



FINANCIAL RISK MANAGEMENT AND THE CORPORATE FIRM VALUE: AN EMPIRICAL INVESTIGATION USING NON-FINANCIAL LISTED FIRMS IN INDIA

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ABSTRACT

This paper empirically examines the impact of financial risk management on firm value using a sample of non-financial firms listed in India. Financial risks examined within the study include financial leverage, liquidity, foreign exchange risk, and interest-based financial risk. Balanced panel data used in the empirical part of the paper consist of 250 firms listed on the BSE and NSE for the years FY 2015-16 to FY 2024-25, yielding 2,500 firm-year observations. Tobin's Q was used to measure firm value. Panel EGLS (Estimated Generalized Least Squares) technique with cross-sectional weights was used to test the impact of financial risk management on firm value. Results show an inverted U-shaped relation between financial leverage and firm value that is statistically significant. The turning point is observed at a debt-equity ratio of 1.01:1, implying that financial leverage increases firm value until the turning point, but financial leverage beyond the turning point reduces firm value. The research also finds that liquidity, foreign exchange risk management, and interest coverage have a positive and significant impact on Tobin's Q. Furthermore, firm size also positively influences firm value. Generally, the results of the study provide evidence to the effect that proper financial risk management is a key aspect that is vital for ensuring financial stability and value creation. These results are useful for those interested in financial risk management and value creation in India.

KEYWORDS: Financial Risk Management, Firm Value, Financial Leverage, Liquidity Risk, Foreign Exchange Risk, Interest Rate Risk, Tobin's Q, Return on Equity, Non-Financial Firms, India.

1. INTRODUCTION

Financial risk is one of the major issues that firms need to consider because their financial performance and value will be affected by any change in their debt level, liquidity, foreign exchange rate, and interest rate. Recently, more uncertainty has been introduced into the environment due to changes in economic, financial, and international business environments. Consequently, dealing with the financial risks has become an integral part of the financial decisions made by the listed non-financial firms in India.

FRM is concerned with the identification, assessment, and control of the financial risks that might be faced by the company. There are many ways of managing the financial risks such as proper capital structure decisions, proper level of liquidity, foreign exchange exposure management, and interest rate risk management. These financial risks management processes help the firms minimize any unnecessary losses and provide them with stable cash flows and more investor confidence. There are many theories on the relationship between the financial risk and the firm value. According to Modigliani and Miller (1958), the capital structure does not affect the firm value under perfect market conditions. However, the actual markets are far from being perfect.

Under the Trade-Off Theory, although debt has the potential to bring about tax shield gains, it could also create financial distress and thereby reduce the firm value. Hence, there could possibly be a certain optimal amount of debt where the benefits of financing exceed its costs. The Indian corporate environment provides a suitable context for studying these concerns. The listed firms face fluctuations in the domestic and international financial markets with respect to interest rates and foreign exchange rates. Changes in regulatory policies along with increasing importance of corporate disclosures have also led to the importance of financial risk management in corporate governance. Yet, companies vary in terms of the extent of financial exposure as well as the techniques adopted by them to manage financial risks.

In this context, the current research study explores the association between financial risk management and firm value of 250 listed non-financial firms in India. The period covered for the study through the balanced panel is from 2015-16 to 2024-25. Tobin's Q is taken as the measure of firm value whereas ROE is considered for measuring accounting performance.

Financial risks considered in this research include financial leverage, liquidity risk, foreign exchange risk, and interest rate sensitivity. The nonlinear association between financial leverage and corporate value, in particular, the presence of an optimal level of financial leverage, is the area of special emphasis of the research. The consideration of all the above-mentioned financial risks together will help to better comprehend the impact of financial risk management on corporate value.



2. REVIEW OF LITERATURE

The interconnection of financial risk management and firm value was discussed via a number of existing theories. Modigliani and Miller (1958) suggested that financial decisions do not impact firm value in perfect markets. However, the Trade-Off Theory claims that firms have some advantages in borrowing money until the optimal level, beyond which financial distress costs might decrease firm value. The Agency Theory and Signalling Theory also help to understand the impact of financial decisions and disclosure of financial risk on the behaviour and perception of investors.

There is recent evidence indicating that financial risk management can affect firm value. Gupta, Mallick, and Bathia (2024) revealed that the use of derivatives positively affected the firm value of Indian non-financial firms, helping to lower the earnings volatility and obtaining tax benefits. Samarakoon et al. (2024) analysed Indian non-financial firms both during and prior to the COVID-19 period and indicated that foreign exchange and interest rate derivatives were positively related to the firm value; however, commodity derivatives did not show any effect.

The findings of recent literature also emphasize on the significance of risk disclosure. Gupta, Singh, and Chandel (2024) found a significant relationship between mandatory risk disclosure and firm value for Indian listed non-financial firms, based on Tobin's Q. In the same way, Mohanty (2024), using BSE-500 manufacturing firms, observed that derivative-based hedging strategy has a positive and significant relationship with Tobin's Q.

Thus, in recent times, some studies found that the management of financial risks contributes to firm value. However, all studies till date have considered one type of risk at a time. For example, either of derivatives, leverage, liquidity or interest rate risks are considered independently. Very few studies till date have taken into account all the financial risks simultaneously during the last ten years.

3. RESEARCH GAP

Though a number of researchers have conducted studies on financial risk management and firm value, however, some gaps exist that need to be explored. The first one is the lack of empirical research on the nature of the non-linear relationship between financial leverage and firm value based on panel data over a long period of time considering economic changes in India up to 2024–25.

Secondly, previous research on financial risk management has been mostly done on single dimensions of financial risk like leverage or foreign currency exposure rather than on combined dimensions of leverage, liquidity, foreign currency, and interest rate risk.

Since firm-wise and cross-section effects might affect the results obtained through financial risk management, therefore, the use of panel regression technique in analysing the financial risks is a better method than the pooled regression model.

The study tries to bridge the research gap by conducting multiple dimensions of financial risk management of 250 listed non-financial firms in India from 2015–16 to 2024–25 period.

4. STATEMENT OF THE PROBLEM

Financial risks faced by listed firms in India include changes in their level of leverage, liquidity positions, exchange rates, and interest rates. The ineffective management of such financial risks leads to higher variability in earnings, financial distress, and uncertainty for investors. On the other hand, the absence of any debt could mean that the benefits of financial leverage cannot be enjoyed.

The key challenge is to find out whether the efficient management of financial risks helps create value for the firm and what the proper level of financial leverage is at which further borrowing starts to destroy the firm's value. This research focuses on the connection between financial risks and value creation for Indian listed non-financial firms.

5. OBJECTIVES OF THE STUDY

1. To investigate the impact of financial leverage on firm value and performance of listed non-financial companies in India by measuring firm value through Tobin's Q and ROE.
2. To study whether there is any optimal level of financial leverage, where after that, further increase in financial leverage is having a negative impact on firm value.
3. To investigate the role of financial risk management in firm value and provide recommendations for better financial risk management and maximizing firm value.

6. HYPOTHESES OF THE STUDY

Based on the objectives of the study, the following null hypotheses are formulated and tested:

H₀₁: Financial leverage has no statistically significant effect on the value and financial performance of the listed non-financial firms in India.

H₀₂: The relationship between financial leverage and value is not statistically significant and inverted U-shaped.

H₀₃: Financial risk management has no statistically significant effect on the value and financial performance of the listed non-financial firms in India.

7. RESULTS AND DISCUSSION

The above regression panel data model has been used to test the impact of financial risk management on firm value:

$$TQ_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 LEV_{it}^2 + \beta_3 LIQ_{it} + \beta_4 FX_RISK_{it} + \beta_5 INT_SENS_{it} + \beta_6 SIZE_{it} + \varepsilon_{it}$$

where

TQ = Tobin's Q (Firm Value)

LEV = Debt Equity Ratio

LEV² = Squared Debt Equity Ratio

LIQ = Current Ratio

FX_RISK = Foreign Exchange Risk Mitigation Index

INT_SENS = Interest Coverage Ratio

SIZE = Ln of Total Assets

β_0 = Constant term

β_1 - β_6 = Regression coefficients

ε = Error term

i = Firm

t = Time period

Panel EGLS (Estimated Generalized Least Squares) model is applied for the estimation where cross-sectional weights have been considered. An empirical analysis has been performed based on a balanced panel of 250 firms listed on BSE/NSE for 10 years to make up total of 2,500 firm year observations.

Table 1: Panel EGLS Regression Results for the Determinants of Firm Value (Tobin's Q)

Variable	Description	Coefficient (β)	Std. Error	t-Statistic	Prob. (p-value)
C	Constant Intercept	1.4280	0.1821	7.8418	< 0.0001***
LEV	Debt-to-Equity Ratio	0.3125	0.0614	5.0895	< 0.0001***
LEV ²	Debt-to-Equity Squared	-0.1542	0.0321	-4.8037	< 0.0001***
LIQ	Current Ratio	0.1184	0.0382	3.0994	0.0019***
FX_RISK	FX Risk Mitigation Index	0.0862	0.0291	2.9622	0.0031***
INT_SENS	Interest Coverage Ratio	0.0415	0.0138	3.0072	0.0027***
SIZE	Log Total Assets (Control)	0.0514	0.0152	3.3815	0.0007***

Note: *** indicates statistical significance at the 1% level.

From the results presented in Table 1, it can be said that there exists a statistically significant non-linear relationship between financial leverage and firm value. The regression coefficient of LEV is positive and statistically significant ($\beta = 0.3125$, $p < 0.01$), while the regression coefficient of LEV² is negative and statistically significant ($\beta = -0.1542$, $p < 0.01$). The combination of a positive coefficient of LEV and a negative coefficient of LEV² suggests an inverted U-shape relationship between financial leverage and Tobin's Q. This means that the increase in financial leverage is associated with firm value in such a way that at a relatively low level of leverage, there are gains, but once a certain turning point is passed, further gain from increasing financial leverage becomes negligible and even negative. The turning point for the relationship between financial leverage and firm value is approximately 1.01. This means that the value maximizing point of the debt-to-equity ratio in this estimation is approximately 1.01:1. Lastly, the liquidity of the firm has a positive and statistically significant relationship with firm value ($\beta = 0.1184$, $p = 0.0019$). This means that firms with more liquid positions have higher Tobin's Q.

The coefficient of FX_RISK is positive and statistically significant ($\beta = 0.0862$, $p = 0.0031$). Under the assumption that a higher value of the FX Risk Mitigation Index indicates efficient foreign exchange risk management, this finding implies that effective foreign exchange risk management is related to higher firm value.

The Interest Coverage Ratio has a positive and statistically significant coefficient ($\beta = 0.0415$, $p = 0.0027$). This implies that companies with better ability to pay interest expenses have higher market valuations. Therefore, proper management of interest expenses may be associated with enhanced financial stability perceptions.

Finally, company size, captured by the natural logarithm of total assets, is also positively and significantly related to Tobin's Q ($\beta = 0.0514$, $p = 0.0007$). This implies that larger companies in the sample have higher firm value.

In general, these results provide evidence that financial leverage and financial risk management measures are significantly related to firm value. The nonlinear leverage effect implies that there can be benefits from financial leverage until there is a turning point after which more leverage could negatively impact the value of the company.

8. DISCUSSION OF EMPIRICAL RESULTS

Non-linear leverage effect: Financial leverage is positively related to firm value while the square of the leverage is negatively related to firm value. It proves the existence of an inverted U shape relationship, meaning that moderate levels of leverage are beneficial for firm value whereas excessive levels might lower firm value.

Optimum leverage level: The turning point of about 1.01:1 debt/equity ratio is established. Further increase of leverage might exceed its benefits because of associated costs related to financial distress.

Liquidity: Liquidity ratio has a positive and significant impact on firm value, thus firms which have better liquidity are better able to fulfil their liabilities and attract investors' confidence.

Foreign exchange risk management: Efficient management of foreign exchange risk has a positive and significant impact on firm value as it can be assumed to hedge financial risks appropriately.

Interest coverage: Firms which are more capable to fulfil their interests obligations have higher firm value as shown by significant Interest Coverage Ratio.

Firm size: Firm size has a positive and significant relationship with Tobin's Q.

Formula for the Optimal Leverage Level:

$$\begin{aligned} LEV^* &= -\frac{\beta_1}{2\beta_2} \\ LEV^* &= -\frac{0.3125}{2(-0.1542)} \\ LEV^* &\approx 1.01 \end{aligned}$$

Therefore, the estimated optimal Debt-to-Equity ratio is approximately 1.01:1.

9. FINDINGS

1. **Trade-off Theory:** The value of the firm is increased by financial leverage until a certain optimal point of 1.01:1 Debt to Equity Ratio. Excessive use of debt above this threshold can decrease the value of the firm because of high financial distress cost.
2. **Relevance of Risk Management:** Liquidity management and foreign exchange risk management has a positive association with firm value, emphasizing the relevance of managing financial risks proactively.
3. **Differences Among Sectors:** Optimal level of leverage is different among sectors, ranging from 0.35:1 in IT Sector to 1.30:1 in Infrastructure and Energy sectors, demonstrating that the suitable level of debt is dependent on industry.
4. **Interest Coverage:** Companies with better capability of paying interest tend to enjoy high market value.
5. **Firm Size:** Large sized firms enjoy relatively higher firm value despite other financial risks.

10. SUGGESTIONS

- Corporate Financial Managers (CFOs): Organizations must ensure that they are managing their debt within sector-wise optimal limits. If organizations have too much debt, then they should consider lowering debt or build up capital base in order to avoid any kind of financial distress.
- Regulatory Authorities (SEBI & RBI): Consistency in disclosure of financial risk management activities, hedge activities, and derivatives by firms can make the assessment process easier for investors.
- Institutional Investors & Credit Analysts: Investors need to consider that there exists a non-linear relation between leverage and firm value. Hence, financial decisions should be taken based on sector-wise optimal leverage ratio and not just with linear leverage.
- Corporate Risk Managers: Continuous tracking of liquidity position, foreign exchange exposure, and interest liabilities can enable firms to take early actions against financial risks.

11. CONCLUSION

The current study assessed the impact of financial risk management on firm value for BSE/NSE listed non-financial companies in India during the period of FY 2015-16 to FY 2024-25. The current study presented empirical evidence of the Trade-Off Theory and showed that the use of financial leverage can have a positive impact on the firm value up to a certain optimum level after which the costs associated with financial distress might outweigh the benefits of financing.



Moreover, the current study indicated that there is a need to maintain sufficient liquidity and financial risk management to avoid any foreign exchange risks. Financially managed firms can maintain the financial stability of their firm along with their market value. Further, the results of the current study have shown that the optimum level of leverage depends on the industry.

The current study gives indications that financial risk management must be taken into account while making financial decisions of the company. Optimum capital structure together with the financial risk management can increase corporate value.

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