


**Determinants of Capital Structure: An Empirical Study of KSE Listed MNCs in Pakistan**
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**Jel Classification**

G31, G32, H63, F23.

**Abstract**

Multinational Corporations (MNCs) are generally financed with a mixture of internal debt and equity from the parent corporation. Yet, financial theory has relatively little to say regarding the capital structure and its determinants in an international setting. This research empirically examines the major determinants of capital structure decisions of Multinational Corporations listed on the Karachi Stock Exchange for the period 2005-2017. The data was studied using panel data regression analysis. Results suggest that apart from traditional determinants such as profitability, tangibility, size, Non Debt Tax Shield (NDTS) etc., specific international factors such as political risk, exchange rate risk, agency costs and bankruptcy costs are relevant to the multinational capital structure decision. The results are broadly consistent with theory. It is therefore recommended that the management of listed MNCs in Pakistan should always consider their positions using these capital structure determinants as important inputs before embarking on debt financing decision.

## **Introduction**

Globalization, being everywhere, is a process of increasing interdependence among nations driven by trade liberalization & technological changes with the ultimate outcome of MNCs. Multinational corporations are engaged in production, cross Border trade & investments. An MNC is an entity which is engaged in Foreign Direct Investment (FDI) and has ownership/controls over value addition activities in more than one country (Dunning, 1993). As substantial portion of economic transactions takes place across the national borders this attribute differentiates Multinational corporations with domestic corporations. Hennart (2008) describes MNCs in an altered way considering them as privately owned institutions formed through employment contracts to organize interdependencies among individuals positioned in countries more than one. On the other hand, according to Kogut and Zander (2003) MNCs are economic organizations which span across borders by growing from their national origins. An International Labor Organization (ILO) (2010) report observes the necessary nature of an MNC to have its management headquarter situated in one country while the entity carries out its operations in number of countries.

MNCs play a key role in the economic growth of developing countries, including Pakistan. The situation in Pakistan is same as that in the most third world countries where MNCs are accused of promoting a new type of imperialism. At present MNCs in Pakistan are creating jobs and playing their role in the economy with operations in large variety of sectors. Multinational Corporations here exist in various forms, some have set up franchises, others operate through holding companies and some are fully incorporated in the country. Apart from provisioning infrastructural development in Pakistan, MNCs provide earnings fee to the government. These MNCs are operational in a variety of sectors importantly Banking, Automobiles, Electronics, Telecommunication and Information Technology, Food and Beverages.

As MNC operates in different countries they are exposed to certain international factors which can have a major effect on its financing patterns. Because of their larger size, increased access to international markets, low cash flow volatility and lower probability of bankruptcy financial theory predict they should have higher leverage ratios in comparison to domestic corporations (DCs). However, the empirical evidence suggests they have low

debt in their financing arrangements (Lee & Kwok, 1988; Fatemi, 1988). Previous studies have ignored international factors such as political risk, exchange rate fluctuations, systematic differences, agency costs, uncertain tax systems etc. This paper attempts to study the factors which affect the financing decisions of MNCs in a developing economy like Pakistan.

### **Literature Review**

One of the pioneering studies that attempted to analyze the financing behavior of developing economies was conducted by Singh and Hamid (1992). Their sample included eight countries including Pakistan. The results indicated that the largest firms in these countries are more inclined towards external finance as compared to developed countries. Singh (1995) performed a robustness check using a longer time period in order to confirm these surprising results. A follow up work was done by Cobham and Subhramaniam (1998) focusing on both listed and non-listed firms in India. They argued Singh and Hamid results suffered from sample selection bias as they concentrated on 50 largest Indian firms furthermore they excluded most of the firms which were not using stocks to raise capital instead were using other sources to raise their external equity.

Glen and Pinto (1994) suggested that the differences in the debt equity ratios of developed and developing economies depends upon the government intrusions and macroeconomic environment. For example, as interest rates are controlled by the governments, so the firms prefer debt when they are set low and vice versa. In addition to this according to them state bank plays a significant role in funding of small firms. If they provide regular funding, then the firm will not opt for debt.

Myers (2001) argued that none of the theories gives a clear picture of practicing the capital structure as they are conditional and have their own set of assumptions. On the other hand, Booth et al., (2001) discovered that developing countries are less prone to long term debt as compared to developed countries. This study was based on a sample of 10 developing countries including Pakistan. They concluded that there is significantly a negative relationship between tangibility and debt ratios in Pakistan, Brazil, India and Turkey in contrast to the results in G-7 countries by (Rajan & Zingales, 1995). Similarly, Shah and Hijazi (2004) found no significant relationship between tangibility and leverage.

Cassar and Holmes (2003) found asset structure, growth and profitability to be the key factors affecting capital structure choice while size and risk showed a weaker influence. Keeping in view Pakistan Rahman (1990) found industry and size of the firm as determinant of capital structure. Mahmood (2003) studied the factors affecting financing decisions of Japan and Pakistan. The results indicated very high leverage ratios due to the developed market status of Japanese firms and underdeveloped capital markets of Pakistan. Due to this firms are forced to go for bank loans rather than raising capital through equity.

Chen (2004) found that Chinese listed firms follow a “new pecking order” theory in which the firms prefer retained earnings first followed by equity and then long term debt. This indicated that Chinese firms neither follow trade off nor the pecking order theory. In addition to this institutional factors play a critical role in determining the capital structure in contrast to firm’s characteristics.

Abor and Biekpe (2005) using panel data analyzed 22 Ghanaian listed firms for the period 1998-2003. They found that 50 percent of the capital of the firms is composed of debt. Using eclectic model, they found that their results were in accordance with the pecking order theory. Firm’s growth and size played important role in determining capital structure whereas tangibility, risk, tax and profitability had a negative relationship with leverage.

While determining the factors affecting capital structure in the sugar industry of Pakistan Kanwar (2007) found a positive impact of tangibility, profitability, market to book ratio and size on leverage whereas tax was found to be insignificant. Similarly, the chemical industry of Pakistan preferred more equity financing in comparison to debt financing. Size and growth showed trade off behavior in the firms (Rafiq et al., 2008). Gurcharan (2010) conducted a study in ASEAN countries in order to determine what factors affect the choice of their capital structure. Profitability and growth was found to have negative relationship whereas other traditional determinants have different results in each country.

Masnoon and Saeed (2014) conducted a study on the automobile sector of Pakistan concluded that profitability, liquidity, tangibility and size have a negative impact on the capital structure. Whereas earning variability has a positive co relation with leverage. The sample included ten out of 16 automobile companies listed on the KSE index for the period of five years (2008-2012).

Now the **second part** of the literature talks about MNCs and their financing decisions. Apparently there is relatively very little research specifically in relation to MNCs. The only study that focused on the impact of international factors on determinants of capital structure was conducted by Lee and Kwok (1988). He classified firms as MNCs and DCs through foreign tax ratio. After controlling for size and industry effects the results indicated MNCs have lower debt ratios as compared to DCs. Taking bankruptcy costs, agency costs and non-debt tax shield, he then examined their relationship on international involvement (as proxied by tax ratio) and found that MNCs had greater bankruptcy cost and NDTs. He also found that agency cost (as proxied by research and development, and advertising expenses/sales) and NDTs were positively related to international involvement.

Extending the work of Lee and Kwok (1988), Burgman (1996) studies the capital structure of MNCs by incorporating foreign exchange risk and political risk. Controlling for size and industry effects he found low leverage and high agency costs. In addition to this he estimated the sensitivity of foreign exchange risk through regression analysis of stock returns of US firms and US: SDR returns. Political risk was calculated by the ratio of number of low risk countries to total number of countries in which a firm has its operations. The result indicated that leverage has a positive association with both of these risks. He finally concluded that MNCs try to hedge political and foreign exchange risk by using a debt policy. In conformity to previous studies, Chen et al. (1997) found that MNCs have lower leverage as compared to DCs after controlling for firm's size, bankruptcy costs, agency costs and profitability. However, within their sample the increase in international activities tends to increase the leverage ratios.

Fatemi (1988) on the basis of foreign sales ratio classified firms either multinational or domestic. He then compared the leverage ratios of MNCs and DCs after controlling size and industry effects. The results indicated that MNCs have low target debt ratios and they prefer short term financing as compared to DCs. According to him these differences were due to the market imperfections which are faced by MNCs.

Taxation plays an important role for companies operating outside their home country. One of the studies conducted by Chowdhary and Nanda (1994) and Chowdary and Coval (1998) focused on the impact of taxation w.r.t home country and host country on the debt structure of MNCs. They showed that debt ratios are positively related to the tax rate of

host country and negatively related to the tax rate of home country. Huizinga et al. (2008) while doing an empirical study in Europe found taxation as one of the key factors determining the capital structure of MNCs. They found both host country and home country tax rates to have a positive impact on debt ratios along with other factors such as return on assets, size and tangibility.

Risk plays a critical role for the sustainability of the firm. Due to diversification MNCs tend to have low business risk as compared to DC's. According to Lee & Kwok, (1988), Doukas and Panzalis, (2003) international diversification of firms increases their debt carrying capacity however empirical studies regarding business risk are inconclusive. According to our own review of literature, the determinant of capital structure for Pakistani MNCs has not received much attention. Therefore, we attempt to study the impact of traditional as well as international factors on leverage in MNCs listed on KSE Pakistan.

### **Research Methodolgy**

#### **Sample selection and data sources:**

Several ratios have been used in previous studies in order to classify firms as MNCs and DCs.

These include;

- (i)** Foreign assets over total assets
- (ii)** Foreign sales over total sales
- (iii)** Foreign taxes over total taxes

According to Lee and Kwok (1988) despite of their different economic meaning all of these measures are positively related to measure the extent of internationalization. Michel and Shaked (1986) classified Fortune 500 manufacturing companies as MNCs or DCs on the basis of number of countries they have operation & to their foreign sales ratios. The evidences indicate that DCs are more leveraged than MNCs. Similarly, Stanley and Block (1983); Errunza and Senbet (1984); Kim and Lyn (1986) classified MNCs on the basis of number of countries in which they are operating.

The current study revolves around MNCs currently operating in Pakistan weather in the form of licensing, franchising, subsidiary or an international joint venture. We have classified companies on the basis of the number of countries in which they are operating

for which a list of MNCs has been obtained from the Securities and Exchange Commission of Pakistan (SECP). The list is provided in Appendix.

The sample includes 33 companies which are currently listed on the Karachi stock exchange. These companies are mostly operating as subsidiaries or international joint ventures. Due to non-availability of data 30 firms out of 33 were included in the final sample. In addition to this financial firms have been excluded from the sample as their debt and equity structure is different from the non-financial firms.

The data was secondary in nature. It was obtained from the annual financial statements of selected firms. A panel data has been constructed for the period 2005-2017. Following table shows the sample selection of currently operating KSE listed MNCs and DCs in Pakistan on the basis of industry classification.

**Table 1: Distribution of MNCs and DCs on the basis of sector**

<b>SECTOR NAME</b>	<b>TOTAL NO. OF COMPANIES IN SECTOR</b>	<b>NO. OF MNCs IN SECTOR</b>	<b>NO. OF DCs IN SECTOR</b>
Automobile and Parts	15	8	7
Construction and Materials (Cement)	36	3	33
Chemicals	34	3	32
Pharma and Bio Tech	9	6	3
Electronic and Electrical Goods	3	1	2
General Industrials	14	1	13
Food Producers	53	3	50
Personal Goods (Textile)	178	3	175
Tobacco	3	1	2
Oil and Gas	13	1	12
Electricity	19	1	18
Software and Computer Services	2	1	1
Support Services	1	1	0
<b>TOTAL</b>	<b>380</b>	<b>33</b>	<b>348</b>
<b>Source:</b> Author			

Table 1 indicates Personal Goods sector contains the largest number of companies yet there are only three MNC's currently operating namely BATA Pakistan, Colgate, Palmolive and Gillette Pakistan. The highest number of MNCs lies in the Automobile and parts sector which includes Atlas HONDA, DewanFarooque Motors Limited, Exide Pakistan Limited, General Tyre and Rubber Co, Ghandara Nissan Limited, Honda Atlas Cars (Pakistan) Limited, Indus Motor Company Limited and Pak Suzuki Motor Company Limited. Japan plays a key role in making investments in this sector. Pharma and Bio tech sector contains a considerable amount of MNCs relative to their DCs. These include Abbot Laboratories (Pakistan) Limited, GlaxoSmithKline (Pakistan) Limited, Otsuka Pakistan Limited, Sanofi-Aventis Pakistan Limited, the Searle Company Limited and Wyeth Pakistan Limited. Furthermore, in the remaining sectors it seems DCs are playing a significant role in the development of these sectors as there are very less MNCs operating in those sectors.

### **Dependent Variable**

**3.3.1 Leverage:** Leverage is used as a dependent variable. Past literature has defined leverage in a variety of ways. According to Frank and Goyal (2009) there are four definitions which are as follows:

- i.** Long term debt/ market value of assets
- ii.** Long term debt/book value of assets
- iii.** Total debt/market value of assets
- iv.** Total debt/ book value of assets.

Similarly, according to Rajan and Zingales (1995) the broadest description of leverage is the ratio of total liabilities over total assets. This ratio explains, in case of liquidation what is left for the shareholders but it does not indicate whether the firm is at risk of default in future or not? He then defined leverage in a more appropriate way by the ratio of total debt over total assets. Here Total debt includes both long term plus short term debt. In the light of capital structure theories, long term debt is considered as a proxy of leverage of the firm (Jong et al., 2008). Shah and Khan (2008) suggested that in Pakistan long term debt is not encouraged by the commercial bank so the firms have to opt for short term debt. Similarly, booth et al. (2001) while studying capital structure of developing countries including Pakistan found that an average size of firms operating in Pakistan is small so it's difficult for them to access the capital market that is why they rely on short term debt.

For our study we will use traditional measure of leverage which accounts for both short term debt and long term debt.

*Leverage = Long term Debt/ Total Assets*

*Leverage= Short Term Debt/ Total Assets*

## **Independent Variables**

### **Non-Debt Tax Shield**

Conferring to trade off theory, one of the advantages of debt financing is its tax deductibility. The non-debt tax shields include investment tax credits and depreciation expense (Bradley et al., 1984; Titman &Wessel's, 1998). De Angelo and Masulis (1980) concluded that the tax deductions are a substitute for interest payments and that the firms with larger tax deductions are expected to use less debt. As MNCs are operating under different tax systems they should know well about the Institutional restrictions in host countries in order to reduce tax liabilities. However, in the case of MNCs the relation of non-debt tax shield with debt ratios is still unknown. Following hypothesis will determine whether NDTs proves to be a determinant for MNCs in Pakistan or not.

***H1: There is relationship between non debt tax shield and leverage for MNCs.***

In this study NDTs is calculated by dividing the depreciation charges to total assets. This measure has been taken on the basis of previous studies by (Titman &Wessels, 1988; Bradley et al., 1984).

$$\text{Non Debt Tax Shield} = \text{Depreciation Charges} / \text{Total Assets}$$

### **Profitability**

There exist inconsistent theoretical predictions regarding profitability as a determinant of leverage. Pecking order theory suggests a negative relationship between profitability and leverage. When a firm is profitable it tends to use less debt as it prefers internal sources of financing such as retained earnings (Titman &Wessel's, 1988; Constantinides, 2003). This preference is due to the excessive funds available internally which makes it cost effective as compared to debt/equity financing (Myers, 1984). Also due to diversification MNCs have better opportunities in contrast to DCs to maximize their profits this results in lower leverage. Therefore, there exists a negative relationship between profitability and leverage (Chen, 2004; Constantinides, 2003).

Conversely signaling theory reveals a positive relationship as adding debt in financing mix will convey a positive signal regarding the credibility of firm. In addition to this it is believed that as MNCs are operating in more than one country they are exposed to more favorable business environments plus they have access to more profits (Ghoshal, 1990). Consequently, this suggests MNCs are more profitable as compared to DCs. Following hypothesis is based on the aforementioned argument.

***H2: There is relationship between profitability and leverage for MNCs.***

Previous studies have used many indicators of profitability which includes EBIT (Titman &Wessels, 1988), ROA (Chen et al., 1997), EBITDA (Huizinga et al., 2008) or cash flow (Rajan & Zingales, 1995). This study will employ the traditional measures of profitability i.e. Return on assets (ROA) and return on equity (ROE).

**Size**

Size is considered to be one of the key factors determining capital structure. Titman &Wessel's (1988) suggests that larger firms (in terms of size) are diversified and less prone to bankruptcy therefore having higher leverage. Consequently, small firms are less diversified, have increased volatility in earnings and unstable cash flows therefore they are exposed to bankruptcy and tend to have less access to the debt markets (Fama & French, 2002). In addition to this larger firms are more likely to deliver more information to the public as compared to firms with small size (Cooke, 1991). The element of information asymmetry between larger and smaller firms makes it easy for the larger firm to issue debt at more favorable rates with lesser transaction cost (Smith, 1987). As MNCs are expected to be larger in size this concludes that they are more likely to use debt therefore a positive association exists between size and leverage. Following is the proposed hypothesis:

***H3: There is relationship between size and leverage for MNCs.***

Previous studies have used two measures for quantifying size of the firm.

- (i) Logarithm of sales (Huizinga et al., 2008)
- (ii) Logarithm of total assets (Nivorozkin 2005).

This study will use logarithm of sales in order to avoid correlation among variables which reflect size of assets.

**Tangibility**

Fixed assets act as debt collateral in a firm's balance sheet. The higher proportion of tangible assets indicates that the firm can borrow more debt as compared to the firms having assets with less collateral value. Therefore, tangibility of assets is considered to be one of the determinants on capital structure (Rajan & Zingalis, 1995). In addition to this firm having higher amounts of fixed assets have lesser bankruptcy and agency costs associated with debt therefore there is a positive association among debt ratios and collateral value of assets (Titman & Wessel, 1988; Harris & Raviv, 1991). Keeping in view MNCs there is no such study which defines the level of collateral assets for firms operating in different countries relative to their domestic counterparts. Based on the above argument following is the proposed hypothesis.

***H4: There is relationship between tangibility and leverage for MNCs.***

Based on prior studies, fixed assets to total assets have been used as a measure of collateral value of assets. (Friend & Lang, 1988; Akhtar et al., 2009)

**Agency cost of debt:**

As MNCs operate in different international environments they face market imperfections, language differences, auditing costs, monitoring costs and varying accounting and legal systems. The agency cost of debt comes into play when the conflict between bondholders and shareholders increases which leads to certain financing decisions which are unfavorable to the interests of bond holders (Jensen & Meckling, 1976; Myers, 1977). It includes both monitoring costs and control costs. Due to diversification bondholders find it difficult to gather information regarding business operations of MNCs thereby increasing the monitoring cost which ultimately increases the agency cost of debt. Empirical results confirm that firms tend to have lower debt levels when their agency costs are high (Jensen & Meckling, 1976; Fama, 1980; Titman, 1984). Furthermore, as MNCs have better access to global markets they have greater growth opportunities as compared to DC's. Myers (1977) argues that firms tend to have more agency cost of debt when they have more growth opportunities thereby leading to lower debt ratios. In contrast to their study Chung (1993), Titman and Wessel's (1988), and Rajan and Zingales (1995) all found a significantly negative association among growth opportunities and debt ratios. According to Jensen (1986) agency cost of debt can be proxied by free cash flows. And a result reported by Filbeck and Gorman (2000), Jaggi and Gul (1999) and Agarwal and Jayaraman (1994)

confirms a positive association among leverage and cash flows. Following hypothesis is based on the above arguments.

***H5: There is relationship between agency costs and leverage for MNCs.***

Agency cost is measured by dividing Cash and marketable securities by 3 year average total assets (Titman & Wessels, 1998)

### **Bankruptcy Costs**

An optimal capital structure is a well-balanced percentage of debt and equity. When the percentage of debt increases more than required by the optimal percentage, the cost of debt increases because it's riskier now for the lender. Due to the increase debt load the risk of bankruptcy also increases (Investopedia). According to Kraus and Litzenger, (1973) firms are expected to have lower leverage ratios when their bankruptcy costs are high. Armstrong and Riddick (1998) and Reeb (1998) says, MNCs have lower bankruptcy cost in contrast to DC's because they have the element of diversification which reduces earning volatility. On the other hand, as they are operating in different legal jurisdictions and there are informational differences among creditors the cost of bankruptcy increases (Burgman, 1996). Therefore, its inconclusive whether MNCs have high or low cost of bankruptcy.

***H6: There is relationship between bankruptcy cost and leverage for MNCs.***

Several researchers, (Lee & Kwok, 1988; Bradeley et al., 1984; Chaplinsky, 1984) have used standard deviation of EBIT divided by firm's total assets in order to measure bankruptcy cost.

### **Foreign Exchange Risk**

MNCs are exposed to foreign exchange risk therefore it is one of the critical factors affecting its financing patterns. The higher the exchange rate fluctuations the more will be the volatility in earnings of the firms operating in different international environments (Lee & Kwok, 1988). Therefore these firms are likely to have less leverage (Burgman, 1996). Not only foreign sales are affected by exchange rate but also the discount rate which is used to value the inflow of cash (Bartov et al., 1996). Similarly, there are two channels of MNCs through which a firm is exposed to foreign exchange risk (I) foreign sales, (II) production costs. Choi (1989) found a substantial association between foreign exchange fluctuations

and firms corporate financing choices. Therefore, we can assume there is a relationship between MNCs leverage and foreign exchange risk. But as Pakistan is a host country for almost all the MNCs operating here it is not affected by the foreign exchange risk. In contrast the parent companies which have their headquarters abroad are exposed to foreign exchange risk as all the revenues goes to them.

### **Political Risk**

When a firms economic well-being is in danger due to some political event this means the firm is exposed to political risk. The political risks can range from trade controls, institutional ineffectiveness, threat of war, social unrest, disorderly transfers of power, political violence, international disputes, regime changes and regulatory restrictions (Taylor, 1983). Companies operating abroad when exposed to higher political risk are likely to have lesser debt ratios as loss of wealth is high. As the impact of political risk is uncertain it is the policy of the firm which links the environment with its organizational strategy and helps sustain it (Kobrin, 1982). Traditionally, political risks pose a higher threat to MNCs possibly affecting its existence (Chkir & Cosset, 2001). Therefore, in times of financial distress less debt would help to minimize the loss. This shows a negative relationship between leverage and political risk.

#### ***H7: There is relationship between political risk and leverage for MNCs.***

Akhtar (2005) measured political risk by taking a proportion of revenue from a particular country ( $R_c$ ) relative to the total globalized revenue ( $R_t$ ), and multiplying it with the political risk rating of each country ( $\mu$ ). Notationally it can be written as:

$$\text{Political Risk} = \left(\frac{R_c}{R_t}\right) \mu$$

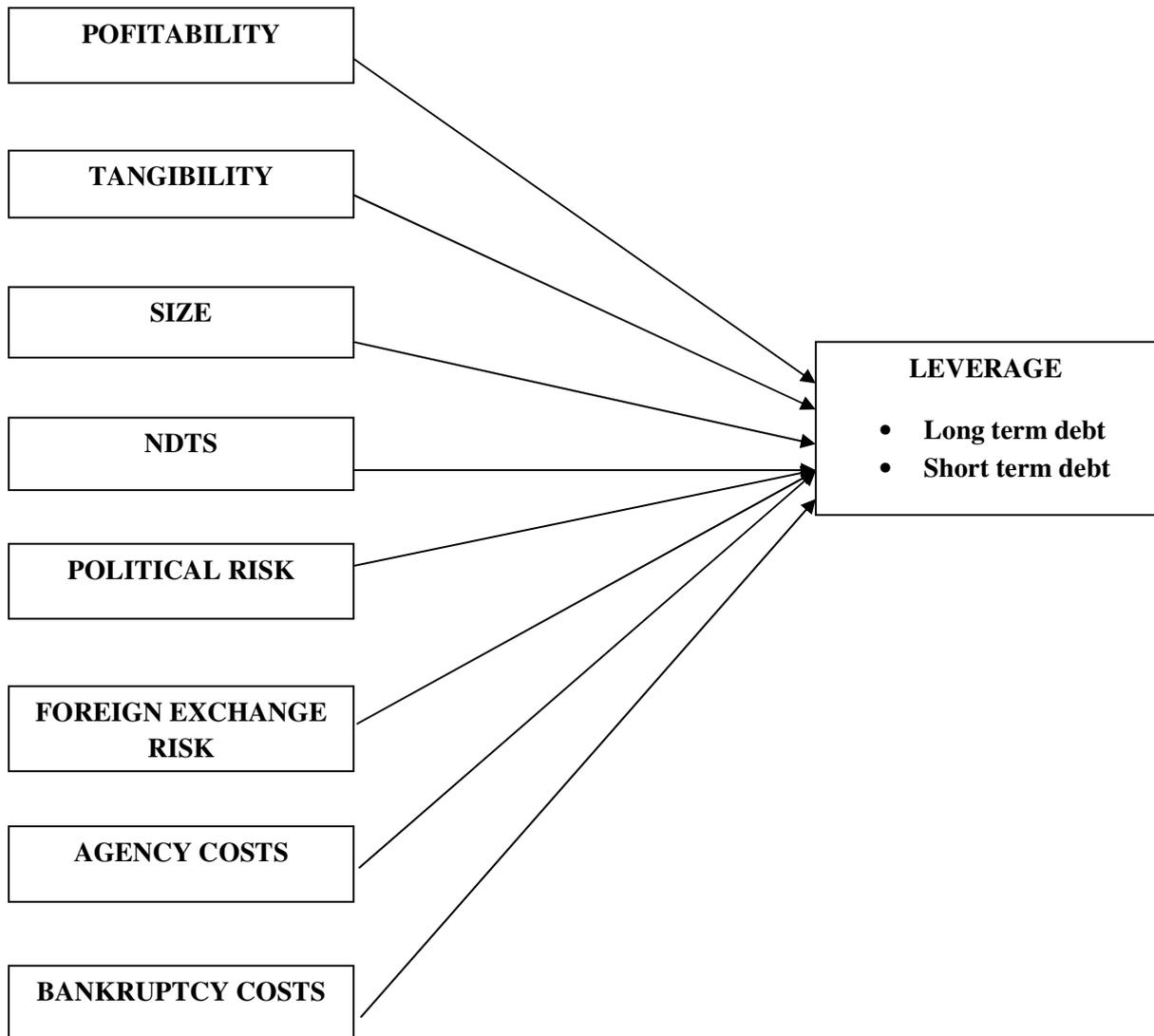
The political risk rating for Pakistan was obtained from Political Risk Services (PRS), which is considered as one of the most credible agency providing assessment on political risk.

It assesses risk on the following factors;

- (i)** Tax discrimination
- (ii)** Restrictions on local operations
- (iii)** Exchange controls
- (iv)** Repatriation restrictions.

The maximum value assigned is 100 which indicate least risk. And a minimum value of zero indicates the riskiest. Pakistan has been given rating in between 50-55 which shows a moderate risk.

### Conceptual Framework



### Model Specification

This study uses two proxies for leverage. (i) Long Term Debt (ii) Short Term debt therefore we will determine the impact of all our independent variables on these two proxies differently. For which two models have been specified which are as follows:

**Model 1:**

$$LEV1_{it} = \alpha_0 + \alpha_1 PROF_{it} + \alpha_2 TANG_{it} + \alpha_3 SIZE_{it} + \alpha_4 NDTs_{it} + \alpha_6 AGC_{it} + \alpha_7 BC_{it} + \alpha_8 PR_{it} + \mu_i$$

**Model 2:**

$$LEV2_{it} = \alpha_0 + \alpha_1 PROF_{it} + \alpha_2 TANG_{it} + \alpha_3 SIZE_{it} + \alpha_4 NDTs_{it} + \alpha_6 AGC_{it} + \alpha_7 BC_{it} + \alpha_8 PR_{it} + \mu_i$$

Where:

**Dependent Variable:**

$LEV1_{it}$  = Long term debt of a firm (i) at time (t).

$LEV2_{it}$  = Short term debt of a firm (i) at time (t).

**Independent Variables:**

$\alpha_1 PROF_{it}$  = Coefficient of Profitability

$\alpha_3 SIZE_{it}$  = Coefficient of Size

$\alpha_2 TANG_{it}$  = Coefficient of Tangibility

$\alpha_4 NDTs_{it}$  = Coefficient of Non-Debt Tax Shield

$\alpha_6 AGC_{it}$  = Coefficient of Agency cost of debt

$\alpha_7 BC_{it}$  = Coefficient of Bankruptcy cost

$\alpha_8 PR_{it}$  = Coefficient of Political Risk

$\mu_i$  = error term of a firm (i) at time (t).

**Research Method:**

On the basis of prior studies by Booth et al., (2001), Shah and Khan, (2007) and Shah and Hijazi, (2004), this study uses panel data. This type of data considers both time series features and cross section features. Therefore, it gives a true picture of relationship between multiple variables for multiple periods of time. The main advantage of using panel data is that it reduces the co-linearity and increases the level of freedom among variables.

This study employs the panel data regression model similar to what used by Arellano and Bover (1990), Antoniou et al., (2002) and Abor (2007) in their study of capital structure determinants. This technique captures the unobservable effects underlying the data. The model where one can generalize the assumptions regarding the variance-covariance matrix and residual distribution is called Generalized Least-Squares (GLS).

**Results and Discussions**

The results obtained for Random Effect GLS Regression for both models of leverage.

**Table 4.7: Generalized Least Squares**

<b>Dependent Variable</b>	<b>MODEL 1 (Long term debt)</b>	<b>MODEL 2 (Short term debt)</b>
<b>Independent Variables</b>		
<b>PROF</b>	-0.0022 (0.131)	-0.0045 (0.048)
<b>TANG</b>	0.0423 (0.003)	0.00944 (0.028)
<b>SIZE</b>	0.0073 (0.055)	0.0223 (0.051)
<b>NDTS</b>	-0.00429 (0.562)	1.9121 (0.676)
<b>AG</b>	0.022 (0.044)	0.388 (0.000)
<b>BC</b>	0.0069 (0.401)	1.9287 (0.000)
<b>POL</b>	-0.00114 (0.317)	-0.0212 (0.211)
<b>Overall Significance</b>	p-value = 0.006	p-value = 0.000
<b>SOURCE:</b> Author's Estimates, STATA		

**Model 1:**

$$LEV1_{it} = \alpha_0 - 0.131PROF_{it} + 0.0423TANG_{it} + 0.0073SIZE_{it} - 0.004NDTS_{it} + 0.022AGC_{it} + 0.0069BC_{it} - 0.0011PR_{it} + \mu_i$$

**Model 2:**

$$LEV2_{it} = \alpha_0 - 0.0045PROF_{it} + 0.0094TANG_{it} + 0.0223SIZE_{it} + 1.9121NDTS_{it} + 0.388AGC_{it} + 1.928BC_{it} - 0.0212PR_{it} + \mu_i$$

**Profitability:** According to Myers's (1984) pecking order theory, there exists a negative relationship between profitability and leverage. The regression results also indicate a negative relationship for both the models. As in Pakistan short term financing is preferred the variable profitability is statistically significant for model 2 whereas for long term debt it's not significant. Previous studies ((Booth et al 2001; Shah & Khan, 2007; Tong &Green, 2005) confirms the negative relationship of profitability and leverage. This leads to believe that MNC's operating in Pakistan prefer to avoid external financing due to its costs and prefer internal financing.

**Tangibility:** The strong and statistically significant relationship between tangibility and leverage suggests that MNC's operating in Pakistan use their fixed assets as collateral in order to acquire debt. In addition to this these results are consistent with past studies by shah &Hijazi (2007), Jong et al, (2006), frank and Goyal, (2009) but conflicting with Booth et al, (2001).

**Size:** As MNC's are larger in size and more diversified this reduces their risk of bankruptcy therefore they tend to prefer more leverage. The highly positive and significant relationship between size and leverage indicates that in Pakistan larger firms tend to borrow more. These results are consistent with the theoretical predictions of Trade off theory. These results contradict with the past studies by (Shah & Hijazi, (2004) and (Shah & Khan, 2004).

**NDTS:** The insignificant relationship between NDTS and leverage indicates there is no impact of depreciation on MNC's. The results are consistent with Burghman (1996), but there is no evidence which suggests that Pakistani MNC's have better way to cover its income from taxation.

**Agency costs:** The results indicate a positive significant relationship between agency costs and leverage for both the models. This means as MNC's operates in multiple countries their monitoring costs are high which leads to more agency costs, therefore less debt-equity ratios (Kim & Lyn, 1986). The results are not consistent with the famous study by Burghman (1996) may be due to the reason he used different methodology.

**Bankruptcy costs:** This study reflects mixed results of bankruptcy costs for both the models. It indicates a positive statistically significant for model 2. On the other hand, for

long term debt the results are not significant. Overall it indicates there exists a relationship between bankruptcy costs and leverage for MNC's operating in Pakistan

**Political risk:** According to this study the relationship between political risk and leverage is statistically insignificant. It means the political risk in Pakistan does not explain any effect on leverage of MNC's operating in Pakistan.

### Conclusion

The current study investigated the capital structure of KSE listed Multinational Corporations in Pakistan for the period 2005-2017 for which different theories of capital structure were discussed in detail. On the basis of past literature and theoretical predictions 7 independent variables were selected. For panel data analysis, Generalized Least Square technique was selected due to the problems of heteroscedasticity and autocorrelation. Following are the results which are mostly consistent with past studies

- Profitable firms have less leverage.
- Larger firms have more leverage.
- Firms' having more fixed assets tends to have more leverage.
- No-debt tax shield has no impact on MNC's leverage.
- MNC's have more agency costs therefore less leverage.
- Bankruptcy costs tend to have an impact on leverage of MNC's.
- Political risk does not affect MNC's leverage.

### Limitations and Recommendations:

Prior studies say there exists a relationship between international activities and Debt ratios. This study attempts to check the impact of international factors such as bankruptcy costs, agency costs and political risk. We find that international factors do have a positive relationship with leverage. As there's very limited work done on MNC's in Pakistan **firstly**, future researchers should test the impact of some other international factors like diversification, economic risk, and credit constraints etc. on their capital structure. **Secondly**, current study is also limited by the imperfection of the proxies employed for bankruptcy costs and agency costs. Future work should improve the measure of proxies. **Thirdly**, this study is only limited to MNCs future researchers can conduct a comparison

between KSE listed MNCs and DCs in order to have a clear picture of factors which influence their financing patterns.

For future development and country growth these findings should enhance further capital providers to better stimulate the financial needs of MNC's operating in Pakistan. Furthermore, as size, tangibility, agency costs and bankruptcy costs are found to be significant, these aspects should thus be kept in mind by management or other concerned parties when making capital structure decision.

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