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Does Financial Leverage Influence the Investment Decision of Firms? A Case of Automobile Sector

Faiz Aleem *

Abstract: *The present paper aims to investigate the impact of financial leverage on the investment decisions of the automobile sector. Data was gathered from the top 10 publicly listed automotive companies of Pakistan during the time period of 2010 to 2020. By employing the robust random effect model technique, it is found out that financial leverage has a significant and positive impact on the investment decisions of the automotive firms. Besides, the other factors also influence the investment decisions of the firms. In the end, this paper suggests several substantive implications for automobile industry to improve their investment decisions.*

Keywords: Financial leverage, investment decisions, cash flows, Tobins-q, ROA, sales, robust random effect.

Introduction

Financial leverage and corporate investment have become a widely discussed phenomenon in last few decades. Corporate investment decisions is a central point to any firm, because it considers a pillar that controls the firm's value.Ozdagli (2012), on the other hand, suggested the positive association of financial leverage on the investment decisions of the firms. The relationship between the financial leverage and the investment decisions is a main issue in corporate finance and has stirred a lot of debate. According to the financial theories, financial leverage is one of the most significant factors that amplifies the free cash flows, performance and liquidity of the firms. Given its significant role in the firm, the previous studies have worked on financial leverage with different perspectives in both the context of developing and developed countries.

The automotive sector is one of the sub-sectors of the non-oil and gas processing industry, which contributes significantly to the economy of Pakistan. Based on data from the Pakistan Bureau of Statistics, the total contribution of the automotive industry in 2020 was 5%. The nominal amount that can be generated from this sector is the second largest income after the equipment, machinery and transportation equipment industry in the non-oil and gas processing industry. However, the economic crisis still left a handful of problems that caused the growth of this industrial sector to move slowly, even experienc-

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ing a decline (Abbas & Jan, 2020). The economic crisis also made the fluctuation of the rupees exchange rate more unpredictable, which led the government to frequently adopt policies to increase interest rates which outcomes in an increase in the cost of capital for companies. The increase in costs causes disruption in the management of both short and long-term investment in the company, which means the company, is threatened with a decline in value. In addition, the era of globalization, which is synonymous with free trade, has made business competition between companies very strict. The automotive industry of Pakistan is a potential industry because of its significance and contribution.

Despite of the significance, lack of researches have been focused on the automobile industry of Pakistan. Aforementioned statistics highlights the significance and contribution of this sector. Therefore, it is important to understand and investigate those factors that affect the investment decisions of the automobile firms. Likewise other sector, financial leverage also an important element for the automobile sector. Several research studies conducted on the factors that affect the firm's profitability and value, as per the best knowledge of researchers, very few researches focused on the financial leverage and investment decisions of the automotive firms. Thus, the present paper attempts to determine the relationship of financial leverage and investment decisions of the automobile industry.

Theoretical Background & Hypotheses Development

Investment decisions is an activity related to planning and implementing investment policies with the aim of striving for the effectiveness and efficiency of the use of company assets to maximize the firm value (Demirci, Huang, & Sialm, 2019). Investment activity also predicts how much capital the company needs in the use and total of company assets for production activities (Tempel, 2011). The more efficient the use of company assets the better the performance of the company and subsequently the better the firm's value (Muzaffar, 2015). Thus, firm value is a reflection of financial performance derived from the outcomes of business activities (AL-Shatnawi, Hamawandy, & Jafar, 2021). Firms can receive money from two ways: equity financing or debt financing. Although each has considerable advantages, most companies use a combination of debt and equity financing. Equity financing has no payback commitments and gives additional operating capital to help a business develop, which is one of the most essential advantages. Debt financing, on the other hand, does not need the transfer of ownership.

Trade theory proposed by Modigliani and Miller (1958), if the tax advantages were greater than agency costs and bankruptcy, then the company should use debt to maximize firm value (Pandey & Sahu, 2017). Trade theory suggests that the use of debt will boost the value of a company as long as the debt position in the capital structure remains below the optimal capital structure target. According to the capital structure theory, any increase in debt will reduce the firm's value if the capital structure is above the benchmark (Tempel, 2011). On the other hand, Agency theory by Jensen (1986) emphasized that agency problems that arise between managers and shareholders in utilizing free cash flow can be overcome by increasing debt. With the hope that strict debt settlement require-

ments will make company management more efficient in using the company's production factors to produce company assets (Ahn, Denis, & Denis, 2006).

Financial leverage and investment decisions

Pandey and Sahu (2017) pointed an adverse association between the financial leverage and investment decisions for companies with low growth opportunity. Similarly, Tran (2022) financial is adversely related to the value of the firm for companies with low growth. However this correlation is positive for companies with high growth. In addition, Guo, Legesse, Tang, and Wu (2021) affirms that the impact of this correlation for companies with low growth is significantly reduced for diversified companies. Nazar et al. (2021) was among the first to utilize empirical methodologies to investigate the relationship between financial leverage and investment control in terms of firm-level development potential. The researcher shows that financial leverage reduces investments and indicates that the negative connections are attributable to agency difficulties using a base investment regression model using an US as sample. The researcher concludes that the investment and financial leverage has an adverse impact that is true for firms with high growth potential.

Studies such as; Nazar et al. (2021); Lartey, Kesse, and Danso (2020) concluded that there is a positive correlation of cash flow over the investment by firms. In addition, Baños-Caballero, García-Teruel, and Martínez-Solano (2014) identified that the variation in the cash flow for firms with a low dividend distribution is greater than the variation for companies with high dividend distribution. Jabeen and Shah (2021) found that financial leverage and investment reflects negatively relationship, supports the hypothesis that financial leverage has an important role to play for companies with low growth opportunities. Moreover, Peng, Yu, and Zhu (2021) showed that after controlling for financial leverage, debt maturity reflects adverse association with investment decision. They also state that Tobin's Q , operating cash flow and sales have positive and significant impacts on investment. Poursoleiman, Mansourfar, and Abidin (2020) suggests an adverse impact between profitability and financial leverage, concluded that more profitable companies tend to have a lower volume of financial leverage. They concluded that all their outcomes are consistent with the hypothesis that banks state-owned companies impose lower barriers in lending resources to companies that are state owned and underperforming or poor growth opportunities, a fact that can weaken the disciplinary effect of debt and encourage overinvestment in these companies.

Schläfer and Uhrig-Homburg (2009) observed the association between capital structure and financial performance of Kenyan MFIs. The study found a positive correlation between financial leverage and financial performance. Khan, Kaleem, and Nazir (2012) also found that results reflects adverse association between financial leverage and investment decisions of listed companies in Pakistan. The analysis and residual analysis of the association between financial leverage and investment decisions has shown from experience that debt is a safeguard mechanism to avoid over investment. Opanga (2011) performed research to determine the link between capital structure and business value of NSE listed businesses. The study discovered that a company's worth is inversely pro-

portional to revenue growth, but its value (measured by its stock price) is strongly tied to its dividend per share (DPS). Dang (2011) argued that research is often conducted in a way that analyze financial leverage and investment decisions aspects separately, therefore, considers the question of how financing and investment interact in a dynamic environment in which growth opportunities related to the company's investment affect its financial leverage and maturity debts, which in turn, influence your investment decisions. According to Franklin and Muthusamy (2011) financial leverage and growth reflects significant adverse association.

In the other study of Gweyi and Karanja (2014) examined the critical factors affecting the financial leverage impact of Kenya's credit unions. Muzaffar (2015) analyzed the correlation between FINLEV and INV volume of 43 Pakistani companies in the period 2004 and concluded that financial leverage has a positive impact on investment decisions. Maina and Ishmail (2014) examined the effect of capital structure on the financial performance of NSE-listed companies. The results show that debt and equity are important determinants of financial performance. There is an inverse relationship between the capital structure and all performance indicators. This means that the more debt companies use as a source of financing, the lower their performance will be. The survey also found that companies listed on the New York Stock Exchange use more short-term debt than long-term debt. Those interested in this research are companies listed on NSE between 2002 and 2011. According to Mota and Moreira (2017) who studied the capital structure for large Brazilian companies, analyzing the correlation between the level of indebtedness and the factors pointed out by the theory as its determinant, they conclude that the factors risk, size, asset composition and growth are determinants of companies' capital structure, while the profitability factor is not decisive. In addition, outcomes show that the company's level of financial leverage is not influenced by the simple fact that company is privately held or publicly traded. According to Demirci et al. (2019) reflects adverse association between their measures growth and financial leverage. They also demonstrated one that Tobin's Q had negative consequences with financial leverage and a positive correlation with growth. They stated that there is a strong correlation between financial leverage and its growth variables.

Aivazian, Ge, and Qiu (2005) used information on Canadian publicly traded companies to study the effect of financial leverage on business investment decisions. Research shows that had negative consequences between financial leverage and investments. The negative impact of companies with low growth potential is much stronger than that of companies with high growth potential. The findings back with the agency's corporate influence hypothesis, particularly the part about how low-growth businesses are influenced. The study employed two different financial leverage measurements. The book value of total liabilities is divided by the book value of total assets for the first rounding of financial leverage, and the book value of long-term debt is divided by total assets for the second rounding of financial leverage. Ahmed, Awais, and Kashif (2018) investigated the impact of capital structure on the profitability of 22 Ghana Stock Exchange businesses (GSE). By evaluating the capital structure, the study employs regression analysis to estimate return on equity. The findings reveal that the relationship between short-term debt, total assets, and return on equity has a substantial positive connection. The ratio of long-

term debt to total assets, on the other hand, has a negative impact on return on net assets. In terms of total debt to income, the findings revealed that the ratio of total debt to total assets and return on net assets had a positive significant link.

Ryan et al. (2012) conducted a study from 1998 to 2007 to determine whether there is a correlation between the financial leverage and the value of the company. Taking into account high volatility in the domestic interest rate market, the study also examined how local interest rate fluctuations affected the capital structure. Regression analysis was performed in both tests. Research outcomes show that increased financial leverage had a negative impact related to company value, while structural outcomes are inconclusive. This study uses secondary data from the JSE to conduct a sample survey of 113 public joint stock companies. Al-Khatib and Al-Horani (2012) studied the determinants of financial leverage listed on the Jordanian stock market and found that liquidity and tangible in the industrial sector correlate positively with financial leverage. Service industry results show that liquidity and significant growth rate of the industrial sector are correlated with financial leverage. There was a significant positive association with financial leverage. His research included a sample of 121 companies listed on the Jordan Stock Exchange between 2007 and 2010. He used a regression model with explanatory variables to analyze the data. These variables include the company's liquidity, scale, growth rate, profits and tangible assets, and the independent variable is the financial leverage coefficient.

Based on the aforementioned discussion, the significance of the financial leverage has been found. In the contemporary literature, financial leverage is considered as one of the inevitable determinants of investment decisions of the firms. Researchers suggested both types of link, i.e. positive and negative with the investment decisions. Some suggested that financial leverage reduces the investment decisions and on the other side some suggested that financial leverage increases the firms investments. Other than financial leverage, there are several factors that can directly or indirectly affect the investment decisions of the companies. They are free cash flows, return on assets, growth opportunities (measured by Tobins-q), sales growth etc.

Methodology

This study aims to propose a conceptual framework to assess the possible relationship between intellectual capital and financial management practices. In particular, the hypothesized model required empirical testing to establish a consensus on whether a higher level of IC predicts financial management practices in business organizations. This study borrowed assumptions from two well-established theoretical frameworks, namely, "fit as mediation" premise of contingency theory and "resource-based view" theory. Both approaches were relevant and acceptable to build a potential association between IC factors and financial management practices in the contemporary business world. This study provides guidelines for future empirical studies and expects practical evidence according to their study settings. At the same time, this study also contributes to the existing body of knowledge, given the fact that intellectual capital in business may influence financial management practices. The study also expects empirical testing on industry and country-

wise analysis to fill the research gap. In this context, IC's role on financial management practices will contribute to understanding the phenomena in business organizations. Additionally, empirical studies would highlight how each component of intellectual capital enhances financial management practices. This will help practitioners and enterprises apply more innovative and systematic approaches based on knowledge to achieve sustainable goals.

Data and the model

To analyze the relationship of financial leverage and investment decisions, this present study gathered the data from the automotive industry. It has been taken because it is one of the fastest growing industry of Pakistan. According to the statistics of State Bank of Pakistan (2021-2022), automobiles sector contributes 5.9 percent to the economy of Pakistan. Therefore, we collected data from the automobile firms publicly listed on Pakistan Stock Exchange (PSX). The listed firms were selected based on the availability of data. Thus, the study employed balanced data of 10 automobile companies from the time span of 2010 to 2019, obtained from the annual statements of the companies.

The following econometric model is used to test the proposed hypotheses;

$$Inv.Dec_{it} = \alpha_{it} + \beta_1 Fin.Lev_{it} + \beta_2 C.F_{it} + \beta_3 Tobins - Q_{it} + \beta_4 SALE_{it} + \beta_5 ROA_{it} + \epsilon_{it}$$

Whereas, Inv.Dec abbreviates the investment decisions of the firms. C.F denotes as the cash flows of the companies. Fin.Lev measures as the financial leverage, Q- tobins is the ratio that measures the growth opportunities of the companies. Sale represents the sales growth, ROA is the return on assets. ϵ denotes as error and subscripts i and t represent the number of firms and the time period.

Descriptive statistics

Table 1 reports the summary statistics of the selected 10 automobile companies.

Table 1
Descriptive Statistics (2010-2020)

Variables	Variable Measurement	Mean	Std. Dev	Min	Max
Investment	net investment/net fixed assets	22.402	1.181	20.194	24.877
Sales	Net sales	23.263	2.075	14.877	25.785
Financial Leverage	total assets / total equity	1.473	1.021	0.154	3.823
Cash Flow	Cash flows / net fixed investments	20.199	1.817	13.178	24.572
Tobins-Q	market value of total assets)/ (Book value of total assets)	0.337	0.236	0.021	0.857
ROA	total assets	0.108	0.115	-0.217	0.531

The average investment of firms is 22.4 million, with the minimum of 20.1 million and maximum of 24 million. Further, the average sales of the selected automobile firma are 23.26 million, with the minimum of 14.8 million and maximum of 25.7 million. From the analysis, it is found that the average ratio of financial leverage of the firms between 2010

to 2019 was 1.47, with the minimum of 0.154 and maximum of 3.823. The cash flow on average were 20.1 million with the minimum of 13.17 and maximum of 24.57, while the average Tobins-Q was 33%, with the minimum of 2.1% and maximum 85%. Lastly, the return on assets on average was 10.8%, with the minimum of -21.7 and 53%.

Empirical Findings and Discussion

Prior testing the proposed hypotheses, the diagnostic tests were performed to identify the problems pertaining regression analysis. It is necessary to rectify all the concerns of autocorrelation, Multicollinearity and heteroscedasticity from the estimated model in order to avoid spurious results. Therefore, we applied different statistical techniques to detect and remove the problem of regression analysis.

In the first place, heteroscedasticity problems were investigated. It occurs when the variance of errors terms is not constant. According to Peng et al. (2021), Heteroscedasticity (or heteroscedasticity) occurs in statistics whenever the standard deviations of a predictor variables are non-constant while measured over various values of an independent variable or even when compared to previous time periods. It can be detected through White test of heteroscedasticity. The null hypothesis of the white tests state that there is no heteroscedasticity problem in the model. As the Prob-value of White tests (P=0.000) suggests that there is a problem of heteroscedasticity in the model.

The relationship between the error terms of the construct is called autocorrelation. This is also an illness of regression that makes the regression results false. It is important to detect and remove the problem from the model. For that purpose, Wooldridge test is used to detect the problem of autocorrelation in the model. The null hypothesis is there is no autocorrelation in the model. If the Prob value is lesser than 0.1 indicates that there is an issue of autocorrelation in the model. In our case, results suggest that autocorrelation exits in the model as Prob value is not meeting the criteria (P=0.008).

In addition, Multicollinearity issue has also been checked among the predictors. It normally occurs when there is a strong relationship among the independent variables. It can be checked through variance inflation factor (VIF). If the values of VIF are lesser than 10, it means there is no Multicollinearity between predictors. All the values of VIF are lesser than 10 indicating that no issue of Multicollinearity in the model. Based on the above discussion, it can be concluded that the model has problem of autocorrelation and heteroscedasticity. In order to deal with the issue, robust results can be applied. Before reporting the results of panel analysis, it is important to know which technique is appropriate, such as; pooled OLS, random effect model and fixed effect model. Thus, Hausman test and Breusch-Pagan test (BP) are applied to confirm which technique is appropriate in our case. First of all, we applied Breusch-Pagan (BP) test to determine whether pooled OLS is appropriate or random effect model. As the results of BP test suggesting random model was acceptable for this investigation (P=0.000). After confirming the acceptability of the random effect model, Hausman test is used to determine which technique is appropriate, whether fixed effect or random effect. Table 2 reports the results of Hausman test, indicating that random effect model is preferred over fixed effect.

The Hausman result suggests random effect model over fixed effect. Therefore, we applied robust random effect model to test the proposed hypothesis. In this study, robust random effect model is used in order deal with the issue of autocorrelation and heteroscedasticity. Table 3 reports the results of robust random effect model. It is shown that the financial leverage of the firms have a positive and statistically significant impact on the investment decisions. Cash flows and Tobin-Q are also positively and significantly related to the investment decisions. From the findings, it is obtained that return on assets and sales growth are not statistically significant factor that affect the investment decisions.

Table 2
Diagnostic tests

Breusch Pagan	
Prob Value	0.000
Hausman Test	
Prob Value	0.158

Source: Author's estimations

Table 3
Robust Random Effect Model

Variables	**Estimates**	**SE**	**T-Stats**	**Prob-Value**
Financial Leverage	0.021	0.013	1.64	0.091
Return on Assets	1.153	1.446	0.8	0.425
Sales	0.155	0.165	0.94	0.347
Cash Flows	0.181	0.101	1.81	0.071
Tobins-Q	1.531	0.504	3.04	0.002
Constant	14.246	2.946	4.84	0.000

Source: Author's estimations

Based on the obtained findings, it can be concluded that financial leverage augments the decisions of the firm's investments. It can possibly be justified when the portion of debt efficiently used for the investment purposes. The more the leverage, the more it increases the investment decisions. Moreover, free cash flows increase the investment decisions of the firms, as it enables the managers to freely take on investment as cash flow increases. Similarly, the growth opportunities can also lead to the better investment decisions of the firms.

Conclusion and Policy Implications

The present paper provides an evidence regarding the relationship of financial leverage and firm's investment decisions of automobile industry. The sample of 10 public listed firms from PSX were chosen. Automobile sector is one of the booming sectors in Pakistan, contributing more than 5% to the economy. Thus, it is necessary to know the factors that affect the investment decisions of the firms. Financial leverage is an inevitable factor that directly or indirectly affects the investment decisions and profitability of the firms. In the present study, we test the role of financial leverage along with the other factors, such as; tobins-Q, return on assets, cash flows, sales growth. Findings reveal that financial

leverage has a positive and significant impact on the investment decisions of the automotive firms. It means that the high the leverage, the better the investment decisions of the company. In addition, it is found out that the cash flows and more growth opportunities can also augment the decisions of investment. Based on the obtained findings, automotive firms should focus on the internal generated money to fund their investments. These funds will raise the free cash flow and reduces the interest rates. Also, it raises more growth opportunities within the firms. For future, researchers can modify the existing model by adding various factors that affect the investment decisions of the firms, such as; liquidity etc. Also, there are several other industries that contributes the economy, such as, textile, pharmaceuticals, etc.

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