Volume 17 Issue 32
Originally issued as C7



Global Journal of Management and Business Research: C Finance
Volume 17 Issue 7 Version 1.0 Year 2017
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

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Keywords: *financial, leverage, risk, ratios.*

GJMBR-C Classification: *JEL Code: F65*



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I. Introduction

Financial leverage involves changes in shareholders' income in response to changes in operating profits, resulting from financing a company's assets with debt or preferred stock. If a company is financed with debt or is 'leveraged,' however, its shareholder earnings will become more sensitive to changes in operating profit. Nevertheless, financial leveraging makes companies equally susceptible to greater decreases in stockholder earnings if operating profits drop. Financial leverage increases the chance or probability of insolvency. Due to insolvency a levered firm can legally be forced into liquidation for non-payment of interest charges. Leverage has both benefits and costs and it is not an unmixed blessing. As a company increases debt and preferred equities, interest payments increase, reducing EPS if return on investment does not cover cost of debt. As a result, risk to stockholder return is increased and they demand a higher expected return for assuming this additional risk, which in turn, raises a company's costs.

II. Statement of the Problem

Modigliani and Miller (1963) argued that the capital structure of a firm should compose entirely of debt due to tax deductions on interest payments. However, in theory, the Modigliani-Miller (MM) model is valid but, in practice, bankruptcy costs exist and these costs are directly proportional to the debt level of the firm. Hence, an increase in debt level causes an increase in bankruptcy costs which affect the financial performance of a firm. Therefore an optimal capital structure can only be attained if the tax sheltering benefits provided by increase of debt level is equal to the bankruptcy costs. In this case, managers of the firms should be able to identify when this optimal capital structure is attained and try to maintain it at the same level. This is the only way that the financing costs and the weighted average cost of capital are minimized which leads to increase of firm value and corporate performance. Schall and Haley (1991) stated that some of the complications found in practice provide advantages to debt financing whereas other factors favor equity financing. They found three types of complications-firstly capital markets are imperfect. There are information asymmetries and transaction costs which imply that there may be situations where debt or preferred stock financing may be unusually costly relative to common stock and vice versa. Secondly there are legal fees, investment banking commissions and other expenses associated with issuing securities. Issuing equity is usually more expensive than issuing preferred stock and issuing debt is less expensive than to issue preferred stock. Thirdly use of debt financing often results in serious disruption of the firm's business activity as top management spends time in negotiations with lenders while lower management starts thinking about alternative jobs. It is described as follows:

Customers for the firm's products and services began to search for other suppliers. The firm may be forced to delay or forego profitable investments due to lack of finance. There are also legal and other expenses associated with the legal proceedings in bankruptcy situations. At some point the expected costs of default become large enough to offset the advantages of debt. Firms with large amount of outstanding debt may have other problems. Lenders are reluctant to lend additional money to firms that are highly levered and they may

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either not lend money or charge a very high interest rate to compensate for their exposure to risk. The general opinion is that, beyond some point, additional leverage is undesirable.

III. Literature Review

Allen (1983) states that financial risk is the risk which arises solely from the company's financial structure. The 'gearing up' or increasing the proportion of fixed interest securities is regarded as increasing the company's financial risk. According to Gitman (2007), "Financial risk can be defined as the chance that the firm will be unable to cover its financial obligations. Level is driven by the predictability of the firm's operating cash flows and its fixed cost financial obligations." Brigham and Houston (2001) stated that financial risk is the additional risk placed on the common stockholders as a result of the decision to finance with debt. If a firm uses debt or financial leverage, this concentrates the business risk on common stockholders. Schall and Haley (1991) explained financial leverage as the changes of shareholders income to changes in Earnings Before Interest and Taxes and is formed by debt or preferred stock financing with fixed interest and dividend payments. According to trading on equity, financial leverage enhances EPS which increases market price of common stock. However, the use of higher debt can lead to financial difficulties. Peirson and Bird (1981), noted that financial risk is that part of a company's risk that is introduced as a result of debt financing. The used of borrowed fund by a company exposes its ordinary shareholders to the possibility of increased variability in their earnings stream and the firm to the increased possibility of bankruptcy. This results from the contractual nature of the interest payments and principal repayments on the borrowed funds. Thus a firm's financial risk is directly related to the proportion of debt.

Hussan (2016) has investigated on impact of leverage on risk of the companies. He explored that the leverage enhances the financial risk of the firm which indicates recovery of loss in terms of loan is very difficult to the firm because in general there are limited sources of alternative funding and business insurance policy is not popular in Bangladesh. It also found that high interest rate and unethical political influence negatively manipulate the profitability of the firm. Akbari and Mohammadi (2013) have investigated the effects of leverages ratio on systematic risk based on the CAPM in Tehran Stock Market. The aim of the study was to determine if there is any significant relationship between leverages ratio as independent variables and beta as dependent variables. The results of the study revealed that there is not significant relationship between the variables. Bhatt and Sultan (2012) in their study found that the leverage risk factor performs consistently across various categories of firms and its impact is more pronounced during the recent financial crisis. Effects of leverage risk are robust to heterogeneity of the firms in the sample. The contribution of leverage risk to asset pricing has been quite strong. The results indicate that leverage based risk factor can explain a substantial portion of the cross-section of stock returns.

Gunarathna (2016) in his study examined how financial leverage affects financial risk based on the data collected over ten years ranging from 2006 to 2015 regarding 15 companies listed in the Colombo Stock Exchange. The findings revealed that financial leverage positively correlate with financial risk. The findings imply that firms having a higher financial risk can avoid their risk by altering the capital structure. Ufo (2015) has conducted a study to examine the relationship between leverage and manufacturing firms' financial distress in Ethiopia from 1999-2005. The result showed that leverage has negative and significant influence on financial distress. Minimize the bank loans through equity financing, improving cash collection and reducing bad debt expenses are remedy for maintaining short term cash problem.

IV. Objective of the Study

The main objective of the study was to explore the impact of debt financing on financial leverage risk of firms. Specific objectives are:

a. To find out the three financial leverage ratios of sample firms.
b. To explore the financial leverage risk of sample firms based on coefficient of variation (CV) and mean absolute deviation.
c. To analyze the significance of regression coefficients of leverage ratios and make a comparison between MNCs and domestic companies.

V. Methodology of the Study

Type of Research: Type of research is explanatory or causal. An attempt was made to identify cause and effect relationship between financial leverage and financial risk. Nature of research is Empirical and research approach is Quantitative.

Population: Population one consists of all MNCs listed on DSE which continue operation during the study period. Eight MNCs are found in 6 industrial sectors. Population two consists of all DSE listed domestic companies of the same 6 industrial sectors and which continue operations during the study period. Population size is 45.

Types of Data: Secondary data was used. The research method employed basically involved quantitative analysis of secondary data. Nature of data is both time series and cross sectional.

Sources of Data: Books, Journals, Company documents, Annual reports of sample firms, Reports of

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Securities and Exchange Commission and Dhaka Stock Exchange (DSE) and Websites of sample firms and DSE. Study period is from year 1996 to 2015.

Sampling Technique: Stratified Sampling technique was applied for the selection of sample items of population one. Each of the two populations has been divided into several sub-populations or strata according to industry sector or type of industry. For the sake of comparison with the MNCs, it is necessary to select only those domestic companies that are performing well and on a consistent basis. So, Quota Sampling method was applied in selecting sample firms of population two.

Sample Size & Sample Items: The sample in this study consists of 14 companies (7 from each population) listed in Dhaka Stock Exchange (DSE). Two companies are selected from Pharmaceuticals & Chemicals industry and one company is selected from Engineering, Food & Allied, Tannery, Cement and Fuel & Power industry in each category. Name of the domestic companies are: Aftab Automobiles Ltd., Agricultural Marketing Company Ltd., Beximco Pharmaceuticals Ltd., Square Pharmaceuticals Ltd., Apex Footwear Ltd., Confidence Cement Ltd., and Padma Oil Company Ltd. Name of the MNCs are: Singer Bangladesh Ltd., British American Tobacco Bangladesh Company Ltd., GlaxoSmithKline Bangladesh Ltd., Reckitt Benckiser (Bangladesh) Ltd., Bata Shoe Company Ltd., Heidelberg Cement Bangladesh Ltd., and Linde Bangladesh Ltd.

Techniques of Data Analysis: Mean is used to determine yearly average and grand average. Collected data has been processed by MS Excel, SPSS and Gretl software. Presentation of data is done in two forms; text and tabular. Multiple regressions have been used to explore independent variables' degree of influence and direction of relationship with dependent variable. Ordinary Least Square (OLS) method has been applied to estimate the coefficients of financial risk models of MNCs and domestic companies. *F* statistic and coefficient of determination or r^2 value was used to measure overall goodness to fit of the models. Normality test has been done by Kolmogorov-Smirnov, Shapiro-Wilk and chi-square test. Data stationary has been judged by Augmented Dickey Fuller (ADF) test. Variance Inflation Factor (VIF) has been used to test multicollinearity among variables. Autocorrelation has been judged by Durbin-Watson (DW) statistic and Breusch-Godfrey test (also called LM test). Breusch-Pagan test has been used to judge heteroscedasticity in residuals.

VI. Results and Discussion

a) Analyzing Impact of Leverage on Financial Risk By FLR Models

In analyzing effect of leverage on financial risk, 2 ratios of FLR (CV and MAD) are considered explained or dependent variables and 3 financial leverage ratios are used as explanatory or independent variables. As EBIT and EPS are directly related with FLR so these variables are considered as independent variables. Debt financing depends on sales growth because higher sales growth ultimately results in higher internal financing which reduces the necessity of debt financing and vice-versa. The same matter also applies to net profit margin. Financial structure depends on firm size also because cost of borrowed fund depends on assets of the firm. So, sales growth, net profit margin and firm size are used as explanatory or independent variables in the model. The model is as follows:

$$\text{FLR (Financial Leverage Risk)} = \alpha_0 + \beta_1 TD/TA + \beta_2 TD/SE + \beta_3 TD/CE_t + \beta_4 SG + \beta_5 FS_t + \beta_6 EBIT + \beta_7 EPS + \beta_8 NPM + \varepsilon_{i,t}$$

Where: α_0 = Constant term, β_1 to β_8 = Coefficients of variables, $\varepsilon_{i,t}$ = Random error term

Explained or dependent variables (Financial risk): FLR (CV) and FLR (MAD) are used as indicators of financial leverage risk

Explanatory or independent variables of the interest (Financial Leverage ratios)

Debt to Assets ratio (TD/TA), Debt-Equity ratio (TD/SE) and Debt to Capital Employed ratio (TD/CE) are used as indicators of financial leverage.

Other Explanatory or independent variables

Firm Size (FS), Sales Growth (SG), Net Profit Margin (NPM), Earnings Before Interest & Taxes (EBIT) and Earnings Per Share (EPS) are used as other independent variables.

In the above model, all variables are the average values of seven companies of each category in each year.

i. *Effect of Leverage on Financial Risk*

Estimates of the Models

The coefficient tables show the results of fitting a multiple linear regression model to describe the relationship between 2nd difference of dependent variable and seven independent variables.

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a. *Model D1(FLR-CV)*

Coefficients of model D1 (FLR-CV) is as follows:

Table 1: Coefficient table D1 [Dependent Variable: 2nd difference of FLR(CV)]

2nd difference of variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.001	.030		-.043	.967
TD/TA	.558	.800	.164	.698	.503
TD/SE	.119	.046	.600	2.605	.029**
NPM	-.043	.011	-.721	-3.887	.004***
SG	-.002	.002	-.196	-.887	.398
FS	.218	.391	.133	.557	.591
EPS	.009	.015	.126	.563	.587
EBIT	.0003	.001	-.136	-.647	.534

Note: Data processed on SPSS **Significant at 5%, ***Significant at 1%

The equation of the fitted model is:
dd_FLR(CV) = - 0.001 + 0.558*dd_TD/TA + 0.119*dd_TD/SE - 0.043*dd_NPM - 0.002 *dd_SG + 0.218*dd_FS + 0.009*dd_EPS - 0.0003*dd_EBIT
(dd_variable = 2nd difference of variable)

Leverage ratios are positively related with financial leverage risk. If 2nd difference of TD/SE and TD/TA is changed by 1 or 100%, then 2nd difference of FLR (CV) would change by 0.558 and 0.119 respectively or in other words, 1% changes of 2nd difference of TD/SE and TD/TA results in 0.005 and 0.001 change in 2nd difference of FLR (CV) respectively.

b. *Model D2 (FLR-MAD)*

The equation of fitted model is:
dd_FLR(MAD) = 0.007 - 0.029*dd_NPM + 0.315*dd_TD/TA + 0.004*dd_TD/SE - 0.001*dd_SG + 0.449*dd_FS + 0.024*dd_EPS - 0.0004*dd_EBIT
(dd_variable = 2nd difference of variable)
Coefficients of model D2 (FLR-MAD) is as follows:

Table 2: Coefficient table D2 [Dependent Variable: 2nd difference of FLR(MAD)]

2nd difference of variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.007	.023		.289	.779
TD/TA	.315	.629	.130	.500	.629
TD/SE	.004	.036	.027	.106	.918
NPM	-.029	.009	-.691	-3.384	.008***
SG	-.001	.002	-.164	-.675	.516
FS	.449	.308	.384	1.459	.178
EPS	.024	.012	.489	1.979	.079*
EBIT	.0004	.000	-.206	-.889	.397

Note: Data processed on SPSS *Significant at 10%, ***Significant at 1%

Second difference of leverage ratios are positively related with 2nd difference of FLR (MAD). If 2nd difference of TD/SE and TD/TA is changed by 1 or 100% then 2nd difference of FLR (MAD) would change by 0.004 and 0.315 respectively or in other words, 1% increase of 2nd difference of TD/SE and TD/TA results in 0.00004 and 0.0031 increases in 2nd difference of FLR (MAD) and vice-versa.

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c. *Model M 1(FLR-CV)*

Coefficients of model M1 (FLR-CV) is as follows:

Table 3: Coefficient table M1 [Dependent Variable: 2nd difference of FLR (CV)]

2nd difference of variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.013	.035		-.365	.723
TD/TA	6.549	2.358	.711	2.777	.021**
TD/SE	.900	.426	.413	2.111	.064*
1/NPM	6.041	2.959	.639	2.042	.072*
1/EPS	3.896	3.285	.360	1.186	.266
EBIT	.001	.000	.560	2.323	.045**
SG	.010	.003	.577	3.015	.015**
FS	-.218	1.041	-.043	-.210	.839

Note: Data processed on SPSS **Significant at 5%, *Significant at 10%

The equation of the fitted model is:

dd_FLR (CV) = - 0.013 + 6.041*dd_(1/NPM) + 3.896*dd_(1/EPS) + 6.549*dd_TD/TA + 0.90*dd_TD/SE + 0.001*dd_EBIT + 0.01*dd_SG - 0.218*dd_FS (dd_variable = 2nd difference of variable)

Leverage ratios are positively related with financial leverage risk. If 2nd difference of TD/SE and TD/TA is changed by 1 or 100%, then FLR (CV) [2nd difference] would change by 0.9 and 6.54 respectively or in other words, 1% increase of 2nd difference of TD/SE and TD/TA results in 0.009 and 0.065 increase in FLR (CV) [2nd difference] respectively and vice-versa.

d. *Model M2 (FLR-MAD)*

Coefficients of model M2 (FLR-MAD) is as follows:

Table 4: Coefficient table M2 [Dependent Variable: 2nd difference of FLR (MAD)]

2nd difference of variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.007	.035		-.206	.842
TD/TA	5.612	2.347	.596	2.391	.040**
TD/SE	.428	.424	.192	1.010	.339
1/NPM	8.988	2.946	.928	3.051	.014**
1/EPS	2.741	3.270	.247	.838	.424
EBIT	.000	.000	.298	1.270	.236
SG	.007	.003	.433	2.323	.045**
FS	-1.658	1.037	-.318	-1.600	.144

Note: Data processed on SPSS **Significant at 5%

The equation of the fitted model is:

dd_FLR (MAD) = -0.007 + 8.988*dd_(1/NPM) + 2.741*dd_(1/EPS) + 5.612*dd_TD/TA + 0.428*dd_TD/SE + 0.000*dd_EBIT + 0.007*dd_SG - 1.658*dd_FS

Leverage ratios (2nd difference) are positively related with FLR (MAD) [2nd difference]. The debt ratio has significant impact on FLR (MAD). If 2nd difference of TD/SE and TD/TA is changed by 1 or 100% then FLR (MAD) [2nd difference] would change by 0.428 and 5.61 respectively or in other words, 1% increase of TD/SE and TD/TA (2nd difference) results in 0.004 and 0.056 increase in FLR (MAD) [2nd difference] respectively and vice-versa.

ii. *Fitness of models (Model diagnostics)*

a. *Test of Stationarity of Data*

As the nature of the data is time series, so at first data stationarity is checked. It is seen that most of the variables are non-stationary. To make them stationary, first difference is taken. If non-stationarity remains after first difference, then second difference is taken. Augmented Dickey Fuller (ADF) test is done to test stationarity. From table A4 and A6 it is seen that all

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the variables became stationary at second difference as p value of ADF test is less than 0.05.

b. *Test of Multicollinearity*

This problem is identified through the value of Variance Inflation Factor (VIF). VIF value of greater than 10 indicates multicollinearity problem. Table A7 shows VIF values of each explanatory variable of the four models (two from each category) and the measures taken to remove the problem if any. The table also shows VIF value of the variables after removing multicollinearity problem. It is to be noted here that VIF is same for both the models.

c. *Test of Normality*

Kolmogorov-Smirnov, Shapiro-Wilk and Chi square test are performed to test the normality of residuals. In table A5 it is seen that p values of all three measurements in all the models are greater than 0.05 which means that residuals are normally distributed.

d. *Test of Heteroscedasticity*

Breusch-Pagan test is performed to test heteroscedasticity of residuals. In the table A8 it is seen that p values of all the models' LM test statistic is greater than 0.05 which means that there is no heteroscedasticity of residuals. Heteroscedasticity can also be detected by the scatter graph of residuals and predicted value of dependent variable.

e. *Test of Autocorrelation*

Durbin-Watson (DW) statistic and Breusch-Godfrey test (also called LM test) is used to detect autocorrelation. In table A9 DW statistic is inconclusive in case of models D1 & D2. Breusch-Godfrey test shows that the models do not suffer from autocorrelation problem as p values of LM test of the models are greater than 0.05. DW statistic is near 2 for both the models of MNCs which indicate absence of autocorrelation.

f. *Overall Fitness of the Models*

In table A10 it is seen that p-value of F statistic is less than 0.05 in model D1, M1, M2 and it is less than 0.10 in model D2. So, it can be said that there is a statistically significant relationship between the variables at the 95.0% confidence level in models D1, M1, M2 and at 90% confidence level in model D2. Independent variables of Model D1 explain 72.77% variability in dependent variables. The R-Squared statistic indicates that the models D2 (FLR-MAD) as fitted explains 67.02% of the variability in explained variables. Independent variables of models M1 and M2 explain more than 90% variability in dependent variables.

b) Test of Hypothesis

Null hypothesis is as follows:

Financial leverage does not significantly influence firm's financial risk

This hypothesis is tested by analyzing the coefficients of financial leverage ratios of two FLR models discussed above. Acceptance or rejection of null hypothesis depends on p value of coefficients. The following table shows hypothesis test of domestic companies and MNCs.

Table 5: Test of Hypothesis

Leverage & FLR	Difference	Coefficient	t statistic	p value	Decision regarding H_0 hypothesis
Domestic Companies					
FLR (CV) & TD/TA	2nd	0.557	0.697	.503	Accepted
FLR (CV) & TD/SE	2nd	0.119	2.604	.028	Rejected
FLR (MAD) & TD/TA	2nd	0.314	0.500	.628	Accepted
FLR (MAD) & TD/SE	2nd	0.003	0.106	.917	Accepted
MNCs					
FLR (CV) & TD/TA	2nd	6.549	2.777	.021	Rejected
FLR (CV) & TD/SE	2nd	0.900	2.111	.063	Accepted
FLR (MAD) & TD/TA	2nd	5.613	2.391	.040	Rejected
FLR (MAD) & TD/SE	2nd	0.428	1.010	.338	Accepted

Source: Outcome of Regression Models Note: Computation done on SPSS & Gretl software

From the table it is seen that domestic companies' debt-equity ratio has significant impact on FLR (CV) whereas MNCs' debt ratio has significant impact on both the measures of FLR at 95% confidence level. MNCs' FLRs are more sensitive to changes in leverage ratios than domestic companies as leverage coefficients of MNCs are higher than domestic companies in both the models.

VII. Recommendations and Conclusion

It is expected that the process of liability management will become far more sophisticated in the

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coming decade as companies increasingly recognize the connections between balance-sheet decisions and firm performance. In fact, the more the debts rise, the higher the risk of financial distress will be. The financial manager has to take into consideration the effect on the capital structure when any financing decision is evaluated. Once a financial need arises from the planning activity, the financial manager should simulate what impact a debt or equity issue may have on the overall company.

Acknowledgement

My first and foremost thanks as well as all praise go to almighty Allah, who has given me the opportunity to be educated through acquiring knowledge. The present study is supported and organized by my research supervisor Dr. Md. Meherul Islam Khan, Professor, Department of Finance, Rajshahi University, Rajshahi. Deep sense of gratitude and profound respect are extended to the noted director of the Institute of Bangladesh Studies (IBS) as well as other faculty members. I would like to express my sincere appreciation to executives of finance and accounts section of sample multinational and domestic companies who provided necessary information for this study. Special thanks go to authority of Dhaka Stock Exchange Ltd. for providing invaluable secondary data regarding the sample companies.

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Appendix

Table A1: Mean EBIT, EPS and FLR of Companies

Year	Domestic Co.				MNCs			
	Mean EBIT (million Tk.)	Mean EPS (Tk.)	FLR (CV)	FLR (MAD)	Mean EBIT (million Tk.)	Mean EPS (Tk.)	FLR (CV)	FLR (MAD)
1996	137.14	6.38	0.883		191.35	7.74	0.461	0.525
1997	160.53	5.31	0.858	0.932	231.63	7.60	0.486	0.621
1998	184.88	6.76	0.834	0.916	267.74	7.84	0.306	0.352
1999	210.26	7.83	0.864	0.842	217.66	7.29	0.422	0.436
2000	242.49	8.93	0.881	0.858	314.09	11.76	0.428	0.404
2001	284.35	10.93	0.916	0.838	347.80	9.96	0.401	0.552
2002	282.38	9.72	0.883	0.916	309.50	8.29	0.888	0.990
2003	282.14	8.87	0.771	0.879	319.71	10.24	0.626	0.708
2004	322.38	8.74	0.785	0.810	289.22	8.77	0.512	0.609
2005	417.68	9.78	0.741	0.828	245.52	7.72	0.994	1.172
2006	454.42	10.27	0.845	0.780	378.09	11.56	0.977	1.036
2007	518.83	13.00	0.821	0.928	518.03	14.97	0.743	0.766
2008	621.09	12.84	1.050	1.048	728.60	21.21	0.550	0.688
2009	872.04	15.56	0.849	1.036	993.49	29.85	0.398	0.446
2010	1093.19	12.10	0.592	0.817	1480.99	42.58	0.582	0.515
2011	1330.35	12.23	0.645	0.626	1306.48	29.28	0.382	0.498
2012	1598.48	11.06	0.761	0.697	1643.05	32.75	0.406	0.475
2013	1819.95	11.05	0.804	0.747	2128.56	42.39	0.388	0.468
2014	1908.44	9.63	0.714	0.778	2376.38	47.09	0.425	0.484
2015	2224.11	9.08	0.583	0.709	2674.52	41.80	0.437	0.550
G.Mean	748.26	10.00	0.804	0.645	848.12	20.04	0.524	0.607

Source: Compiled from Annual Reports of Sample Firms (1996-2015)

Table A2: Financial Leverage Ratios of Companies

Year	Domestic Co.			MNCs		
	TD/SE	TD/TA	TD/CE	TD/SE	TD/TA	TD/CE
1996	2.724	0.430	2.197	0.250	0.120	0.223
1997	1.776	0.303	1.586	0.229	0.121	0.219
1998	1.985	0.332	1.725	0.262	0.129	0.235
1999	1.937	0.345	1.740	0.189	0.096	0.180
2000	2.049	0.367	1.820	0.114	0.067	0.103
2001	2.460	0.398	2.171	0.142	0.073	0.139
2002	2.672	0.417	2.369	0.097	0.048	0.095
2003	2.826	0.440	2.496	0.258	0.108	0.216
2004	2.778	0.408	2.501	0.309	0.121	0.277
2005	1.858	0.380	1.654	0.607	0.146	0.510
2006	2.108	0.344	1.956	0.551	0.133	0.486
2007	3.105	0.350	3.020	0.575	0.121	0.487
2008	1.747	0.324	1.689	0.373	0.104	0.317
2009	0.938	0.272	0.863	0.081	0.040	0.077
2010	1.138	0.241	1.051	0.020	0.012	0.020
2011	1.334	0.281	1.241	0.080	0.039	0.079
2012	1.484	0.288	1.379	0.083	0.044	0.083
2013	1.220	0.282	1.134	0.057	0.030	0.057
2014	1.275	0.292	1.152	0.099	0.044	0.098
2015	1.157	0.308	0.959	0.030	0.014	0.028
G.Mean	1.929	0.340	1.735	0.220	0.080	0.197

Source: Compiled from Annual Reports of Sample Firms (1996-2015)

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Table A3: Net Profit Margin, Sales Growth and Firm Size of Companies

Year	Domestic Co.			MNCs		
	Net Profit Margin(%)	Sales Growth(%)	Firm Size (Ln TA)	Net Profit Margin(%)	Sales Growth(%)	Firm Size (Ln TA)
1996	6.28	15.77	20.25	9.48	17.06	20.49
1997	7.33	40.60	20.71	9.64	10.66	20.61
1998	9.36	27.27	20.93	10.57	4.36	20.71
1999	9.33	9.94	21.02	10.43	1.92	20.75
2000	9.79	17.35	21.11	13.25	25.37	20.81
2001	8.69	25.38	21.31	10.37	9.76	20.95
2002	6.73	11.64	21.47	7.27	2.52	21.00
2003	6.09	13.78	21.58	8.53	19.90	21.15
2004	5.53	14.61	21.66	7.40	4.36	21.18
2005	7.44	24.18	21.77	5.36	18.64	21.30
2006	6.38	16.31	21.95	6.27	32.07	21.41
2007	5.94	19.38	22.12	7.71	12.27	21.55
2008	5.50	18.55	22.18	9.40	18.59	21.72
2009	10.31	5.16	22.26	12.46	16.52	21.81
2010	14.43	16.89	22.52	16.36	16.13	21.96
2011	13.50	25.60	22.82	9.48	13.49	22.04
2012	8.51	24.24	22.96	9.28	16.15	22.17
2013	8.99	4.83	23.04	11.18	5.63	22.31
2014	8.86	5.68	23.15	10.89	6.60	22.38
2015	8.85	19.79	23.27	11.68	1.77	22.40
G.Mean	8.39	17.848	21.90	9.85	12.69	21.43

Source: Compiled from Annual Reports of Sample Firms (1996-2015)

Table A4: Test of Stationarity of Variables (Domestic Companies)

Name of variable	Original value		First difference		Second difference	
	ADF Test statistic	P value of test statistic	ADF Test statistic	P value of test statistic	ADF Test statistic	P value of test statistics
FLR(CV)	-2.96025	0.1688	-3.90748	0.0355	-5.09552	0.004827
FLR(MAD)	-2.08519	0.519	-2.87426	0.1935	-3.85158	0.04094
TD/TA	-1.90895	0.6085	-5.49959	0.00208	-6.33332	0.0005998
TD/SE	-2.4399	0.3495	-4.41467	0.01437	-4.67495	0.009896
TD/CE	-2.41307	0.3612	-4.23577	0.0198	-4.77285	0.008341
NPM	-1.97475	0.5752	-3.01454	0.1567	-4.25288	0.02054
EBIT	-0.042287	0.9916	-1.56793	0.7624	-2.59757	0.02852
EPS	-1.35651	0.8383	-5.34326	0.002745	-9.35932	0.0000015
FS	-4.18004	0.02065	-4.28288	0.0182	-3.29792	0.0102
SG	-3.9409	0.03197	-5.40624	0.002454	-5.36091	0.00307

Source: Annual Reports of Sample Firms (1996-2015) Note: Data processed on Gretl

Table A5: Normality Test of Residuals

Model No.	Kolmogorov-Smirnov			Shapiro-Wilk			Chi Square	
	Statistic	df	Sig.	Statistic	df	Sig.	Chi Statistic	P value
D1(FLR-CV)	.131	17	.200	.957	17	.583	0.475	0.78845
D2 (FLR-MAD)	.112	17	.200	.944	17	.375	3.846	0.14620
M1(FLR-CV)	0.100	17	0.200	0.965	17	.730	0.812	0.66615
M2 (FLR-MAD)	0.205	17	0.055	0.904	17	.080	1.590	0.45162

Source: Compiled from Annual Reports (1996-2015) Note: Data processed on SPSS & Gretl

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Table A6: Test of Stationarity of Variables (MNCs)

Name of variable	Original value		First difference		Second difference	
	ADF Test statistic	P value of test statistic	ADF Test statistic	P value of test statistic	ADF Test statistic	P value of test statistics
FLR(CV)	-2.24847	0.4378	-4.85646	0.006518	-6.10828	0.0008648
FLR(MAD)	-2.13174	0.4954	-4.56118	0.01105	-5.88098	0.001266
TD/TA	-1.7191	0.7002	-3.24793	0.1085	-5.70871	0.001704
TD/SE	-1.39829	0.8255	-2.95371	0.1719	-5.98867	0.001056
TD/CE	-1.37537	0.8326	-2.6425	0.2684	-5.23042	0.003832
NPM	-2.22979	0.4468	-4.08408	0.02597	-5.49219	0.002457
EBIT	-0.097632	0.9902	-4.79511	0.007271	-6.32426	0.0006088
EPS	-1.69001	0.7133	-4.42583	0.01408	-5.7334	0.001634
FS	-1.72944	0.6954	-6.01077	0.0008396	-8.80503	0.0000023
SG	-4.14224	0.02214	-6.32839	0.0004875	-7.14808	0.0001

Source: Compiled from Annual Reports (1996-2015) Note: Data processed on Gretl software

Table A7: Detection and Measures of Multicollinearity Problem in Models D1 & D2

Model D1(FLR-CV) & Model D2 (FLR-MAD)			
2nd difference of Variables	VIF	Measures taken to remove multicollinearity	VIF after removing multicollinearity
NPM	1.339		1.139
EPS	1.802		1.668
TD/TA	3.803		1.839
TD/SE	218.369		1.755
EBIT	1.507		1.463
TD/CE	206.825	Variable dropped	
SG	1.628		1.611
FS	2.125		1.889
Model M1(FLR-CV) & Model M2 (FLR-MAD)			
EBIT	31.933		5.694
SG	1.894		3.591
TD/TA	9.744		6.427
TD/SE	74.032		3.750
FS	5.141		4.095
EPS	63.704	Transformed to reciprocal	9.012
NPM	23.680	Transformed to reciprocal	9.585
TD/CE	89.998	Variable dropped	

Source: Compiled from Annual Reports (1996-2015) Note: Data processed on Gretl software. VIF is same for both the models

Table A8: Breusch-Pagan Test of Heteroscedasticity

Name of the model	No. of observations	LM test statistic	p value of LM test statistic
D1(FLR-CV)	17	3.558737	0.828966
D2(FLR-MAD)	17	4.518053	0.718542
M1(FLR-CV)	17	3.377039	0.848073
M2(FLR-MAD)	17	4.977143	0.662753

Source: Compiled from Annual Reports (1996-2015) Note: Data processed on Gretl software

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Table A9: Test of Autocorrelation

Name of the model	DW Stat	P value of DW	D_U	D_L	Decision	Test statistic of LM	P value of LM test
D1(FLR-CV)	2.5337	0.8854	2.5366	0.4511	No decision	3.2294	0.11
D2(FLR-MAD)	2.3306	0.7924	2.5366	0.4511	No decision	2.2971	0.168
M1(FLR-CV)	1.9776	.8800	2.5366	0.4511	Near 2	0.1070	0.752
M2(FLR-MAD)	2.2112	.9574	2.5366	0.4511	Near 2	1.3448	0.28

Source: Compiled from Annual Reports (1996-2015) Note: Data processed on Gretl software

Table A10: Summary Statistics of the Models

Model No.	R square	Adj. R square	S.E of estimates	F statistic	p value of F
D1(FLR-CV)	0.727780	0.516053	0.116236	3.437354	0.044450
D2(FLR-MAD)	0.670269	0.413811	0.091411	2.613568	0.090403
M1(FLR-CV)	0.908	0.836	0.141	12.703	.0005
M2(FLR-MAD)	0.913	0.845	0.140	13.499	.0004

Source: Compiled from Annual Reports (1996-2015) Note: Data processed on SPSS & Gretl software

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