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**THE NEXUS OF CASH FLOW, CAPITAL EXPENDITURES AND FINANCIAL LEVERAGE WITH PHARMACEUTICAL FIRM'S PERFORMANCE IN PAKISTAN**

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## **Abstract**

The study seeks to investigate the relationship of cash flow, capital expenditures and financial leverage with performance of Pharmaceutical firms in Pakistan over the period 2009-2018. Random effect model is applied for empirical testing the relationship in a static model. The results disclose a significant nexus of cash flow, capital expenditures and financial leverage with the performance of Pharmaceutical firms. Keeping in view the hypothesis of study, the cash flow, capital expenditures and financial leverage are more likely results in higher performance of pharmaceutical firms. The study has significant implications for corporate managers, policy makers and investors. Previous studies have mostly used stock return volatility to measure the performance of firm. This study has focused on the other three variables to measure the performance of firms.

### **1 Introduction**

The initial decade of 21<sup>st</sup> century observed massive fluctuations in world wide business cycle that eventually affects the firm value. Firm value depends on mixture of past and future investments. An appropriate financial mix has to opt for these investments. Moreover, financing decisions significantly depends on phase of business cycle (i.e. whether there is a boom or recession in economy). Financing decisions have a significant influence on firm's performance. Incorrect financial decisions may lead a firm towards bankruptcy where a vicious cycle starts that may create more incorrect decisions with rest of capital structure available to the firm (Eriotis, Vasiliou, & Ventoura, 2007). The discussion about capital structure started

with irrelevance theory that financing decision does not affect the performance as well as firm value (Modigliani & Miller, 1958). Many renowned theories have been developed over time which included relevance theory (Modigliani & Miller, 1963) trade off theory (Myers, 1984) and pecking order theory (Myers & Majluf, 1984). These theories are based on number of assumptions and behavior of managers. Capital expenditure of a firm constitutes on investment in fixed assets (Myers, 2001; Myers & Majluf, 1984).

The enormous growth in pharmaceutical sector from last one decade requires extensive capital spending in this particular area. The building of local production facilities, better transportation system, increased sales and market share has made this sector ready to survive in emerging markets. Although global pharmaceutical industry has brought the unprecedented expansion, promotion growth and change but many of them faced vulnerable financial and economic situation along with the volatile exchange rate. Moreover, the global environmental issues lead the firms to focus more on cash flows management. The cash flow, capital expenditure and financial leverage essentially evaluate the ability and strength of a company for obtaining the long term assets growth. The cash flow proportion to capital expenditure is discrete in various business cycles (Almeida et al., 2004).

Many businesses face problems due to the performance of firm. The company faces many problems and financial distress for many reasons. One of the most common reasons is cash flow and inappropriate capital expenditures (Liu & Wong, 2018). Operating cash flows are result of working capital management decisions of firm, particularly investment in inventory and receivables (Colla & Wagner, 2013). Financial leverage affects the return on equity of firm while working capital decision affects the cash conversion cycle, operating cash flows and return on assets. The financial leverage is used by firms to avail the tax benefits against leverage decisions. However, it increases the insolvency risk for firms (Davidson, 2015).

The condition of pharmaceutical industry of Pakistan is declining due to number of factors. The declining economic conditions, uncertain flows, low level of capital expenditures for investment and high cost of leverage weakens the firm performance that makes it harder for firms to survive and generate the profits (Blair & Christine, 2013). The efficient financial management plays an important role in managing the performance of a firm. Finance manager ensures that adequate capital is available for running business operations and excess amount of capital is being invested in proper areas (Khan, 2015). The study is carried out to find the relationship of cash flow, capital expenditures and financial leverage with financial performance of pharmaceutical firms in Pakistan. Many different studies have been conducted on the effect of operating liquidity and firm size on firm performance. However, lesser studies have been conducted on pharmaceutical industry of Pakistan. There is a need to conduct such studies on pharmaceutical industry of Pakistan, so that results and recommendations may help managers to improve firm performance. It would provide the great insights into performance and future orientation of pharmaceutical firms.

## **2 Literature Review**

Firm performance and working capital are unlike in nature in various economies of the world due to variation in macro-economic environment (Zhang et

al., 2019). However, some basic similarities in those macro-economic factors have been found that helps to generalize the findings. Pharmaceutical manufacturers are testing to produce themselves prepared for the expanding request in appearing markets. The worldwide pharma industry is in the central of unmatched enlargement, change and expansion but faced commercial and effective disaster and unstable exchange rate. A large number of them focused a lot on cash flow organization. Examining cash flow wealth spending is necessary for assessing the capacity and power of a firm for acquiring the long run assets.

Vogt (2005) used 421 companies to check the connection between capital spending and cash flow. The introduced capital spending in straight and pragmatic way was coordinated with the amount of cash flow. The quantity of this connection enhanced for the firms with useful investment opportunities, large measurement and big member ownership. These assessments also recommend that spending of small companies is based on cash flow and capital expenditures. The cash flow is the component of working capital management that notably explains the firm performance. Moreover, average collection period, average payment period and cash conversion cycle are very necessary for smooth functioning of business operations. All those factors explain the working capital management of firms which declines the profitability of firms (Lazaridis & Tryfonidis (2006). Managers need to properly plan, control and monitor each component of working capital for efficient firm performance.

The prolonged cash conversion cycle badly impacts the firm performance while slow inventory conversion into sales results an incremental spoilage cost, abnormal loss, insurance and warehouse cost. The high level of receivables and slow recovery deprives the funds being used to run the operations which results into fall of profits (Du & Song, 2012; Bagchi & Khamrui, 2012). Therefore, a slow cash conversion cycles is a significant cause of decline in profitability and performance of firms. This particular situation results in imbalance of firm operations, high cost and low performance. Consistent with this, Mathura (2017) stated the inverse relation of receivable collection period with firm performance. However, they found the positive nexus between inventory conversion period, payables period and performance. The better performance is due to lower production cost, holding cost and better credit terms with suppliers.

The components of working capital like cash conversion cycle, current liabilities decline the profitability of firms (Mohamad & Saad, 2010). Similarly, Kaddumi and Ramadan (2012) reflected the negative relation of collection period and age of inventory with firm's profitability. The study commends that managers should do efforts to shorten the collection and conversion period. Moreover, the prolonged credit period granted by suppliers is better for firm's profitability. Najam (2019) demonstrated the working capital and profitability of listed firms in Pakistan Stock Exchange (PSE). They stated that active management strategy for working capital could do better with profits.

## **2.1 Cash flow and Performance of Firm**

The principle of trade-off implies that firms having the high level of cash flow mostly borrow more debt because they have ability to fulfill their financial obligations. So, trade off model gives a confident association of cash flow and firm

performance. These firms prefer to maintain an optimal level of capital structure where firms follow the faster speed of adjustment. Pecking order theory explains this phenomenon differently that firm follows the hierarchical patten of financing. Keeping in view this theory, firms with sufficient cash flows finance their investments through retained earnings, debt and equity as last but all these are dependent upon the profitability of firms.

Cash flow depends upon three activities like operating, investing and financing activities. More cash flow availability to firms determines their ability to meet the short-term liabilities. It is obvious that cash flow is an important concern for those who trade shares and those who create, manage or regulate trading infrastructure. Stoll and Whaley (1983) first noted that transaction costs should be kept in mind while valuing equity investments and argue that this may explain the higher required rate of return on small stocks, which are relatively illiquid. Amihud and Mendelson (2006) provided a formal model where transaction costs, such as taxes and required rate of return for equity investments. They noted that this effect can describe a substantial faction of firm valuations. Butler et al. (2005) found that investment banking fees are less for more cash flow firms. These issuance costs must be acknowledged when equity through external financing are an implied cost of external equity. Cash flows significantly explains the expected future returns that reduce the net cost of equity. Lipson and Mortal (2009) found the relationship between cash flow and performance of firm. The sufficient cash flow availability would induce the firms to prefer the more equity financing which in turn increase their performance. Cash flows decrease the leverage of firms but it is due to strong institutional environment (Ha et al., 2019).

## **2.2 Capital Expenditure and Performance of Firm**

Unlike the static trade-off principle, it has an encouraging effect on less and modest debt proportions, but marginal or even as low as zero influence on high-debt companies (Fattouh et al., 2002). Drobetz and Fix (2003), Fama and French (2002), Hughes (1997), Erickson and Trevino (1994) and Baskin (1989) examined and reiterated the legitimacy of pecking order theory through size-leverage affiliation. It is also possible to compare the empirical and theoretical evidence on capital expenditure with hypothetical descriptions that capital expenditure and leverage are inversely associated (Rajan & Zingales, 2001; Ezeoha, 2006; Titman & Opler, 1988).

The relative cost of equity financing due to asymmetric information is low for large firms that prefer equity financing over debt financing (Rajan & Zingales, 2001). These firms enjoy credibility advantage among investors especially due to market consolidation. They desire to take the advantage of this opportunity rather than approaching towards bank loans or debt investments that are prone to covenant. Cooley and Quandrini (2001) noted that small and young companies wage lesser surpluses than relatively large firms take on more debt and spend more in contrast which results in higher performance.

Ezeoha (2006) disclose that capital expenditure relies heavily on bank loans to meet their investment needs and become profound in debt financing. Capital expenditure has added exposure to equity capital than minor firm's capital expenditure (Faulkender & Petersen, 2006). Specifically, Faulkender and Petersen

(2006) demonstrate that a rise in market value, larger firm's capital expenditure is less leveraged by a very broad magnitude. This capital expenditure ranges from a 25th to 75th percentile and has the potential to approximately 3 percentage points lower the leverage of the company.

### 2.3 Financial Leverage and Performance of Firm

The results are mixed about the influence of financial leverage on firm performance. Few researches concluded a positive and direct linkage of financial leverage with firm performance while some concluded a negative and inverse relationship. Some researchers gave both negative and positive linkage between financial leverage and firm performance. However, some researchers initiate no direct linkage between firm performance and capital structure. Rahman (2007) obtained data from 94 non-financial companies registered in the Islamabad Stock Exchange (ISE) and interlude the research from 1999 to 2004. The connection among firm's financial leverage and performance was found by Pearson's correlation and regression analysis. They found that company's profit has no effect on performance of firm. Pouraghajan et al. (2012) explored that financial leverage significantly affects the performance of firm. Nirajini and Priya (2013) concluded that monetary leverage and firm performance has a significant relationship in Sri Lankan firms.

A direct and positive association was concluded between firm performance and financial leverage (Abor, 2005). Berger and Patti (2006) concluded a constructive and direct connection between financial performance and capital structure of firms. Huang and Song (2006) concluded the negative association of financial leverage with firm performance in Chinese firms. Ghosh (2007) concluded that leverage has an indirect correlation with profitability. Rao et al. (2010) identified a negative correlation of financial leverage with capital structure of Omani firms. Firms have competitive disadvantage when they take more debt than their competitors in the industry, or in which the introduction of new products is not on time (Chen, Chung, Ho & Lee, 2007). Firm performance refers to the functioning of the firm and the outcome of the firm's operations. It can also be a part of business development of firm.

**H1:** Cash flow has a positive effect on the performance of firm.

**H2:** Capital Expenditure has a positive effect on the performance of firm.

**H3:** Financial Leverage has a positive effect on the performance of firm.

### 3 Research Methodology

Quantitative approach is used to identify the relationship of cash flow, capital expenditure and leverage with financial performance of firms. The secondary data on panel stream is attained from published yearly reports of Pharmaceutical firms listed in Pakistan Stock Exchange. These firms have been selected on the basis of highest market capitalization in that particular sector. The data is obtained from the financial statements of those firms over the period 2009-2018.

#### Measurement of variables

Variable	Measurement	Reference
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<b>Independent Variables</b>	1.Financial Leverage	<u>Total Liabilities</u>	Bagchi and Khamrui, (2012).
	2.Cash flow	Total Assets	
	3.Capital Expenditure	2.Operating Activities of Cash flow Statement	Bagchi and Khamrui, (2012)
<b>Dependent Variables</b>	Firm Performance	3. Investing Activities of Cash flow Statement	Mohamad and Saad (2010)
		<u>Net Income</u>	
		Total Assets	Mohamad and Saad (2010)

### Econometric Model

The cash flows, capital expenditures and financial leverage are the significant factors where firm performance is highly dependent. Firms with sufficient cash flows can easily meet their investment opportunities at no cost that would ultimately increase their performance. On the other hand, most of the operating activities are highly dependent upon fixed assets. Capital expenditures for fixed asset's investment improve the operational efficiency firms which helps them to achieve the economies of scale. In this way, they can be prominent in that particular industry because of cost advantage. Moreover, financial leverage help the firms to avail the investment opportunities with positive NPVs. These investments increase the profitability of those firms which helps them to elevate their performance. Keeping in view those particular assumptions helps to develop the following model

$$POF_{it} = \beta_0 + \beta_1 CF_{it} + \beta_2 CE_{it} + \beta_3 FL_{it} + \epsilon_{it}$$

$POF_{it}$  is the performance of firm  $i$  at time  $t$ ,  $CF_{it}$  is the cash flows of firm  $i$  at time  $t$ ,  $CE_{it}$  is the capital expenditures of firm  $i$  at time  $t$ ,  $FL_{it}$  is the financial leverage of firm  $i$  at time  $t$

## 4 Results and Discussion

### 4.1 Descriptive Statistics and Correlation

The descriptive statistics is the distribution and average behavior of the variables used in the study. These statistics may help to manage and present in the form of summary table. The results related to descriptive statistics are presented in [Table 1](#). The results in this descriptive statistics show that on average firms in Pharmaceutical sectors are earnings 17% of their total assets. It also clarifies that firms in pharmaceutical sector operates in profit. Cash flow shows an average value of 0.460 with standard deviation of 1.42. The average value of capital expenditures by pharmaceutical firms in Pakistan is 0.340 with minimum and maximum values 0.04 and 0.58 respectively. Financial leverage maintaining by pharmaceutical is 45% of total assets. The results regarding the degree of correlation between the variables are presented in [Table 2](#). The results in this correlation analysis demonstrated the partial correlation between the variables, hence no multi collinearity. However, it is premature to identify and draw a conclusion keeping in view in this correlation analysis. It shows the rough picture about the variables of the study.

**Table 1: Descriptive Statistics**

Variable	Obs	Mean	Std.Dev.	Min	Max
POF	250	0.170	1.11	0.05	0.274
CF	250	0.460	1.42	0.02	0.594
CE	250	0.340	0.93	0.04	0.58
FL	250	0.450	0.76	0.33	0.78

**Note:** The above table shows the descriptive statistics of the variables used in the models for pharmaceutical industry of Pakistan. All the variables used in the model are winsorized at 1 percent level in both distribution tails before descriptive statistics are presented.

**Table 2: Correlation Analysis**

Sr. No	Variables	1	2	3	4
1	POF	1			
2	CF	0.2597**	1		
3	CE	0.0147**	-0.1607*	1	
4	FL	0.1764**	0.1074**	0.3537**	1

**Note:** this table shows the matrix of association between dependent and explanatory variables. It shows the direction in which variables are related. The connection is between performance of firm, cash flow, capital expenditure and financial leverage.

#### 4.2 Results of Regression Analysis

The cash flows, capital expenditures and financial leverage are the major factors in determining the performance of textile factors in Pakistan. Based on Hausman test, the random effect model is appropriate for empirical testing of the relationship. The results related to influence of those particular factors on firm performance are presented in Table 3. Performance of firms is dependent variable while cash flows, capital expenditures and financial leverage are independent variables. The results indicate that cash flows of pharmaceutical firms in Pakistan have a noteworthy direct influence on the performance of those firms. Lipson and Mortal (2009) found the positive relationship between cash flow and performance of firm. Higher cash flows are the better liquidity of firms that enables them to meet their debt obligations easily and save them from financial distress. Firms with ample cash flows are in better position to meet their short term responsibilities and they can avail positive investment opportunities. These investments increase their profitability and firm value in the market. Firms with better profitability have better goodwill in the market and they have very good position in the market.

The coefficient of capital expenditures results an increase in performance of Pharmaceutical firms in Pakistan. The increase in capital expenditures shows the investment in fixed assets that increase their operational efficiency. These firms can avail the economies of scale and can better compete in the market. With the technical advancement in current era, it is necessary for the firms to utilize the efficient fixed assets that increase the production efficiency with maximum economies of scales. In this way, they can decrease the cost of production and can better survive in a competitive work. Moreover, capital expenditure heavily relies on bank loans and is more profound in debt financing which results in higher firm

performance (Ezeoha, 2006). Hence, it is concluded that investment in fixed assets in a necessary factor that increase the firm performance.

The results recommend that financial leverage significantly and positively determines the performance of pharmaceutical firms in Pakistan. This reveals that increase in financial leverage increase the firm performance (Panigrahi, 2019; Pouraghajan et al., 2012; Nirajini & Priya, 2013). The findings suggested that leverage decisions positively contribute towards financial performance of firms (Berger & Patti, 2006; Abor, 2005). Leverage is a significant factor which backs the investments of firms. Most of the investments are financed through debt financing which contributes to positive earnings growth. Overall, the findings are in support of pecking order theory and trade off theory. These theories identified the positive nexus between leverage and performance of firms in shape of profitability.

**Table 3:** Regression Analysis

<b>Performance is the dependent variable</b>				
<b>Variables</b>	<b>Coefficient</b>	<b>Std Err</b>	<b>t stats</b>	<b>Prob</b>
CF	3.20	1.23	2.59	0.011
CE	4.40	2.11	2.08	0.040
FL	2.56	0.82	3.11	0.002
Cons	2.93	1.25	2.34	0.021
R Square				0.14
No of Observations				250

**Note:** The above table reveals the result of regression analysis of study. Firm performance is the dependent variable. CF is cash flows, CE is capital expenditures and FL is the financial literacy.

## 5 Conclusion

The study aims to identify the three firm specific factors like cash flows, capital expenditures and financial leverage and their role in determining the financial performance of Pharmaceutical firms in Pakistan. We address the issue of the impact of cash flow, capital expenditure and financial leverage on performance of pharmaceutical listed firms in Pakistan. The data related to those specific variables is collected from annual financial statements of pharmaceutical firms over the period 2009-2018. Based on Hausman test, random effect model is appropriate for empirical testing of the relationship between the variables. The results indicated that cash flows, capital expenditures and financial leverage are significant indicators of firm performance in Pharmaceutical sector of Pakistan. All these factors contribute positively towards the increase in performance of those firms. Overall, the findings of the study are in support of pecking order theory, trade off theory and signaling theory. A proper combination of cash flow, capital expenditure and financial leverage is vital for the prosperity and growth of the company. Future research can be done by changing the data over other sectors. Moreover, the research can also be conducted in technological advancement of firms with moderating role of innovation. Hence, the contributions can be generalized over a large sample.

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