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# Internal vs. External Financing under Uncertainty: Assessing Sustainable Corporate Financing Behavior in Pakistan

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**Abstract**

*With an unpredictable and volatile economic setting, companies are pursuing sustainable financing behavior which becomes difficult to achieve for those firms who are facing financial constraints. This study identifies 250 non-financial firms in Pakistan as financially constrained and non-constrained based on cash flows over capital, total assets, and the ratio of dividends paid (DPO). A comparative analysis of financial behavior of 24 years is applied using data of 1999 through 2022. Various regression models such as stepwise fixed effects and system-GMM methods with robust standard errors deal with the problems of autocorrelation, heteroskedasticity and endogeneity. Important results also determine that size, growth, profitability, tangibility, liquidity, flexibility, DPO, and effective tax rate are important determinants of sustainable financing behavior. A company with limited external financing has to finance its operations through internal sources to cover short term liabilities and make long term investment. Conversely, firms that are not constrained financially portray different financing strategies. Certain parameters such as business risk were not significant. The research offers an example that can be used by analysts to analyze the variations in financing strategies among different types of firms. It also emphasizes future research potentials, such as involving financial firms in comparative studies and comparison of sustainable financing behavior across countries.*

## Introduction

Sustainable financing behavior (SFB) is the consistent use of environmental, social, and governance (ESG) factors in financial decisions and therefore enhancing financial stability in the long term and ethical stewardship. SFB has become relevant in the modern global economy as companies strive to balance between financial performance and sustainability goals. However, such practices are not embraced by many enterprises, especially due to the fact that some enterprises are financially constrained to take any long-term investments. The problems of financial constraints (defined as barriers to accessing cheap external capital) are critical in defining

how business organisations arrange their debts and equity and in deciding how they use their capital to pursue sustainability-based projects.

A non-financial firm in particular finds the study of financing behavior of great consequence, as it directly affects the market value, the cost of capital, investment opportunities and shareholder wealth. Capital markets in developing economies are often poorly developed and the non-financial sector plays a pivotal role in promoting industrialisation and macro-economic stability. However, these companies continue to face significant challenges in accessing external funding, which is due to poor credit rating, institutional inefficiencies as well as the lack of strong equity and debt markets. They therefore tend to rely significantly on the internal sources of funds and reserves to keep operations going and to engage in investment strategies (Cardella et al., 2021).

Market condition in Pakistan is a relevant prism to view capital market aspects. The nation has poor capital market and money intermediaries, unproductive legal and regulatory systems, which hinder access to cheap finance by firms (Saleem & Atiq, 2023). By contrast, companies in developed markets, having more powerful institutions and more advanced banking, have wider sources of external financing (Choi, 2020). To this end, most Pakistani businesses are largely dependent on retained earnings and cash-flow management implying that internal financing limitations are stronger in their influence than macroeconomic fluctuations. The liquidity, profitability, tangible assets base, the size of the firm, the effective tax rate, and the dividend policy among others are the internal determinants in this case.

There is a recent research gap, in terms of differentiating the behaviour of financially constrained and unconstrained firms in terms of sustainable financing behaviour in Pakistan. Newer, smaller, or less creditworthy companies tend to face harsh financial limitations, and larger and older ones have better access to capital markets. This paper is based on the determination of firm-level factors that are used to influence financing choices in these two regimes. A non-financial firm offers a better environment to examine the impact of financial constraints on sustainability-oriented financing decisions compared to financial institutions, which receive a sector-specific regulatory framework. In addition, since Pakistan is comparatively underperforming in terms of growth compared to other countries in the region, including China and India (Lin and Raza, 2021), the dynamics are significant to the policymaking and practices of both policymakers and practitioners.

The following research question is therefore the focus of this study: How do financial constraints influence sustainable financing behaviour of non-financial firms and what are the internal factors that most largely influence such a financing decision? In order to answer this question, it is important to put the discussion in its context in the context of the wider theoretical and empirical literature on financing behaviour and financial constraints.

## Literature Review

Theories of capital structure have long been used to describe the financing behaviour of firms, the most famous being the trade-off theory and the pecking-order theory. The trade-off theory argues that companies balance the tax benefits of debt financing and the corresponding risk of bankruptcy and agency costs. Conversely, the pecking-order theory, which was postulated by Myers and Majluf (1984) holds that companies use internal sources of finance, then debt and finally equity, in large part because of the asymmetry of information and the cost of issuing debt. Their previous irrelevance postulation (1958) by Modigliani and Miller postulated that the capital structure of a firm under perfect markets was value-neutral, although, according to later studies, market imperfections, including taxes, transaction costs and institutional weakness, make financing decisions very consequential.

These theoretical propositions have been tested by empirical studies in various economies. In a research on Canadian forest firms, Islam and Luo (2018) discovered that financial constraints led the firms to consider debt and equity in debt-equity financing choices, which has great implications on the efficiency. Rusu and Roman (2018) examined 245 companies in seven countries in the period of the global financial crisis and depicted how the impact of macroeconomic shocks on corporate capital structure was apparent. With a specific reference to Pakistani companies, Azmat and Iqbal (2017) emphasized the role of constraint-based firms in increasing precautionary cash reserves during cash-flow uncertainty especially after the 2008 crisis. A study of Indian manufacturing companies by Chadha and Sharma (2015) found that trade-off and pecking order theories were both applicable in explaining the financing decisions, growth, business risk and ownership structure had a strong impact, and the liquidity and dividend payout had a relatively weak impact. Subsequent research in new markets showed that Iranian companies-Alipour et al. (2015)- use short-term debt extensively, profitability, liquidity and growth are important predictors of a capital structure. Turkish lodging-based companies-Karadeniz et al. (2009) had negative effects of growth, profitability and volatility on a debt ratio; and Chinese companies-Qian et al. (2007)- had positive effects of the tangibility and size. Taken together, these papers suggest that no individual theory is enough to explain financing behaviour, and hybrid methods are more appropriate to reflect the realities on the firm-level (Nguyen et al., 2020; Santos and Cincera, 2022).

Funds availability is a critical determinant of financing decisions. Companies that do not obtain significant external inflows are forced to use internal financing. There are many financial constraint indices, such as the Whited-Wu Index or the Kaplan-Zingales (K.Z.) Index (Zhang, 2022). Studies show that companies that have low external capital are likely to have greater cash holdings to protect future spending (Ampong and Apau, 2022), and they can reduce dividend payments to hold steady cash-flow. According to Heider and Gropp (2008), leverage was observed to exhibit a negative correlation with book-to-market ratios, profitability, and dividends during the time of financial distress in the United States and Europe (Buera and Karmakar, 2022). Chang et al. (2009) also established the effect of budgetary constraints on the implementation of pecking-order and trade-off theories.

The intersection of sustainable financing and financial constraint has been addressed as of late in literature. Yucel et al. (2023) suggest that sustainable financial literacy is a necessity of firms that have limited resources so that they can focus on ESG initiatives. Lee et al. (2023) conclude that small and medium-sized enterprises that do not have access to capital are more likely to choose low-cost projects and take a gradual sustainability approach, like energy-saving campaigns, instead of big ones. Unconstrained firms, in their turn, are more likely to carry out large scale sustainability projects, such as carbon-offset programmes and investments in clean energy, due to easier access to external capital. This dependence, however, might not be long-term. According to Aulia et al. (2024), businesses that are low-income and operating in developing economies need the government and tax incentives to enable ESG. Combined, these results imply that financial constraints have significant implications on sustainable finance options: unconstrained companies achieve ambitious sustainability objectives, constrained companies prefer incremental ones.

The knowledge gained through literature will be used as a basis to develop an analytical framework. Based on this framework, this study will be able to analyze the way Pakistani non-financial companies fund themselves; the approach to methodology will be outlined in the next section, which is based on the theoretical and empirical perspectives mentioned above.

## Methodology

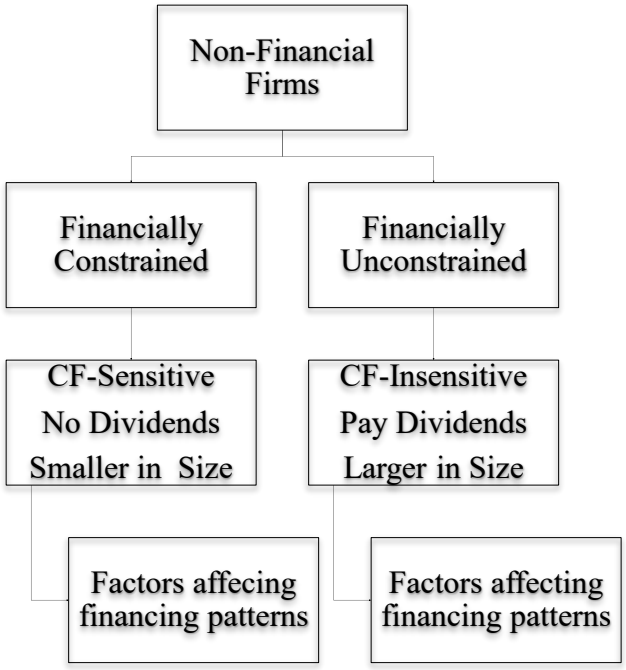
This paper elaborates a conceptual framework that lays stress on non-financial businesses that are based in Pakistan. It examines how financial constraints influence sustainable financing behaviour with such enterprises compared to banking and insurance institutions which face different regulatory regimes and have different financial architecture. The choice of non-financial organisations is explained by the fact that these organisations have largely non-cash sources of revenues, which makes them particularly susceptible to finance limitations. The research can identify the effect of firm specific features on financing strategies without sectoral distortions because it isolates non-financial firms.

Its methodology involves the classification of firms into two groups: those that are constrained financially and those that are not constrained financially. The classification is based on the determinants that are significant to the firm which include the size of the firm, the rate of dividend payout, and the sensitivity of cash flow as outlined by Kaplan and Zingales (1997). Newer and smaller organizations and other entities that lack creditworthiness often face serious obstacles to the external sources of capital. Such companies do not usually pay dividends or pay out dividends in small amounts; rather, they depend on internal sources of finance like retained earnings. They therefore have a greater cash hold as a buffer.

On the other hand, companies that are not bound by these tendencies are usually larger in size, more institutionalized and have better access to equity and debt markets. These companies invest less money in reserves of their own, pay higher dividends, and are more willing to resort to various financing structures.

The inquiry also discusses internal factors that affect financing choices that involve the size of firms, liquidity, profitability, dividend payout ratios, effective tax rates and asset tangibility. The analysis of how these internal qualities interact with the financial constraints aims to explain how sustainable financing solutions are developed by scrutinising the interactions of these factors. This discussion can shed further light on the implications of inadequately developed financial systems to sustainable business operations in the developing economies like Pakistan, and can provide a systematic basis on comparing constrained and unconstrained businesses.

**FIGURE 1: CONCEPTUAL MODEL**




SOURCE: AUTHOR'S COMPILATION

**Sample Distribution and Statistical Model:**

This research analyses 250 non-financial companies listed on the stock exchange of Pakistan (PSE) from 1999 to 2022. It accounts for 43.1% of the publicly traded businesses and generates over 6,000 year-end data points in an unbalanced panel. Financial firms were excluded due to regulatory differences. Firms are classified as financially constrained or unconstrained based on median cash flow from operations scaled by capital (CFO/K = PKR 39.45 million). Leverage (debt-to-equity ratio) serves as the dependent variable, with nine explanatory factors including size, growth, profitability, tangibility, liquidity, dividends, risk, flexibility, and tax. Panel regression models are estimated in STATA, with the Hausman test confirming fixed effects as the most suitable specification. The following table-1 shows the measurement of variables.

**Table-1: Description of Variables**

| Variables | Symbol | Measurement |
|---|---|---|
| Size of the firm | SZ | Market capitalization |
| Growth | GTH | Log of total assets |
| Profitability | PRO | Net Income/Loss |
| Tangibility | TAN | (Total assets-liabilities-intangible assets)/Total Assets |
| Liquidity | LIQ | Current ratio=current assets/current liabilities |
| Dividends payout | DPO | Dividends/Net Income |
| Risk | RSK | RISK = Log (σ EBIT) |
| Flexibility | FLEX | Retained Earnings to total assets (cash ratio) |
| Effective Tax Rate | ETAX | Tax expense divided by net income |

**Analysis, Results, and Interpretations:**

It provides descriptive analysis that describes the basic summary of the data. It includes observations, mean values, standard deviation, and range of values. After that, a correlation matrix was presented, which describes the correlation between the study variables. Then different

specification tests were conducted to check the normality and stationarity of the data. Based on that, an appropriate panel data fixed effect approach was used for testing our hypotheses of the study.

**Descriptive Statistics:**

The following table-2 shows the descriptive statistics of concerned variables.

**Table-2: Descriptive Statistics**

| Variable | Obs. | Mean | Unit | Std. Dev. | Min | Max |
|---|---|---|---|---|---|---|
| D/E | 6000 | 355.2 | Percentage | 983.0 | -5833 | 45286 |
| SIZE | 6000 | 9681.5 | Million Rs. | 56221 | 0 | 430231 |
| GRTH | 5503 | 873.3 | Million Rs. | 28435 | -150 | 1967121 |
| PRO | 6000 | 815.2 | Million Rs. | 5998 | -13877 | 172349.9 |
| TAN | 5757 | 0.67 | Percentage | 0.3214 | 0 | 1 |
| LIQ | 5757 | 2.19 | Times | 20.11 | 0 | 875 |
| DPO | 5738 | 0.21 | Percentage | 0.3624 | -0.341 | 1 |
| RISK | 5441 | 0.16 | Percentage | 4.08 | 0.791 | 234.55 |
| FLEX | 5757 | 0.43 | Percentage | 13.66 | -76.21 | 952 |
| ETAX | 5742 | 0.45 | Percentage | 16.92 | -0.822 | 422 |

Source: Author's own

Before regression analysis, normality was confirmed using skewness–kurtosis and multivariate tests. Moreover, stationarity was verified through Levin-Lin-Chu and Hadri unit root tests. It shows the significance of variables at level or at first difference. Firms were recognized as financially constrained or unconstrained based on cash flows, dividend policy, and asset size. For analysis, panel data estimation considered fixed effects (FE) and random effects (RE). By using the Hausman test, it was confirmed that FE as more appropriate. FE controls for heteroskedasticity and autocorrelation through robust clustered errors. Moreover, it better addresses unobserved firm-specific heterogeneity than GLS or GMM. It ensures consistent estimates of firm characteristics influencing capital structure under financial constraints.

Table-3 is an analysis that identifies the difference between financially constrained and financial firms based on three determinants namely cash flow, dividend policy and firm size. According to McVanel and Perevalov (2008), constrained firms have cash flows which are lower than that of the sample. These organizations tend to maintain greater amounts of cash to meet commitments and this is an indicator of restricted access to external funding.

Conversely, those companies that are not financially constrained have better balance-sheet positions and are more flexible in their operations. Dividend policy is a secondary distinguishing feature: tight-fisted firms usually delay the dividend payouts to preserve liquidity to fund potential investment activities (Petersen, Hubbard, and Fazzari, 1988). Empirical studies indicate that unconstrained firms perform better than the constrained ones in terms of size, profitability, growth and tangibility. Company size also puts these results into perspective, since small firms face high costs of external financing and limited access to the market, and as such, they resort to greater reliance on internal sources and cash reserves, as Almeida et al. (2004), Whited and Wu (2006), and Hovakimian and Titman (2006) report.

Generally, the results invariably show that constrained companies hold precautionary cash reserves but incur less benefits. In comparison to unconstrained firms, constrained entities are not able to attain better financial and operating results. As an example, size, growth, profitability,

tangibility, and liquidity coefficient give significantly more desirable description of financially unconstrained firms as compared to financially constrained firms.

**Table 3: Comparative Analysis based on Cash Flows, Dividends, and Total Assets**

| | FCF | FUF | FCF | FUF | FCF | FUF |
|---|---|---|---|---|---|---|
| | CFO/K<Median | CFO/K>Median | Dividend=0 | Dividend>0 | TA/K<Median Value | TA/K>Median Value |
| D/E | Coef. (Robust SE) | Coef. (Robust SE) | Coef. (Robust SE) | Coef. (Robust SE) | Coef. (Robust SE) | Coef. (Robust SE) |
| SIZE | 0.04932* | 0.2257** | 0.0254* | 0.6341* | 0.1257* | 0.3285*** |
| | -0.08 | -0.16 | -0.15 | -0.02 | -0.06 | -0.06 |
| Growth | 0.02726* | 0.3665** | 0.0459** | 0.0735** | 0.0318* | 0.0423** |
| | -0.02 | -0.12 | -0.05 | -0.03 | -0.02 | -0.04 |
| Profitability | -0.2712* | 0.2968* | -0.0867 | 0.5061** | -0.4132* | 0.0885** |
| | -0.04 | -0.04 | -0.13 | -0.02 | -0.07 | -0.03 |
| Tangibility | -0.4173*** | -0.1018** | -0.3702** | 0.2026** | -1.2612*** | 0.2410** |
| | -0.17 | -0.12 | -0.46 | -0.11 | -0.16 | -0.21 |
| Liquidity | -0.4485*** | -0.0632** | -0.0734*** | -0.0138*** | -0.3021** | -0.0589** |
| | -0.04 | -0.06 | -0.15 | -0.05 | -0.05 | -0.04 |
| DPO | -0.1708 | -0.4917 | 0.0623* | 0.0702 | -0.0857** | 0.2804* |
| | -0.11 | -0.15 | -0.06 | -0.04 | -0.07 | -0.05 |
| RISK | 0.0149 | -0.0386 | -0.0842** | -0.0032* | -0.0211* | 0.0168 |
| | -0.23 | -0.11 | -0.07 | -0.06 | -0.08 | -0.03 |
| Flexibility | -0.2388 | -0.0758** | -0.0691*** | 0.0211** | -0.0694* | -0.0026** |
| | -0.55 | -0.08 | -0.11 | -0.07 | -0.09 | -0.06 |
| ETAX | -0.3064** | 0.0351** | 6.2435*** | 7.0941*** | -0.0597** | 0.0859** |
| | -0.68 | -0.74 | -0.34 | -0.15 | -0.04 | -0.04 |
| Constant | 6.2234*** | 7.0157*** | 3.0735** | 4.2026** | 6.1802** | 6.0496** |
| | -0.12 | -0.34 | -0.03 | -0.11 | -0.41 | -0.31 |
| | R-sq=0.5122 | R-sq=0.2354 | R-sq=0.2522 | R-sq=0.3901 | R-sq=0.4662 | R-sq=0.3811 |
| | F-Value=70.11 | F-Value=56.23 | F-Value=6.21 | F-Value=8.27 | F-Value=71.22 | F-Value=30.21 |
| | Prob>F=0.0000 | Prob>F=0.0000 | Prob>F=0.0060 | Prob>F=0.0000 | Prob>F=0.0000 | Prob>F=0.0000 |
| | Obs.=2378 | Obs.=2379 | Obs.=1549 | Obs.=3662 | Obs.=2313 | Obs.=2904 |

Note: FCF= Financially constrained firms; FUF=Financially unconstrained firms;
Note: P<1% (***); P<5% (**); P<10% (*)

## Conclusion

This research mainly investigates firms' sustainable financing behavior or stable capital structure pattern when these firms are divided into two main categories of financially constrained and financially unconstrained firms for approaching external finance. This study analyzes the factors that can impact the financial leverage ratio of firms either constrained or unconstrained to get external financing. We used three different measures that divide non-financial firms into two main streams of firms (either constrained or unconstrained) based on cash flow over capital, dividend payout ratio, and total assets. We used a dataset of 6000 observations comprising 24 years of financial data of 250 firms that is collected from non-financial sector working in Pakistan. Descriptive and correlation analysis provides significant results. Specification tests were applied before estimation, such as for checking the normality and stationarity of data. After estimating the fixed effect model using the Hausman test and different diagnostic tests, it was also checked that the non-existence of multicollinearity (VIF), heteroskedasticity (robust standard errors) autocorrelation problems. Our study verifies the hypothesis that financially unconstrained firms outperform financially constrained firms in sustainable financing behavior or stable capital structure. The factors of financial structure, i.e., size, tangibility, liquidity, profitability, risk, dividend payout ratio, growth, financial flexibility, and effective tax rate, have a significant relationship with the choice of financing pattern for both types of firms. Moreover, the analysis also shows a substantial difference in the effectiveness of determinants between both types of firms.

**Managerial Implications:**

This study provides an insight for policymakers to design the tax rules that they should adopt differently for financially constrained and unconstrained firms. Lenders should also support especially to unconstrained firms so that they can grow at a faster pace. The government should provide different incentives for financially unconstrained firms for their prosperity and growth.

## Limitations and Future Recommendations

This study opens different horizons of research under the domain of financing behavior. Future research may be conducted by incorporating the following measures. This study considers only non-financial firms for analysis; however, it can be extended to other sectors such as banks, leasing and insurance companies, and mutual funds companies whose revenue generating item is cash. The KZ index can also be used to categorize firms under financial constraints. Non-financial firms can also be categorized into manufacturing and service sectors to analyze the difference in financing behavior. External factors such as fiscal and monetary policy measures can also be included to analyze their influence on financing behavior along with internal measures.

**Data Sources:**


1. https://www.sbp.org.pk/reports/annual/FSANFC/2022/PDF/Complete.pdf
2. https://www.sbp.org.pk/departments/stats/FSA(Non).pdf
3. https://www.sbp.org.pk/departments/stats/bsa.pdf

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