



## Investigating the Impact of Capital Expenditures on Firms' Profitability of Textile Sector of Pakistan

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### ABSTRACT

The research objective was to determine the impact of capital expenditure on textile firm's profitability in Pakistan. For this purpose, study utilizes panel data from the annual reports of firms operating in the textile sector of Pakistan. Quantitative research approach and longitudinal research design was applied. The panel data results indicates that the impact of capital expenditures on firm profitability is significant and positive. The findings suggest that increasing capital expenditures can lead to higher profitability for textile firms in Pakistan. This implies that textile firms in Pakistan should prioritize investments in capital expenditures in order to improve their financial performance. The findings provided by this research could be valuable for textile firms in Pakistan as they seek to make strategic investment decisions. Additionally, policymakers and investors in the textile sector can use the results of this study to inform their decision-making processes and optimize investment strategies. The study's findings could also contribute to a better understanding of the relationship between capital expenditures and firm profitability in the textile sector of Pakistan. The research could also have helped to the researchers to conduct their research in future.

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## 1. Introduction

Financial performance refers to the operating efficiency of business. In other words, it can be said that it is one of the key indicators to judge the operating efficiency of key managers (Al-Slehat, 2020). Every firm wants to improve its financial performance as, on one hand, it indicates the financial prosperity of any company and on the other hand, it is important for all the stakeholders as they are required to take numerous financial decisions (Freihat & Kanakriyah, 2017). It has been claimed that financial performance of the firms is largely affected by investment decisions of the firm (Grozdić, Marić, Radišić, Šebestová, & Lis, 2020; Lidayat & Adrianto, 2020a). Many authors have argued that profitability of the company could be badly affected by making wrong or inappropriate investments decisions (Gill, Biger, & Mathur, 2010; Nitish Singh, Jieqiong Ma, & Jie Yang, 2016a). Within investment decisions, capital investment/expenditures decision is considered to be most crucial as it affects the long term profitability of the company (Tariq & Khattak, 2019). Gupta and Pradhan (2017) defined capital expenditures as: the expenditures made by firms to acquire long term assets to survive, expand and grow the business. Moreover, Ishtiaq, Latif, Saleem, Tahir, and Tahir (2017) indicated that wrong decisions in making capital expenditures can adversely affect the performance of the firm.

Considering the importance of capital investment/expenditures decisions, it becomes clear that firms can improve their profitability by implementing appropriate capital assets decisions (Dovita, Rokhmawati, & Fathoni, 2019a, 2019b). Gradzewicz (2021) stated that firms make capital expenditures; i.e. invest in long term assets in order to increase profitability. This means

that a firm, as a collection of resources, is responsible to carefully make capital expenditures as it can affect firms' performance (Dovita et al., 2019a). This argument is in favor of 'Resource-based Theory' stating that firm needs collection of tangible resources to improve business performance and carry on business activities. Businesses can have superior performance if they carefully invest, manage and use these resources (Bansal, 2005; Barney, 1991). The "RBV" theory was started to develop in late 1980s but the theory was formally proposed by (Penrose, 2009).

Previously, capital expenditures and profitability relationship has been studied by Grozdić et al. (2020) who found strong positive relation between these two variables. On the other hand, Singh et al. (2016a) revealed that capital expenditures and profitability have significant but negative association whereas, a study conducted by Lidayat and Adrianto (2020a) showed insignificant relation between capital expenditures and profitability. The above findings show varying results as to how capital expenditure relate with profitability. Apart from this, the developing nations face problems of low productivity and profitability due to investment constraints (Bloom, Mahajan, McKenzie, & Roberts, 2010). These countries firm struggle with their profitability due to inappropriate decisions by top executives (Bloom & Van Reenen, 2010). A research was conducted by Lidayat and Adrianto (2020a) to examine the efficacy of capital expenditures choices affecting firms' profitability of mineral mining companies in Indonesia. The results indicated that there exists insignificant relationship between the capital investments and profitability of the firms. However, (Dovita et al., 2019b) studied the consumer goods company and discovered that capital expenditures significantly increases company's profitability. In contrast, Grozdić et al. (2020) mentions that capital expenditures do not benefit immediately but definitely in future periods as capital assets take time to give returns. For this, they conducted study considering the manufacturing sector in Serbia and found negative relationship in short run but significant positive relationship in long run. Along with all these findings in developing countries, little attention is paid in Pakistan that addresses how the firms' profitability is being affected by investment decisions taken by managers. However, the manufacturing sector of Pakistan faces a severe challenge of making investment decision (Saif Ul Islam, Meo, & Usman, 2022).

According to Cheema, Ahmed, Saleem, Abideen, and Jabeen (2021), profitability of most of the manufacturing sector in Pakistan has declined due to inappropriate investment decisions. Researches mainly done in Pakistan has focused on assessing the relationship between short term investment decisions (working capital management) and profitability. Though, Pakistan's manufacturing sector struggles more in making capital investments (Ahmed & Khan, 2017). However, some researchers have studied the relationship between long term asset investment (capital expenditures) and firm's profitability. Saif Ul Islam et al. (2022) studied the non-financial sector of Pakistan and discussed the importance of cash flows in making capital expenditures, whereas Ali, Rehman, Suleman, and Ntim (2022) discussed the role and ability of CEO in making capital intensive decisions but little attention has been paid on the textile sector of Pakistan since this sector is declining sharply due to low level of capital investments (*All Pakistan Mills Association, 2022*). So, there is a need to efficiently manage the capital assets investments to generate higher revenues and returns in the textile sector of Pakistan. as this sector contributes to 61.24% exports accounts for 3.2% share in GDP (*Pakistan Economic Survey, 2021-2022*). Keeping in view the importance of textile sector in the economy of Pakistan, it becomes important to study the impact of capital expenditure on firm's performance as it enables the policy makers and industry leaders to make informed decisions and effectively allocate resources to increase profitability. It also helps the managers to make informed investment decisions and identify the improvement areas in making investments. This study would also guide the government to make effective policies and incentives to promote heavy capital investments in textile sector in order to overcome financial barriers and encourage long term growth.

## **2. Literature Review**

### **2.1. Theoretical Review**

#### **2.1.1. Resource-based Value**

This theory contends that firm combines different resources to enhance their profitability (Dovita et al., 2019b). Previous researches conducted in support of this theory contends that firm must bring tangible resources to boost its profitability (Ishtiaq et al., 2017; Lidayat & Adrianto, 2020a). Likewise Gradzewicz (2021) stated that collection of good quality of tangible resources can increase firm's profitability. Therefore, it is clear from the available literature that tangible capital resources are positively associated with profitability (Cheema et al., 2021; 1005

Lidayat & Adrianto, 2020a; Tariq & Khattak, 2019). In contrast to this, poor investment in capital assets may negatively impact the profitability of firm (Tyagi & Mahajan, 2022).

### **2.1.2. Profitability**

Profitability is defined by the variety of authors in different ways (Aminu, 2012; Gill et al., 2010) have defined profitability as the operating efficiency or result of business. Moreover, they stated that rate of return and profit margin ratio are the two measures by which operating results of business can be assessed. In other words, Ahmed and Khan (2017) stated that profit is the amount that remains for the business after deducting efforts (expenses) from benefits (incomes) but they have measured profitability by net operating profit. However, other researchers argued that firms make investment in assets to earn profit, therefore they have defined profitability as return on investment and measured profitability by return on assets (ROA) (Afza & Nazir, 2008; Mathuva, 2015). Moreover, Ali et al. (2022) stated that firms make capital expenditure to earn profit, so there is a need to assess the performance of capital assets. Therefore, it is better to measure profitability by ROA in order to assess the investment in long term assets (Ali et al., 2022; Dovita et al., 2019b; Lidayat & Adrianto, 2020a; Saif Ul Islam et al., 2022).

### **2.1.3. Capital Expenditures**

Long term investments for acquiring or increasing the efficiency of fixed assets are known as capital expenditures. It includes the investment made in property, plant and equipment which the firm adds in the business to boost its profitability (Kalungan, Ilat, & Gamaliel, 2017). Different researchers have measured capital expenditures by Fixed Asset Investment (FAI) which is the total investment made in tangible plant assets during the year plus depreciation (Ali et al., 2022; Wachira, 2017). However, it has been argued by (Dovita et al., 2019b; Rokhmawati, 2017) that (FAI) includes the total amount of investment made in long term assets which does not represent the growth or changes in fixed assets, so measuring long term assets as growth in capital expenditure would be a better choice as it would reflect how profitability is affected by changes made in long term assets (Amin & Afifudin, 2018).

## **2.2. Empirical Review**

Different researchers have empirically proved the association exists between capital expenditures and profitability. Grazi, Jacoby, and Treibich (2016) stated that one of the objectives of bringing capital assets in the business, is to increase profitability. They conducted a study in French and Italian manufacturing sector and found positive and significant effect of capital expenditures and profitability. Grazi et al. (2016) further clarified the relation between capital expenditure and profitability by conducting a study in the context of Chinese firms and concluded that capital assets increases firm's profit but in the long run because long term assets takes time to generate revenues for the business, hence there exists a positive relation between capital expenditures and firm's profitability.

In contrast to the above findings, (Jovanovic & Rousseau, 2014) conducted a study by on the sample of US firms and found that capital assets have significant negative relationship with profitability because the firms have made excessive investment in long term assets. Moreover, Nitish Singh, Jieqiong Ma, and Jie Yang (2016b) validated this claim and found the same results while considering the sample from 120 firms across 30 countries. However, Aktas, Croci, and Petmezas (2015) further elaborated this claim and conducted a research by taking sample from US firms and found that investments in poor quality of assets will decline profit of business. Keeping in view above literature, it can be concluded that capital assets improves firm's profitability but over investing or investing in poor quality of assets may lower down the profitability of the firms, so capital expenditure incurred by the firm can have positive/negative effect on profitability (Gul, Gul, & Haider, 2018).

Further studies have also shown the mixed results. For instance, (Imlau, 2015) further examined the impact of capital expenditures on the profitability of European firms using panel data from 16 countries. The results show that capital expenditures have a positive effect on firm profitability. Other study done by Dovita et al. (2019a) also investigated the relationship between capital expenditures, firm performance, and financial constraints using panel data. The results indicate that capital expenditures have a positive effect on firm profitability, but this effect is weaker for financially constrained firms. Lidayat and Adrianto (2020b) also conducted the impact of capital expenditures on firm profitability using panel data from UK manufacturing firms. The results indicate that capital expenditures have a positive effect on firm profitability, but this effect

is weaker for firms with higher levels of financial constraints. These results indicate that previous relationship are not clear and further could also be explored.

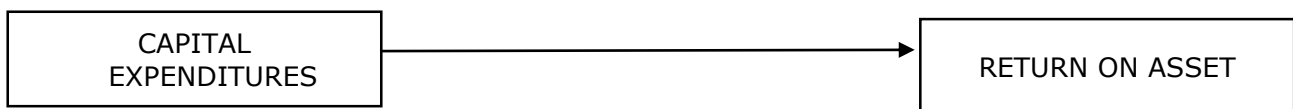
In Pakistan, the relationship between capital expenditures and profitability has also been studied by Cheema et al. (2021) in pharmaceutical industry. They mentioned that profitability of pharmaceutical industry in Pakistan has been largely affected by the lack of investment in long term assets. So, there is a need to make capital expenditures to enhance firm’s profitability. The results of study, therefore, showed a positive significant impact of capital expenditure on firm’s profitability. Qandhari, Khan, and Rizvi (2016) conducted a study in the sugarcane sector of Pakistan and found that there exists a positive and significant relationship between capital expenditure and profitability. They argued that, in Pakistan, sugar industry being 2<sup>nd</sup> largest agricultural based industry, needs a lot of capital investments in order to generate profit and be competitive in the export market. However, the importance of capital investments in textile sector of Pakistan cannot be ignored as this sector needs huge capital investments in order to compete in foreign market (Saif Ul Islam et al., 2022), so there is a need to invest more in capital assets to improve the productivity and profitability (Sajid, Mahmood, & Sabir, 2016). The above mentioned discussion can be used to form the following hypothesis

H<sub>1</sub>: Capital Expenditure(Investment) has a significant impact on Return on Asset in the textile sector of Pakistan.

### 3. Conceptual Framework

The following framework shows impact of explanatory on explained variables. Return on asset is considered as dependent variable whereas capital expenditures is independent variable. The relationship between capital expenditure and return on asset is exhibited in Figure 1.

**Figure 1: Conceptual Framework**



### 4. Research Methodology

The objective of this study is to investigate the impact of capital expenditures on firm’s profitability of textile sector of Pakistan. Quantitative research technique is applied to achieve the objective of this study. Moreover, longitudinal study is conducted where different companies are observed across various time periods. In addition, Shanmuganathan (2020) claimed that longitudinal study is best suited when the data is observed across different time horizons. The research is explanatory for which secondary data is collected for the period of 10 years (2013-2022) from the publicized financial statements of textile sector of Pakistan. There are total 129 textile companies listed on Pakistan Stock Exchange “PSX” but data is available for 83 companies, therefore 83 companies are studied over a period of 10 years to investigate the impact of capital expenditure on firm’s profitability.

#### 4.1. Variable Measurement

This section discusses about the measurement of variables.

**Table 1: Variable Measurements**

Variables	Measurement	Empirical Evidence
<b>Independent variables</b>		
Capital Expenditures	CE = Non-Current Assets (Current yr) – Non-Current Assets (Last yr) + Depreciation + Amortization	(Cheema et al., 2021; Gradzewicz, 2021; Wachira, 2017)
<b>Dependent variable</b>		
Return on Asset	Net Income / Total Assets	(Dovita et al., 2019a; Grozdić et al., 2020; Lidayat & Adrianto, 2020b)

Source: “Researchers’ own illustration”

#### 4.2. Model Specification

The relationship between capital expenditures and return on assets is tested by the following model.

$$ROA_{it} = \beta_0 + \beta_1 CE_{it} + \mu \tag{1}$$

## 5. Results and Discussion

This section shows the descriptive of data followed by panel data analysis

### 5.1. Descriptive Statistics

Data is processed using STATA program. Based on the analysis following descriptive summary has been obtained which is depicted in Table 2.

**Table 2: Descriptive Analysis**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>S. Deviation</b>
CE	830	338.19	1166.39	596.92	218.87
ROA	830	0.0013	0.2450	0.0501	0.0412

Source: "Stata processed data"

The maximum and minimum values shows the range of the data whereas mean shows the average values and standard deviation shows the deviation from mean. It can be shown from the above table that when the textile firms have high CE (1166.39), ROA seems to be higher (0.2450) and vice versa whereas the mean and standard deviation of CE and ROA are found to be 596.92, 218.87 and 0.0501, 0.0412 respectively.

### 5.2. Diagnostics Test

The data is collected for 83 companies for a period of 10 years, so panel data analysis has been used in this study but before testing the hypothesis, some diagnostic tests are necessary to assess the basic assumptions.

#### 5.2.1. Heteroscedasticity and Autocorrelation

The Wooldridge test is used to examine the autocorrelation issue. According to the existing research, there is no autocorrelation or heteroskedasticity problem if either value is bigger than 5%. The model in Table 3 has probability value higher than 0.05, indicating there is no autocorrelation. However, the Breuch Pagan test for heteroscedasticity reveals that none of the probabilities are higher than 0.05, showing the absence of heteroscedasticity. In table 3 below, we can see the autocorrelation and heteroscedasticity p-values in detail.

**Table 3: Heteroscedasticity and Autocorrelation**

<b>Model</b>	<b>Heteroscedasticity</b>		<b>Autocorrelation</b>	
	P-value	F-value	P-value	Chi2
M - 1	0.27	0.38	0.34	1.41

Source: "Stata processed data"

#### 5.2.2. Multicollinearity

It's also a crucial premise for any type of regression analysis. When an independent variable in a regression equation seems considerably related with some or all of the other independent variables, a condition known as multicollinearity exists. Since multicollinearity reduces an independent variable's statistical significance, it seems to be a cause for concern. So as to examine the connection between the independent variables, the Variance Inflation Factor (VIF) test is applied. Multicollinearity in regression is not an issue if VIF values are less than 5 (Hair et al, 2009). There is no evidence of multicollinearity because all projected values in Table.4 are less than 5.

**Table 4: Variance Inflation Factor (VIF)**

<b>Variable</b>	<b>Model -1 (VIF)</b>
CE	1.48

Source: "Stata processed data"

#### 5.2.2. Regression Analysis

To examine the impact of the explanatory factors on the dependent variable, regression analysis is conducted. Panel data was employed for this analysis since various firms in the research were tracked throughout the course of multiple time periods. The outcomes of the study are shown in the next section.

### 5.2.3. Panel Regression

There were a total of 830 observations since the data was gathered throughout a 10-year period. In other words, 83 cross-sectional units are analyzed throughout the course of a decade. A pooled model combines all 830 observations into a single one, and does nothing to account for the unique cross sections and time series features of the data. The fundamental flaw in this approach is that it fails to account for the diversity and specificity of individual businesses. It ignores differences between firms and views them all as a single entity. To address this issue, statisticians developed the Fixed Effect Model, which treats each company as an independent entity with its own intercept. The phrase "fixed effect" is used since it does not allude to time fluctuation, despite the fact that intercepts vary between organizations. In contrast, the Random Effect Model maintains a consistent mean intercept value across all firms. Therefore, a proper model must be selected before to carrying out the panel regression. The Breuch-Pagan-Lagrange multiplier test was first used to compare the pooled and random effect models. It is employed in linear regression models to ensure that the error components continue to be normally distributed. It specifies whether or not the values of the independent variables impact the variance of the errors produced by a regression. We decide between the Fixed and Random Effect Models using the Hausman Test. Due to the fact that a large Hausman statistic indicates a substantial divide between the former and the latter. Therefore, we accept the fixed effect model if the P values are less than 0.05, and we accept the random effect model if the P values are larger than 0.05. The p value for the model was larger than 0.05, indicating that the random effect model is more appropriate. The projected outcomes are listed in Table 5 below.

**Table 5: Selection of Model**

Model	Suitable Model	P-Value "Hausman Test"
1	Random-Effect	0.5861

Source: "Stata processed data"

### 5.2.4. Testing of Hypothesis

The impact of capital expenditures (CE) on return on asset (ROA) is examined in Model 1. The Random Model was adopted. The CE is evaluated using the "capital expenditures incurred by the firm in current year minus capital expenditures incurred last year plus depreciation and amortization" whereas ROA is measured by dividing the net income by total assets. The results anticipated in Table.6 show that capital expenditures have a positive and substantial impact on return on asset. Using a 5% level of significance, we find that impact of CE on ROA is statistically significant, supporting the stated hypothesis. This data lends credence to the Resource Based Theory, which postulates that a company's resources increase its efficiency and profitability (Gradzewicz, 2021; Grozdić et al., 2020) .

**Table 6: Results of Hypothesis**

Information	Coefficient	Significance
Capital Expenditure	0.139	0.001
R-square	0.4745	
Adj. R-sq.	0.4540	
F-statistics	27.20	0.002

Source: "Stata processed data"

The coefficient of determination obtained from the initial regression model is known to be 0.4745. Based on the data, we can deduce that variations in capital expenditure, account for 47.45 percent of the variance in this textile firm capacity to earn profits, while the remaining 52.50 percent is impacted by other variables. The F-statistical test achieved a sig value of 0.002 in the summary of the findings of the hypothesis testing. The computed sig value of 0.001 is significantly smaller than the commonly used 0.05 threshold for detecting an error, therefore Ho is rejected and Ha is accepted suggesting that the textile firm's ability to generate profits is sensitive to changes in capital expenditure. In other words, it can be said that textile firm's capacity to earn a profit, as evaluated by return on assets, is positively and significantly influenced by the total assets, as shown by the positive regression coefficient for this variable in the t-testing phase.

## 6. Discussion

Many business investment decisions are irreversible and therefore have a long-term influence on the organization's financial success. Companies with minimal resources might nonetheless reap substantial benefits from well-considered investment strategies. Previous

studies have shown that Capital Investment Decision significantly improves business outcomes (Gradzewicz, 2021). According to the available research, textile firms operating in Pakistan underperform because they make poor investment selections (Hunjra et al., 2010). This study makes an effort to examine the impact of investment choices on the bottom lines of companies in Pakistan's textile industry in order to contribute to finding a solution to this problem. Capital expenditures (CE) is one of the major investment decision considered in this study. The data may be described with descriptive statistics, and conclusions can be drawn from the data with inferential statistics. The results show that an organization's bottom line benefits when CE choices are made wisely. This result is in keeping with previous studies (Ishtiaq et al., 2017). Shanmuganathan (2020) claimed that capital investments are essential for a company's expansion and success. To rephrase, the corporation will get long-term benefits from the capital expenditures, demonstrating the validity of the resource-based view of the economy. The findings provide useful information for managers looking to improve profits by making long term investment decisions that are crucial to a company's success.

## **7. Conclusion**

Based on previous discussion, it is concluded that empirical literature on the impact of capital expenditures on firms' profitability in the textile sector of Pakistan indicates that capital expenditures have a significant and positive effect on firm profitability. Several studies have shown that increasing capital expenditures can lead to higher profitability for textile firms in Pakistan. Therefore, these findings argued that textile firms in Pakistan should prioritize investments in capital expenditures to improve their financial performance. The results of this research can be valuable for textile firms in Pakistan as they seek to make strategic investment decisions. Moreover, policymakers and investors in the textile sector can use the results of these studies to inform their decision-making processes and optimize investment strategies which could helped to increase their firm performance.

### **7.1. Implications**

The research has both theoretical and practical implications which could to extend research insights. From theoretical perspective, this study could contribute to a better understanding of the relationship between capital expenditures and firm profitability in the context of the textile sector of Pakistan. The findings also suggest that the investment in capital expenditures is an important driver of firm profitability, which aligns with the traditional theory of investment and capital accumulation. The research also highlights the importance of considering the specific context and characteristics of firms, such as their size and financial constraints, when examining this relationship. From practical implications perspective, this research could also have helped to textile firms in Pakistan should prioritize investments in capital expenditures to improve their financial performance. By investing in capital expenditures, such as modern machinery and equipment, firms can improve productivity and efficiency, leading to increased profitability. Additionally, policymakers and investors in the textile sector can use these findings to inform their investment strategies and support the growth of the sector. Moreover, the research also has real-world applications. Since making sound investment decisions is crucial to maximizing profits, this study might inform policymakers and regulators on the significance of capital expenditures. In addition, policymakers might use these results as a basis for adopting norms and proficiency in managing manufacturing enterprises' investments. The findings also suggest that the management policies of the textile sector should critically evaluate investment methods with an eye towards increasing profits. So, the businesses should wisely invest in capital to expand their resource base and, in turn, their profits.

### **7.2. Research limitations and Future Directions**

The research with the significant impact of impact of capital expenditures on firms' profitability in the textile sector of Pakistan has still some limitations that need to be addressed. At first, research only focused on the textile sector, which limits the generalization of the findings to other sectors. Therefore, a further research could consider a broader range of sectors and use experimental or quasi-experimental designs to establish causality between capital expenditures and profitability. At second, research used only longitudinal panel data, which limits the ability to establish causality between capital expenditures and profitability. Further research could also include external factors such as government policies and market trends to provide a more comprehensive analysis of the impact of capital expenditures on firms' profitability. Lastly, research did not consider external factors such as government policies and market trends, which

may also influence firms' profitability. In this regards, further research could be explored on the impact of different types of capital expenditures on profitability with other moderating (corporate governance) or mediating variables (sales growth) etc.

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