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Unveiling Financial Strategies: Leverage Choices of Multinational and Domestic Corporations in Pakistan

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Abstract

The current research comparatively explored the factors affecting the capital structure of domestic corporations (DCs) and multinational corporations (MNCs) in Pakistan for the period 2016-2021. It found that MNCs hold a higher ratio of debt to equity in their mix of capital structures than DCs. Using the fixed effects model, this study established that older firms manage to capitalize their debts. At the same time, the large size of firms and higher bankruptcy costs cause a high debt ratio in the capital structure of both types of corporations. The results also revealed that free cash flows are inversely and significantly associated with the capital structure of DCs. On the contrary, non-debt tax shield, collateral value of assets, and foreign exchange risk are directly and significantly associated with DCs only. This study also found that profitability and agency cost are not significant determinants of capital structure in either type of firms. Significant policy implications stem from the results, particularly in the areas of taxation, international trade, and financial regulation. Moreover, the findings provide insight into the complex interaction of factors influencing the capital structures of DCs and MNCs, which would be helpful for policymakers.

***Keywords*:** capital structure, debt, determinants, domestic corporations (DCs), equity, leverage, multinational corporations (MNCs)

JEL Classification: G32, F3, F23]

Introduction

Modigliani and Miller (1958) initially examined the notion of capital structure irrelevance, which ignited a series of intense debates regarding the optimal leverage composition of corporations. According to the Modigliani-Miller theory, a firm's capital structure has no impact on its value under certain assumptions. Despite these unrealistic assumptions, numerous variables have been considered as potential capital structure determinants

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including agency costs, profitability, asset collateral value, growth prospects, free cash flows, firm age, risk of bankruptcy, and non-debt tax shield. The primary objective of a corporation is to maximize shareholder wealth by carefully estimating an appropriate blend of debt and equity financing. Hence, debt and equity capital composition become highly contentious, directly influencing a firm's market value and cost.

In the current era of global interconnectedness and competition, MNCs play a pivotal part in driving economic development. Consequently, determining their optimal capital structure choice becomes crucial, where businesses must 'act global' while keeping in view local factors. Theoretical arguments suggest that MNCs are likely to have higher liabilities in their leverage composition as compared to local corporations. This is due to them operating in different economies with less earnings volatility and a lower probability of bankruptcy costs. Moreover, the nationalization of MNCs affects agency costs and leads to variations in capital structure, as compared to DCs (Myers, 1984). Fatemi (1988) further argues that differences in the effects of these variables on MNCs and DCs can be attributed to international market imperfections MNCs face. Other potential factors influencing capital structure differences include monitoring costs (Jensen, 1986) incurred due to MNCs operating in complex political and institutional environments and auditing costs (Akhtar, 2005) resulting from their geographic dispersion.

Determining the ideal debt-equity mix for a firm's balance sheet remains a complex topic since no universal rule can estimate the optimal capital structure. It requires a deep understanding of corporate culture, the stage of capital market advancement, and the specific economic environment in which the firm operates. Skillful managers are vital to achieve a firm's objectives, enabling it to perform without being hindered by financing constraints or concerns about the finance mix. A large number of studies have been conducted to show the association and variations in the leverage composition of DCs and MNCs in developed countries such as France, USA, Australia, and many others (Akhtar & Oliver, 2009; Chen, 2004; Kanagaraju & Sathya, 2021; Maheswari & Gayathri, 2019; Wang et al., 2020). On the other hand, further investigation is required about the factors determining the capital structure of DCs and MNCs of an emerging economy like Pakistan with an unstable microeconomic and macroeconomic situation due to political crunches, complex taxation rules,

and non-robust legal systems. Eldomiaty (2008) argued that the results of advanced economies may not be generalized to developing economies because of several reasons including incomplete information, underdeveloped capital and money markets, political instability, and unpredictable movements in foreign currency. Hence, identifying the variables that affect the capital structure is extremely important for MNCs as well.

MNCs play a vital role in developing economies since they are professionally managed, well structured, and have access to larger markets and finances. The choice of capital structure is considered as a crucial decision in the area of finance. The right mixture of debt and equity not only increases the corporation's value but also enhances its overall performance. Hence, there is a need to study the leverage composition of firms and its determinants for developing economies such as Pakistan. Therefore, the current research aims to explore the leverage composition of MNCs and DCs of Pakistan through their determinants.

Literature Review

Capital Structure of MNCs and DCs

Theoretically, since MNCs operate in diversified markets and benefit from lower bankruptcy costs and less volatile earnings, their leverage composition depicts higher debt as compared to DCs (Wang et al., 2020). On the contrary, earlier studies (Burgman, 1996; Fatemi, 1988; Shapiro, 1978) found contrasting results and showed less debt in MNCs than DCs. The causes could be worldwide diversification which increases corporate risk, or any other issues that need to be assessed, such as global political risk, fluctuating exchange rates, and an unreliable tax system. Some empirical research has been conducted, particularly in developing nations, in this regard. For instance in India, Kanagaraju and Sathya (2021) examined the association between capital structure of MNCs and DCs and found that the company's size, return on assets, and profits are significant determinants of capital structure.

Himmah and Dianty (2020) conducted a study on Indonesian firms for the period 2010-2019 to check the association between the determinants of capital structure. They found a significant and inverse relationship between the growth of assets and volatility of cash flows with the leverage composition of firms. Similarly, Akhtar and Oliver (2009) explored the

firms in Japan and found that MNCs have lesser debt than DCs. They further revealed that political risk, the corporation's age, non-debt tax shield, and free cash flows are significant factors that explain the dissimilarity of MNCs and DCs.

Capital Structure in Pakistan

Although leverage composition and its determinants have been the subject of many extensive researches on multinational and domestic corporations of developed economies, one can barely find such studies in the context of emerging economies such as Pakistan. Mehmood et al. (2020) explored the impact of capital structure on the profitability of textile firms listed on Pakistan Stock Exchange (PSX) and found a significant and direct association between capital structure and return on assets of a corporation. Likewise, Zaheer et al. (2021) regressed the capital structure of the oil and gas firms listed on PSX for the period 2013-2018 and found that non-debt tax shield and profitability are inversely associated. In contrast, size, tangibility and growth are directly linked to the firms' capital structure. Similarly, Yasser (2016) investigated the leverage composition of PSX-listed firms through their determinants for the period 2006-2013. The study found that agency cost, growth, age, and firm size are positively linked with leverage composition. Similarly, Qureshi et al. (2012) found that the diversification features of a firm create a difference in its capital structure. The study concluded that the corporations with greater diversification have more debt, whereas those with less diversification have less debt in their leverage composition.

It is difficult to predict an ideal capital structure for an organization. Moreover, given that each organization has its own peculiar or unique facts and figures, it is also a fact that one cannot use the debt and equity ratio of one for another. It is more of a continuous problem with infinite variations over time. To have a successful finance mix for an entity, one needs to deeply understand an organization, its surroundings, and the financing tools available to build and maintain growth that would be useful for both shareholders and stakeholders. Managers are best at managing the business without considering finance, core debt or equity finance issue, or their ideal mix.

Since Pakistan is an emerging economy, MNCs in Pakistan are also in their early stages. Somanath (2011) reported that the internationalization of

an MNC begins with obtaining a license for trading its products in the host country. Then, the MNC exports its products through its agents or distributors. According to the study, export through an agent occurs in the initial stages of MNC development. Madura (2020) stated that an MNC is engaged in international business. He further elaborated that international trading, licensing, franchising, joint ventures, acquisition of existing businesses, and the creation of new subsidiaries are all examples of international business. Vernon (1979) presented a product life cycle model and stated that an MNC, in its first stage, produces and sells in the local marketplace. When its growth matures, it starts exporting products to the international markets. Therefore, this study takes into account foreign sales in the early stages of MNCs.

Determinants of Capital Structure and Hypothesis Development

Numerous factors that influence a corporation's leverage are called its determinants. These include the company's age, agency costs, size, free cash flows, asset value of collateral, growth prospects, foreign exchange risks, bankruptcy risks, profitability, and non-debt tax shields. Fatemi (1988) explored the disparities due to which these variables impact multinational and domestic corporations. These disparities are caused due to the unpredictability of international market. This study also revealed that both MNCs and DCs exhibit volatility but differ in agency expenses and the absence of debt tax protection for MNCs. Factors such as agency cost of debt, monitoring cost, and the complex political and institutional operations conducted by MNCs may explain the lower debt ratios observed among them (Jensen, 1986; Myers, 1984).

Due to the diversification of cash sources and low default risk, MNCs usually have more debt than DCs (Melgarejo & Sheryl-Ann, 2020; Park et al., 2013). MNCs have increased leverage; however, empirical analysis has arrived at contradictory findings (Lee & Chuck, 1988; Reeb et al., 1998; Wang et al., 2020). Further research is needed to determine whether Pakistani MNCs and DCs share the same situation as the MNCs in question regarding debt ratios. On the basis of the above discussion, the following hypothesis is formulated:

H1: The capital structure of DCs and MNCs differs significantly.

Agency Cost

Agency costs refer to the potential conflicts of interest and associated expenses incurred by a firm's stakeholders and management. MNCs and DCs have different agency costs due to more extensive monitoring and auditing expenses, political uncertainty, diversity of languages and cultures, geographic dispersion, information gaps, and various legal and accounting frameworks (Burgman, 1996). Additionally, MNCs have more opportunities for expansion and better access to international markets which leads to more agency costs with less debt (Myers, 1977). The following alternate hypothesis can be formed in light of the arguments mentioned above:

H2: The capital structure of DCs and MNCs exhibits a significant association with agency cost.

Bankruptcy Cost

Bankruptcy costs refer to the expenses and losses associated with a company going through the legal process of insolvency. This cost includes legal charges, revenue decline, workforce, and vendors. A significant debt increase also increases the likelihood of bankruptcy, which raises its cost. Businesses with higher bankruptcy costs owe less debt. According to Reeb et al. (1998), MNCs experience lower bankruptcy costs than DCs. MNCs operate across several economies, which reduces profit volatility and results in lower bankruptcy costs, since MNCs offer the potential for worldwide diversification and foreign exchange risk (Shapiro, 1978). However, legal jurisdiction and informational disparities across nations raise the cost of bankruptcy (Burgman, 1996). Therefore, the following hypothesis is proposed because it is uncertain if MNCs have more or less bankruptcy costs than DCs:

H3: The capital structure of DCs and MNCs exhibits a significant association with bankruptcy costs.

Non-Debt Tax Shield

A non-debt tax shield is the tax advantage a company may utilize without incurring debt. It is a mechanism that lessens a firm's taxable profit and, consequently, lessens tax liability (Akhtar & Oliver, 2009). Since MNCs operate in various nations, they must figure out how to fully benefit from tax laws to reduce their tax burdens. According to Bradley et al. (1984)

and Titman (1984), non-debt tax shield can be calculated by dividing yearly depreciation with the book value of total assets.

H4: The capital structure of DCs and MNCs exhibits a significant association with non-debt tax shield.

Profitability

The ability of a corporation to make money from its commercial activities is referred to as profitability. It is a crucial indicator of financial success and measures the efficiency and effectiveness of a company's operations in generating earnings. Compared to external finance, which is more expensive, internal finance is more straightforward and less expensive. Therefore, more profitable businesses have more internal financial resources and less debt, as in the case of MNCs.

H5: The capital structure of DCs and MNCs exhibits a significant association with profitability.

Size

Size refers to the magnitude or scale of a company, typically measured by its total assets, revenues, or market capitalization. The size of a company can have significant implications for its operations, market presence, and overall business strategy. More profitable businesses have more significant internal financial resources and less debt. Further, as compared to external finance, which is more expensive, internal finance is more straightforward and less expensive (Cooke, 1991). Therefore, it is possible to hypothesize that profitability and leverage are inversely related. MNCs typically have more significant opportunities to increase profits than DCs due to more favorable conditions. MNCs are, hence, more profitable than DCs.

H6: The capital structure of DCs and MNCs exhibits a significant association with size.

Collateral Value of Assets

It refers to the estimated amount of assets used as collateral to secure a loan or other financial obligations. Collateral is an asset or a property pledged by a borrower to a lender as security against the loan. According to Rajan and Zingales (1995), a factor that affects capital structure is the tangibility of assets or their collateral value. Since companies with more physical assets may borrow money more quickly and on more favorable

terms, it is assumed that they would have greater debt. On the other hand, Graham (1988) argued that businesses with significant intangible assets have lower borrowing costs, which results in better security for debtholders.

H7: The capital structure of DCs and MNCs exhibits a significant association with the collateral value of assets.

Growth

When referring to a firm's size, scale, income, market share, and profitability, growth increases over a given period of time. It represents the expansion and development of a business beyond its current state. According to theory, a company with a faster growth rate would have a capital structure with less debt. Any change in the percentage of total asset of a company was employed by Shah and Hijazi (2004) to gauge its expansion. The following hypothesis can be developed based on the above discussion:

H8: The capital structure of DCs and MNCs exhibits a significant association with growth.

Age

The age of a business is a measure of a company's longevity and experience in its field. It can vary widely, ranging from newly established startups to well-established companies with decades or even centuries of history. More information about a company's potential viability becomes accessible as it expands. Less leverage in its capital structure results from more information. Since MNCs frequently begin as DCs, they are typically older than DCs. MNCs are, therefore, thought to have less debt than DCs (Petersen & Rajan, 1994).

H9: The capital structure of DCs and MNCs exhibits a significant association with age.

Free Cash Flows

According to Jensen (1986), free cash flow is the remaining balance of cash and cash equivalents after subtracting all capital expenses incurred during a given accounting period. According to Harris and Raviv (1991), debt would be lower for the company with free cash flows and vice versa. Additionally, it needs to be clarified if MNCs' free cash flows are higher or lower than those of DCs (Akhtar & Oliver, 2009). Free cash flows were

computed by Lehn and Poulsen (1989) and Jensen (1986) (as EBITDA minus taxation, depreciation, and interest) over book value of total assets. Lehn and Poulsen claimed that firms with better free cash flows would also have less debt. So, the following hypothesis can be formed based on the above arguments:

H10: The capital structure of DCs and MNCs exhibits a significant association with free cash flows.

Foreign Exchange Risk

Foreign exchange risk arises from the uncertainty and volatility in the value of one currency relative to another. According to Burgman (1996), foreign exchange risks significantly impact the organization's financing mix. Less leverage is used when a company's income is more susceptible to fluctuations in currency exchange rates. Since MNCs are more susceptible to foreign exchange swings as compared to DCs, their leverage composition has lesser debt. According to Wright et al. (2002), the percentage of international sales to total sales can be used to quantify the foreign exchange risk.

H11: The capital structure of DCs and MNCs exhibits a significant association with foreign exchange risk.

Research Methodology

Population and Sample

The data was collected from the report issued by the State Bank of Pakistan (2021). This report contains a financial statement analysis of PSX-listed non-financial companies. According to this report, 369 non-financial companies were listed at PSX in 2021 from all twelve different industry sectors. Convenient sampling method was used to conduct the analysis. The final sample size was 303 companies spanning the period 2016-2021. Since 06 years of data were used for 303 companies in this study, total firm years remained 1818. The researchers use different ways to classify the firms as DCs or MNCs. The most popular method uses the foreign sales ratio to differentiate between domestic and multinational corporations (Akhtar, 2005; Akhtar & Oliver, 2009; Fatemi, 1988; Mittoo & Zhang, 2008). The above criterion suggest that if the foreign sales ratio equals or exceeds 10, then the company is an MNC; otherwise, it is DC.

The following Table 1 gives the descriptive statistics of all the variables used in this study. These variables are divided into two categories according to the models, that is, DCs and MNCs. There are 1818 observations (firms years), of which 1308 are DCs and 510 are MNCs. The results show a higher leverage in MNCs as compared to DCs. MNCs in Pakistan have lower agency costs and non-debt tax shields than DCs. They have higher free cashflows, bankruptcy costs, profitability, the collateral value of assets, size, growth, and age as compared to DCs. Descriptive statistics, as shown in Table 1, postulate that the leverage composition of DCs (mean value = 0.2839) is different from the leverage composition of MNCs (mean value = 0.05797). Further, the table shows that MNCs hold more debt as compared to DCs, thus the alternate Hypothesis 1 is accepted. This result is similar to the prvious studies (see e.g., Alnori, 2023; Lee & Chuck, 1988; Park et al., 2013).

Table 1

Descriptive Statistics of Variables

Variables	Firms	Obs	Mean	Std Dev	Min	Max
Leverage	DCs	1,308	0.02839	0.05797	0.00000	0.60335
	MNCs	510	0.05239	0.07403	0.00000	0.40913
Agency cost	DCs	1,308	0.08352	0.15881	0.00000	3.03998
	MNCs	510	0.06633	0.12446	0.00011	0.85207
Free cashflows	DCs	1,308	0.10680	0.39546	-3.54342	6.40516
	MNCs	510	0.14347	0.57821	-1.24025	11.87982
Growth	DCs	1,308	-6.45601	170.712	-6157.709	0.99934
	MNCs	510	-1.70566	17.9985	-378.5451	0.99338
Age	DCs	1,308	3.56938	0.52961	1.60944	4.96981
	MNCs	510	3.62832	0.39629	1.38629	4.30407
Non-Debt Tax Shield	DCs	1,308	0.06935	0.06343	-0.01420	0.81183
	MNCs	510	0.05991	0.02614	0.00272	0.14612
Size	DCs	1,308	14.9859	1.85359	9.46048	19.87382
	MNCs	510	15.0538	1.66077	9.64601	19.22347
Collateral Value of Assets	DCs	1,308	0.78652	0.25200	0.00000	1.00000
	MNCs	510	0.81026	0.20783	0.00486	1.00006
Profitability	DCs	1,308	-1.34668	32.9205	-1170.09	6.11829
	MNCs	510	0.02474	0.39259	-3.87449	6.41277
Bankruptcy Cost	DCs	1,308	18.29957	67.37605	0.02354	783.89230
	MNCs	510	22.11058	82.44056	0.04511	651.14780

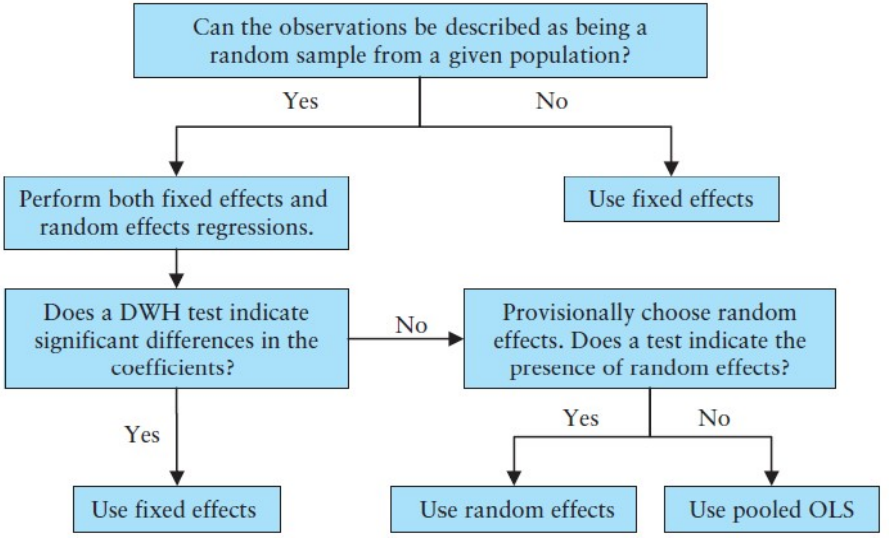
Variables	Firms	Obs	Mean	Std Dev	Min	Max
Foreign Exchange Risk	DCs	1,308	52.35957	35.37605	0.234354	10.00120
	MNCs	510	46.60712	28.69052	10.04440	100.0000

Methods and Models

Cross-sectional and time series data was collected for the current study; therefore, panel data was created. Data was analyzed through STATA 17 and both fixed and random effects models were used. This study used the criteria presented by Dougherty (2011) for selecting between fixed and random effects models, as depicted in Figure 1. According to this model, if the data is chosen randomly, it is compulsory to do both fixed and random effects regression. A Durbin-Wu Hausman (DWH) specification test, therefore, becomes necessary. Fixed effects model should be utilized if the DWH test results reject the null hypothesis; otherwise, random effects model is needed. To choose between the random effects model and pooled ordinary least square (OLS) regression, a second test known as the Breusch Pagan Lagrange Multiplier (BPLM) test is used. Again, random effects model should be utilized if BPLM test rejects the null hypothesis; otherwise, pooled OLS regression is needed.

Figure 1

Selection between Fixed and Random Effects Model – Determining Criteria



Note. Source: Dougherty (2011)

The following empirical models are developed based on the hypothesis constructed using the theoretical framework:

Model 1 (For DCs)

$$LEV = \alpha + \beta_1 AC_{it} + \beta_2 BC_{it} + \beta_3 NDTS_{it} + \beta_4 PROF_{it} + \beta_5 SIZ_{it} + \beta_6 CVA_{it} + \beta_7 GRO_{it} + \beta_8 FCF_{it} + \beta_9 AGE_{it} + \beta_{10} BR_{it} + u_{it}$$

Model 2 (For MNCs)

$$LEV = \alpha + \beta_1 AC_{it} + \beta_2 BC_{it} + \beta_3 NDTS_{it} + \beta_4 PROF_{it} + \beta_5 SIZ_{it} + \beta_6 CVA_{it} + \beta_7 GRO_{it} + \beta_8 FCF_{it} + \beta_9 AGE_{it} + \beta_{10} BR_{it} + \beta_{11} FEXR_{it} + u_{it}$$

where,

LEV = Leverage or capital structure

AC = Agency Cost

BC = Bankruptcy Cost

NDTS = Non-Debt Tax Shield

PROF = Profitability

SIZ = size of the firm

CVA = Collateral value of Assets

GRO = growth of the firm

FCF = Free Cash Flows

AGE = Age

FEXR = Foreign Exchange Risk

Results and Discussion

Both fixed effects and random effects regressions were performed for DCs (Model 01), keeping in view the randomness of the data. Given that the Chi^2 test is significant in the random effects model and F test in the fixed effects model (Table 2 and Table 3), both models are statistically well-fit, overall. The Durbin Wu Hausman (DWH) specification test was performed (Table 4). The alternate hypothesis was accepted based on the results of the Hausman test. Hence, fixed effects model was applied for all the firms. There was no need of further execution of Breusch Pagan Lagrange Multiplier (BPLM) test and pooled ordinary least square (OLS) test.

Table 2
Fixed Effects Model – For DCs

LEV	Coef.	Std. Err.	*t*	*p* value
AC	-0.01180	0.00810	-1.44000	0.14900
FCF	-0.00390	0.00210	-1.84000	0.063
GRO	0.00000	0.00000	0.46000	0.64500
AGE	-0.02480	0.01410	-1.76000	0.075
NDTS	0.09290	0.03350	2.77000	0.006
SIZE	0.03080	0.00370	8.24000	0.000
PROF	0.00000	0.00000	-0.10000	0.92200
CVA	-0.00580	0.00820	3.17000	0.002
BC	0.00010	0.00000	3.17000	0.002
FEXR	-0.00020	0.00010	-1.87000	0.061
_cons	-0.33708	0.05959	-5.66000	0.00000
R-square within 0.0561, between = 0.0401, and overall = 0.0354				
F Statistics = 8.94, and Prob > *F* = 0.000				

Table 3
Random Effects Model – For DCs

LEV	Coef.	Std. Err.	*z*	*p* Value
AC	-0.02010	0.00800	2.53000	0.0110
FCF	-0.00580	0.00210	2.75000	0.006
GRO	0.00000	0.00000	0.13000	0.89500
AGE	-0.00520	0.00550	0.94000	0.34600
NDTS	0.00870	0.02850	0.31000	0.76000
SIZE	0.01240	0.00170	7.43000	0.000
PROF	0.00000	0.00000	0.08000	0.93500
CVA	0.00690	0.00720	0.96000	0.33900
BC	0.00010	0.00000	3.06000	0.002
FEXR	0.00010	0.03010	0.59000	0.55800
_cons	-0.13920	0.03190	4.37000	0.00000
R-square within 0.0359, between = 0.0741, and overall = 0.0.0624				
Wald Chi^2 = 75.23, and Prob > Chi^2 = 0.000				

Table 4

Hausman Test – For DCs

	Fixed	Random	Difference
AC	-0.011760	-0.020150	0.008390
FCF	-0.003880	-0.005800	0.001920
GRO	0.000020	0.000000	0.000010
AGE	-0.024830	-0.005160	-0.019660
NDTS	0.092890	0.008700	0.084190
SIZE	0.030770	0.012430	0.018340
PROF	0.000000	0.000000	-0.000010
CVA	-0.005800	0.006850	-0.012650
BC	0.000130	0.000100	0.000030
FEXR	-0.000230	0.000050	-0.000280
$Chi^2 = 73.13$, Prob > $Chi^2 = 0.0000$			

Likewise, both fixed effects and ramdom effects regressions were performed for MNCs keeping in view the randomness of the data (Model 2). Given that the Chi^2 test is significant in the random effects model and F test in the fixed effects model (Table 5 and Table 6), both models are statistically well-fit, overall. The Durbin Wu Hausman (DWH) specification test was performed (Table 7). The alternate hypothesis was accepted based on the results of the Hausman test. Hence, fixed effects model was applied for all the firms. There was no requirement of further execution of Breusch Pagan Lagrange Multiplier (BPLM) test and pooled ordinary least square (OLS) test.

Table 5

Fixed Effects Model – For MNCs

LEV	Coef.	Std. Err.	*t*	*p* value
AC	-0.0248	0.0225	-1.1000	0.2720
FCF	0.0067	0.0058	1.1600	0.2470
GRO	0.0000	0.0001	0.0400	0.9720
AGE	-0.1326	0.0397	-3.3400	0.001
NDTS	0.0126	0.1899	0.0700	0.9470
SIZE	0.0447	0.0092	4.8800	0.000
PROF	-0.0247	0.0085	-2.8900	0.004
CVA	-0.0267	0.0204	-1.3100	0.1910

LEV	Coef.	Std. Err.	*t*	*p* value
BC	0.0005	0.0001	4.6800	0.000
FEXR	-0.0003	0.0002	-1.3300	0.1840
_cons	-0.1162	0.1399	-0.8300	0.4060
R-square within 0.1277, between = 0.0294, and overall = 0.0616				
F Statistics = 5.88, and Prob > *F* = 0.000				

Table 6

Random Effects Model – For MNCs

LEV	Coef.	Std. Err.	*z*	*p* Value
AC	-0.0417	0.0214	-1.9500	0.0520
FCF	0.0074	0.0057	1.2900	0.1970
GRO	-0.0001	0.0001	-0.5600	0.5740
AGE	-0.0302	0.0129	-2.3400	0.019
NDTS	-0.1804	0.1508	-1.2000	0.2310
SIZE	0.0147	0.0041	3.6000	0.000
PROF	-0.0258	0.0085	-3.0400	0.002
CVA	0.0217	0.0168	1.2900	0.1960
BC	0.0003	0.0001	3.3300	0.001
FEXR	-0.0003	0.0002	-1.6700	0.095
_cons	-0.0593	0.0752	-0.7900	0.4300
R-square within 0.0841, between = 0.0833, and overall = 0.1135				
Wald Chi^2 = 44.73 , and Prob > Chi^2 = 0.000				

Table 7

Hausman Test – For MNCs

	Fixed	Random	Difference
AC	-0.0248	-0.0417	0.0169
FCF	0.0066	0.0074	-0.0008
GRO	0.0000	-0.0001	0.0001
AGE	-0.1329	-0.0302	-0.1027
NDTS	0.0133	-0.1804	0.1937
SIZE	0.0446	0.0147	0.0299
PROF	-0.0246	-0.0258	0.0011
CVA	-0.0270	0.0217	-0.0487
BC	0.0005	0.0003	0.0003
FEXR	-0.0003	-0.0003	0.0000
Chi2 = 40.73, Prob > chi2 = 0.0000			

Interpretation of Results

Tables 2 and 5 show that the agency cost is not significantly associated with leverage composition for either model. The *p*-values for DCs and MNCs are 0.1490 (Table 2) and 0.2720 (Table 5), respectively. These results do not support the alternate hypothesis 2. However, these results are identical with those of Akhtar (2005). The possible reasons for the absence of any association between agency cost and leverage could be good corporate governance (Imelda & Dewi, 2018) or an underdeveloped MNC business (Ahmed et al., 2023), such as in the case of Pakistan. The results also showed that free cash flow is significantly but inversely associated with the leverage composition of DCs (Table 2, *p*-value = 0.066). These results are similar to the results of Akhtar (2005), and Melgarejo and Sheryl-Ann (2020). While free cash flow is not significantly associated with the capital structure of MNCs, it shows no association with their leverage composition (Table 5, *p*-value = 0.254). Similar results were concluded by Karmestål and Rzayev (1996).

The results also revealed that growth is not significantly associated with the capital structures of both DCs and MNCs, as shown in tables 2 and 5, respectively. Mahmud and Qayyum (2003) calculated the same results. Whereas, age is significantly and inversely associated with capital structure in both DCs (Table 2, *p*-value = 0.079) and MNCs (Table 5, *p*-value = 0.001). These results are similar to the findings of Ahmed et al. (2010), Akhtar and Oliver (2009), and Yasser (2016). On the contrary, the non-debt tax shield is positively and significantly associated with the capital structure of DCs only (Table 2, *p*-value = 0.006). These findings are similar to the findings of Lei (2020). In the case of MNCs, non-debt tax shield is not significantly associated with their capital structure (Table 5, *p*-value = 0.9440). This finding is similar to the findings of Shah and Khan (2007), and Sheikh and Wang (2011).

Size is a highly significant determinant of capital structure for both DCs and MNCs. Tables 2 and 5 show a positive and significant association between firm size and capital structure for DCs (Table 2, *p*-value = 0.000) and MNCs (Table 5, *p*-value = 0.000), respectively. These findings are similar to those of Afza and Hussain (2011), and Ahmed et al. (2010). In contrast, profitability is not significant in the case of DCs (Table 2, *p*-value = 0.9220), as also indicated by Suzulia et al. (2020) . Whereas, it is inversely and significantly related with the leverage composition of MNCs. These

results are identical to those of previous empirical studies (Thomas et al., 2014; Xu, 2012). Moreover, the collateral value of the asset is inversely and significantly related to the capital structure of DCs (Table 2, *p*-value = 0.002) only and is not associated with the capital structure of MNCs (Table 5, *p*-value = 0.1870). These findings are similar to the results of Akhtar (2005).

Moreover, bankruptcy costs are directly linked with the leverage arrangement of DCs (Table 2, *p*-value = 0.002) and MNCs (Table 5, *p*-value = 0.000). These findings are identical to the results of previous researches (Burgman, 1996; Reeb et al., 1998; Reindl et al., 2013). Lastly, the results showed that foreign exchange risk is meaningfully and inversely linked with the leverage composition of DCs (Table 2, *p*-value = 0.061). Surprisingly, it is not significantly related to the capital structure of MNCs (Table 5, *p*-value = 0.1830). These results are similar to the findings of Aggarwal and Harper (2010) and Choi and Jiang (2009).

Normality, Correlation, Multicollinearity, and Heteroskedasticity Tests

Anderson Darling test for panel data normality was performed for both DCs and MNCs. In both cases, the *p*-value is zero which indicates that residuals from the panel data regression models are distributed normally. Pearson coefficient correlation test was also performed for DCs (Table 8) and MNCs (Table 9) to determine whether there exists any linear relationship between these two variables. Variable correlations can lead to multicollinearity which can present issues with regression analysis. In the current study, no multicollinearity was found among the variables for both DCs (Table 8) and MNCs (Table 9).

Table 8

Pearson Coefficient Correlation – For DCs

	AC	FCF	GRO	BC	AGE	NDTS	SIZE	PROF	CVA	FEXR	Cons
AC	1										
FCF	0.0864	1									
GRO	0.0035	0.0233	1								
BC	0.0025	0.1056	0.0347	1							
AGE	0.0012	0.023	0.0275	0.0238	1						
NDTS	0.2625	0.1574	0.0061	0.0347	0.0618	1					
SIZE	0.094	0.0856	0.0741	0.5509	0.0214	0.0594	1				
PROF	0.0089	0.0212	0.0008	0.0045	0.0275	0.0101	0.0232	1			
CVA	0.185	0.0085	0.001	0.1054	0.0013	0.2305	0.1605	0.0397	1		
FEXR	0.0098	0.0596	0.0168	0.0957	0.0572	0.0719	0.0186	0.0169	0.0211	1	
Cons	0.1325	0.0784	0.0673	0.4678	0.5199	0.1029	0.0807	0.0472	0.3626	0.0057	1

Table 9

Pearson Coefficient Correlation – For MNCs

	AC	FCF	GRO	BC	AGE	NDTS	SIZE	PROF	CVA	FEXR	Cons
AC	1										
FCF	-0.0205	1									
GRO	-0.0207	0.0651	1								
BC	0.0323	-0.3071	0.0367	1							
AGE	-0.0799	0.0491	0.0663	-0.116	1						
NDTS	-0.2556	-0.0401	0.0353	0.1506	-0.0491	1					
SIZE	0.164	-0.0539	0.1195	0.6554	-0.1103	0.1971	1				
PROF	-0.0816	-0.7703	-0.0533	0.0861	-0.0686	-0.007	-0.0689	1			
CVA	0.2947	0.0021	-0.0132	0.0822	0.0267	-0.409	0.1561	-0.0524	1		
FEXR	-0.0235	-0.0608	0.0172	-0.1008	-0.029	-0.0286	0.0665	0.0891	0.1253	1	
Cons	-0.1511	0.0143	-0.1264	-0.4898	-0.444	-0.1628	-0.8001	0.1091	-0.3549	-0.1567	1

To check the multicollinearity between the variables, variance inflation factor (VIF) test was performed for both DCs (Table 10) and MNCs (Table 11). VIF test results showed no multicollinearity among the variablesfor both DCs and MNCs.

Table 10
Variance Inflation Factors – For DCs

Variable	VIF	1/VIF
SIZE	1.52	0.6581
BC	1.49	0.6717
NDTS	1.19	0.8372
AC	1.13	0.8823
CVA	1.11	0.9023
FCF	1.06	0.9405
FEAR	1.02	0.9772
AGE	1.01	0.9870
GRO	1.01	0.9921
PROF	1.00	0.9959
Mean VIF	1.16	

Table 11
Variance Inflation Factors – For MNCs

Variable	VIF	1/VIF
FCF	3.04	0.3293
PROF	2.73	0.3664
BC	2.26	0.4433
SIZE	2.15	0.4645
NDTS	1.38	0.7246
CVA	1.36	0.7368
AC	1.23	0.8141
FEAR	1.09	0.9163
AGE	1.04	0.9592
GRO	1.03	0.9714
Mean VIF	1.73	

Moreover, the Breusch-Pagan/Cook-Weisberg test determines heteroskedasticity in both regression models. This test is used to check the variance of the model's error components, which is inconsistent across all

levels of independent variables. The results showed no heteroskedasticity, as the *p*-value in both models is 0.000.

Conclusion

The study concludes that the capital structure of both DCs and MNCs is highly influenced by age, size, and bankruptcy costs. However, in both DCs and MNCs, older businesses have less debt in their capital structure. At the same time, the large size of firms and higher bankruptcy costs cause a high debt ratio in capital structure. The results also revealed that free cashflows are inversely and significantly linked to the leverage composition of DCs but remain insignificant for MNCs. Likewise, the non-debt tax shield is directly and significantly associated with the capital structure of DCs only and remains insignificant for MNCs. The collateral value of assets and foreign currency risks are also considerably and positively associated with DCs only. In contrast, bankruptcy costs are directly and significantly associated with the capital structure of both DCs and MNCs.

The capital structures of DCs and MNCs do, in fact, differ significantly, including variations in the amounts of debt financing and the factors that affect those decisions. Significant policy implications stem from this distinction, particularly with regards to taxation, international trade, and financial regulation. Moreover, the results also shed light on the intricate interplay of variables affecting the capital structures of DCs and MNCs.

Recommendations

It is recommended that both DCs and MNCs tailor their capital structure strategies to optimize financial efficiency. Attention should be given to firm characteristics, such as age, size, and bankruptcy costs when formulating financial policies. DCs should focus on managing free cash flows effectively to reduce their reliance on debt financing, while also leveraging non-debt tax shields to enhance financial performance. Robust risk management practices are essential to address currency fluctuations and safeguard collateral values for DCs. Both DCs and MNCs should mitigate bankruptcy risks through prudent financial management and contingency planning to ensure long-term financial resilience.

Future Research Directions

For financial experts, corporate executives, and legislators to create successful financial policies and make well-informed financing decisions,

they must thoroughly understand these drivers. Future investigation is needed regarding several other elements that influence a firm's leverage arrangement including product diversification and geographical diversification. Both types of divergence affect the capital structure of the companies, particularly in the context of Pakistan. The relationship between political risk and investments in human capital as capital structure predictors may also be the subject of future study.

Conflict of Interest Statement

The author of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

The data associated with this study will be provided by the corresponding author upon request.

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