correct valuation of assets have a healthy impact on the shareholder's value.

After the introduction, the paper is further structured as follows. Section 2 presents the literature review and hypothesis development. Section 3 describes the methodology for the model relevant for the developed financial market. Section 4 discusses the results of the model and finally, Section 5 presents the conclusion and possible extensions of the study.

2. Literature Review and Hypothesis Development

The literature on corporate governance and the value of a firm suggests that different players in the market perform an important role in implementing good governance in the financial market (Black, 2001; Bebchuk et al., 2004). The players of corporate governance mechanism include shareholders, managers, customers, executive management, suppliers, board, regulatory authorities and judiciary as suggested by Morin and Jarrell (2001) and Dittmar et al. (2003). The protection of the shareholders' rights makes the firm democratic by giving a positive signal to the investors which results in improving the value of a firm.

The two main types of financial systems/markets prevalent to the economy include developed and developing financial markets. The developed financial market is different from the developing market as it uses higher level of sophisticated financial instruments to manage the risk in a system (Hunt and Terry, 2004). The developed market follows outsider system of corporate governance. The characteristics of this system include dispersed shareholding, efficient allocation of capital, existence of market for corporate control, effective regulatory authorities, powerful managers and short term improvement in the value of shareholders (Wei, 2003).

The important corporate governance mechanisms in financial markets include internal and external corporate governance instruments. The internal corporate governance mechanism refers to the internal regime in the market and include board, size of board,

mix of board members, leadership structure (CEO duality) and the role of debt in financial markets (Nam and Nam, 2004). These instruments can improve the value of shareholders' by providing them with an equitable treatment as argued by Gompers et al. (2003) and Bebchuk et al. (2004).

On the other hand, external corporate governance instruments refer to the external regime and include regulatory authority, majority shareholders, judiciary, central bank and securities and exchange commission in the market (Ahunwan, 2003). External corporate governance instruments as external monitors can play an important role in monitoring the internal corporate governance mechanisms and defending shareholders rights in financial markets as suggested by Franks and Mayer (1984) and Black et al. (2006).

The managers often invest the free cash flow in buying comfortable and expensive vehicles and aircrafts for their own leisure trips (empire-building). Furthermore, they utilize huge amount of money to renovate their offices and make investments in projects which suit their own preferences (Bebchuk et al., 2004). The manager sometimes does not make decisions beneficial to a firm due to external factors such as pressures by the employee's union and politicians because of their (union leaders and politicians) related financial interests with investments of a firm. The effective use of debt reduces the accrual of private benefits by the management safeguarding shareholder's rights in a market (Jensen and Meckling, 1976).

Majority shareholders also create agency cost because of their conflicts with the minority shareholders. Minority shareholders act as weak monitors as they have a lower level of ownership and financial stakes in a firm (Heinrich, 2002). On the contrary, majority shareholders because of their intense shareholdings in a firm pressurize the management to earn private economic benefits. This leads to the investment in the pet projects harming the value of all the shareholders' especially the minority ones (Klapper and Love, 2003).

Debt and equity mix (capital structure) has a relevance in the market as an internal corporate governance instrument. Capital structure is the combination of different securities of firms listed at the stock exchanges in a country (Abor, 2005). It is at the discretion of the management to alter the debt and equity mix to meet the short and long term strategic goals of a firm. The management can also use the capital structure to suit the financial needs of an organization resulting in the value creation for shareholders.

Debt can be used in financial markets to reduce the expropriation of minority shareholders (tunneling) by controlling the misuse of free cash flow by managers. Tunneling can take the forms of under and over investment of the free cash flow (Jensen, 1986). Under investment phenomenon takes place when managers forgo the positive net present value projects due to the fact that creditors extract their share from

the healthy investments made by the firm.

On the contrary, over investment occurs when the managers do not pay dividend to shareholders and invest in the projects with the related private benefits. The free cash flow at the discretion of the manager can be reduced eliminating the under and over investment of the cash flow (Jensen and Meckling, 1976). By doing so, managers are bound to repay the installments to the creditors as they intend to minimize the threat of hostile takeover and maintain their good will and sound reputation in a market.

The role of capital structure is different in developed compared to the developing financial market as Berglof (1997) suggests that the institutional environment in which the firm operates makes the role of debt different in affecting the value of a firm. Strong regulatory framework, existence of market for corporate control, dispersed shareholding, consistent accounting standards, well established capital markets, efficient banking system, prevalent of takeover activity in the market, proper standards for disclosure and strong bankruptcy laws reinforce the positive effects of debt in a financial market (Heinrich, 2002). This suggests that debt in the developed financial market can be used effectively to reduce the intensity of conflicts between principal (shareholders) and agent (managers) (Cheng and Shiu, 2007).

In the case of higher divergence of interests among the players of corporate governance, shareholders pay higher bonding, residual and monitoring costs. The bonding cost is related to the cost paid by the shareholders in appointing an independent auditor. Similarly, the residual cost is related to the cost incurred in appointing an independent board. Finally, the monitoring cost is incurred by monitoring the activities of the management (Matos, 2001). The effective use of debt reduces the level of free cash flow from the firm controlling the level of monitoring cost from the market (Jensen, 1986).

The theory related to the DVF relationship in the developed market in isolation of instrument is the stewardship theory (Davis et al., 1997). This theory suggests a convergence of interest between shareholders and managers. Regulatory authorities are efficient in the outsider system (developed market) of corporate governance and facilitate debt to reduce the free cash flow problem which supports the relevance of stewardship theory in explaining the DVF relationship in this market.

The next school of thought relevant to the role of debt in affecting the value of a firm is as follows.

The role of debt in affecting the value of a firm in isolation suggests that capital structure can be used as a powerful tool to control the free cash flow which can be either under or over-utilized by the management of a firm (Jensen, 1986). The higher debt in the firm do not allow the management to either invest in the pet projects having related private benefits or stop investing in the healthy projects due

to the attached incentives of creditors in a market. The free cash flow in an indebted firm is used to repay the debt installments reducing the level of cash flow available at the discretion of a manager (Bebchuk et al., 2004).

In addition to the role of debt in improving the value of a firm in isolation for example, debt controls the free cash flow and reduces extraction of private benefits by the management, debt can have an important role in minimizing the agency cost and improving the value of a firm in combination with other instruments (Berglof, 1997). The instruments which improve the value of a firm in combination of each other are called Edgeworth complements. The foundation of the developed market suggests that instruments which lay the foundation of this market (outsider system) tend to reinforce the positive effects of each other. These instruments in combination reduce the opportunity cost (negative effects) created by the use of a single variable and improve the marginal benefit of each instrument (Heinrich, 2002). This characteristic of individual variable encourages the management of a firm to use the combination of all these instruments ultimately improving the value of a firm in the financial market.

The foundation of the developed financial market (outsider system) comprises of liquid market, lower level of debt, effective regulatory control and dispersed shareholding (Wei, 2003). The liquid market creates value in the dispersed shareholding as it results in ease in buying and selling for the shareholders. The foundation of the developed market further suggests that the lower use of debt improve the value of shareholders due to a better management of agency cost between equity holders and managers (Berglof, 1997). Similarly, the combination of dispersed shareholding and lower debt improve the marginal benefit of each other in the developed market. This combination also reduces the marginal cost of each instrument, thus improving the value of a firm in the developed financial market. The foundation also suggests that bankruptcy law is lenient on borrowers which leads to the preference of generation of funds by issuing equity in the firms of developed market.

As discussed in the current section, debt can be used to reduce the agency cost between the managers and the shareholders. On the contrary, higher debt also increases the level of divergence between creditors and shareholders. Creditors cannot claim excessive returns on their investment beyond their fixed or agreeable returns (Heinrich, 2002). This makes creditors less inclined to take higher risk, as in case of solvency, the shareholders' claims for reimbursement are preferred compared to the claims of creditors. The literature further suggests that shareholders exert excessive pressure on the management to earn abnormal returns by investing in the risky projects. On the other hand, creditors avoid doing so as they have inferior claims on the earnings in case of bankruptcy. This results in higher level of

conflicts between the creditors and the shareholders by the use of debt leading to the deteriorating value of a firm in the financial market.

The theory applicable to the role of debt in affecting the value of firm by taking into account the foundation of the developed market is agency theory. This theory was proposed by Jensen and Meckling (1976) and suggests that managers as agent do not look after the interests of the shareholders (principal). There is a dispersed shareholding in the developed financial market which suggests that debt cannot be used effectively to converge the interests of the principal and the agent because blockholders as external monitors are absent. This further implies that higher debt in the developed market can result in higher agency cost between creditors and managers supporting the significance of agency theory in the developed market.

The next discussion is related to the relevance of theories about the role of capital structure in explaining debt and the value of a firm relationship. These theories include Modigliani and Miller hypothesis, trade off theory, second trade off theory and pecking order theory. Modigliani and Miller hypotheses (1958, 1963) suggest that capital structure or debt equity mix is irrelevant in affecting shareholders' value. The theory is based on strict assumptions and suggests that the firm operates in a homogeneous, perfect and frictionless market as there is no interest rate, agency cost of debt and the cost of financial distress (Copeland et al., 2005). Modigliani and Miller further suggest that the optimal capital structure in a firm is 100% debt as there are only financial benefits associated with the use of higher debt in the financial market. The use of debt as proposed by this theory reduces the total cost of capital improving the value of a firm in the financial market. The assumptions on which this theory is based are unrealistic and far from reality.

The second proposition of Modigliani and Miller hypothesis is related to the healthy rate of return on investments financed by issuing debt. The theory suggests that increase in the rate of return when debt is used as a source of financing provides advantages to a firm (Schwartz and Aronson, 1967). These advantages are offset by the disadvantages of debt which include bankruptcy cost and agency cost of debt making the debt equity structure irrelevant in the financial market.

The second theory related to the role of capital structure in affecting shareholders' value is the trade off theory. This theory suggests that benefits of debt are offset by its disadvantages. The benefits of debt include financial incentives such as tax shield provided to an indebted firm as the interest paid on debt is a tax allowable expense. On the contrary, disadvantages of debt include agency cost, bankruptcy cost of debt and higher intensity of conflicts between creditors, shareholders and managers. Higher debt leads to a higher probability of default (bankruptcy cost) of a firm as the capacity of a firm to repay the

principal amount and interest reduces with the increase in the level of debt.

The bankruptcy cost is further divided into two types of costs such as direct and indirect costs. Direct costs include the litigation and administrative costs involved in the liquidation of a firm. On the contrary, indirect costs include the loss in firm's profitability because of the reduction in the confidence level of shareholders in making investments in a firm (Titman, 1984). The advantages of debt at the individual level (by reducing the individuals' tax payment) are equalized by the disadvantages at the corporate level (additional tax payment made by the corporation).

The second trade off theory suggests that benefits of debt derived by the investors in the form of tax shield are offset by the disadvantages of debt such as the cost of financial distress and higher agency cost between creditors and managers in the market (Bishop et al., 2004). Higher debt in a financial market controls the adverse actions of managers as it introduces efficient monitors (blockholders) in the market. On the contrary, higher debt also triggers the bankruptcy risk in a system (Copeland et al., 2005). These advantages and disadvantages should be considered by the management of a firm to make optimal financing decision in the market (Heinrich, 2002).

The final theory related to the role of capital structure in affecting the value of a firm is the pecking order theory. This theory was presented by Myers in 1984. The theory provides some insights about the mode of financing available to the firm by ranking these preferences. According to this theory, the internal financing is a preferable mode of financing (Brealey and Myers, 2000: 524-8) and the firm will generate funding from this source when outsiders (potential equity holders) have less information compared to the management of a firm. This leads to a demand of higher returns by the equity holder when the firm opts to issue new equity to raise funds. The firm will not use the option of external equity but will prefer to use the internal sources to generate funds thus experiencing a lower cost of capital in the market. Titman and Wessels (1988) suggest that the internal equity is generated by using the internal sources and is readily available to the management to meet the investment needs of a firm which makes this mode of financing preferable in raising the finances.

The next preferable method of financing available to the firm is by issuing debt and finally the firm can raise funds with the help of external equity (Titman and Wessels, 1988: 66). The external equity is raised through external sources available to a firm. It is difficult to raise money quickly by using this option, hence making this method an unattractive option for the management to meet their investment needs.

In addition to the preferred ranking order of financing, the theory further argues that issuance of debt conveys a positive signal to investors because they realize that managers will be able to repay the

principal amount and interest on debt as the investment is made in the positive net present value projects (signalling hypothesis). In this case, the management is comfortable in generation of periodic installments by the internal operations of a firm (Titman and Wessels, 1988:6). This leads to a higher level of investments made by the investors as they feel confident about the firm's performance in future (Myers, 1984). This dimension of signalling hypothesis reduces the level of risk in the firm thus improving shareholders' value in a financial market.

The issuance of equity leads to the distribution of risk among the equity holders (owners) of a firm. On the contrary, debt is issued to avoid the wealth sharing in a firm. This shows that a firm having higher level of equity holders compared to the debt holders provides disadvantage to shareholders by making their portfolios risky. This again provides a positive signal to the shareholders therefore improving the performance of a firm in the market.

The next section in the current study discusses the role of important corporate governance instruments relevant for the selected financial market. Furthermore, the complementary role of debt in reinforcing the positive effects of these instruments is also discussed below.

The first control variable used in this study is the role of board size in affecting shareholders' value. Board size plays an important role in affecting the firm's performance. Loderer and Peyer (2002) suggest that bigger board is detrimental to the firm performance as it leads to the free riding among the board members. Free riding is a phenomenon which occurs when majority of the board members does not monitor the firm properly as they (board members) rely on the performance of their peer. Due to free riding among the board members (few members performing their fiduciaries), the board gets involved in passive monitoring and delayed decision making in a market (Eisenberg et al., 1998). This results in the payment of additional monitoring cost by the shareholders to ensure the smooth functioning of the board deteriorating the value of a firm in the financial market (Yermack, 1996). The agency cost from the market can be reduced by appointing some representatives of creditors as board members. This will result in looking after the interests of creditors and shareholders in a firm as argued by Heinrich (2002).

Similar to the role of board size, the leadership structure plays an important role in affecting the value of a firm. There are two types of leadership mix which include dual and non dual type of leadership structure. Dual leadership structure refers to the arrangement in which the roles of CEO and chairman are performed by a single individual. On the contrary, non dual leadership structure refers to the mechanism in which both the roles of CEO and chairman are held by two different persons. The study supports agency

theory and argues that a single person holding both the positions deteriorate the value of a firm as the independence of board is harmed. The creditors' representatives on the board can control the combination of directors in the firm reducing the agency cost of debt in the market.

Liquidity in the market has a significant role in affecting the value of shareholders (Donaldson, 2003). Liquid market improves shareholders confidence as it makes buying and selling easier for the investors. This improves the level of investment by the shareholders in these firms. Lower debt and dispersed shareholding also add to the marginal benefit of higher liquidity in the developed market ultimately improving the value of a firm (Berglof, 1997).

The correct valuation of securities (positive value of price to book value ratio) also improves the value of a firm in a financial market. The integration of public and private information reduces information asymmetry as the true information about the performance of company is incorporated in the share prices leading to transparency in the financial market. Figure 1 shows that debt and majority shareholders can improve the value of a firm in combination. This implies that the combination of higher debt and the concentrated shareholding triggers the marginal benefit and reduces the marginal cost of each other ultimately improving the shareholder's value in the market. The blockholders as monitors can discipline the managers and encourage the representatives of creditors on board to force the CEO to behave as a steward in a dual leadership structure. The representatives of creditors can also encourage the management to maintain an optimal board size and reinforce the market efficiency and liquidity in the financial system.

3. Methodology

The data set for sixty companies is collected for the firms listed at Australian Securities Exchange and is secondary in nature. The study uses stratified random sampling as properties of all the companies of the selected market are generalized by analyzing the properties of sample companies. The data for this study is collected for the control variables and internal corporate governance instruments. The data for the control variables (price to book value ratio, market capitalization, board size, ownership concentration and CEO duality) is collected by using OSIRIS database and is cross checked with the financial information available on the websites of companies listed at the respective stock exchange. The data set for internal corporate governance instrument (role of debt) is collected by using the websites of different companies and is cross checked against the published sources.

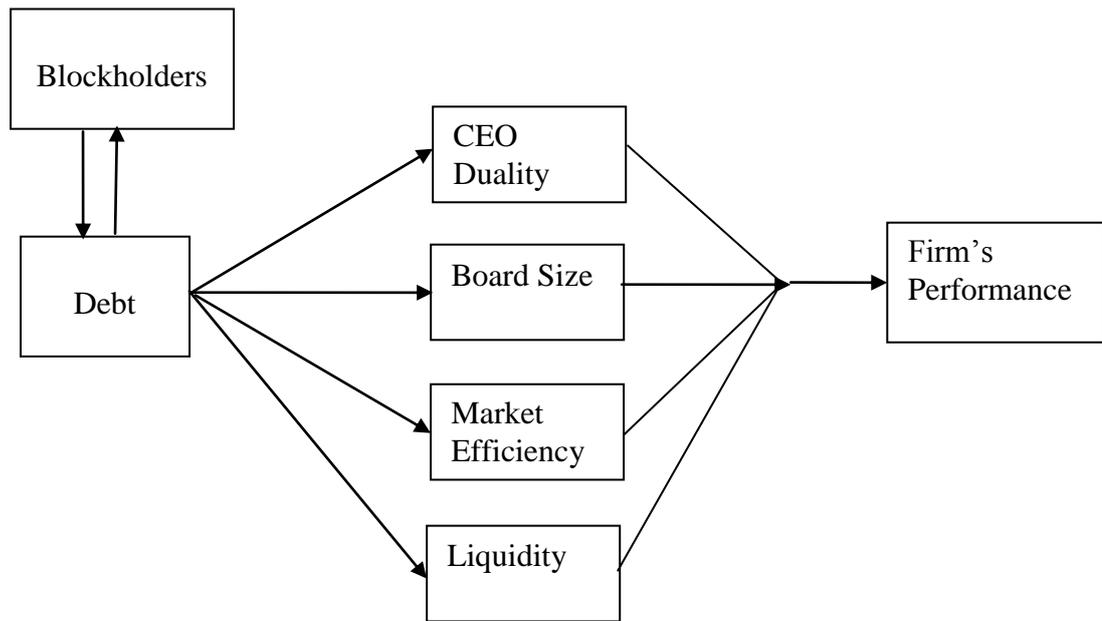


Figure 1. The Relationship between Debt and the Value of a Firm (DVF) in the Developed Financial Market

The data relevant for the model constructed in the current study was also treated for the missing observations. The missing observations in the case of first and last observations were replaced by second and second to last observations. Similarly, the missing observations in the case of second and second to last observations were replaced by first and last observations respectively.

The dependent and independent variables used in this study are listed in Table 1 and their methodology of construction is as follows. Tobin's Q is used as a dependent variable for the study (Bhagat and Jefferis, 2002; Gompers et al., 2003). The proxy for the dependent variable (Tobin's Q) in this study is calculated by adding market capitalization and total assets. The shareholders' fund is subtracted from this

added value. Lastly, the residual value is divided by the total assets to get the proxy for Tobin's Q.

The independent variables used in this study to test their relationship with the value of a firm are constructed as follows.

The role of capital structure in affecting the value of a firm is operationalized by debt and equity ratio (Gr). The variable is directly extracted from the balance sheet of the companies listed at the stock exchange of the developed financial market. The study is based on the foundation of the outsider system (developed market) which suggests that higher debt is expected to deteriorate the value of a firm due to the absence of majority shareholders as monitors in this system (Heinrich, 2002).

Table 1. Variables used for the DVF Relationship Model

Variables	Proxied by	Symbol	Expected Sign
Dependent variable			
Value of a firm Tobin's Q	Mkt Cap+ TA- ShF/TA	TQ	
Independent variables			
Return of total Assets	Returns generated by all assets of firm	ROTA	Positive
Gearing	Percentage of debt used to finance the firm	Gr	Negative
Size	Number of directors in the board	Log Size	Negative
Duality	Dummy variable: can take the values between 1 and 0	Duality	Negative
Price to book value ratio	Ratio between price and book value of the assets of a firm	Pb	Positive
Market Capitalization	Multiple of outstanding shares with the price of shares	Mc	Positive
Agency Cost	Majority shareholding in the firm	Ac	Negative

Notes: Mkt Cap= Market capitalization
 TA= Total assets
 Sh F= Shareholders funds

The next variable in this study is the role of board size in affecting the firm's performance. The variable (board size) in the model for DVF relationship is

calculated by counting the number of directors on the board (Kyerboah-Coleman and Biekpe, 2005). We expect a negative relationship between board size and

the value of a firm as we support the agency theory in the selected market.

The CEO duality is used to testify the role of leadership structure in affecting the value of a firm (Haniffa and Cooke, 2000). This variable is measured with the help of a dummy variable as used by Chang and Mansor (2005). The value of the variable is 1 when a single person holds both the positions of CEO and Chairman. On the contrary, the value of the variable is 0 when both the roles (CEO and Chairman) are separated i.e. performed by two different persons (Kyereboah-Coleman and Biekpe, 2005). We expect a negative relationship between the CEO duality and the value of a firm as a single person holding both the important positions is against the corporate governance principles.

Ownership concentration is used in the current study to operationalize the role of blockholders in affecting the value of a firm (Gompers et al., 2003). The variable is measured by capturing the real level of ownership by the majority shareholder in the firm. The variable is expected to have a negative relationship as the managers with the help of majority shareholders are expected to deteriorate the shareholder's value (Pinkowitz et al., (2003).

The next variable in the current study is the price to book value ratio. The variable is used to test the role of correct valuation of securities in affecting the value of a firm. The final variable used in the model relevant for this study is the market capitalization. The variable is used to test the role of liquidity in affecting the value of a firm in the financial market.

The information relevant for price to book value ratio and market capitalization is directly extracted from the financial statements of the firms listed at Australian Securities Exchange. Price to book value ratio is calculated by dividing the current prices of shares by its book value. The variable shows the efficiency of market in incorporating the true information in the share prices. The higher value of the variable is expected to improve the value of a firm in the developed market. Similarly, market capitalization is calculated by multiplying the number of outstanding shares with the share prices. The variable is expected to have a positive relationship with the value of a firm as higher liquidity improves the shareholders' value (Hartzell et al., 2003).

3.1 Econometric Model

The model used to test the relationship between debt and the value of a firm for firms of the developed (Australia) financial market is as follows.

Tobin's Q = f (Log Size, Duality, Gr, Log Mc, Pb, Ac)

The general representation of the equation mentioned above is as follows.

$$Y_t = C + \beta_{1t} \log X_{1t} + \beta_{2t} X_{2t} + \beta_{3t} X_{3t} + \beta_{4t} \log X_{4t} + \beta_{5t} X_{5t} + \beta_{6t} X_{6t} + U_t$$

where: Y_t = dependent variable;

C = intercept

β_t = slope of the independent variables;

X_t = independent variables (board size, CEO duality, gearing, market capitalization, price to book value ratio, and shareholders concentration (ac);

t = periods;

U_t = error term;

β_1 = coefficient of board size;

β_2 = coefficient of CEO duality;

β_3 = coefficient of gearing;

β_4 = coefficient of market capitalization;

β_5 = coefficient of price to book value ratio; and

β_6 = coefficient of agency cost.

In the above model, the sign of β_1 is expected to be negative as we argue a negative relationship between the value of a firm and the larger board. Similarly, β_2 is also hypothesized to have a negative relationship as CEO duality deteriorates the value of a firm. β_3 is expected to have a negative sign as the foundation of the developed market suggests that higher debt creates a negative value for the shareholders in the developed market.

In contrast, β_4 is hypothesized to be positive as market capitalization is expected to have a positive relationship with the value of a firm. Similarly, β_5 is expected to be positive as the price to book value ratio is expected to have a positive relationship with the value of a firm. Finally, β_6 is hypothesized to be negative as majority shareholders are expected to deteriorate the value of a firm in the developed financial market.

4. Results of the Model

The current section deals with the results of the study which include the descriptive statistics, econometric results for the model, and tests for robustness relevant for the study.

4.1 Descriptive Statistics

The descriptive statistics are calculated to compare the results of the variables with the corporate governance principles and are presented in Table 2. The result relevant to the descriptive statistics for the Tobin's Q is 1.81. The value is greater than 1, which shows that firms of the developed market are healthy and create value for shareholders. Similarly, the mean values for shareholders concentration (22.80) and gearing ratio (59.82) show that the firms of developed market have concentrated shareholding and are indebted. The results do not support the foundation of the outsider system which advocate for lower debt in the presence of dispersed shareholding in the developed financial market (Berglof, 1997).

The mean value for the board size is 7.08. The board observes the optimal number of directors (strength lies between 7 and 9) in the developed

market as suggested by Jensen (1993). This can lead to the protection of shareholder's rights in the developed market. The mean value for market capitalization is 2207.34 which shows that firms of the developed market have a high market share leading to ease in buying and selling of the shares of a

firm. Similarly, the mean values for price to book value ratio and return on total assets are 2.48 and 8.80 respectively. These values are positive which show that developed market is information efficient and these firms utilize their assets optimally.

Table 2. Descriptive Statistics for the Developed Market (Australia)

Variables	No.	Minimum	Maximum	Mean
PM	240	-76.56	598.04	18.48
ROTA	240	-35.43	85.67	8.80
PB	240	0.27	36.90	2.48
CF	240	-1.32	7.20	0.55
MC	240	10.00	43532.00	2207.34
CR	240	0.03	17.69	1.68
GR	240	0.95	434.31	59.82
CEO Duality	240	0.00	1.00	0.06
Board Size	240	2.00	15.00	7.08
AC	240	0.10	75.70	22.80
TQ	240	0.40	21.03	1.81

4.2 Econometric Results

The model for the developed financial market is selected on the basis of strong diagnostics and high value for the R squared. The results are presented in Table 3 and show that the variance of the error terms of the model for DVF are unequal disturbing the OLS assumptions (Maddala, 2001). The white diagonal treatment was given to the model which corrected the

variance of the error term and made the results of the hypothesis testing valid (White, 1980).

The error terms of the variables of different time periods are also interrelated (autocorrelation) with each other. This disturbs the OLS assumptions of the model (Gujarati, 2003). The problem of autocorrelation in the model was removed by giving Markov first order autoregressive treatment AR(1).

Table 3. Results for the Model of Developed (Australian) financial Market

Variables	Australian Model
Constant	0.78 (9.70)**
Log Board Size	-0.16 (-3.28)**
Log Market Capitalization	0.02 (2.69)**
CEO Duality	0.05 (0.48)
Gearing	-0.08 (-3.26)**
Price to Book Value Ratio	43.79 (27.22)**
Agency Cost	0.06 (1.03)
R-squared	0.87
Adjusted R-squared	0.87
Durbin-Watson	1.42
Mean Dependent Variable	1.94
F-statistic	(176.46)**

Notes: The values of the coefficients are in the first row.

Below are the values for T statistics in parenthesis.

Total number of observation for the DVF relationship model = 240.

* Represents the significance of a variable at 10% significance level.

** Represents the significance of a variable at 5% significance level.

Finally, the test to detect multicollinearity (variance inflation factor) is also performed to support the validity of the regression results. The values of variance inflation factors for the variables in the

model for DVF relationship range from 1.06 to 1.75 for price to book value ratio and board size suggesting the absence of multicollinearity among the variables of the model. The results are presented in Table 4.

Table 4. Values of Tolerance and Variance Inflation Factor for the Developed Market (Australia)

Variables	Variance Inflation Factor
Board Size	1.75
Agency Cost	1.26
Market Capitalization	1.56
Price to Book Value Ratio	1.06
Gearing	1.18
CEO Duality	1.25

The mathematical form of the econometric model relevant for the DVF relationship is as follows.

$$Y_t = C + \beta_{1t} \log X_{1t} + \beta_{2t} X_{2t} + \beta_{3t} X_{3t} + \beta_{4t} \log X_{4t} + \beta_{5t} X_{5t} + \beta_{6t} X_{6t} + U_t$$

$$TQ = 0.22 + 0.38 \text{ Size} + 0.46 \text{ Duality} - 0.04 \text{ Gr} - 0.04 \text{ Mc} + 50.34 \text{ Pb} - 0.40 \text{ Ac}$$

$$(0.64) \quad (0.91) \quad (2.08)** \quad (-0.48) \quad (-0.80) \quad (12.59)** \quad (-0.89)$$

$$R^2 = 0.76$$

The original model for the DVF relationship shows that only few variables are statistically significant. There is a lack of clear relationship between the current corporate governance practices and the value of a firm. As discussed before, to

improve the explanatory power of the independent variables we have tested the role of past corporate governance practices and the value of a firm by applying AR(1) treatment to the model.

$$Y_t = C + \beta_{1t} \log X_{1t-1} + \beta_{2t} X_{2t-1} + \beta_{3t} X_{3t-1} + \beta_{4t} \log X_{4t-1} + \beta_{5t} X_{5t-1} + \beta_{6t} X_{6t-1} + U_t$$

$$TQ = 0.78 - 0.16 \text{ Size} + 0.05 \text{ Duality} - 0.08 \text{ Gr} + 0.02 \text{ Mc} + 43.79 \text{ Pb} + 0.06 \text{ Ac}$$

$$(9.70)** \quad (-3.28)** \quad (0.48) \quad (-3.26)** \quad (2.69)** \quad (27.22)** \quad (1.03)$$

$$R^2 = 0.87$$

The values of the coefficients are in the first row. The values for t statistics are in the parenthesis below. The single asterisk (*) and double asterisk (**) indicate that the variable is significant at 10% and 5% level of significance respectively.

not give a positive signal to the shareholders. The result is consistent with the studies by Gleason et al. (2000), Hammes (2003) and Cheng and Shiu (2007) and supports the findings by Brealey and Myers (2000) as they preferred internal generation of funds compared to raising funds by issuing debt.

The value for the R squared in the model for DVF relationship is 0.87 which endorses that 87% of the variation in the dependent variable is explained by the independent variables of the model. The 13% variation in the dependent variable remains unexplained by the independent variables of the study. The results of other diagnostics suggest that the mean value for the Tobin's Q is 1.94 which shows that firms of the developed market create value for shareholders. The value for the F statistic is 176.46 and is significant endorsing the validity and stability of the model relevant for the study.

As discussed in the literature review, the foundation of the developed market comprises of Edgeworth combination of instruments. The foundation suggests that agency cost between creditors and managers is not governed properly compared to the agency cost between shareholders (equity holders) and managers. Furthermore, the rights of the creditors are not addressed adequately by the laws prevalent in the developed market. This suggests that higher debt deteriorates the value of a firm in the developed financial market. The result of the model supports the foundation of the developed market as higher debt and dispersed shareholding do not reinforce the positive effects of each other because of the negative relationship of debt with the value of a firm. The result also implies that the benefits achieved by using debt such as reducing agency cost between shareholders and managers are lower compared to the disadvantages such as bankruptcy cost of debt and higher agency cost between creditors and managers.

The result relevant to the role of debt in affecting the value of a firm shows that higher debt deteriorates firm's performance in the developed financial market. The free cash flow problem in the market is triggered as debt is not used effectively to reduce under and over investment of the free cash flow. The benefits of debt are lower compared to the associated disadvantages as tunneling (under and over investment of the free cash flow) takes place in the firms of the developed market. The result contradicts with the signalling hypothesis as the use of debt does

The result also provides some insights about the relevance of different theories related to the role of

capital structure in affecting the value of a firm. The use of debt deteriorates firm's value which implies that Modigliani and Miller hypothesis (1958) is irrelevant. The result also contradicts the pecking order theory as it shows preference for generation of funds by initial public offering (external sources) compared to the raising funds by issuing debt. On the contrary, the result supports the relevance of second trade off theory as the financial benefits of debt are lower compared to the disadvantages of debt such as agency cost between creditors and managers and the cost of financial distress in the market.

The control variables in this study are used to add robustness in the DVF relationship model for the developed market. These variables show that there are factors present in the market in addition to the capital structure which affect the value of a firm. These variables in the current study are CEO duality, ownership concentration, board size, market capitalization and price to book value ratio. The results of these variables are as follows.

The result related to the role of CEO duality in affecting the value of a firm shows a lack of valid relationship between the dual leadership structure and the value of a firm in the developed market. Similarly, the result related to the role of ownership concentration in affecting the value of a firm shows an absence of relationship between the blockholding and the value of a firm in the developed market.

The result relevant to the relationship of board size and firm's performance shows a negative relationship of the variable with the value of a firm. The value of coefficient is -0.16. The result implies that bigger board does not monitor the firm actively and cannot make rational and effective decisions. The unhealthy conflicts in the board improve the level of agency cost because of the poor communication and coordination among the board members (Lipton and Lorsch, 1992; Jensen, 1993). This also shows the inefficiency of regulatory authorities in monitoring the board members.

The result related to the role of market capitalization in affecting the value of a firm shows a positive relationship with the value of coefficient as 0.02. The result endorses that liquid market leads to information efficiency ultimately protecting the rights of the investors as suggested by Donaldson (2003) and Hartzell et al. (2003). Similarly, the result about the role of price to book value ratio in affecting the value of a firm shows a positive relationship with the value of coefficient as 43.79. The result shows that shares are correctly priced as their prices are based on true information. The management makes value adding decisions for the shareholders in the developed market. The results applicable to the significance of price to book value ratio and market capitalization are consistent with corporate governance principles.

The additional robustness tests are also performed to test the validity of results of the model

for DVF relationship and are presented in Tables 5 and 6. There are two tests performed in this regard. These include test for incremental regression and test for endogeneity. The details of these tests are as follows.

4.3 Robustness Tests

a) Incremental Regression

The incremental regression is performed by removing individual independent variables from the model and by checking the effect on the value of R-squared. Among all the variables removed, price to book value ratio (market efficiency) has altered the value of R-squared to a highest degree (15% decrease in the portion of the dependent variable explained by independent variables) as the value for the R-squared changes from 87% to 72%. This substantial decrease in the value of the R-squared shows the importance of price to book value ratio in the model. This importance is also highlighted in the regression result as the value of coefficient of the variable (43.79) is highest among all the variables. The result is presented in Table 5 below.

Table 5. Results of Incremental Regression
Removing Price to Book Value Ratio

Models	Australia
R-squared (original)	0.87
R-squared (after the removal)	0.72

b) Endogeneity Test

The second robustness test used in this study is the test for endogeneity. This test is performed to make the results of the study robust. The literature on the CGVF relationship suggests that due to endogeneity among the corporate governance variable (shareholders concentration) and the value of a firm, we cannot achieve robust econometric results relevant to the estimated model.

The endogeneity test in the current study is performed by conducting a two step process as found in the literature (Black et al., 2003). In the first step of this process, the relationship of the shareholders concentration (agency cost) with all the independent variables (board size, CEO duality, debt, price to book value ratio and market capitalization) is tested and the error term (residual) is calculated. In the second step, the relationship of the value of a firm (dependent variable) with all the independent variables including the calculated error term (residual) is tested. We have found no relationship of residual with the value of a firm which shows that there is no endogeneity in the DVF relationship model and the results of the model are robust (Maddala, 2001). The result is presented in Table 6.

Table 6. Endogeneity Tests for Developed (Australia) Model

Variables	Australian Model
Constant	0.69 (5.68)**
Log Board Size	0.16 (0.46)
Log Market Capitalization	-0.19 (-0.39)
CEO Duality	0.24 (1.15)
Gearing	0.05 (0.35)
Price to Book Value Ratio	43.7 (27.1)**
Agency Cost	-1.49 (-0.89)
Residuals	1.55 (0.93)
R-squared	0.87
Adjusted R-squared	0.87
Durbin-Watson	1.42
Mean Dependent Variable	1.94
F-statistic	(153.76)**

Notes: The values of the coefficients are in the first row.

Below are the values for T statistics in parenthesis.

Total number of observation for the model = 240.

* Represents the significance of a variable at 10% significance level.

** Represents the significance of a variable at 5% significance level.

5. Conclusion

The current study has tested the role of debt in affecting the value of the shareholders in the developed financial market. An integrated model (capturing all the factors relevant for DVF relationship) based on the robust data set and correct proxy to value a firm is tested. The result of the study proposed that debt plays a negative role in affecting the value of a firm in the developed financial market thus supporting agency and second trade off theory. There is a higher agency cost between creditors and managers, supporting the foundation of the developed financial market. The result does not support MM and signalling hypothesis in the selected financial market. The laws concerning the governance of debt in the developed market do not address the incomplete contracting which improves the level of divergence of interests between the principal and agent in the market.

The firms of the developed financial market should consider either the option of using internal generation of funds, or using external equity (initial public offering) to raise finances. The results about the control variables in the model suggest that smaller

board size and liquid and efficient market affect the performance of a firm in a positive manner. The limitations of the study suggest that the role of debt in disciplining the principal and agent conflict in the insider system of corporate governance and under recession or boom in the economy can give us a different type of DVF relationship. These tests can also provide us with a new policy implication pertinent to the role of capital structure for the firms in the developed financial market.

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