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Analysis of the Factors Affecting Choice of Debt Capital: A Case Study of Multinational Corporations Operating in Pakistan

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Abstract

The empirical studies have evidenced that in composition of optimum capital structure, the level of debt financing plays a vital role. The key objective of this study is to Identify the major sources of financing for MNCs and to investigate the factors that affect the leverage decisions of MNCs operating in Pakistan. By applying pooled panel least square regression, the impact of seven key factors (age, profitability, growth, size, business risk, non-debt tax shield and tangibility of assets) were analyzed. In total, seven hypotheses were developed. The regression estimates indicated that the seven factors explained approximately 83 percent of variation in leverage level of (MNCs) multinational corporations. Through Housman test it was determined that fixed effect model is appropriate in regression equation for MNCs in Pakistan. Jarque-Bera test of normality and Augmented Dickey-Fuller test of stationary were applied in order to check the normality and stationary assumptions. Statistical techniques such as DW statistics and VIF tolerance tests were used to check Autocorrelation and Multicollinearity and hence no such problem existed. Out of total seven hypotheses six were supported whereas hypotheses fifth was not supported. Age, profitability, growth, Size, Business risk, non-debt tax shield was found as significant factors of Leverage for MNCs whereas Asset tangibility was found to be statistically insignificant determinant of Leverage. This study has future implications for researchers, Policy makers, decisions regarding interest rate, monetary Policy will get support from the findings of this study.

Keywords: Multinational Corporations, Leverage, Collateral, Capital Structures

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INTRODUCTION

Leverage is an important part of capital structure. Leverage refers to the debt portion of capital structure of a firm. The leverage decision is important because it impacts risk which in turn influences a firm's overall cost of capital. The Leverage decision of a firm is ultimately reflective into a firm's cash flows, profitability, share price and valuation of a firm. In a firm, there are two kinds of leverages (i.e. financial leverage and operating leverage). The financial leverage indicates the extent to which a firm uses debt financing in its capital structure, whereas operating leverage refers to the extent to which a firm uses fixed operating expenses. The risk emanating from financial leverage is known as financial risk and a risk coming from operating leverage is known as business risk. Together these both leverages define the total risk, a firm is exposed to. However, in this study leverage means financial leverage which is denoted through total debt financing a firm uses in its capital structure. In this case leverage is interchangeably referred as gearing or to total debt ratio.

RESEARCH GAP

There have been plenty of theories predicting the optimal composition of capital structure. However, no single capital structure theory has gained a universal acceptance. In the latest study, G.M. WaliUllah, (2017) argued that majority of capital structure theories produce contradictory results in developed versus developing economies. Research work on capital structure in developing countries (particularly in South Asia) is not adequate and more research is needed to examine the applicability of capital structure theories. Secondly, Multinational corporations (MNCs). Therefore, this study tries to fulfill that gap and is aimed to examine the determinants of capital structure of MNCs operating in Pakistan.

RESEARCH OBJECTIVES

1. Analyze and investigate the sources of financing that Multinational Corporations (MNCs) in Pakistan use to fund their respective investments
2. To examine and determine the factors which influence the leverage decision of Multinational Corporations operating in Pakistan.

Determinants of Leverage and development of hypotheses

On the basis of literature reviewed, the following key determinants are identified and their relations to leverage are hypothesized

CORPORATION'S AGE AND LEVERAGE

Major research studies have evidenced that a firm's age is positively associated with debt financing decision. This is because a corporation's long existence indicates its success and builds reputations (Sakai, et al., 2010; Nico &Van Huller 2010), and establishment of sustainable borrower-lender relationship (Beanascon, et al, 2005). Nico and van Huller, (2010) argued that older firms have a longer performance track record and have a better reputation and established relationships with borrowers which lowers the cost of borrowing. Older firms have more accumulated experience and thus unlike newer firms, they are less likely to face serious adverse selection and moral hazard issues and they are relatively better resistant in the face of uncertainty which make them attractive to the lenders and investors in financial markets (Huyghebaert, 2003).

Contrary to these arguments, research has also postulated that a firm's age is negatively associated with debt financing. The older companies are more likely to face asset deterioration and structural rigidities which result in diminished corporate value and lowered growth, (Hoderen and Waelchl, 2009). Hyynh and petrunia, (2010) reported that as a firm grows in age, it enhances production levels and accumulates more internal equity which gives a firm option to use internal equity and lower its reliance on leverage.

H1: Corporation age is positively associated with leverage for Multinational Corporations

PROFITABILITY AND LEVERAGE

Owing to asymmetric information, firms prefer internal sources of financing like retained earnings to external financing like debt as postulated by pecking order theory. This assumption holds truer to the profitable firms which have higher retained earnings. Firms with higher profits are more likely to meet its financing needs firstly from their retained earnings rather than borrowing, thereby establishing a pecking order in raising funds. Therefore, as per pecking order theory profitability is negatively associated with a leverage volume of a firm. There have been abundant research studies that have supported pecking order hypothesis (Toy et al, 1974; Titman and Wessels, 1988; Bennett and Donnelly, 1993; Booth, et al, 2001).

H2: Profitability is negatively associated with leverage for Multinational Corporations.

SIZE AND LEVERAGE

Much of the research studies have empirically found that size of a firm is strongly positively related to debt financing. There have been various theoretical reasons behind it. The presence of fixed cost associated with external financing which create a wedge between a smaller firm and a larger firm. According to Ramalho and Vidigal da Silva, (2009) size

may also be an indication of volatility of company assets; small companies tend to be growing companies and thus are generally viewed as a company with rapidly volatile assets. The scale of information asymmetry between insiders (i-e managers) and outsiders (i.e. capital market lenders) tend to be higher for smaller companies than for larger companies. The larger firms because of their size are at more advantageous position in accessing external finances at cheaper rates than their counterpart companies in smaller size.

H3: Size is positively associated with leverage for Multinational Corporations.

GROWTH AND LEVERAGE

Most research studies evidenced that a firm's growth is an important and significant factor affecting its leverage decision. However, research has been divisive in whether growth is positively or negatively affecting a firm's leverage ratio and whether such a decision is weak or strong in any particular economy.

Modigliani and Miller, (1958) found that growth opportunities and a company's choice for debt is positively influenced in determining optimal capital structure. They argued that when a company discovers growth opportunities, it prefers to finance it with debt and when the project starts generating profit, the debt is redeemed either by retained earnings or issuing equity at relatively better prices. Panday, (2001) reported that companies with higher growth in sales volume are often in need of increasing investment in their fixed productive assets. And high growth companies which are in need of more external funds prefer to raise it through debt financing as running on the path of high growth emits positive signals about the future so such companies can get debt at lower borrowing prices. Secondly Panday, (2001) argued that high growth firms contribute more in equity though retained earnings, therefore they then prefer to have more debt financing in order to maintain their target capital structure as per trade-off theory concept. Chen and Zhoo, (2006) reported that growth makes a firm to move from new equity to new debt since growth firm is more likely to finance its growth through debt in order to reduce agency problem.

H3: Size is positively associated with leverage for Multinational Corporation.

ASSET TANGIBILITY AND LEVERAGE

An asset's tangibility is characterized by its estimated collateral value. According to Rajan and Zingles, (1995) tangible assets with higher collateral value are pledged for debt, produce higher liquidation value in the events of bankruptcy or financial distress which provide security value to lenders. Consequently, lenders may charge a low risk premium and can offer a loan at lower price since lending to the companies with higher tangible assets is less risky than lending to the companies with low level of tangible assets. According to contract theory, the likelihood of incompleteness of contract and its limited enforceability lessens a company's access to outside financing, (Holmstrom and Tirole, 1997).

In cases where contracting frictions exist, assets with higher tangibility are more acceptable to the lenders as such assets carry more value and can be repossessed in the event of bankruptcy (Hart and More, 1994). However, Berger, et al., (1996) argued that the tangible assets shed a greater value when later they are reallocated. The reduction in the value in case of reallocation implies that the tangible assets that can easily be reallocated and redeployed without the loss of much value are preferred by lenders in collateral as only those tangible assets have higher capacity in debt sustainability. In the same line it was evidenced by Pulvino, (1998) and Acharya, et al., (2007) that tangible asset's valuation and fluctuation in a firm's borrowing is limited to the extent by which they are marketable and salable. Tangible assets which are less company-specific have higher capacity in debt sustainability (Shlifir and Vishny, 1992).

H5: Tangibility of assets is positively associated with Leverage for Multinational Corporations.

NON DEBT TAX SHIELD (NDTS) AND LEVERAGE

The impact of taxes on capital structure decision has been widely researched in the literature of economics and corporate finance. Modigliani and Miller, (1958) proposed in the perfect markets, compositions of capital structure into debt and equity is irrelevant to a firm's value. Chan and Peng, (2011) argued that owing to interest tax deductions, the debt financing can give a firm large gains through tax shields, therefore companies paying higher corporate taxes are more likely to use higher debt financing in their capital structure to seek more tax shield gains (Chaplinsky and Niehaus,1993).

H6: NDTS are negatively associated with leverage for Multinational Corporations.

BUSINESS RISK AND LEVERAGE

Risk refers to anything that causes a company to lose value. Companies operate in an environment replete with forces which may cause them to potential loses. Many such forces are exogenous but some are endogenous and are related to a company's capital structure. In one of the earlier research studies, Hamada, (1972) empirically examined the risk exposure of a firm to its capital structure decisions. The results showed that systematic risk is significantly associated with a firm's capital structure decisions and risk factors

explain 24% of variation in capital structure. Castania, (1983) researched on the relationship between bankruptcy risk and leverage. The author found that firms with high bankruptcy risk tend to use less debt financing in their capital structure.

Business risk is associated with a firm's volatility in earnings. Earnings volatility generates volatile cash flows which increase a firm's operating risk. Consequently, a firm may default on making fixed debt payments and because of that reason Anderson, (2005) reported that firms with higher business risk are more likely to use less debt.

H7: Business risk is negatively associated with leverage for Multinational Corporations.

Equation: (Leverage decisions of Multi-National Corporations)

$Leverage_{MNCt} = \beta0 + \beta1\ Age_{it-1} + \beta2\ Gr_{it-1} + \beta3\ Prof_{it-1} + \beta4\ Tang_{it-1} + \beta5\ Burisk_{it-1} + \beta6 Size_{it-1} + \beta7 NDTS_{it-1} + \varepsilon_{it}$

Where $Leverage_{MNCt}$ = the level of debt financing of (MNC) corporation in t period which is measured through the ratio of (Total Debt/Total Assets) $Age_{MNCt\ of\ MNC}$ = Age of (MNC) corporation in t period is measured by No. of year since year of inception of MNC corporation.

Gr_{MNCt} = Growth of (MNC) corporation in t period which is measured as percent increase in net total assets $Prof_{MNCt}$ = Profitability of MNC corporation in t period which is measured as ratio of (net income after taxes/Total Assets)

$Tang_{(MNCt)}$ = Tangibility of assets of MNC in t period which is measured as ratio of (Fixed Assets/Total Assets) $Burisk_{MNCt}$ = Business risk of MNC in t period which is measured as standard deviation in earnings before interest and taxes (EBIT) $Size_{MNCt}$ = Size of MNC in t period which is measured as natural logarithm of total Assets $NDTS_{MNCt}$ = of i corporation in t period which is measured as ratio of (Depreciation/Total Assets) ε_{it}= Error term

In the above equation all the independent variables are lagged by one-time period.

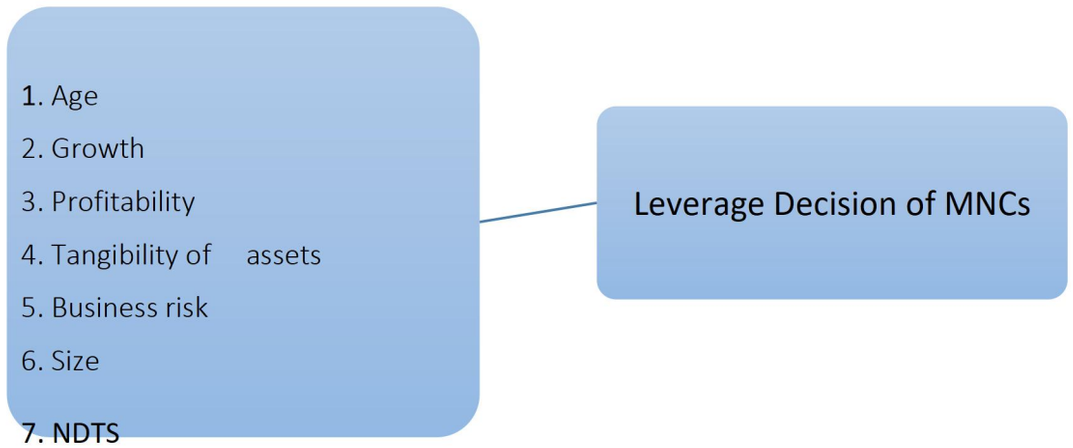

FIGURE NO: 01 CONCEPTUAL FRAMEWORK

RESEARCH METHODOLOGY

The main objective of the study is to find out the major sources of financing for MNCS and to determine the major factors which affect leverage decision of Multinational Corporations (MNCs) Operating in Pakistan. The purposive sampling technique was adopted in order to select the sample of MNCs and the MNCs with highest capitalization value were selected. For MNCs the total cross section included are 10 and with 15 time periods (i-e from 1999 to 2013), Which makes the total number of panel observations (N=150).

The annual reports of each of Multinational corporations from the year 1999 to 2013 were obtained on request from Karachi Stock Exchange (KSE). Pooled panel data regression was applied to determine the importance and impact of each determinant (Pooled independent Variables) on leverage (pooled dependent variables). Before applying the panel data regression, the data was checked for normality, stationary, autocorrelation, and multicollinearity

TABLE 1: ***DATA NORMALITY: JB TEST (MULTINATIONAL CORPORATIONS)***

VARIABLES	JARQUE-BERA (JB)	P-VALUES
Age	0.875373	0.875373
Profitability	1.176384	1.176384
Size	2.209588	2.209588

Growth	2.699935	2.699935
Leverage	4.185404	4.185404
Business Risk	1.748284	1.748284
Asset Tangibility	3.851948	3.851948
Age	1.421513	1.421513
Profitability	0.875373	0.875373
Non Debt Tax Shield	1.176384	1.176384

(Source: This Study).

TABLE 2: ***DATA STATIONARY: AUGMENTED DICKEY-FULLER (ADF) TEST RESULTS (MNCS)***

VARIABLES	ADF (CHOI-Z STAT)	PROBABILITY
Leverage	-2.57031	0.0051
Age	-4.36640	0.0000
Profitability	-2.37155	0.0089
Size	-5.43749	0.0000
Growth	-2.50640	0.0061
***Business Risk**	-3.40502	0.0003
Asset Tangibility	-4.36912	0.0000
Non debt Tax Shield	-1.80746	0.0353
Leverage	-2.57031	0.0051
Age	-4.36640	0.0000

*Stationary at first difference. Other variables are stationary at level (Source: This Study).

TABLE 3: ***HOUSMAN TEST COMPARISONS OF FIXED AND RANDOM EFFECT MODELS***

TEST SUMMARY	CHI SQUARE STATISTIC	PROBABILITY
Cross Section Random	78.360680	*0.0000

*Significant at. 000 level

(Source This Study)

TABLE 4: ***REGRESSION ESTIMATES (MNCS)***

Dependent Variable: LEVERAGE; Method: Panel Least Squares

Sample: 1999 2013; Periods included: 15; Cross-sections included: 10

Independent variables	Coefficients	T-statistics	P-values	VIF	Tolerance
C	2.75432	14.65341	0.0000		
Age	1.35122	5.27206	0.0000	1.674331	0.597
Business risk	-0.318919	-2.371716	0.0185	1.159899	0.862
Growth	1.42361	6.37823	0.0000	1.243298	0.804
NDTS	-1.27451	-2.823668	0.0056	1.207479	0.828
Profitability	-1.54121	-8.466168	0.0000	1.170455	0.854
Size	0.72631	3.961107	0.0001	1.029258	0.972

Asset tangibility	0.678421	0.595922	0.5523	1.075485	0.929

(Source: This Study).

Total panel (balanced) observations: 150

R-squared	0.842847		
Adjusted R-squared	0.826412		
F-statistic	45.97038	Prob(F-statistic) 0.000	
Durbin-Watson stat	2.142117		

CONCLUSION

The regression estimates indicated that the seven factors explained The `key objective of this study is to Identify the major sources of financing for MNCs and to investigate the factors that affect the leverage decisions of MNCs operating in Pakistan. By applying pooled panel least square regression, the impact of seven key factors (age, profitability, growth, size, business risk, non-debt tax shield and tangibility of assets) were analyzed. In total, seven hypotheses were developed. Approximately 83 percent of variation in leverage level is caused by those seven factors in case of multinational corporations**.** In case of MNCs, the results in table 3 show that Housman Test result is highly significant where $p < .001$, therefore null hypothesis is rejected and alternative hypothesis is accepted that fixed effect model is appropriate in case of MNCs.

The estimates of the panel least square regression model for the sample of multinational Corporations show that adjusted R-square is 0.826 inferring that explanatory variables used in this model explain approximately 83 percent of variation in leverage. The F- Statistics of the model is significant at $p < .001$ showing that explanatory variables are Significant predictors of dependent variable (i.e. leverage).

The results in table 4 show that VIF statistics for all explanatory variables are below 10 and Tolerance test values are above .05, therefore, there is no multicollinearity problem among the data series of explanatory variables in case of multinational corporations. The results in table 4 show that in case of multinational corporations DW statistics is 2.142 which means there is no autocorrelation problem in the residuals of variables in regression model.

The result of panel least square regression in the table 4 show that age is significantly and positively related with leverage ratios. The beta coefficient of age variable is statistically significant at $p <.0001$. Therefore, Hypothesis 1b is supported. MNCs Owing to these significant results of regression hypotheses 2 is supported.

MNCs are expected to larger in size than DCs, therefore the impact of size on leverage is stronger for MNCs. On the basis of regression estimates the hypothesis 3 is supported. MNCs are expected to be rich in resources and expertise and hence are in better position to capitalize on growth opportunities. The impact of growth on leverage ratio was stronger for MNCs. On the basis of regression results hypotheses 4is supported.

Multinational Corporation is part of a larger corporation group, therefore the role of asset tangibility as collateral is reduced and become non-important in the process of lending decisions to MNCs. On the basis of regression results hypothesis 5 hypotheses 5 of this study is not supported.

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