

Impact of Financial Health and Capital Structure on Firm's Value, with Moderating Role of Intangible Assets

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Abstract

The basic purpose of the study is to analyze the impact of financial health, capital structure and moderating effect of intangible assets on the firm value. The proxies for the financial health are Return on Assets (ROA) and Solvency Risk (SR). Firms value is measured through Tobin's Q (TQ). Panel data regression models are used for the time period of 2006 to 2014. The results of the study elucidate that ROA and CS have a significant and positive impact on the firm value and intangible assets are moderating the relationship between financial health, capital structure and firms value. The results of the study are very imperative for the corporate managers as it analyzed the factors that are affecting value of the firm.

Key Words: Intangible Assets, Firms Value, Return on Assets, Solvency Risk, Capital Structure

1. Introduction

Firm's value is a very imperative part and cannot be neglected, as it benefits the shareholders and stakeholders. It is a matter of utmost importance to understand the factors affecting firm's value. Firm value is reflected in company's market price and a number of researches have proved that market value of a firm is far greater than its book value (Gamayuni, 2015).

In past, firm value was estimated through its tangible assets shown in the balance sheet. The importance and investment in intangible assets is increased due to shift towards knowledge based economies. A dramatic increase has taken place in the intangible assets in last 20 years. According to the research conducted on 3500 firms in the United States, book value was only 28% of the market value of firms (McClure, 2003). So while conducting research on firm value, role of intangible assets cannot be neglected. The gap between market value and book value of firm has prompted researchers to find out whether intangible assets are important factor in determining firm value. There is a need to determine the factors that are affecting the market value that are not identifiable in financial statements due to limitations of accounting standards. Intangible assets have a huge impact on market value of firm and are affected by financial decisions. Firm value is one of the more important factors for the investors to invest in the firm, and this research has explained the factors affecting the firm value, with a focus on intangible assets.

The main objective of the study is to identify impact of financial performance on firm value while keeping intangible asset as a moderator. This research adds to the literature of intangible assets and other factors affecting the firm value. The research assists corporate managers to identify and understand factors that affect the firm performance and growth in Pakistan.

2. Literature Review

The value of firm has an exceptional importance and always needs to be improved to increase the shareholders wealth and for safeguarding the interest of stakeholders (Martins & Alves, 2010). Therefore it is necessary to analyze the factors that affect the value of the firm.

The research conducted by Brown et al. (2011) shows that intangible assets are more firm specific and have less transparent market as compared with tangible assets, and that it is very difficult to measure the output of intangible assets. The results of intangible investment are very uncertain and difficult to measure. Intangible assets have weak property rights as compared with tangible assets. Hunter et al. (2012) provide evidence that uncertainty lies more in intangible assets as compare to tangible assets that increases the risk. So investors feel reluctant to invest in intangible assets as compared with tangible assets. This uncertainty is the cause of difference between book value and market value of firm.

Li & Wang, (2014) provide empirical evidence on impact of intangible assets on firm's performance of Hong Kong. Their research contains a sample of Hong Kong listed technological firms

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from time period of 2008 to 2012. The data for this study was collected from the annual reports of the respective firms. In this study, they measured intangible assets through R&D expenditure, sales training and employee benefit and finding of their research shows that intangible assets have a positive impact on firm's performance.

Another research, which was done on small medium enterprises of New Zealand, shows that intangible assets have a vital role to play in the success of an organization. Conducted by Steen Kamp et al. (2010), this research has a sample of three hundred small and medium enterprises in New Zealand, which was selected by using universal business dictionary. In this research, customer satisfaction and customer loyalty have been shown as the most important intangible assets.

The research conducted by Gamayuni (2015) asserts with an empirical evidence that a significant and positive relation exists between financial performance and firm value. According to this research, any increase in the financial performance of the firm results in a positive impact on its firm value. For its data, this research relies upon the financial statements of manufacturing firms listed in Indonesian stock exchange for the time period 2007 to 2009.

The significance and positiveness of the impact of the financial performance on firm value has been clarified by Alghifari et al (2013) as well. Relying for its sample on all the firms listed under the category of food and beverage industry in Indonesian stock exchange from the time period 2007 to 2011, this research concludes that the return on assets enjoy a significant and positive relation with the Tobin's Q, which implies that the firm value increases as the financial performance improves.

A research with the similar kind of result i.e. improvement in the financial performance breeds improvement in firm value a well, has been done by Sudiyatno et al. (2012). This research is based on both, primary data and secondary data. The former had been taken from all manufacturing firms listed in Indonesian stock exchange, while the latter had been consulted from the websites of the Indonesian stock exchange and respective firms for 2008 to 2010. This research also shows that better financial performance leads towards high stock market price and encourages investors to invest more in firm.

Alam et al. (2011), taking random sample of sixtyfive companies listed in Karachi stock exchange chosen for the time period of 2005 to 2009, also shows that the financial performance improves the value of Tobin's Q.

Brigham (1992) shows that solvency ratio is the relation between company profit and its liabilities. Solvency ratio explains the ability of a company to pay its liabilities. He further shows that the solvency ratio differs from industry to industry but firm should maintain a minimum solvency ratio of 20%. As the solvency ratio of a firm decreases the risk of default towards its liabilities increases. As the debt proportion in the company increases, the level of solvency risk faced by the company also increases, and, thus, value of firm is adversely affected.

Tyagi (2014) holds that financial health is an important determinant of firm value. The findings of the study further show the financial health is the key indicator for the shareholder. Managers take decisions on the basis of financial health of firm that has significant impact on firm's value.

Khidmat & Rehman (2014) conclude in their study that solvency position of a firm is very important to its suppliers and investors. Solvency ratio explains the level of risk faced by the firm. As the risk of default increases the suppliers become more hesitant to supply goods to the firm. Investors analyzed the solvency position before investing in the firm. It becomes difficult for a firm to arrange external financing in case of escalated solvency risk. Solvency risk decreases the credit rating of the firm and hence the cost of capital of the firm increases.

According to Sagner (2014), the solvency risk increases the firm's bargaining power towards its suppliers and distributors decreases. Due to solvency risk level of trust of suppliers and distributors towards the company decreases. This decrease in trust level affects the working capital management and strategic alliance of firm with its suppliers and distributors. So the solvency risk negatively affects the intangible assets and firm performance, ultimately firm value is affected by solvency risk.

The results of the study by Widianoro (2012), which focuses the impact of company's health indicators on Indonesian firm value, show that no significant relation exists between solvency ratio and

firm value. Company health was measured by the financial performance, solvency ratio and debt proportion, and firm value was measured by Tobin's Q. Sample data of 158 Indonesian stock exchange listed companies for the year 2006 to 2011 was collected.

Ramachandra & Bamidele (2015) show a significant relation between financial health and intangible assets. Financial health and payments delays are the most significant causes in the loss of construction industry. Research was done in New Zealand construction industry. Data was collected through questionnaire from sub-contractors, head contractors and consultants. After applying different statistical tools for analyzing data, results show that payment problems mainly due to financial weakness of firms causes irregularities and disruption in the relation of suppliers and contractors and are the reason for massive losses in industry. Their research shows that poor financial health affects the intangible assets, such as relationship with suppliers, which further affects the firm value.

According to Widiatoro (2012), better financial performance helps firm managers to gain trust of firm's stake holders. When employees and other stake holders feel that the management is trust worthy and sincere with them, they start to perform their duties in more efficient manner, which affects the firm value.

Van Horne et al. (1995) takes capital structure as the combination of company's preferred stock, common stock and its debt. Firms need an optimal source of funding whether from own equity or debt. This combination of capital is known as capital structure of firms. There are several theories that explain the impact of capital structure on firm value, such as capital structure irrelevance theory, pecking order theory and trade off theory.

Miller and Modigliani (1958), in their theory of capital structure, deny any relationship between capital structure and firm value. Their theory is based on some assumptions. There is perfect market, all the information is available to everyone, there is no transaction and bankruptcy cost and there is no tax advantage. Then cost of capital is not affected by the capital structure of the firm. In addition Miller and Modigliani (1963) have also proposed two propositions. First proposition is that firm's capital structure has no relation with the firm value and the second proposition is that cost of capital for leverage firm and non-leverage firm is same.

A research by Moghadas et al. (2013), conducted on capital structure of companies listed in Tehran Stock exchange, concludes that capital structure affects firm value positively and significantly. The sample for this study had been taken from 58 firms listed in Tehran stock exchange from 2006 to 2010. As the debt proportion in the company increases, the cost of capital decreases. There is high level of risk associated with equity as compare to debt, so risk increases the cost of equity as compare to debt. Increase in cost of capital negatively affects the firm value.

Gill & Obradovich (2012) provide empirical evidence on impact of financial leverage on American firm's value. Research included the sample of 333 firms listed in New York stock exchange from 2009 to 2011. Secondary data was collected from the financial statements of respective companies from New York stock exchange and company's web sites. Research result explains that financial leverage has a positive and significant relation with the firm value. Researcher further explains that although leverage decreases the cost of capital and enhances firm value but firm should maintain balance proportion of debt to equity ratio. Excess amount of debt to a certain level leads to bankruptcy risk, which has negative impact on firm value.

Chowdhury & Chowdhury (2010) affirm a positive and significant relation between capital structure and firm value by using the sample of 77 firms listed in Chittagong and Dhaka stock exchange from year 1999 to 2003. The results depict that there exist a positive and significant relation between capital structure and firm value. As the cost of capital decreases, it has a positive impact on firm value. The decrease in cost of capital increases the firm's revenue, which is used in further investments and enhances the firm's value. To maximize the shareholders wealth and firm value, there should be a perfect combination of debt and equity in the firm, with a minimum cost of capital.

Cheng & Tzeng (2011) provide empirical evidence on impact of leverage on firm value. Their research sample included 645 firm listed in Taiwan stock exchange from 2000 to 2009. Results of their research show a significant and positive relation between debt and firm value. They further explain leverage of those firms having strong financial position have more and stronger relation with the firm

performance. If the financial performance of a firm is better, then there is low probability of bankruptcy, which increases the credit rating of the firm and due to better credit rating, firm can borrow loans on a low cost, that decreases the cost of capital and increases the firm value.

Widiantoro (2012) also affirms a significant correlation between capital structure and intangible assets. The results of the study show that there is a negative impact of capital structure on intangible assets as they are finance by equity instead of debt. Although cost of equity is much more as compare to debt but cost of equity is associated with the firm's profit. In case of debt, no matter firm is generating profit or incurring loss, firm need to pay its debt.

3. Research Methodology

3.1. Population

This study, which aims to ascertain the impact of financial health, capital structure and intangible assets on firm's value, was specified to food and beverage industry of Pakistan.

3.2. Sample

The sample for the research comprises 10 companies on the basis of data availability. Data for the nine years has been collected from the websites of those companies for the time period 2006 to 2014.

3.3. Data Analysis

Panel data regression models were used for analyzing the determinants of firms value. Moreover, Eviews is also used for analysis.

3.3. Empirical Specification of Model

The econometric models used in the study are depicted below:

$$TQ = C + \beta_1 (ROA)_{it} + \beta_2 (CS)_{it} + \beta_3 (SR)_{it} + \epsilon$$

$$TQ = C + \beta_1 (ROA)_{it} + \beta_2 (CS)_{it} + \beta_3 (SR)_{it} + \beta_4 (ROA \cdot IA)_{it} + \beta_5 (CS \cdot IA)_{it} + \beta_6 (SR \cdot IA)_{it} + \epsilon$$

The dependent variable in the above models is firm value that is estimated through Tobin's Q (TQ) whereas independent variables are Return on Assets (ROA), Solvency Ratio (SR), Capital structure that is abbreviated through CS and moderator variable Intangible Assets (IA). The detailed description of variables are depicted in the table below.

Table 3.1: Variables and Their Indicators

Variable		Variable Calculation
Intangible Assets		
IA	Intangible Assets	Log(market value of equity- Book value of equity)
Financial Health		
ROA	Return on Assets	Net profit / Total Assets
SR	Solvency Ratio	(Net profit+ depreciation) / Total Liabilities
Capital Structure		
DTE	Debt to equity ratio	Total debt/ Total equity
Firm value		
FV	Tobin's Q	Market value / Book value of total Assets

3.3.1. Firm's Value (Tobin's Q)

Firm value is measured through Tobin's Q, which is calculated by dividing market value of equity by book value of equity. Gamayuni, (2015), Widiantoro, (2012) have adopted Tobin's q as a proxy variable to firm value.

Tobin's Q = Market value of firm / Book value of firm.

3.3.2. Firm Performance (ROA)

In this study ROA is used to measure firm performance. To increase firm value, managers should increase the profitability of firm. ROA has a positive relation with the firm value.

3.3.3. Solvency Risk

As the solvency ratio increases the solvency risk decreases, which has a positive impact on relationship with shareholders and suppliers. As the solvency risk increases, it becomes difficult for firm to find external finance such as debt to invest in new projects, which affects the firm value. Credit rating of a firm is affected by solvency risk, which further increases cautiousness of investors to invest in that firm. So solvency risk decreases the opportunity to invest in intangible assets as well as restrain firm to increase its firm value (Widiantoro, 2012).

3.3.4. Capital Structure

Capital structure is measured by using debt to equity ratio. Debt to equity ratio explains the proportion of debt and equity in the firm. As the level of debt increases in the firm it affects the firm's WACC. Cost of capital has positive relation with the debt level of firm. Myers, (2001) explains positive relation between cost of capital and investment opportunity. Due to decrease in cost of capital, firm has more investment opportunity which affects the firm value.

4. Results and Discussions

4.1. Descriptive Statistics

The descriptive statistics of all the variables are depicted in the table below for checking the normality of data. The mean, standard deviation, skewness, minimum and maximum values are shown in the table below.

Table 4.1 Descriptive Statistics

	FV	ROA	SR	CS	IA
Mean	2.4282	0.1110	0.3256	1.4055	1.9854
Maximum	8.9820	0.5122	6.0285	7.6852	8.4900
Minimum	0.0590	-0.2155	-0.6742	0.0088	-8.0900
Std. Dev.	2.3146	0.1105	0.6686	1.2711	6.2958
Skewness	1.2019	1.0410	0.9828	0.1042	-0.5873

The above results endorse the normality of the data. The skewness value ranges from -0.5873 to 1.2019. In the above results skewness value confirming the normal distribution of the data.

Mean of firm value shows that on average market value of firms is 2.4 times greater than their book value. Maximum value of mean of firm value indicates that there are firms, whose market value is 8.9 times greater than its book value and minimum value of mean of firm value is .059, indicates that there are firms with market value being less than their book value.

4.2. Correlation

Table 4.2 Correlation Matrix

	FV	ROA	SR	CS	IA
FV	1.0000				
ROA	0.3215	1.0000			
SR	0.2356	0.2115	1.0000		
CS	0.4104	-0.0127	-0.2406	1.0000	
IA	0.2764	0.3900	0.0396	0.1836	1.0000

Note:*P<0.05

Firm value is positively related with all other variables. Only intangible assets have moderate correlation with the firm value. The correlation between independent variables ranges from weak to moderate.

4.3 Estimated Results

In the first model the relationship between financial health, capital and firm value is analyzed whereas in second model the moderating impact of intangible assets is analyzed on the relationship between financial health and firm value. The results of first model are depicted in the table below.

Table 4.3 Regression without Moderation

Dependent Variable: Firm Value		
Variable	Coefficient	Prob.
ROA	2.74	0.038 *
SR	0.093	0.803
CS	0.404	0.035*
Cons	1.320	0.004*
R-Square	0.4671	

Note: * indicates the level of significance, * $p < .05$

The results depicted in the table above shows that ROA has a significant and positive impact on the firm value. The Value of t-statistics is 2.33 and coefficient value shows that with every one unit increase in ROA the firm's value increased by 2.749 .The relationship between SR and firm's value is insignificant as t-value is 0.24. Whereas the capital structure has positive and significant impact on the firm value as t-value is 2.10. The R-Square value is 0.4671 which shows the goodness of fit of the model and depicts that how well explanatory variables are explaining the dependent variable.

In second model the moderating impact of intangible assets on the relationship between firm health and firm value is analyzed. The results of second model are depicted in the table below.

Table 4.4 Regression with Moderation

Dependent Variable: Firm Value			
Variable	Coefficient	t-statistics	Prob.
ROA	4.634	2.131	0.035 *
SR	0.068	0.185	0.853
CS	0.037	2.044	0.045*
ROA*IA	1.942	4.827	0.000*
SR*IA	0.094	1.664	0.097
CS*IA	0.096	6.566	0.000*
Cons	1.320	2.94	0.004*
R-Square	0.4972		

Note: * indicates the level of significance, * $p < .05$

The results of the above model shows that ROA and Capital Structure has a positive and significant impact on the Firms value whereas Solvency Risk has insignificant impact on the value of firm. The interaction term of ROA and IA has a significant impact on the firm value .The t-value is 4.827 which shows that relationship between return on assets and firm value is moderated by intangible assets. The interaction term of intangible assets and solvency risk has insignificant impact on the firm value. The interaction term of capital structure and intangible assets also have a positive and significant impact on the firm value. T-value is 6.566. Hence the relationship between capital structure and firm value is moderated by intangible assets.

Any increase in the return on assets results in the improvement of the ability of the firm to efficiently utilize the resources. The results are consistent with the result of another research conducted in Indonesia to find out the impact of return on assets on Tobin's Q (Alghifari, Triharjono, & Juhaeni,

2013). Debt is less expensive than equity. With the increase in debt weighted average cost of capital decreases. Due to decrease in cost of capital, firm has greater opportunity to invest in different projects and enhance its firm value. Result is consistent with Modigliani and Miller theory, which explains that due to debt, firms get tax benefit. Hence the result is aligned with another research conducted in Taiwan, which explains that leverage is positively and significantly related with the firm value (Cheng & Tzeng, 2011). The results of the study reveal the fact that solvency ratio does not play any role in enhancing firm's market value. Our result is consistent with another research conducted in Indonesia to find out the impact of intangible assets towards company financial health and agency problem (Widiantoro, 2012).

The empirics of the second model show significant relation of return on assets and intangible assets with firm value. As the efficiency of firm increases, it has more resources to invest in intangible assets such as research and development to enhance its value. This result is aligned with another research conducted on impact of firm performance, financial policies and intangible assets on firm value (Gamayuni, 2015). Our results further reveal significant relation of capital structure and intangible assets with firm value. As the debt level in capital structure increases, it acts as the tax shield towards firm's profit. Debt payments decrease the taxable income and due to debt, firm gets tax advantage and increases its net profit. This additional net profit is used to invest in intangible assets and other resources that increase firm value. The results show insignificant relation between solvency ratio and intangible assets with the firm value. These results are consistent with the study of (Widiantoro, 2012).

5. Delimitations of the Study

The recent study makes use of only two proxies for estimating financial performance. More financial characteristics variables can also be included in the further studies like return on equity, return on investment can be used for financial performance. Same is the case with capital structure. Other variable such as debt to assets ratio can be used to measure capital structure. The impact of macroeconomic variables such as inflation, exchange rate on firm value can also be added.

6. Conclusion

The study has been conducted to analyze the imperative factors that are affecting the firm value. The result of the study shows the positive and significant impact of ROA and Capital structure on the firm's value. The moderating impact of intangible assets on the relationship between the financial health and firm value is analyzed and the results show that intangible assets enhanced the relationship between return on assets and capital structure with the firm value. Analyzing the impact of intangible assets on the firm's value is of utmost importance because of limitations in measuring and reporting it in the financial statements. The results of the study are beneficial for managers to identify the important factors that are affecting the firm's value. For future research the impact of dividend policy on the firm value can also be analyzed.

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