Center for Management Science Research
ISSN: 3006-5291 3006-5283 Volume 3, Issue 8, 2025

# THE IMPACT OF FREE CASH FLOW ON FIRM'S PROFITABILITY: EMPIRICAL EVIDENCE FROM PAKISTAN STOCK EXCHANGE

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**DOI:** https://doi.org/10.5281/zenodo.20342338

**Keywords**
*Free Cash Flow, Profitability, Non-Financial Sectors, Pakistan Stock Exchange*
*JEL Classification codes: G0, G1 and G3*

**Article History**
*Received: 24 October 2025*
*Accepted: 25 November 2025*
*Published: 15 December 2025*


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**Abstract**
*The Corporate firms tend to enhance its efficiency, performance and Profitability. The free cash flow effect on firm performance has been highlighted in the literature. This Descriptive study intends to identify and measures the impact of free cash flow on firm's profitability in Pakistan Stock Exchange. The population includes Pakistan's 84 companies of different 5 Non-Financial Sectors. Out of these sectors, 58 Non- financial companies were taken for the study. The Secondary data has been extracted from audited Financial Statements of these companies. With the EVIEWS analysis software Version 11, data were analyzed using descriptive analysis, correlation analysis, and panel regression analysis, Hausman Test. The Descriptive result has shown the mean of ROA is 6.2% and ROE is Negative at 7.4 %. Panel Regression shows that the model is a 75% variance on profitability (ROA). While in ROE the 23% variance on profitability. In ROA Model the FCF is Beta = 0.000000425 and Prob =0.2458 it indicates no correlation and an Insignificant effect on probability. While in ROE Model the FCF is 0.000000453 and Prob = is 0.9808 which is higher than Research probability 0.05. it indicates there is no correlation but has a highly insignificant effect on profitability.*

## INTRODUCTION

Usually, companies tend towards the higher Free Cash Flows **FCF** because it creates a very good opportunity for them to attract more and more investors to invest in their companies. The Free Cash Flows are the additional funds of the company and the higher the Free Cash Flows it attracts lots of potential investors who are ready to put their additional capital in the market. In 1986 theories of Free Cash Flows theories were first evolved as an important factor think about the investment decision, it was given by the author Jensen. At that time, it was a new concept in the field of financial literacy. As a result, the perfect degree of liquidity within an organization is likewise a significant task of firms. Managers of the organizations usually hold the Free Cash Flows for the re-investing purpose, enhancing the office equipment, or to give the bonus to the employees.

Every firm wants to remain sustainable in the market and sustainability, it depends on the internal financial situation. In house finances are very reliable and got through the 'FCF". FCFs are derived from the operations of the cash flow and subtract capital expenditures from it. There are several possible ways to dissolve or

distribute these Free Cash Flows. It can be used either for the payments of dividends to the bondholders, it can be used as balancing the equity financing used as the future savings in the time of hardships, or at last but not least it can be used as the potential future investments for the goodwill of an organization.

Companies consider the immense number of FCF as a good sign of financial performance if companies use this Free Cash Flows for the astounding expansion if it is used wisely. So, these Free Cash Flows tend the companies towards more profitability shortly.

This research is mainly focused on the profitability impacted by "FCF' of the firm listed on the Pakistan Stock Exchange (PSX) in PSX all companies shows their financial report and profit & loss report due to the high interest of the investors which heavily depend on these reports and their credibility is also very high. Research's main focused of this thesis towards the impacts of excess "FCF" on profitability in the shape of either EBITDA, ROA, or ROE, because profitability can be measured in multiple ways.

## LITERATURE REVIEW

### Free Cash Flow:

The FCF may be a measure of, what proportion a firm or an entity gains after accounting for capital expenditures. This cash is often used for expansion of business, profit division into shareholders, minimizing the debt structure, or other intentions. It shows the amounts of money that company allots after utilizing for the development of the things. FCF may be cash available to supply capital, which is reinvested into other business projects. It can be defined as cash accessible for the equity and debt provider (Jensen M. , 1986). Researchers (Yook, 1997) proposed that companies' value often improves, or refuse depends on how free income is used. The firm value improves if the firm's cash effectively and efficiently utilized, if cash isn't utilized effectively then it'll result in a decline firms' value. Ang et al (2000) the managers of such firms face the problem of the firm's performance also because of the efficient utilization of the firm's assets (cashflows). (Jenson, 2000) described cashflow as income available in surplus of what is required to fund positive N.P.V investment. Free income may be a symbol of agency problem because cash available in surplus might not be returned to stockholders. When firms have surplus income then they perform acquisition activities. The free income shows the firm has expanded its operations, move on to new production, give a dividend to holders, or reducing its debt. Rising free income is that the sign of a strong position of that company which is getting success in their current business atmosphere. FCF is the major influence on the price of a corporation that draws for the investor who willing to invest. Investors search those firms who have a good income and keep in mind this thinks then investor invest. According to (Shin & Kim, 2002) the firms having higher free income normally invest money in those sectors where Risk is low no doubt the rate of return is low, concerning firms having a lesser level of free income.

### Profitability:

Sensibly Talking, the organization always sets some earning targets, from time to time even the managers are given extra compensation, additional benefits, allowance to succeed in the targets however the last phrase object is appropriately wider than relying on income only. The foremost mostly used different instrument is the analysis of profitability ratio. These ratio proportions can frequently be utilized to decide the organization's worth, effectiveness, execution, and credibility ranking and performance and results which is beneficial for others. (Fazzari et al., 1988) The profitability metrics can typically be grouped through main forms of profits and returns. Gross margin is telling us about the profitability of films good and services. It calculates through dividing the Gross profit of companies by its Net Sales which show the % of the sale. The reverse is the Gross Profit Margin is mostly as earnings before interest taxes EBIT, which tests the total performance of the production (Maheshwari, 2002).

The different Method of measuring manufacturing firm's profitability is.

1) ROE is essential to measure the proportion of rupees as income the company generates on each rupee of the stockholder investment. When we divide stockholder equity to Net Income then get ROE.

2) Leverage is an investment strategy most companies use to increase their assets through borrowing from financial institutions with the expectation that the income generates from this new asset is more than the interest cost. Leverage is also important to indicate the profitability of the firm. It calculates through Debt Ratios when we divide the Total assets with Debt to get Debt to Assets and when total equity divides with total Debt then get Debt to Equity.

Profit growth is claimed to be the most objective goal, or we say the maximization goal of all firms. Rising lowness noises for defining which aspects of a financial plan feature to and in which need of improvements. The control of taking responsibility in the shape of the duty to taking better decisions to achieve profit goals. Firm's profits aims, and now and then they pay managers for attaining them, yet the goals of organizations are wider than their income only (Chandra, 2002).

**Relationship among Free Cash Flows and profitability:**

"FCF" is the volume of the "CF" that can be generated by resource suppliers by meeting all the company costs and provisions that are required to maintain it in an operational form. Safe handling of working capital elements allows businesses to keep additional surplus cash reserves that can be spent on productive projects that produce income for the business. FCF affects not just the company's returns and productivity as well as the stability of the company's financial statement. When a business struggles to adequately control its total operating resources then "FCF" might be smaller than the company's expected net income. Recent research by Hubbard indicates the Sign positive R/S between FCF and Profitability, and the level of Cash increase leads to a corresponding increase in profits of the firm (Hubbard, 1998). The company will consider using extra cash flows to make crucial investment decisions, businesses carrying surplus capital may use it to purchase overpriced businesses rather than pay the shareholders dividends. This seems to be possible even though the businesses have poor financial potential after acquisitions as they participate in non-profitable business ventures (Griffith & Carroll, 2001). Free cash flow is a capital balance provided to capital suppliers after completing all operating costs and provisions that are required to maintain it in productive mode. Active control of cash flow components enables businesses to retain surplus flows which can in effect be spent on productive projects to produce income for all the business. Cost-saving has a huge impact on the organization's free cash flow, this enables the business to have more funds and take advantage of successful investment programs that will produce better profits. FCF has an effect not just on the firm's sales and productivity but also on the balance sheet management. If the corporation struggles to adequately control its total working resources then Fcf is lower than Net Earnings (AKUMU, OJODE, & CHRISTINE, 2014). Companies may tend to keep free cash flows for investment purposes while they seek lucrative projects that can guarantee better future returns. The company can also payoffs so that these assets will eventually produce greater returns that will be beneficial for the company. On the other side, improperly spent FCF will have a detrimental effect on the company's earnings because the business invests in aggressive projects and thus the business eventually losses all (Griffith & Carroll, 2001)

(Baskin, 1989) claimed that the higher the productivity of the business, the lower the amount of its debt. The findings did not confirm either of the perspectives in the hypothesis of free cash flow which might boost business efficiency by managing the debt impact. It was discovered the agency's cost expenses were the major reason for incentivizing management to exploit earnings, so it was more probable that the management of the certain business with a lot of free cash flow shielded their actions which would hurt the interests of corporations by exploiting earnings (Chung, Firth, & Kim, 2005).

(Griffith & Carroll, 2001) defined that for more

speculation reasons, companies may plan to keep surplus cash reserves while they search for a suitable opportunity that can deliver greater returns in the future. The company may often plan to invest in higher-return risk assets, such assets that later produce stronger returns that may be competitive for the company. On the other hand, if excess usage of the FCF will negatively impact the company's earnings if the business undertakes dangerous investments then keeps losing out (Griffith & Carroll, 2001). The internal finances the company must consider the ability of a corporation to support and funds its investments. The free cash flows typically facilitate internal finance. Usually, it is also known as the operational cash flows with fewer capital expenditures. You may either allocate these free cash flows as dividends use them as cash to minimize leverage or equity investments, keep cash as precautionary investments, or invest in an appropriate program increased rates of free cash flows are an indicator of a business's strong financial success and if utilized carefully in the context of acquisitions in lucrative ways, they will also result in significant development for the sector, thereby directly to the company's competitiveness, ultimately maintaining the sector and preserving its existence (Lizna, Sreelakshmi, & et al., 2018) (Muthusi, 2014) The flow model suggests when business has generated surplus cash flow but it is not suitable due to there is no viable investment opportunity, management continues to misuse the free cash flows in hands which resulting in increased agency expenses, wrongly investment, and ineffective resource utilization.

It is observed by (Rizwan, Zheng, & sadaf, 2017) that a consistent positive correlation between the earnings and cash flows are becoming apparent, according to this report. Cash profits with every company are still viewed as the most popular indicator of progress. This might push it out of existence in long-term rivalry because stockholders would have little interest left in the corporate body. Stakeholders would not be tempted to take advantage of being part of such a group. This eventually leads to stakeholders leaving the agency because he sees it as a safer choice.

**Free Cash Flow, Profitability and European Markets**

The positive impact of free cash flow on profitability is also witnessed in the European Markets. As per the Study of Ali, Ormal, & Ahmad (2018) conducted on the effect of free cash flow on the profitability of firms listed in automotive sector of Germany, the positive relationship was found between the free cash flows and profitability of the firms chosen by the researchers. The regression model engaged in the study explained 76.65% of the variation in profitability (ROA) of the firms. Hau (2017) in his studies derived a positive impact of free cash flow on the business performance of a firm. He also exemplified that the effect of FCF on profitability is heterogeneous wherein, FCF enhances the performance of firms with investment opportunities, but not so much in the case of firms without the opportunities to invest.

Similarly, Thangjam & Mahendra (2015) in their studies concluded a positive correlation between free cash flow of the firms and its profitability in the European markets. They also highlighted that actual cash available with the firm often differs from the profits mentioned in its financial statement thus making it important to look into the free cash flows of a firm.

Del Brio et al. (2003) show for example on Spanish data that the level of free cash flow as well as the investment opportunities influences the market reaction to investment announcements.

The latest research on cash flow management, performance and risk was done by Rompotis, G. (2024) in the Greece using a sample of 80 non-financial companies listed in the Athens Exchange. The study was based on the data from 2018 to 2022 and the panel data was analyzed. Both financial performance and stock return are taken into consideration, while risk concerns the volatility of the companies' share prices. The various explanatory variables used include the net cash flow, free cash flow, cash conversion cycle days, cash flow from operating activities, cash flow from investing activities, cash flow from

financing activities, inventory days, customer days and supplier days.

The empirical results provide evidence of a positive relationship between financial performance and net cash flow and free cash flow . In addition, operating cash flow is positively related to financial performance. The opposite is the case for investing and financing cash flow. Finally, some evidence of a negative relationship between financial performance and inventory and customer days is provided too. On the other hand, stock return and risk are not related to the cash flow management variables at all.

**Agency Theory:**

The Agency Problem was raised by (Berle, 1932) who claimed that the expenses of the business could be born in dividing possession and power because of conflicting desires of the management and the shareholders. (Jensen, 1986) defined that the unresolved contractual arrangement in both agents and principle will create problem for business. These issues created by management will involve a reduction in the property of the shareholders in the following ways. Firstly, the administration would raise perquisite intake and shirking actions from the perspective of self-interest incentive, which in effect contributed to the rise in agency costs.

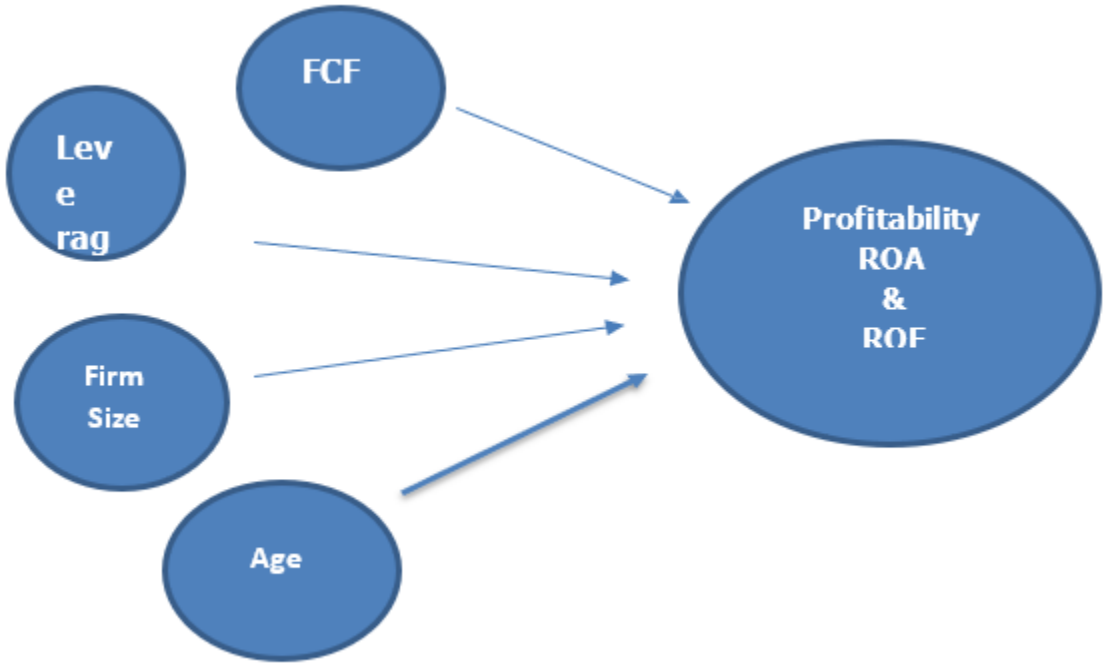
Secondly, the administration may not prefer the maximum net present value investment project and the only one that greatly increased its self-interest, exposing stockholders to needless financial risk. Moreover, the decision of the management may cause the organization to lose due to not good selection of project. Resulting it was the agency problem which caused by management that burden the stockholder's loss. There are two main opposing methods, through which the abstain solution and the supporting method have been proposed to address the organization issue were suggest both (Gul & Judy, 1998) **and** (Kester, 1986) adopted the abstaining stance and claimed that a rise in financial equity would decrease the agency's expenses significantly because management is indifferent to the legitimate contracting of loan repayments and interest, which will, in turn, minimize the misuse of free cash flow. (Fox & Marcus, 1992) indicated an optimistic strategy whereby a business might adjust management's conduct that is more in favor of shareholders by raising management's shareholdings.

**Theoretical Framework & Econometric model:**

This study investigates the impact on the "DV profitability of the "IV" free cash flow effect. The objective of this research is to check the below model and analyse how the free cash flow structure contributes to the bank's profitability.

**Variables:**

- DV is Profitability ROA and ROE.
- IV is FCF
- Controlling variable is leverage, Size, and Age




**Econometric Model:**
For finding the results of my research thesis, we have used the Panel Data regression model to check the relationship between "FCF" and Profitability, the model is defined below:

**Model without lagged dependent variable**

$$ROA_{it} = \alpha_i + \beta_1 FCF_{it} + \beta_2 SIZE_{it} + \beta_3 LEVERAG_{it} + \beta_4 AGE_{it} + u_{it}$$

$$ROE_{it} = \alpha_i + \beta_1 FCF_{it} + \beta_2 SIZE_{it} + \beta_3 LEVERAG_{it} + \beta_4 AGE_{it} + u_{it}$$

**Model with lagged dependent variable**

$$ROA_{it} = \alpha_i + \rho ROA_{it-1} + \beta_1 FCF_{it} + \beta_2 SIZE_{it} + \beta_3 LEVERAG_{it} + \beta_4 AGE_{it} + u_{it}$$

$$ROE_{it} = \alpha_i + \rho ROE_{it-1} + \beta_1 FCF_{it} + \beta_2 SIZE_{it} + \beta_3 LEVERAG_{it} + \beta_4 AGE_{it} + u_{it}$$

**ROA**$_{it}$ and **ROE**$_{it}$ both are Dependent Variables that represent the profitability

**ROA**$_{it-1}$ = ROA is the Lag Variable of ROA. This is Measure in EVIEWs as Lag of ROA= ROA (-1)

**ROE**$_{it-1}$ = ROE it is Lag Variable of ROE calculated as Lag of ROE = RoE (-1)

**β**$_{1-4}$ = Is the slope of IV and Control Variables.

**α** = Alpha is constant

**FCF**$_{it}$ = It is IV for the firm(i) and in the year (t), derived the FCF through the operating cash flow minus capital expenditure.
**SIZE** = The Size is Control Variable it is calculated as a Natural Log of Total Assets.
**LEVERGE** = Leverage is Control Variable is measured through the debt to asset ratio using Total Debt divide to Total Assets.
**AGE** = Age is Control Variable this is widely used in previous studies. Age is Measured by the Company incorporated in PSX.
**μ**$_{it}$ = Fixed Effect Error.

**Hypothesis:**
**H0:** Free cash flow does not affect profitability
**H1:** Free cash flow affects profitability
**H2:** FCF and Prof have no Relation

**H3:** FCF and Prof have a connection
**H4:** Leverage does not affect profitability
**H5:** Leverage has effects on profitability
**H6:** No relationship between leverage and profitability
**H7:** There is a relationship between leverage and Profitability
**H8:** Firm size does not affect on profitability
**H9**: Firm size has an effect on Profitability
**H10**: Age does not affect on profitability
**H11**: Age has effect on Profitability

## METHODOLOGY

This study is focused on the Quantitative design and panel data analysis is used to perform secondary data. The quantitative design is used to analyze the effects of the free cash flow on the profitability of Non – Financial Sector which is listed at the "PSX" specifically the Cement Sector, Sugar Sector, Fertilizer Sector, Pharmaceuticals, and Power Generation and Distribution. It is considered the most suitable descriptive model for the research.

### Sample

The respondents of the study consist of the above mention sector of Pakistan which is Non-Financial Sectors and listed in the "PSX". There is a total of Eighty-Four (84) Non-Financial Sector in "PSX". Although The present research aims to establish a statistical model for how the profitability is influenced by free cash flow, all 20 commercial banks were sampled. So, this is a census study of all Pakistan's commercial banks listed on the PSX. The sampling method was used to take a sample of fifty-eight (58) Non-Financial Companies listed at "PSX". So, these are the simple random study of Non-Financial Sectors of Listed Companies.

Secondary statistics are collected from published financial statements of firms that are listed on the Pakistan Stock Exchange over a 5-year-span (20015-2019). These annual reports consist of the profit and loss document, balance sheet, and cash flow statement. PSX, Market-scanner, Investing, and SBP websites are the main source for deriving the data.

## RESULTS AND DISCUSSION

### Correlation Matrix

Correlation Matrix is the most widely used method of measuring the Relationship among the Variables, the coefficient Range from positive 1 and Negative one, The Positive 1 Indicate the three was a positive correlation between dependent and independent variables, while negative 1 indicate negative relations and Zero Indicate the no relationship among variables. Below is the result find from EVIEWs Indicate in **Table # 1**. Further, The researchers defined by Pearson Correlation Scale where the value between 0.0 to 0.3 indicate that there is no correlation or say small relation, 0.31 to 0.50 show a weak correlation, while 0.51 to 0.7 mean a moderate correlation, and between 0.71-1 indicate that there are strong correlations between the variables.

**TABLE 1 Correlation Between ROA, ROE with Independent Variable Matrix**

| FCF | LEVERAGE | | SIZE | AGE | ROA | ROE |
|---|---|---|---|---|---|---|
| **FCF** | **1.000** | -0.063 | 0.113 | -0.012 | 0.192 | 0.020 |
| **LEVERAGE** | -0.063 | **1.000** | 0.006 | -0.102 | -0.446 | -0.087 |
| **LNSIZE** | 0.113 | 0.006 | **1.000** | -0.237 | 0.333 | 0.097 |
| **AGE** | -0.012 | -0.102 | -0.237 | **1.000** | 0.087 | -0.003 |
| **ROA** | 0.192 | -0.446 | 0.333 | 0.087 | **1.000** | 0.204 |
| **ROE** | 0.020 | -0.087 | 0.097 | -0.003 | 0.204 | **1.000** |

From Table: 1 The conclude the result from Table # 2 is that the ROA Is a dependent variable indicate that the First Variable FCF increases, the ROA is also increased by 0.192 it

is less than 0.3 so there is a small weak correlation between ROA and FCF, on another side, ROE is 0.020 it is less than 0.3 even less than ROA. So, in this Scenario weak Correlation between FCF and Firm Profitability (ROA and ROE) of the non-financial sector of KSE. ROA is negatively related to Leverage having a correlation (-0.446). ROA has quite Positive related to Firm Size having a 0.333 correlation.

**Panel Regression Analysis**

**Panel** regression was performed to determine the relationship between the "IV" & "DV". The analysis employed the EVIEWS software to calculate the measurements for the study's multiple regressions. This analysis depicts the summarize the relationship among "FCF" and profitability of the mentioned companies by evaluating the association. To analyses the Panel Data Regression, short reviews of definitions of panel data. A data set contains observation on multiple over multiple periods is known as Panel Data. This means everyone, sampling unit, the data point is observed in more than one time. In a Panel Data Regression Combine the Cross Section and Time Series data to find out How FCF, Leverage, Firm Size affect Profitability ROA and ROE. Panel Data is widely used in financial and economic analysis. In Panel Data two commonly technique is used one is Fixed-Effect Methods (FEM) and Other is Random Effect Methods (REM) and Effect Methods. In panel data modeling is necessary for selecting one method form FEM or REM in Panel Regression

**FIXED EFFECT METHODS.**

The fixed Effect Methods is that in which individual a time is less realistic

**Table :2 FIXED EFFECT METHOD of Both Dependent Variable with Independent Variables**

| | ROA | | | | ROE | | | |
|---|---|---|---|---|---|---|---|---|
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| **FCF** | 4.25E-07 | 3.63E-07 | 1.170987 | 0.2428 | 4.53E-07 | 1.88E-05 | 0.024085 | 0.9808 |
| **LNSIZE** | 0.007508 | 0.012626 | 0.594618 | 0.5527 | -0.44941 | 0.655517 | -0.685581 | 0.4937 |
| **LEVERAGE** | -0.128542 | 0.02613 | -4.919428 | 0 | -1.608363 | 1.356605 | -1.18558 | 0.237 |
| **AGE** | -0.007401 | 0.002505 | -2.954685 | 0.0035 | 0.047498 | 0.130056 | 0.365214 | 0.7153 |
| **C** | 0.30761 | 0.100518 | 3.060235 | 0.0025 | 3.493653 | 5.218756 | 0.669442 | 0.5039 |

| | | |
|---|---|---|
| **R-squared** | 0.752 | 0.230 |
| **Adjusted R-squared** | 0.686 | 0.024 |
| **F-statistic** | 11.356 | 1.115 |
| **Prob(F-statistic)** | 0.000 | 0.282 |

**RANDOM EFFECT METHODS.**

**Table: 3 RANDOM EFFECT METHOD of Both Dependent Variable with Independent Variables**

| | ROA | | | | ROE | | | |
|---|---|---|---|---|---|---|---|---|
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| **FCF** | 5.89E-07 | 3.45E-07 | 1.708842 | 0.0886 | 1.05E-06 | 1.52E-05 | 0.069379 | 0.9447 |
| **LNSIZE** | 0.013571 | 0.004231 | 3.207937 | 0.0015 | 0.154339 | 0.101581 | 1.519363 | 0.1298 |
| **LEVERAGE** | -0.143833 | 0.020389 | -7.054491 | 0 | -0.919771 | 0.639248 | -1.438832 | 0.1513 |
| **AGE** | 0.000215 | 0.000488 | 0.439978 | 0.6603 | 0.001824 | 0.011118 | 0.164048 | 0.8698 |
| **C** | -0.004209 | 0.04849 | -0.086795 | 0.9309 | -1.169781 | 1.208471 | -0.967985 | 0.3339 |
| **R-squared** | | 0.17 | | | | 0.02 | | |
| **Adjusted R-squared** | | 0.16 | | | | 0.00 | | |
| **F-statistic** | | 14.85 | | | | 1.14 | | |
| **Prob(F-statistic)** | | 0.00 | | | | 0.34 | | |

From Table 3. Fixed Effect Method of Both Dependent Variable RoA and RoE have much more variation in ROA the R-Square is 0.17 mean 17% it means ROA is not a good predictor. The independent variables explained 17% of the variation in profitability measure by ROA of Non- Financial Listed firms. The remaining 83% of the variation in Profitability ROA is not explained by Random Effect Model. While in ROE Model the R-Square is 0.02 or 2% it means is not a good predictor of data. The Independent variables explained 2% is variation in profitability of non-financial sector of listed firms, and rest of 98% is not explained, so in this regard, ROE Model is not good predictor as compare to ROA.

**Panel Regression Method Selection**

The Choose from Fixed and Random Effect methods can be done through different tests because the data can be processed by one method. So, in this scenario, The Hausman Test was performed Between FEM and REM.

**Hausman Tests:**

In panel Data Modelling, the Hausman test was used to evaluate the feasibility of using panel models. This test is performed for selecting a suitable method from FEM and REM. The Null Hypothesis has preferred the REM and the Alternative Hypothesis preferred the FEM. The null hypothesis means there is no correlation between the two.

H0 = Random Effect Method is better than Fixed method H1 = Fixed Effect method is better than Random Method.

The Hausman test is straight forward and selecting the method on Bases of accepting and rejecting the method its P-Value. If P-Value is Less than 5% or 0.05, then accept the Alternative Hypothesis and reject the Null Hypothesis. So, let see Table: 5

**Table:4 Hausman Test of ROA**

| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|---|---|---|---|
| Cross-section random | 21.920352 | 4 | 0.0002 |

Based on this Hausman Test the Prob is Less than 0.05, which means the Null Hypothesis is rejected and the alternative hypothesis is accepted. Therefore, the Selected model is FEM.

**Fixed Effect Model Results**

**Table: 5 Fixed Effect Model Result of ROA**

| | ROA | | | |
|---|---|---|---|---|
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| **FCF** | 4.25E-07 | 3.63E-07 | 1.170987 | 0.2428 |
| **LNSIZE** | 0.007508 | 0.012626 | 0.594618 | 0.5527 |
| **LEVERAGE** | -0.128542 | 0.02613 | -4.919428 | 0 |
| **AGE** | -0.007401 | 0.002505 | -2.954685 | 0.0035 |
| **C** | 0.30761 | 0.100518 | 3.060235 | 0.0025 |

From the Above Table, 5 is Shown the Coefficient of FCF is 0.000000425, and Firm Size is 0.007508 It means that Zero Correlation exit between FCF and Size with Profitability and Leverage and Age are negative -0.1285, -0.007401 respectively. This means that no relationship exists between FCF and Profitability of Non-financial Sector of Listed firms in PSX. The Probability value of FCF and Firm Size 0.2428 and 0.5527 respectively, higher than the research probability which is 0.05. It can be interpreting that FCF and Size influence ROA, but it is insignificant. The Probability value of Leverage and Age is 0 and 0.0035 respectively, these values are smaller than 0.05. It Can be Stated, statistically, the influence of Leverage and Age is significant on ROA.

**Table: 6 Fixed Effect Model Result of ROE**

| | ROE | | | |
|---|---|---|---|---|
| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| **FCF** | 4.53E-07 | 1.88E-05 | 0.024085 | 0.9808 |
| **LNSIZE** | -0.44941 | 0.655517 | -0.685581 | 0.4937 |
| **LEVERAGE** | -1.608363 | 1.356605 | -1.18558 | 0.237 |
| **AGE** | 0.047498 | 0.130056 | 0.365214 | 0.7153 |
| **C** | 3.493653 | 5.218756 | 0.669442 | 0.5039 |

Table 6 Shows the Coefficient of FCF is 0.000000453, and Age is 0.047498 It means no Correlation between them, and Firm Size and Leverage are negative -0.44941 and -1.608363 respectively. This Mean on both leverage and firm size has a negative relationship exists between FCF and Profitability of Non-financial Sector of Listed firms in PSX. The Probability value of all the independent variables is more than 5% mean higher than research probability 0.05.

**Table: 7 Model Summary**

| | ROA | ROE |
|---|---|---|
| R-squared | 0.75236 | 0.230 |
| Adjusted R-squared | 0.68611 | 0.024 |
| F-statistic | 11.3556 | 1.115 |
| Prob(F-statistic) | 0 | 0.282 |

## Conclusion

Overall finding and interpreting, summarizing the data the result found is that the FCF has no Effect on Profitability of non-financial sectors of PSX. Furthermore, the findings also indicated that the Independent variables (FCF, Leverage, Firm Size, Age). FCF Coefficient in ROA model is 0.000000425, Probability is 0.2458 is higher than 0.05. It means FCF influence on ROA but insignificantly. The Firm Size coefficient is 0.007508, and the prob is 0.5527 the result shown an insignificant effect on Profitability. The Leverage is Beta -0.1285 and Prob = 0, it means the Leverage had a negative but significant effect on profitability, same as an Age the B= -0.007401, Prob = 0.0035, mean Age has a negative effect on profitability but significant effect. Further Finding the R-Squared = 75.2% meaning that the panel regression model used for this study is a good predictor, in ROA Sense. It means 75% has explained the variation of profitability (ROA) of non-Financial Listed firms.

Further in ROE, The FCF B = 0.0000000453, p = 0.98, indicates that the FCF has close to Zero Correlation and has an insignificant effect on profitability. Firm size B = -0.0444941, Leverage B = -1.608363 with a highly negative and insignificant effect on profitability because the probability is more than 5%. Age coefficient B = 0.047498, and p = 0.7153 highly insignificant effect on profitability. In ROE Model the all the value is Insignificant. This R-Square is 23% which shows is not a good predictor.

Besides, the Method Selections for test the appropriate regression estimator, the Hausman test was used and from them get result P-value is Less than 5% it means a null hypothesis is rejected and Fixed Effect model was considered appropriate to apply in Panel Data Regression.

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