Global Business and Management Research: An International Journal
Vol. 6, No. 2 (2014)

Does Diversification Influence Systematic Risk and Corporate Performance? An Analytical and Comprehensive Research Outlook

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Abstract

Purpose: Theory and evidence suggest that large multi business corporate can enhance performance by developing and exploiting corporate level distinctive competencies. This tends to influence the corporate capital structure as well as its financial performance. Nevertheless, despite the enormous interest in the field, the debate still continues on whether corporate diversification creates value for the corporate or not?

Design/methodology/approach: The study tries to investigate the relationships between corporate level distinctive competencies and performance, which are examined across corporate using popular Herfindhal Index (HI) as a proxy for corporate diversification. EViews tool has been used to derive relationship among the variables considered for study followed by multiple linear Regression technique and Descriptive Statistics.

Findings: The research reveals a significant relationship between the variables like Diversification strategy, capital structure, systematic risk, corporate profitability, corporate size and corporate growth.

Originality/value: Diversification strategy leads to a change in the capital structure of the corporate bringing about variation in the risk profile of the corporate and its financial performance. The research is an attempt to address the above effect in case of diversified Indian companies.

Research Limitations/Implications: The biggest limitation of the study is the sample size which should be larger for the empirical results. Another limitation is that collecting data for the product diversification strategy involves a certain degree of subjectivity due to the inconsistency in the way corporate report sales for business segments. Better results could be achieved by using other important ratios of corporate performance like Tobin's Q.

Practical Implications: The study would be useful for corporate world to enhance their corporate performance using diversification strategy and plan their capital structure accordingly. The study would help corporate

Global Business & Management Research: An International Journal

Vol. 6, No. 2, 2014
pp. 93-111

policy makers to acknowledge diversification, which is a significant growth strategy and establishing a tangible relationship between diversification strategy and corporate performance and thus improving their shareholder value

Keywords: Diversification Strategy, Systematic Risk, Corporate Performance

Paper Type: Research Paper

Introduction and Review

Several evidences suggest that companies diversify when they have valuable and difficult to emulate resources that are valuable across industries, or are complementary to resources in other industries. These gains cannot be realized by contracting among independent companies. Some of the other reason for the companies to diversify is when they have effective internal resource-allocation mechanisms. This happens particularly when background institutions and external capital markets are undeveloped. Theoretical arguments suggest that diversification has both value-enhancing and value-reducing effects. Several school of thought very strongly believe that product diversification have a very positive impact on the corporate profitability in terms of less incentive to forego positive net present value projects, greater debt capacity and lower taxes and economies of scope.

Ansoff (1972) in his seminal work, "*A model for diversification*" explained different type of expansion strategies like Diversification Strategy, followed by a company. Diversification is a growth strategy which increases earnings, in strenuous industries. A number of studies have hypothesized that diversification improves profitability through economies of scope by pre empting the product space. Montgomery (1994) had also explicitly outlined performance improvement as one of the most important reasons for corporate diversification.

Whereas the counter school of thought is of a very strong opinion that product diversification leads to loss of the unique preposition of the company thus leading to heavy financial losses. Another set of researchers feel that there is no significant impact of implementing diversification strategy on the financial performance of the corporate. So as researcher we need to dig in and check the views of various researchers about the subject in question. The literature on complementarities is thinner than the literature on substitutability. There is growing interest among economists in organizational complementarities Hitt (2002) and James, Klein (2008), but these ideas have not been widely applied to questions of corporate scope. Just as organizational practices, governance, and ownership tend to cluster in particular combinations industry activities may tend to cluster, in ways that cannot be managed effectively across independent companies.

The paper also involves the cross structural linkage of diversification strategy with Capital structure as well as corporate performance. Modigliani and Miller (1958) through their famous research studied capital structure decisions and its impact on profitability, risk profile and overall shareholder value. Empirical evidence shows that a corporate capital structure is influenced by several corporate-related characteristics including size, profitability, future growth options, the amount of tangible assets and non-debt tax-shields

Titman and Wessels (1988); Haris and Raviv (1991). Further research by Barton and Gordon (1976) had also suggested the usefulness of the corporate strategy perspective in various perspectives in understanding capital structure. Haris and Raviv (1991) also confirmed that the effect of strategic variables on capital structure is a relatively unexplored area from various angles of research. Alonso (2003) tried to investigate the effect of diversification strategy on corporate capital structure. The researcher however found a non-significant relationship between corporate leverage and the degree of corporate diversification.

However, Abor (2008) compared the capital structure of publically listed companies, large unlisted companies and small and medium enterprises. The study indicates that company size, age, asset structure, profitability, risk and managerial ownership are important in influencing the capital structure decision of Ghanian companies. The result of this study are contrary to the trade off theory Modgilani and Miller (1963) and seem to support packing order hypothesis Myers (1984); Myers and Majluf (1984) shows that both long term and short term debts have inverse relation with company profitability. Company growth was found to have a positive relation with long term debt for the unlisted company and short term debt ratio for small and medium corporate. Barton and Gordon (1988) suggested a managerial choice perspective to explain the capital structure choice at the corporate level of analysis. They emphasized that profit and debt levels are negatively correlated and therefore suggested that pure economic factors are not the sole mechanism for establishing capital structure. This is consistent with the behavioural proposition that management of corporate desires flexibility and freedom from excessive restrictions of debt whenever possible. Profitability provides the ability to avoid debt by using self-generated funds to finance the business.

Barton and Gordon (1988) suggested a managerial choice perspective to explain the capital structure choice at the corporate level of analysis. They emphasized that profit and debt levels are negatively correlated and therefore suggested that pure economic factors are not the sole mechanism for establishing capital structure. The result is consistent with the behavioral proposition that management of corporate desires flexibility and freedom from excessive restrictions of debt whenever possible. Profitability provides the ability to avoid debt by using self-generated funds to finance the business.

Low and Chen (2004) also emphasized that product diversification is positively related to financial leverage. This indicates that such diversification allows corporate to reduce their risks, thereby enabling corporate to carry higher debt levels. The findings for the effect of product diversification on capital structure generally indicate that corporate that diversify across product lines have higher debt ratios than non-diversified corporate.

Baral (2004) examined the determinants of capital structure like company size, business risk, growth rate, earning rate, dividend payout, debt service capacity, and degree of operating leverage of the companies listed in Nepal Stock Exchange Ltd. Multiple regression model has been used to assess the influence of defined explanatory variables on capital structure. In the preliminary analysis, the study included manufacturing companies, commercial banks, insurance companies, and finance companies. The study revealed that size, growth rate and earning rate are statistically significant determinants of capital structure of the listed companies.

Systematic risk is observed to be affected by diversification and the phenomenon had been given lot of emphasis by various authors, as the company becomes over levered its risk profile changes, which directly impacts its profitability. In the review done on past

research, various researchers have very distinctly commented that it is very difficult to gauge exact risk which is associated with a company.

Researchers, including Montgomery C.A and Singh H. (1984) tried to examine relationship between diversification strategy and systematic risk beta (taken as a proxy for market risk). The researchers found that betas (β) for unrelated diversifiers are significantly higher than those of other corporate. They emphasized the fact that, diversification strategy, not only increased the return but also significantly reduced the systematic risk of the corporate. On the similar lines Bettis and Mahajan (1985) suggested that diversified corporate have significantly been able to reduce their systematic risk and increase returns. The author also very strongly confirmed that there is still some level of correlation between related diversification and corporate performance but the unrelated corporate performance bears a negative correlation with diversification.

Another study indicates two major effects on systematic risk, which operate in opposite directions and usually offset each other. It has been seen that diversification, particularly into unrelated businesses reduces operating risk and, hence, systematic risk. At the same time, such diversification is associated with increase in leverage, which tends to increase systematic risk. It was also categorically pointed that the two effects are of similar magnitude and, was concluded that diversified corporate trade off operating risk for financial risk. Nevertheless, Chatterjee and Lubatkin (1994) on the other hand proved from their research that the relationship between corporate diversification and both forms of stock return risk generates a U-shaped graph. Thus, the corporate can significantly minimize their risk by diversifying into similar businesses rather than into identical or very different businesses.

Corporate performance is another important parameter which is significantly affected by diversification strategy. Researchers like Aleson and Escuer (2002) examined the impact of product diversification on corporate performance and indicated that there is a positive correlation between levels of product diversification and the corporate performance. The researchers also found that effects of related and unrelated product diversification on a corporate performance are similar to each other, but they said effects are superior with respect to the other product diversification strategies. Whereas Chakrabarti, Singh and Mahmood (2002) from their research indicated that diversification negatively impacts performance in more developed institutional environments while it's found to just improve performance in the least developed environments. Even in the least developed institutional environments, diversification offers limited benefits when an economy-wide shock strikes. Moreover, Keates (1990) from their study tried to derive relation between diversification and multiple performance dimensions.

The results suggest that appropriate criteria of performance measurement depend upon the strategy persuaded by the company. Lloyd and Jahera (1994) from their empirical results, using Tobin's Q also tried to capture performance effects and Rumelt's related ratio as the diversification measure. The study revealed no significant findings to relate diversification and performance. They also emphasized that in case the sample, in question is composed of very large corporate, whose stock are held in well-diversified portfolios, corporate-diversification strategies are unlikely to yield superior performance.

Conversely, Palepu (1985) in a study examined corporate diversification and economic performance and failed to find any significant relationship between the two variables. The researchers found that companies with predominantly related diversification show significantly better profit growth than corporate with predominantly unrelated diversification. Datta, et. al. (1991) also used theoretical model/framework to review the

existing empirical research on diversification and corporate performance. They found that there is a considerable amount of diversity found in the research done by other researchers in this area.

Subsequently, Delios and Beamish (1999) have tested the research model with data on the corporate performance using a data of 399 Japanese manufacturing companies. The researchers very categorically concluded that performance was not related to the extent of product diversification; although investment levels in rent-generating, proprietary assets were related to the extent of product diversification. On the other hand the result of the research shows higher economic performance among the corporate which follow lower levels of diversification (i.e. Single and Dominant levels of diversification), this is different from the result of some earlier researchers like Rumelt (1974) and Bettis (1981), etc. which concluded that Related level of diversification leads corporate to be more profitable in comparison with corporate pursuing Single and Dominant levels of diversification. However the results were similar to the results of some researchers like Grinyer et al. (1980), etc.

Hypotheses of the Study

On the basis of the gap analysis and objectives, in the next section the following hypothesis are tested:

H_1: Corporate size is expected to have a strong effect on capital structure.

Many researchers like Gonzalez and Gonzalez (2012) have established that financing decisions varies among small, medium-sized and large corporate using pecking order theory. It was further concluded that in small corporate, the negative influence of profitability and the positive influence of investment opportunities and of intangible assets on corporate debt predicted by the pecking order theory is heightened. Muzir (2011) suggested that the effect of corporate size on financial performance and sustainability may differ according to the way how size expansion is being financed.

H_2: Capital structure is expected to have effect on systematic risk.

Raphael and Livnat (1879), in his cross-sectional path analysis confirmed that corporate trade off the reduction in operating risk due to diversification with increased financial leverage, and thus the systematic risk remains the same. Their study uses theoretical considerations to examine the effects of various diversification strategies on the capital structure of corporate and on the systematic risk. It further documents that corporate reduce their operating risk by diversification and increase financial leverage to take advantage of tax benefits.

H_3: Corporate profitability is expected to have strong effect on systematic risk.

Gahlon and Stover (1979) employed a model, which utilizes variables measuring the effects of these motivations on a return-adjusted beta, to compare the performance of conglomerates with a control sample of non-conglomerates before and after the major external expansion period of 1967 and 1968. The results of the study confirmed that the effects on adjusted beta of the diversification efforts of conglomerate managements were at least partially negated by the greater risk inherent in their use of increased debt capacity.

H_4: Corporate size is expected to have a week effect on corporate systematic risk.

Bowman (1979) suggests a theoretical relationship between systematic risk and the corporate leverage and accounting beta. The researcher observed and categorically commented that systematic risk is not a function of earning variability and size of publically traded companies.

H_5: Growth opportunities increase corporate performance.

The literature survey considers growth as one of the most important parameter for corporate's performance. Recent studies by Maggina (2012) provides evidence drawn from publicly traded companies in Greece on the predictability of assets growth with respect to corporate performance and indicate that assets growth is predictable at an 85.7% rate in large companies. Greveh (2008) in their research on the general insurance industry shows that corporate grow more when they when performance goals are satisfied.

H_6: Corporate size is expected to have a strong effect on corporate performance.

The size of a corporate is considered to be an important determinant of corporate's profitability as larger corporate can enjoy economies of scale and these can favourably impact the profitability, Penrose (1959). Larger corporate according to Shepherd (1989) may also be able to leverage their market power, thus having effect on profitability. A positive relationship between corporate's size and its performance is expected in the study. Not only the above mentioned studies, but also studies conducted by various researchers like Antonkik (2006), Banker (2011), Barton (1988), Baysinger, et al. (1989), Bowman B.G. (1979), Chakrabarti, et al (2002), has proved a strong relationship between corporate size and profitability.

Data and Methodology

The data for the study is taken from well-known academic data house known as Prowess of CMIE (Centre for Monitoring Indian Economy). The sample for study is a set of 44 companies which diversified during the year 2006-2011 and are listed at NSE (National stock exchange) of India. These companies belong to different sectors like manufacturing, construction sector, industry automation sector, refractories/intermediates, automobile sector, cement/agri-business sector, ceramic tiles, chemicals and fertilizers sector, construction sector etc. This helped us in uniformly studying the relationship of the variables in various sectors and to develop the policy framework.

According to Kenny (2009), the impact of diversification strategy on corporate performance is observed for achieving sustainability with competitive advantage. The present research work indicate to assess the impact of diversification strategy on systematic risk and corporate performance. In line of identification study variables, the dependent variables are systematic risk and corporate performance using capital structure (leverage) through structured models known as *The Leverage Model*, *Market Risk (β) Model and Corporate Performance Model*. The capital structure of the corporate is measured by popular corporate leverage ratio like debt equity ratio or total debt to total assets (TDTA) some of the other ratios are total debt to total assets (TDTA), long-term debt to total assets (LTDTA) and short-term debt to total assets (STDTA) as proxies for capital structure.

Further the systematic risk of the companies is measured by calculating the covariance of market movement with respect to that of the stock movement [Cov (R_i, R_m)/Var (R_m)]. The corporate financial performance is price earning ratio (PE) measured by market price of common stock / earnings per share, Return on assets(ROA), measured by profit after tax / total assets, and return on equity(ROE) measured by profit after tax / no. of shares outstanding.

However, the independent variables are classified: Diversification Index (DI), Corporate Size (SIZ), Profitability (PROF) and Asset Tangibility (AT). The extent of diversification can be measured using various index found in the literature like Herfindahl Index (HI), Entropy Index (EI) etc. based on corporate revenues. Alonso, E. (2003) discussed the concept of Herfindahl Index (HI) which is defined as the sum of squares of the sales of the corporate by segment as a fraction of total corporate sales. If the corporate has only one segment, Herfindahl Index (HI) is one. According to its steps of construction, Herfindahl Index (HI) falls as the degree of corporate diversification increases. Other independent variable used in the study is profitability measured by EBIT + depreciation / total assets, Onaolapo (2003). In line of other variables, Growth has been calculated by book value of equity + market value of equity / total assets whereas; corporate size was measured by using natural log of sales, Hoskisson (1987).

As far as explanatory variables are concerned, dependent and independent variables are linked to test the hypothesis using three models approach through multiple regression as a popular technique in business research domain. These models are classified and further explained (a) Leverage Model, (b) Market Risk (β) Model and (c) Corporate Performance Model. It is detailed as follows:

(a) The Leverage Model

The Dependent Variable of the model is Capital Structure (Leverage), which is alternatively measured by Total Debt to Total Assets (TDTA), Total Debt to Total Equity (TDTE), Long Term Debt to Total Assets (LTDTA), and Short-Term Debt to Total Assets (STDTA), Alonso (2003). The Independent Variables on the other hand would be Diversification, Corporate Profitability, and Corporate Growth. The equation *(i)* for the model is given below:

$$y_i^L = \Psi_0 + \Psi_1 DI + \Psi_2 PROF + \Psi_3 GROW + \Psi_4 SIZ + \Psi_5 AT + u_i \quad \text{----------(i)}$$

Where *i* refers to the entity corporate and *y* is leverage of corporate *i*. The independent variables are represented by **Diversification Index, Profitability, Growth, Size and AT**. Four measures of leverage are used in the research: TDTA, TDTE, LTDTA and STDTA. Thus, hypothesis - H1 related with the leverage model, shows the positive and significant relationship with the real estimator - **Corporate Size**.

(b) Market Risk (β) Model

The Dependent Variable of the model is systematic risk β and the independent variables being is Capital Structure (Leverage), which is alternatively measured by Total Debt to Total Assets (TDTA), Total Debt to Total Equity (TDTE), Long Term Debt to Total Assets (LTDTA), and Short-Term Debt to Total Assets (STDTA), profitability, growth and corporate size. The equation *(ii)* for the model is given below:

$$y_i^\beta = \Psi_0 + \Psi_1 DI + \Psi_2 LEV + \Psi_3 PROF + \Psi_4 GROW + \Psi_5 SIZ + u_i \quad \text{----------(ii)}$$

Where *i* refers to the entity corporate and *y* is alternately systematic risk of corporate *i* as a measure of market risk. The independent variables are represented by **Diversification Index, Leverage, Profitability, Growth and Size**. Four measures of leverage are used in the study: TDTA, TDTE, LTDTA and STDTA. Therefore, hypothesis - H2, H3 and H4 related with market model, shows the positive and significant relationship with the real estimator - **Profitability**.

(c) Corporate Performance Model

The dependent variable for this model would be corporate performance value, which is alternatively measured by PE, ROA, and ROE. Subsequently the Independent Variables would be diversification Index, Corporate Leverage, and Corporate Growth. The equation for the model is given below in equation *(iii)*:

$$y_i^P = \Psi_0 + \Psi_1 DI + \Psi_2\ LEV + \Psi_3\ GROW\ + \Psi_4\ SIZ + + u_i \quad \text{----------(iii)}$$

Where *i* refers to the entity corporate and *y* is alternately PE, ROA and ROE for corporate *i* as a measure of corporate performance. The independent variables are represented by **Diversification Index, Leverage, Growth and Size**. Four measures of leverage are used in the study: TDTA, TDTE, LTDTA and STDTA. Hence, hypothesis - H5 and H6 related with corporate performance model, shows the positive and significant relationship with the real estimators - **Growth and Size** respectively.

Descriptive Statistics and Regression Analysis

The following section presents descriptive statistics as well as regression analysis to estimate the regression equation precisely as mentioned in the Table I.

Table I: Summary Statistics of the Explanatory Variables

Variable	Mean	Median	Max	Min	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Probability
TDTA	0.34	0.35	0.97	0.00	0.25	0.24	2.21	1.58	0.45
TDTE	1.63	0.82	13.30	0.00	2.25	3.34	17.42	463.16	0.00
LTDTA	0.12	0.07	0.55	0.00	0.15	1.32	3.70	13.72	0.00
STDTA	0.11	0.08	0.68	0.00	0.14	2.30	9.24	110.21	0.00
PE	17.37	10.93	79.70	-18.71	21.84	1.43	4.57	19.53	0.00
ROA	0.04	0.03	0.25	-0.10	0.05	1.20	7.22	43.30	0.00
ROE	6.35	4.27	27.74	-17.87	8.68	0.47	3.98	3.39	0.18
PROF	0.13	0.11	0.33	0.00	0.07	1.13	4.18	12.00	0.00
GROW	0.71	0.93	1.00	0.00	0.42	-1.09	2.27	9.68	0.01
SIZ	3.52	3.51	4.90	1.31	0.76	-0.34	3.27	1.00	0.61
DI	0.49	0.51	0.95	0.00	0.23	-0.37	2.55	1.37	0.50
BETA	0.01	0.00	0.05	-0.01	0.01	1.78	5.94	39.13	0.00

Note: TDTA = total debt to total assets; TDTE = total debt to total equity; LTDTA = long-term debt to total assets; STDTA = short-term debt to total assets; PE = market price of common stock / earnings per share; ROA = profit after tax / total assets; ROE = profit after tax / no. of shares outstanding; PROF = EBIT + depreciation / total assets; GROWTH = total assets = book value of equity + market value of equity / total assets; SIZE = ln(sales); DI = Herfindahl Index, HI = $\sum_{i=1}^{N} S_i^2$; Beta (Systematic Risk) = Cov (R_i, R_m)/Var (R_m)

The Table I above reported summary statistics for the variables used in the study. The total debt to total assets (TDTA) for the sample as a whole is 34.32%, minimum is 0.0%, maximum is 97.32% and standard deviation of TDTA is 25.36%. This ratio was lower than the average TDTA ratio of East Asia companies (54%) and nearly equaled to the average TDTA ratio of Latin America companies (45%) Dilip Ratha, et al, (2003). The average TDTA ratio of few international companies is slightly higher than other few companies in Indian Stock Exchange – BSE and NSE. On comparing it to the international counterparts

as done in research work by Zingales and Rajan (1995) it can be seen that capital structure ratio measured by TDTA is 34% as compared to different countries like France (26%), Germany (20%), Italy (28%) and United Kingdom (21%) and Unites States (31%).
The average value of ratio total debt to total equity (TDTE) is about 163.33%, minimum is 0.0%, maximum is 1330.00% and standard deviation of TDTE is 225.17%. On comparison to the international data given in the Zingales and Rajan (1995), other companies have a lower TDTA ratio as compared to companies of G7 nation TDTE i.e., 163% versus France (220%), Germany (257%), Japan (201%) and United States (194%).
The average long-term debt to total assets (LTDTA) is 12.38%, minimum is 0.00%, maximum is 54.64% and standard deviation is 15.12%. This ratio was higher than the average LTDTA ratio of International companies. The average short-term debt to total assets (STDTA) is about 11.02%, minimum is 0.00%, maximum is 67.76% and standard deviation of STDTA is 13.65%. The average STDTA of other companies was lower than the average STDTA ratio of international companies.

Table II: Comparison of Capital Structure Ratios of G7 countries

	LTDTA	LTDTA (Calculated)	STDTA	STDTA (Calculated)
Canada	37.2	12.38	23	11.02
France	25		43	
Germany	42		30	
Italy	24		43	
Japan	25		42	
United Kingdom	18		40	
United States	33		33	

Source: Global Vantage Data base, Zingales and Rajan (1995)

If we compare the same ratio with that of G7 countries data shown in Table II referred by Zingales and Rajan (1995), LTDTA ratio of other companies LTDTA was relatively low 12.38% versus Canada (37.2%), France (25%), Germany (42%), Italy (24%), Japan (25%), United Kingdom (18%) and United States (33%). In term of STDTA (11.02%), the STDTA of international companies was non-similar and higher than countries like Canada (23%), France (43%), Germany (30%), Italy (43%), Japan (42%), United Kingdom (40%) and United States (33%).
From the descriptive data of leverage ratios it can be concluded that diversified companies in Indian Stock Exchange rely on short-term debt than long-term debt as the key source of fund for their business operations. Since, stock markets, bond markets and mutual funds markets were undeveloped; commercial bank systems played a necessary and important role in providing lending to these corporate.
The average value of PE as shown in Table I is 17.37, the minimum value is -18.70, and where as the maximum is 79.69 and standard deviation is 21.83. Compared to international companies like Jordanian of Zeintun and Tian (2007), PE of international corporate is slightly higher i.e. 21.25 versus 17.37 of Indian Companies.
The average of ROA is 3.89, minimum is -0.10, maximum is 0.25 and standard deviation is 0.05. This market performance measure is lower than the average ROA of Jordanian companies on Amman Stock Exchange according to Zeitun and Tian (2007). Similarly, the average of ROE is 6.34, minimum is -17.87, maximum is 27.73 and standard deviation is 8.67 and the market performance measure was higher than the average of ROE of Jordanian companies listed in Amman Stock Exchange.

Table III: Correlation Matrix of the Explanatory Variables w.r.t. Corporate Leverage

	PROF	GROW	SIZ	DI
PROF	1.00			
GROW	0.05	1.00		
SIZ	-0.03	0.28	1.00	
DI	0.04	0.07	0.43	1.00

Note: PROF = Ebit + depreciation / total assets; GROWTH = total assets – book value of equity + market value of equity / total assets; SIZE = ln(sales); DI = Herfindahl Index, HI = $\sum_{i=1}^{N} S_i^2$

The correlation matrix for the variables are indicated in Table III. The results show that there was a positive relationship between growth and profitability, growth and asset tangibility, except size, which was negative, while size had a negative relationship with profitability and asset tangibility. This is implied that companies with high growth opportunities had higher profitability ratio specifically for the period 2008. It also implied that small corporate have high growth opportunity. This study is consistent with the study done by Myers (1977). This result was also similar to the result of Zeitun and Tian (2007) research.

Table IV: Correlation Matrix of the Explanatory Variables w.r.t. β

	TDTA	**TDTE**	**LTDTA**	**STDTA**	**PROF**	**GROW**	**SIZ**	**DI**	**BETA**
TDTA	1.00								
TDTE	0.40	1.00							
LTDTA	0.60	0.24	1.00						
STDTA	0.64	-0.01	0.14	1.00					
PROF	-0.10	-0.26	-0.26	0.09	1.00				
GROW	0.02	-0.09	0.16	-0.13	0.05	1.00			
SIZ	0.04	-0.11	0.12	-0.04	-0.03	0.28	1.00		
DI	-0.17	0.20	-0.13	-0.36	0.04	0.07	0.43	1.00	
BETA	-0.01	0.17	0.03	-0.15	0.05	0.10	0.11	-0.26	1.00

Note: TDTA = total debt to total assets; TDTE = total debt to total equity; LTDTA = long-term debt to total assets; STDTA = short-term debt to total assets; **:** PROF = ebit + depreciation / total assets; GROWTH = total assets – book value of equity + market value of equity / total assets; SIZE = ln(sales); TA = fixed tangible assets / total assets; DI = Herfindahl Index, HI = $\sum_{i=1}^{N} S_i^2$; Beta (Systematic Risk) = Cov (R_i, R_m)/Var (R_m)

The correlation matrix variables are outlined in Table IV in order to examine the correlation between the explanatory variables for model. The results showed that there was a positive relationship between growth and TDTA, growth and LTDTA, while TDTE and STDTA has a negative relationship with growth. Corporate size has a positive relationship with some leverage ratios like TDTA and LTDTA and growth, while has negative relation with TDTE and STDTA.

It can be implied that multinational companies with high growth opportunities generally use more long-term debt and use less short-term debt for financing. It is also implied that larger companies in terms of sales tend to have higher leverage ratio than smaller one.

Moreover, for the other variables like DI and BETA, wherein DI has positive relationship with TDTA, LTDTA, STDTA while TDTE, growth and size are in negative relation with DI. This result showed that diversification index approach has significant role with leverage ratios whereas growth and size are statistically weak such that diversification is aggravated by generation of growth opportunities from side to side formation of bigger markets.

The results showed that there was a positive relationship between BETA and TDTE, BETA and LTDTA, growth and BETA, size and BETA, while TDTA, STDTA and DI has

a negative relation with BETA. This can be interpreted that diversified companies are not exposed to systematic risks and these may have an impact not its overall performance but size and rowth. No companies should be considered 'as well large to fail'. It is likely for all companies to make a way out in the marketplace, in the methodical way without causing systematic harm to other.

Table V: Correlation Matrix of the Explanatory Variables w.r.t. Performance

	GROW	SIZ	DI
GROW	1.0		
SIZ	0.28	1.0	
DI	0.06	0.43	1.0

Note: GROWTH = total assets – book value of equity + market value of equity / total assets; SIZE = ln (sales); DI = Herfindahl Index, HI = $\sum_{i=1}^{N} S_i^2$

The correlation matrix for the variables is outlined in Table – V in order to examine the correlation between the explanatory variables for corporate performance model. Corporate size is also seen to have a strong relationship with corporate growth. Diversification is expected to have a positive correlation with size declaring that an increase in diversity of the company, the firm size increases.

Results and Discussions

The results of the estimation of leverage model with each of the leverage measures and for the full sample of observations from the period 2006-2011 were displayed in Table VI.

Table VI: Estimate Results (Corporate Leverage)

		TDTA	TDTE	LTDTA	STDTA
Constant		0.30	3.75	0.09	0.10
PROF		-0.62	-10.31	-0.64	0.12
	t-Statistics	-1.33	-2.19	-2.02	0.48
	Prob.	0.19	0.03	0.05	0.63
GROWTH		-0.09	-0.47	0.02	-0.09
	t-Statistics	-1.09	-0.57	0.42	-2.00
	Prob.	0.28	0.57	0.68	0.05
SIZE		0.00	-0.91	0.02	0.02
	t-Statistics	-0.05	-1.84	0.51	0.69
	Prob.	0.96	0.07	0.62	0.49
DI		0.00	-4.09	0.05	0.16
	t-Statistics	-0.02	-2.49	0.47	1.83
	Prob.	0.98	0.02	0.64	0.07
No. Observations		44	44	44	44.0
R-squared		0.41	0.23	0.23	0.38
Adjusted R - squared		0.34	0.13	0.13	0.29
S.E. of regression		0.21	2.10	0.14	0.11
Sum squared residual		1.62	167.02	0.76	0.50

*All p values at 0.05 level of significance.

Note: TDTA = total debt to total assets; TDTE = total debt to total equity; LTDTA = long-term debt to total assets; STDTA = short-term debt to total assets; PROF = ebit + depreciation / total assets; GROWTH = total assets – book value of equity + mark value of equity / total assets; SIZE = ln(sales); TA = fixed tangible assets / total assets; DI = Herfindahl Index, HI = $\sum_{i=1}^{N} S_i^2$

From *hypothesis 1 (H_1)*, the corporate size is expected to have a strong effect on a capital structure. From the regression results in Table I, corporate size was found to have a positive and significant effect on the leverage measures LTDTA and STDTA, but was not significantly related to TDTA and TDTE leverage measures. An explanation for the positive effect of size on leverage was provided by Rajan and Zingales (1995) that larger

corporate were more diversified and had a lower probability of being in financial distress or safeguard against the expected costs of bankruptcy. Lower expected bankruptcy costs enabled them to take on more leverage. Size might be a proxy for the (inverse) probability of default. If so, it should not be strongly positively related with leverage in countries, where costs of financial distress were low. The results indicated that the cost of financial distress companies were low and some as compared to companies with higher sizes of sales would use more debt to finance their operating. Therefore, based on the result, hypothesis 1 is accepted: the corporate size is expected to have a strong effect on capital structure.

In *hypothesis 2 (H_2)*, the relationship of systematic risk beta is seen with corporate capital structure measured by TDTA, TDTE, LTDTA and STDTA. Table VII describes the relationship between systematic risk of a company measured by beta and capital structure measured by TDTA i.e. total debt to total assets. The table clearly predicts a very week/ negligible relationship between systematic risk of the corporate and capital structure. In case of TDTE i.e. total debt to total equity the value reflected is 0.000846.

A week relationship is seen between the variables i.e. it can be said that change in capital structure does not significantly impacts the systematic risk of the diversifying corporate. A similar week observation is drawn from the Long term debt to total assets, LTDTA i.e. 0.005392. On the other hand short term debt to total assets STDTA reflects a very insignificant but a reverse relationship between systematic risk beta and capital structure i.e. -0.005717. But more or less it can be deduced from the observations that there is no significant relationship between systematic risk beta and capital structure, thus accepting the hypothesis. This can be observed in graphical representation in Figure I shown below:

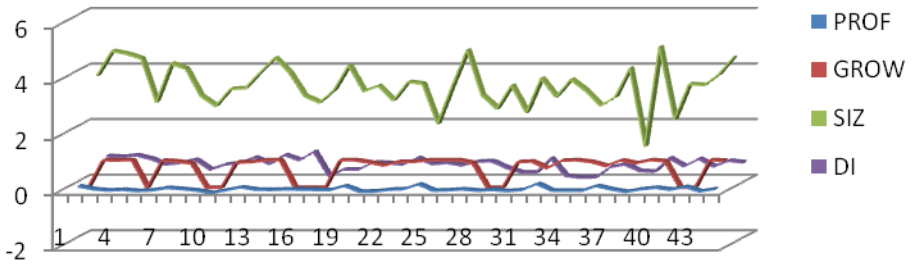

Figure I: Graphical representation of Leverage Model
Source: CMIE (Centre for Monitoring Indian Economy) Database, Prowess (Year 2012).

Similarly for *hypothesis 3 (H_3)*, Table VII-X, which describes the relationship between systematic risk of a company measured by beta, and profitability under different measures of capital structure. As the risk of the corporate increases the profitability is expected to rise. In the table a similar result can be seen, that the profitability to increase with the risk with a value of 0.006618 with TDTA , this value further increases with TDTE 0.013834 and attains its maximum value, and is 0.008974 with LTDTA and 0.007334 with STDTA. Thus it can be seen that profitability bears a positive but not a very strong relationship with systematic risk in case of TDTA, LTDTA and STDTA but bears still a stronger positive relationship with TDTE. Thus it can be concluded that on the biases of the table value observed the above hypothesis is accepted.

Table VII-X: Estimate Results for β

VI : using TDTA	β	VII : using TDTE	β	VIII : using LTDTA	β	IX : using STDTA	β
Constant	0.00	Constant	0.00	Constant	0.00	**Constant**	0.00
TDTA	0.00	**TDTE**	0.00	**LTDTA**	0.01	**STDTA**	-0.01
t-Statistics	0.23	t-Statistics	0.92	t-Statistics	0.40	t-Statistics	-0.37
Prob.	0.82	Prob.	0.36	Prob.	0.69	Prob.	0.71
PROF	0.01	**PROF**	0.01	**PROF**	0.01	**PROF**	0.01
t-Statistics	0.24	t-Statistics	0.48	t-Statistics	0.31	t-Statistics	0.26
Prob.	0.81	Prob.	0.63	Prob.	0.76	Prob.	0.80
GROWTH	0.00	**GROWTH**	0.00	**GROWTH**	0.00	**GROWTH**	0.00
t-Statistics	0.52	t-Statistics	0.55	t-Statistics	0.46	t-Statistics	0.45
Prob.	0.61	Prob.	0.59	Prob.	0.65	Prob.	0.66
SIZE	0.00	**SIZE**	0.00	**SIZE**	0.00	**SIZE**	0.00
t-Statistics	-0.15	t-Statistics	0.09	t-Statistics	-0.18	t-Statistics	-0.05
Prob.	0.88	Prob.	0.93	Prob.	0.86	Prob.	0.96
DI	0.01	**DI**	0.01	**DI**	0.01	DI	0.01
t-Statistics	-1.53	t-Statistics	-1.19	t-Statistics	-1.56	t-Statistics	-1.24
Prob.	0.13	Prob.	0.24	Prob.	0.13	Prob.	0.22
No. Observations	44	**No. Observations**	44	**No. Observations**	44	**No. Observations**	44
R-squared	0.08	**R-squared**	0.10	**R-squared**	0.08	**R-squared**	0.08
Adjusted R-squared	-0.04	**Adjusted R-squared**	-0.02	**Adjusted R-squared**	-0.04	**Adjusted R-squared**	-0.04
S.E. of regression		**S.E. of regression**	0.01	**S.E. of regression**	0.01	**S.E. of regression**	0.01
Sum squared residual	0.01	**Sum squared residual**	0.01	**Sum squared residual**	0.01	**Sum squared residual**	0.01

p value < 0.05 significance level

Note: PE = market price of common stock / earnings per share; ROA = profit after tax / total assets; ROE = profit after tax / no. of shares outstanding; TDTA = total debt to total assets; GROWTH = total assets – book value of equity + mark value of equity / total assets; SIZE = ln(sales); DI = Herfindahl Index, HI = $\sum_{i=1}^{N} S_i^2$; Beta (Systematic Risk) = Cov (R_i, R_m)/Var (R_m)

The same can be observed in graphical representation in Figure II shown below:

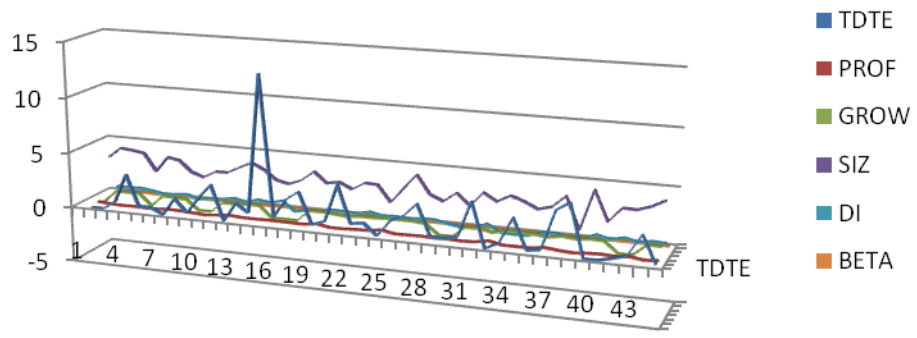

Figure II: Graphical representation of Market Risk (β) Model
Source: CMIE (Centre for Monitoring Indian Economy) Database, Prowess (Year 2012).

For *hypothesis 4 (H_4)*, the Tables VII - X mentioned above depicts the relationship between systematic risk beta and corporate size in different measures of capital structure. The values obtained in case of TDTA, TDTE, LTDTA and STDTA are -0.000450, 0.000252, -0.000540 and -0.000163 respectively. The negative but statistically insignificant relationship between size and systematic risk indicates that as the size of the corporate increases the systematic risk of the corporate keep on reducing because the risk bearing capacity of the corporate increases. Only in case of TDTE i.e. total debt to total assets the

value obtained is positive but stronger than other counterparts. Thus it can be concluded that size of the corporate has no significant relationship with the systematic risk, thus accepting the hypothesis.

From *hypothesis 5 (H_5)*, growth opportunities increase corporate performance. From the regression results from Table XI, Table XII, Table XIII, and Table IV, growth was found to have a positive and significant effect on the corporate performance measure PE, ROA and ROE. The high growth rates were associated with the lower cost of capital and high corporate value PE, ROA and ROE. This finding was not consistent with Myers (1977), but supports the pecking order theory that high growth corporate had a greater need for funds and therefore could be expected to borrow more. According to the results, hypothesis 5 is accepted that growth opportunities which increases corporate performance.

According to *hypothesis 6 (H_6)*, predicted that a corporate size is expected to have a strong effect on a corporate performance. From the regression results from Table XI, Table XI, Table XII, and Table XIII, the coefficient of corporate size was significantly and positively related with PE, ROA and ROE for corporate performance model using TDTA, TDTE, LTDTA and STDTA. The significant of corporate size indicated that large corporate had larger market value compared to smaller corporate. This result was consistent with previous findings of Zeitun and Tian (2007). However, the coefficient of corporate size was significantly and positively related with PE, ROA and ROE for model corporate performance using all variables – TDTA, TDTE, LDTA and STDTA. The significant effect of corporate size on corporate market value was consistent with previous studies of many researchers. Based on the regression results, Hypothesis 6 is accepted, where corporate size is expected to have a strong effect on a corporate performance.

Table XI & XII: Estimate Results for CP

X: using TDTA				**XI: using TDTE**			
	PE	ROA	ROE		PE	ROA	ROE
Constant	1.90	0.04	-8.23	**Constant**	-0.75	0.04	-7.12
TDTA	-9.48	0.02	0.06	**TDTE**	-0.10	0.00	-0.40
t-Statistics	-0.69	0.64	0.01	t-Statistics	-0.06	-0.17	-0.69
Prob.	0.49	0.53	0.99	Prob.	0.95	0.86	0.50
GROWTH	4.05	0.00	4.72	**GROWTH**	4.05	0.00	4.63
t-Statistics	0.47	0.23	1.49	t-Statistics	0.47	0.22	1.46
Prob.	0.64	0.82	0.15	Prob.	0.64	0.83	0.15
SIZE	4.33	0.00	3.03	**SIZE**	3.83	0.00	2.76
t-Statistics	0.83	0.18	1.56	t-Statistics	0.72	0.22	1.41
Prob.	0.41	0.85	0.13	Prob.	0.48	0.83	0.17
DI	1.27	-0.03	1.15	**DI**	3.97	-0.04	2.32
t-Statistics	-0.08	0.76	-0.18	t-Statistics	-0.23	0.82	-0.36
Prob.	0.94	0.45	0.86	Prob.	0.82	0.42	0.72
No. Observations	44	44	44	**No. Observations**	**44**	**44**	**44**
R-squared	0.05	0.03	0.17	**R-squared**	0.04	0.02	0.18
Adjusted R-squared	-0.05	-0.07	0.08	**Adjusted R-squared**	-0.06	-0.08	0.09
S.E. of regression	22.36	0.06	8.32	**S.E. of regression**	22.50	0.06	8.27
Sum squared residual	19505.43	0.12	2702.21	**Sum squared residual**	19741.11	0.13	2670.05

p value < 0.05 significance level

Note: PE = market price of common stock / earnings per share; ROA = profit after tax / total assets; ROE = profit after tax / no. of shares outstanding; TDTA = total debt to total assets; GROWTH = total assets – book value of equity + mark value of equity / total assets; SIZE = ln(sales); DI = Herfindahl Index, HI = $\sum_{i=1}^{N} S_i^2$

Table XIII & IV: Estimate Results for CP

12: using LTDTA				13: using STDTA			
	PE	ROA	ROE		PE	ROA	ROE
Constant	-1.09	0.04	-8.00	**Constant**	-2.21	0.03	-6.40
LTDTA	1.94	-0.09	-5.93	**STDTA**	7.96	0.06	-12.11
t-Statistics	0.08	-1.49	-0.69	t-Statistics	0.29	0.94	-1.21
Prob.	0.93	0.14	0.50	Prob.	0.77	0.35	0.23
GROWTH	3.98	0.01	4.99	**GROWTH**	4.49	0.01	4.09
t-Statistics	0.46	0.41	1.57	t-Statistics	0.52	0.38	1.29
Prob.	0.65	0.68	0.12	Prob.	0.61	0.71	0.20
SIZE	3.83	0.01	3.24	**SIZE**	3.62	0.00	3.46
t-Statistics	0.73	0.50	1.67	t-Statistics	0.68	0.09	1.80
Prob.	0.47	0.62	0.10	Prob.	0.50	0.93	0.08
DI	-3.95	0.05	-0.29	**DI**	5.74	-0.02	-2.00
t-Statistics	-0.23	1.20	-0.05	t-Statistics	-0.32	0.47	0.30
Prob.	0.82	0.24	0.96	Prob.	0.75	0.64	0.76
No. Observations	44	44	44	**No. Observations**	**44**	**44**	**44**
R-squared	0.04	0.08	0.18	**R-squared**	0.04	0.04	0.20
Adjusted R-squared	-0.06	-0.02	0.09	**Adjusted R-squared**	-0.06	-0.05	0.11
S.E. of regression	22.50	0.06	8.27	**S.E. of regression**	22.48	0.06	8.17
Sum squared residual	19739.54	0.12	2670.02	**Sum squared residual**	19700.77	0.12	2604.69

p value < 0.05 significance level

Note: PE = market price of common stock / earnings per share; ROA = profit after tax / total assets; ROE = profit after tax / no. of shares outstanding; LTDTA = long-term debt to total assets; GROWTH = total assets – book value of equity + mark value of equity / total assets; SIZE = ln(sales); DI = Herfindahl Index, HI = $\sum_{i=1}^{N} S_i^2$

The same can be observed in graphical representation in Figure III shown below:

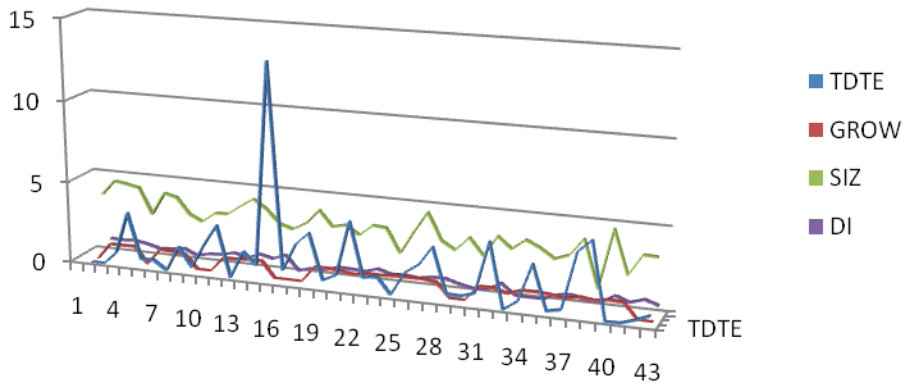

Figure III Graphical representation of Corporate Performance Model
Source: CMIE (Centre for Monitoring Indian Economy) Database, Prowess (Year 2012).

To summarize hypothesis testing, the corporate capital structure was a significant determinant of corporate performance. A corporate leverage had positive and significant effect on corporate value PE, ROA and ROE. The significance of the corporate performance measure PE, ROA and ROE indicated that the International equity market was efficient, so the best corporate performance measure was all. Corporate growth opportunities had a positive and significant impact on the corporate value PE. Furthermore,

corporate size had also a positive impact on corporate value. This finding was further support the argument that bankruptcy costs increased with size, as well as economies of scale in transactions costs associated with short-term debt that were available to smaller corporate.

Conclusion

Number of authors has suggested the utility and analysis of corporate diversification strategy in light of corporate capital structure, systematic risk and financial corporate performance. Following this line of research, the relationship between capital structure and corporate diversification strategy was studied for a sample of 44 Indian corporate during the period 2006-2011.

According to the analysis Systematic risk was theoretically expected to have a positive relationship with capital structure but was reported to have no relationship. Moreover a positive but statistically week relationship exists between systematic risk and other parameters like corporate profitability and corporate size. On the contrary corporate growth is found to have a negative relationship with systematic risk. Although diversification reduces the operating risk, the systematic risk is basically unchanged because the corporate increases its financial leverage to take advantage of larger tax deductions of interest expense. Since there is minimal effect of systematic risk due to diversification, the cost of capital remains indifferent. Similarly, beta is a very close proxy to capture the systematic risk of the corporate, but many researchers believe that there are many anomalies in measuring the systematic risk of the corporate. Due to this researchers like Hansen (2013) feel that there are important conceptual challenges that go along with the use of explicit dynamic economic models for measuring confront risk and uncertainty.

The study found a significant relationship between capital structure and other two variables, corporate profitability and corporate size. This clearly reflects that by increasing the debt finance to a certain range there will be a positive impact on the profitability as well as the assets of the company will grow. This will directly impact the shareholder value and the stock price of that particular corporate.

Corporate performance is seen to have a positive relation with both corporate growth and corporate size. This implies that diversified corporate improves there financial performance due to enhanced competitiveness and leads to greater corporate growth and increased corporate size. The results of the study could be further improved by using better performance ratios like Tobin's Q etc., which are popular and widely accepted measures of gauging corporate performance.

In the light of all the above justifications and limitations it can be concluded that the trend towards increasing degrees of corporate diversification could prove to be quite valuable to the strategists who are attempting to improve his corporate performance through effective management of the diversity, experienced in a multi business corporate. Moreover, future studies could employ different measures of product and geographical diversification, according to the degree of relatedness of product segments, to check the effect of said variables on capital structure decisions.

Suggestions for Future Research

Even though researchers have acknowledged some useful results, there are some important dimensions into which this study could be further extended. Future research could also obtain corporate descriptions in larger way. Use of important ratios reflecting the financial corporate performance like Tobin's Q, Entropy Index (EI), Uttons Index (UI) etc to

measure diversification index could be used to draw more meaningful and comprehensive results. Due to elusive nature of research, there is difficulty in pursuing such lines of research specifically in its implementation. Most of the studies discussing the effect of diversification strategy on performance and other variables have concluded on confirmatory analysis. Very few studies have dealt with the implementation perspective. On this issue, this research area has received criticism globally. Therefore the researchers suggest that if this weakness is addressed aptly, this research could be a breakthrough for Indian companies for achieving sustainable growth.

Acknowledgement
Authors wish to express their deep gratitude towards all the researchers who contributed in this original research work, carried out at L.M. Thapar School of Management, Thapar University, Patiala (Punjab) India. Special thanks to Centre for Monitoring Indian Economy Pvt. Ltd. (CMIE) for sharing authentic data on Indian corporate sector used in analysis.

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To cite this article:

Manrai, R., Rameshwar, R., & Nangia, V.K. (2014). Does Diversification Influence Systematic Risk and Corporate Performance? An Analytical and Comprehensive Research Outlook. *Global Business and Management Research: An International Journal,* 6(2), 93-111.