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An Empirical Study of Free Cash Flows and Firm's Profitability In Listed Companies of the Pakistan Stock Exchange

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Abstract: Every organization sets its goal to increase productivity, managers in corporate organizations, therefore, do every possible effort to enhance their performance and profitability. This study aims to determine how free cash flows affected Pakistan Stock Exchange (PSX)'s profitability while taking into account a variety of the Islamic Republic of Pakistan's non-financial sectors. The existing literature has advanced the free cash flow hypothesis as one of the factors affecting corporate performance. This study is descriptive in nature. Secondary data from 2011-2022 gave enough data which was used in the analysis. The study's population included 84 companies from Pakistan's different 5 sectors, and 58 non-financial enterprises were selected to create a predictive model of how cash flow affects profitability. Panel regression showed 72% variations in ROA and 25% variations in ROE. FCF positively affects ROA (β= 0.04, p= 0.05). FCF negatively affects ROE (β=-0.26, p= 0.04), hence this study discovered significant and applicable insights for the users.

Keywords: Free Cash Flows, Profitability, Leverage, Firm Size, Return on Assets, Return on Equity, Stock Exchange.

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1. Introduction

"FCF" stands for Free cash flows that are available to lenders of financial resources like equity and debt (Dirman, 2020). The term "free cash flow" refers to money that has been left over after all taxes have been paid and is available to be paid out as a dividend to bondholders, shareholders, or employees who are currently employed (Shrieves & Wachowicz, 2001; Wibowo & Setiany, 2023). The company's surplus funds are known as free cash flows, and the higher they are, the more potential investors are eager to invest their surplus funds in the market (Rochmah & Ardianto, 2020). Firms typically prefer to have a higher level of free cash flows since it gives them a good chance to capture more and more investors to engage in their businesses. Free cash flow theories were originally developed as a key consideration for making investment decisions in 1999, according to Crutchley, it was a novel idea in the world of financial literacy at the time. As a result, maintaining the ideal level of liquidity inside an organization is a crucial duty for businesses (Crutchley et al., 1999). Organizational managers typically keep their free cash flow for reinvestment, upgrading office equipment, or awarding bonuses to their staff. Every company wants to continue to be a viable competitor, but this depends on its financial status (Bocken & Geradts, 2020). In-house finances are very trustworthy and have passed the "FCF." FCFs are created by operating on the cash flow and deducting capital outlays from it (Feix & Feix, 2020). These FCF may be eliminated or distributed in several ways. The capacity of the business to

employ its resources to realize earnings that exceed its expenses is what defines profitability, in other words, it's a corporation's potential to generate profit from its operations (Cyril et al., 2020). Profitability is primarily determined by two factors: revenue and expenses, it is defined as an investment's capacity to generate a return from its use (Tu et al., 2019). The primary purpose and objective of businesses are to realize and maximize profit. The upper management of these businesses are responsible for making, taking, and generating the correct decisions that will make it easier to achieve the goals (Carracedo et al., 2021). Increasing assets via lending from financial firms is a similar investment technique used by businesses, with the hope that revenue from new resources will outweigh the cost of the debt. Operational leverage & financial leverage are the two types of leverage that the corporation most frequently uses (Cao et al., 2022). Financial leverage refers to permanent bonds that a firm has issued and which mature with the principal repaid (Samo & Murad, 2019). Overall revenues, total assets, and market value of equity are used to calculate firm size. For a very long time, investors and researchers have focused heavily on the study of firm size. Size and profitability are proven to have a negative relationship (Almaqtari et al., 2019; Haris et al., 2019). PSX is a secondary market where shares of companies that are listed are frequently traded. It was founded in January 2016 before being given the moniker Karachi stock exchange (KSE). The PSX represents the fusion of the 3 securities trading marketplaces. As of December 31, 2022, there are currently more than 500 companies listed on the PSX. It is a marketplace where shares can be bought and sold by third parties after being issued in an initial public offering (IPO). Given the significant concern of the shareholders who heavily rely on these findings and their legitimacy, this study is primarily focused on the profit growth effected by "FCF, Leverage and Size" of the firm listed in the PSX where those businesses have created their annual information and in-depth financial reports. As profitability can be determined in a variety of ways, this research is mostly focused on the impacts of FCF, leverage and size on ROA and ROE.

There is an unsteady correlation between firm profitability and FCF, when a business receives a sizable quantity of free cash flow, the managers or regulatory authorities have some difficulty deciding how to allocate the funds. One choice is to reinvest these FCF, while the alternative is to distribute these funds to stockholders as a dividend, extra earnings, etc. In this study, we will investigate how the firm's profitability is affected to address a research-related issue. It will broaden people's understanding of finance, particularly in the areas of profitability and FCF. It will offer us sufficient knowledge to understand how FCF affects profitability in a particular organization (Carracedo et al., 2021; Feix & Feix, 2020; Wibowo & Setiany, 2023). For the businesses listed in the PSX, this study will facilitate investors in PSX, because every business has access to free cash flow, and everyone will benefit. Considering the above concerns, the following research questions are developed:

RQ1= Does the free cash flows affect positively on Profitability of companies listed in PSX?

RQ2= Does the leverage affect positively on Profitability of companies listed in PSX?

RQ3= Does the firm size affect positively on Profitability of companies listed in PSX?

The paper consists of five sections. The 1st section provides an introduction and definitions of variables. In the second section, past theories and conceptual models have been prepared. Equation modeling and methodology are the foundation of the third section. In the 4th section, data was analyzed by fixed and random effects models. In the last section, the conclusion has been drawn with hypotheses testing.

2. Literature Review

The FCF may serve as a gauge of how much an organization or entity gains after deducting capital outlays (Bin Khidmat et al., 2021). It further advises that investors should be aware that businesses can influence their working capital by enhancing the time management that takes time to pay invoices, thereby maintaining or saving their money (Colombo, 2021). Lowering the time taken for collection of what is owed to them by accelerating the bills of money and tying spending for inventory (Mazur et al., 2021). Organizations must comprehend what purchases qualify as capital expenditures. The concept that the investor favors businesses with free income in surplus was developed by (Hamilton et al., 1993). The utilization of free money can either increase or decrease a company's worth. If cash is used successfully and efficiently by the company, the value of the company rises; if not, the value of the company falls (Lang & Litzenberger, 1989; Wahjudi,

2020). The managers of these organizations struggle with the performance of the company as a result of the effective use of the company's cash flows (Liahmed et al., 2021). There are often two ways to explain free income: the classic method and the modern method (Earl et al., 2022). In the classical approach, the amount paid for an investment goal is deducted from the operating revenue generated (Mpofu, 2022). Whereas the modern approach of calculating additional cash requires that discretionary cash outlays (DCO) and discretionary costs (Islam et al., 2021), and CAPEX be added on top of the regular FCF (Kolmakov & Polyakova, 2019).

Ali et al. (2018) analyzed the positive effect of FCF on profitability in German automobile companies from 2007-2016. Further they suggested that leverage is insignificant with profitability. Lohonauman & Budiarso (2021) analyzed that FCF doesn't effects on dividend payout ratio in Indonesian Stock Exchange (IDX) in 2011-2018. Oktaryani & Mannan (2018) studied the moderate effect of dividend policy on FCF and profitability. The findings suggest that FCF and profitability doesn't effect on firm value by moderating effect of dividend policy. Nguyen & Nguyen (2018) studied the effect of FCF on profitability in emerging economies by taking 208 sample companies from 2012-2016. They suggested that FCF is cheaper source of finance, as well it has a negative significant effect on profitability. Hasibuan et al. (2023) suggested that FCF and statement of cash flows are the main parts to increase the financial performance in energy companies. Ozdemir et al. (2022) done a study on board diversity with FCF, CEO duality and board independence in Tourism industry and suggest that FCF are less effect on investments. Zhu et al. (2022) predict the enterprise FCF by using Artificial Neural Networks (ANN) models. They suggested that FCF negatively effects on profitability in Chinese enterprises. Benson, E., & Odey (2022) suggest that in Nigerian banks and corporate entities FCF plays a significant role to increase the profitability. By using the data from Nigerian banks in the time of 2009-2020. FCF has positive and significant effect in liquidity. Al-Sraheen et al. (2022) found the joint effects of FCF on corporate debt policy. They suggested that concentrated ownership improved debt policy and free cash flow reduced debt. This analysis showed that high-FCF companies should not priorities heavy debt. Meliana et al. (2022) examines the impact of cash flow increases before and after the COVID-19 epidemic on stock price performance. OLS regression was used to analyse 426 Indonesian capital market companies from March 2, 2020, to March 2, 2021. After COVID-19 outbreaks in 2020–2021, cash flow growth from operations and free cash flow growth had no meaningful effect on stock return. From 2019 to 2020, sales growth, market capitalization, and stock return were negatively correlated with post-COVID-19 stock return. Basic industry, chemicals, miscellaneous industry, and infrastructure are positively associated after the COVID-19 pandemic. Okofo-Dartey & Kwenda hypothesized that a company's performance in merger and acquisition activities would increase with increasing FCF (Okofo-Dartey & Kwenda, 2021). Free income was described as net income from operating operations, fewer development costs, and the value that remains contributed to research and development (R&D) expenditures and investment expenditures of most recent company projects (Sitompul & Khadijah, 2020; Mpofu, 2022). Also, over-subsidizing is one of the ways that free income can be used, and overinvesting is one of the other ways. Armed with this knowledge, one can allocate free revenue into six categories, which are sometimes thought of as defining the cash flow statement (Liahmed et al., 2021). The cash equals both the generated and used amounts in this statement. It is included under various headings. For instance, creative investments, substantial dividends, savings, and debt repayment (Le Quy et al., 2022).

The profitability of a company can be evaluated in a variety of ways, including Tobin's Q, gross profit, return on assets (ROA), and return on equity (ROE) (Pham et al., 2021). The ratio of earnings to equity (ROE) is crucial for determining how much money the company makes from each rupee of stockholder investment. We obtain ROE by dividing stockholder equity by net income. Businesses frequently adopt the investing strategy of borrowing money from financial institutions to increase their assets, with the hope that the income from the new asset will outweigh the cost of borrowing (Musleh Alsartawi, 2020). Leverage is crucial for determining the firm's profitability. Debt ratios are used in the calculation, debt to assets is obtained by dividing total assets by total debt, and equity debt is obtained by dividing total equity by total debt (Harris & Roark, 2019). The primary types of profits and returns can often be used to group the profitability measurements. Gross margin provides information about the financial viability of movies, goods, and services. It's calculated by dividing a company's gross profit by its net sales, which display the percentage of the sale (Dirman, 2020). Contrarily, the gross profit margin measures the overall performance of the production primarily through earnings before interest and taxes, or Earning before interest and taxes (Le, 2019). When a company's profitability ratios are higher than average, investors will receive better returns. Profitability indicators indicate the

company's overall effectiveness and performance. The debt of the company decreases as productivity increases. The results did not support either of the viewpoints in the free cash flow hypothesis, which suggested that managing the impact of debt could increase corporate efficiency (Musleh Alsartawi, 2020).

Literature support by Agency theory: The Agency issue was first brought up by Berle (1932), who argued that the costs of the company could result from separating ownership and authority due to competing interests of the management and shareholders. Unresolved contractual issues involving agents and principles will cause problems for business (Hoenen & Kostova, 2015). These management-generated problems will result in a decrease in the shareholders' assets in the following ways. First, the administration increased prerequisite intake and shirking activities from a self-interest incentive standpoint, which inadvertently caused an increase in agency expenditures.

Ali et al. (2018) studied, five listed automobile firms in Frankfurt stock exchange were examined from 2007 to 2016, wherein they examined the current cash flow, consistent competitiveness, and development potential of stock returns and used the multiple regression approach to test any created hypotheses. Multiple regression was used to analyze the data, and the results show that enterprises with stronger growth prospects and FCF would experience greater demand rates; nevertheless, FCF is positively correlated with the capital return, whereas productivity is short-term.

Bhandari & Iyer (2013) employed even variables to analyze how FCF affected profitability in 100 US enterprises. The ratio dividend is dismissively and significantly impacted by the independent variables of FCF and existing competitiveness, whereas profitability is favorably and significantly impacted by the independent variable of self-sufficient leverage. Moin et al. (2020) optimized management and investment finance decisions and analyzed the relationship between the FCF and the financial outcomes of all stated Indonesian-listed companies from 1995 to 2014. The key survey company's metrics were compared to their FCF. Vinod (2020) studied primary financial performance metrics were produced from 23 financial performance indicators using the principal regression analysis component analysis. The results clearly show that a company's FCF is inversely correlated with its financial output, i.e., that a high level of free cash flow would negatively impact financial results. Thus, to avoid dysfunctional businesses brought on by insufficient FCF, which increases the risk of investment failure, creditors and management should examine the free cash flow thoroughly. In another study, a positive relationship between profitability and FCF in the airline industry during COVID-19 was observed. Further, Saeed & Qazi (2022) shows the impact of cash flow, leverage, and size on the productivity of Pakistan's commercial banks throughout the 2011–2020 period was also evaluated in a study. The main goal of the project was to determine how various cash flows components affected the growth of returns.

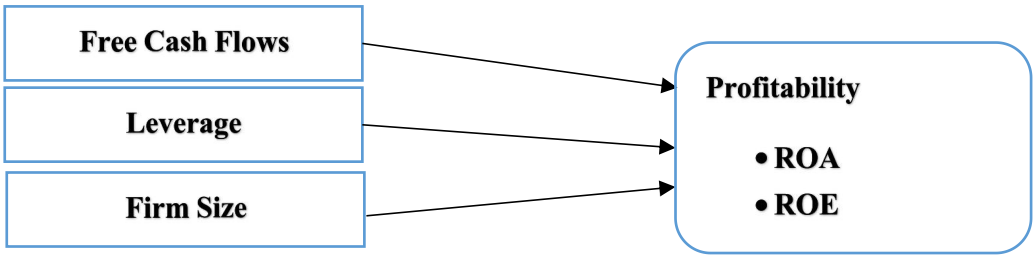

Figure 1: Hypothesized Model

Hypotheses of the study:

$H1_A$= Return on assets is significantly affected by free cash flows.

$H1_B$=Return on equity is significantly affected by free cash flows.

$H2_A$= Return on assets is significantly affected by leverage.

$H2_B$= Return on equity is significantly affected by leverage.

$H3_A$= Return on assets is significantly affected by firm size.

$H3_B$= Return on equity is significantly affected by firm size.

3. Materials and Methods

The quantitative design of this study is the main focus, and panel data analysis is employed to perform secondary data (Shaikh et al., 2022; Rehman et al., 2021). Secondary data is cheaper than primary data. Surveys, interviews, and company data collection cost time, money, and effort to gather primary data. Secondary data sources are easily available and inexpensive or free (Joseph & Kibera, 2019). Secondary data resources usually cover more organizations and sectors. Scholars can analyses a larger dataset, enhancing statistical accuracy and generalizability. Secondary data sources can also analyses trends and long-term correlations (Batistič & van der Laken, 2019). Reputable organizations like government agencies, stock exchanges, and financial institutions produce secondary data. These organizations have data collecting, quality control, and standards to assure data correctness and reliability. Thus, secondary data sources are more trustworthy than self-reported primary data (Shabbir & Wisdom, 2020). Researchers can assess and benchmark company performance using secondary data. This helps identify outliers, industry-specific trends, and best practices, improving understanding of free cash flows and business profitability. The non-financial sector, specifically the construction, confectionery, fertilizer, pharma, and energy production and distribution sectors, which are listed on the PSX were studied using a quantitative approach to determine the effects of FCF on profitability. It is regarded as the descriptive model that best fits the study. Over 12 years, secondary statistics are gathered from publicly available financial statements of companies listed in PSX (2011-2022). The balance sheet, cash flow statement, and profit and loss statement are all included in these yearly reports. The secondary sources for the data were the websites for PSX.com, Market-screener, and Investing.com. A sample of fifty-eight non-financial companies listed in PSX was taken using the random sampling technique. These are the results of a straightforward random analysis of listed companies' non-financial sectors (See Table 1).

Table 1. Data Sources

Variable	Symbol	Data Source
Return on assets	ROA	Investing.com
Return on equity	ROE	Investing.com
Free cash flows	FCF	Market Screener
Leverage	LEVERAGE	Market Screener
Firm Size	SIZE	Pakistan Stock Exchange

To examine the link between FCF, leverage, firm size, and profitability, we employed the panel data regression model. Two models have been made. The dependent variables in the second model have lagged, whereas the first model does not.

$$ROA_{it} = \alpha_i + \beta_1 FCF_{it} + \beta_2 LEV_{it} + \beta_3 FS_{it} + u_{it} \text{….....1}$$

$$ROE_{it} = \alpha_i + \beta_1 FCF_{it} + \beta_2 LEV_{it} + \beta_3 FS_{it} + u_{it} \text{….....2}$$

$$ROA_{it} = \alpha_i + \rho ROA_{it-1} + \beta_1 FCF_{it} + \beta_2 LEV_{it} + \beta_3 FS_{it} + u_{it} \text{….....3}$$

$$ROE_{it} = \alpha_i + \rho ROE_{it-1} + \beta_1 FCF_{it} + \beta_2 LEV_{it} + \beta_3 FS_{it} + u_{it} \text{….....4}$$

ROAit represents the return on assets and ROEit represents a return on equity. ROAit-1 is the lag variable of ROA. ROEit-1 is the lag variable of ROE β1-3 are the

coefficients of independent variables. α (Alpha) is constant. FCFit presents free cash flows that are taken from operating cash flows and deducted from capital expenditure. LEVit presents financial leverage that is measured by the gearing ratio. FSit presents firm size that is measured by the natural logarithm of total assets. The last μit presents a Fixed effect error.

3.1 Research Analysis

The variables' descriptive statistics are shown in Table 2. The standard deviation of the mean ROA, which is 0.72 million rupees, has a variance of 0.008. & score ranged from -0.343 to 0.269, with 0.269 being the highest. The minimum score was negative -72.202, and the best score was 8.95, whereas for ROE the mean is -0.08 and the SD is 3.586. The selected sample of enterprises' FCF has a mean of 799.659 million rupees and a standard deviation of 10240 million rupees. The results ranged from a minimum score of -85227 million rupees to a maximum score of 53358 million rupees. Leverage (total debt to asset ratio) has a mean value of 0.509 and a variance of 0.251. The greatest score was discovered to be 1.820, while the minimum score in the table above was 0.000. Additional size, which is the natural log of total asset mean, is 8.73 with a standard deviation of 1.843, and the highest and lowest values were 14.5 and 6, respectively.

Table 2: Descriptive analysis

Variable	Mean	Std. Dev.	Maximum	Minimum
ROA	0.72	0.088	0.269	-0.343
ROE	-0.08	3.586	8.948	-72.202
FCF	799.659	10240.360	53358.180	-85227
LEVERAGE	0.509	0.251	1.820	0.000
SIZE	8.730	1.843	14.550	6.007

Table 3 presents the correlation analysis in the model. It suggests that free cash flows have a weak negative relationship with financial leverage -0.101. FCF has a moderate positive correlation with the firm's size of 0.653, while it has a strong correlation with ROA 0.792 and ROE 0.720. Leverage has a moderate positive correlation with firm size 0.654 and a strong positive correlation with ROA 0.826 and ROE 0.887. The firm's size is strong positive correlated with ROA 0.764 and ROE 0.892 Furthermore, there is a moderate positive correlation in this scenario between ROA and ROE 0.366 in the PSX non-financial sector.

Table 3: Correlation analysis

	FCF	LEVERAGE	SIZE	ROA	ROE
FCF	**1.000**	-0.101	0.653	0.792	0.720
LEVERAGE	-0.101	**1.000**	0.654	0.826	0.887
SIZE	0.653	0.654	**1.000**	0.764	0.892
ROA	0.792	0.826	0.764	**1.000**	0.366
ROE	0.720	0.887	0.892	0.366	**1.000**

To ascertain the link between the variables, panel regression was used. By assessing the association, this analysis summarizes the relationship between FCF and profitability of the selected companies. A brief overview of panel data definitions is necessary for panel data regression analyses. Panel data refers to a data set that includes observations from numerous subjects over numerous periods. This indicates that each individual, sample unit, and data point has been observed more than once.

Using the fixed effect technique for both dependent variables in Table 4 as ROA and ROE have substantially greater volatility and ROA's R-Square is 0.25, or 25%, it is not a reliable prediction. The independent factors were responsible for 25% of the variation in the non-financial listed companies' ROA-based profitability indicator. The R-Square for the ROE Model is 0.11 or 11%, which indicates that it is not a reliable predictor of data in a fixed effect model. The fluctuation in

non-financial sector profitability of listed companies accounts for 2% of the independent variables that are explained, while the remaining 89% are unaccounted for random effects. For this reason, the ROE model is a worse predictor of fixed effects than the ROA model. The findings for the company's liquidity position are also consistent with the free cash circulation theory, which states that the manager-controllable free cash flow can be decreased by the appropriate degree of leverage in the capital structure of the company. Lower the expenses of the organization because of the financial structure's high debt level. Furthermore, Table 4 indicates that free cash flows have a 0.4% fixed effect on ROA and a 26% fixed effect on ROE. Leverage has 75% fixed effects on ROA and 44% on ROE. The firm's size has a -12% fixed effect on ROA and a 60% fixed effect on ROE. Table 5 presents the random effects, if the company increases one percent in free cash flows than the ROA will increase by 82% and ROE will increase by 22%. Similarly, if we do increase by 1% in Leverage then ROA will increase by 0.2% and ROE will increase by 15%. Lastly, if we increase 1% in firm's size then ROA will decrease by 12% and ROE will also decrease by 91%.

Table 4: Fixed Effects Analysis

	ROA				ROE			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
FCF	0.085	3.63	1.170987	0.88	0.26	1.88	0.024085	0.04
Leverage	0.7508	0.12626	0.594618	0.02	0.44941	0.655517	0.685581	0.09
Size	-0.128542	0.02613	-4.94283	0.03	0.608363	1.356605	1.18558	0.03
C	0.30761	0.100518	3.060235	0.00	3.493653	5.218756	0.669442	0.50
R-squared		0.252				0.111		
Adjusted R-squared		0.753				0.770		
F-statistic		11.356				1.115		
Prob(F-statistic)		0.000				0.282		

Table 5: Random effects analysis

	ROA				ROE			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
FCF	0.04	3.42323	1.708842	0.05	0.222	1.52E-05	0.069379	0.022
Leverage	0.022	0.04231	3.207937	0.005	0.154339	0.101581	1.519363	0.122
Size	-0.122	0.20389	-7.054491	0.000	-0.919771	0.639248	-1.438832	0.000
C	-0.022	0.04849	-0.086795	0.932	-1.169781	1.208471	-0.967985	0.333
R-squared		0.75				0.89		
Adjusted R-squared		0.48				0.83		
F-statistic		14.85				1.14		
Prob(F-statistic)		0.00				0.34		

3.2 Discussions

Regression on panel data to determine how FCF, leverage, and firm size effect profitability, ROA, and ROE, combine the cross-section and time series data. Various financial and economic studies use panel data. Fixed effect methods and random effect methods are two extensively used methods for panel data. It is required to choose one method from fixed effect methods and random effect methods in panel regression when modeling panel data (Moin et al., 2020; Pham et

al., 2021). The random effect ROA model has 75% variations that are more accurate for prediction (Musleh Alsartawi, 2020). By adding more debt to the capital structure, the manager grants the debt holders the ability to sue the company in court if they are not paid their principal, interest, and other obligations (Okofo-Dartey & Kwenda, 2021). Greater debt consumption increases the company's bankruptcy threat and the owner's chance of losing their jobs, thus they stay refraining from investing the FCF in projects with low net present value (Islam et al., 2021). As a result, debt functions similarly to a payout in regulating the agency's cost of free cash flow. According to a study, large debt in the capital structure makes creditors more concerned about interest and principal payments and gives them more motivation to watch the owner's every move (Yasa et al., 2020). We can suggest that Firm size has significant effects on ROA in non-financial listed firms in PSX. Another study concluded that a company can regulate its agency's cost of FCF by using the right amount of debt within its capital structure (Padmini & Ratnadi, 2020). Leverage has 75% fixed effects on ROA and 44% on ROE these results are similar to (Wahjudi, 2020). Firm size has negative effect on ROA study supported by (Parsian et al., 2014; Bin Khidmat et al., 2021; Dirman, 2020). Further Having an R-Squared value of 75% indicates that the panel regression model utilized in this study is a good predictor in the sense of ROA. It indicates that 75% of the variance in profitability ROA of non-financial listed enterprises has been explained. Under the random effects, the ROE model's FCF coefficient is 0.22, and the p-value is 0.02, which is less than 0.05 supported by (Bhandari & Iyer, 2013). It suggests that FCF have significant effects on ROE in non-financial listed firms in PSX (Liahmed et al., 2021). With a leverage coefficient of 0.15 and a p-value of 0.122 which is above the critical value of 5%, the data show that leverage has no significant effects on Return on equity in non-financial listed firms in PSX. The firm's size has a beta value of -0.91 and the p-value is 0.000 which is below 0.05 at 5%, 1%, and 10% confidence intervals. We can suggest that firm size has significant effects on ROE in non-financial listed firms in PSX. Further Having an R-squared value of 75% indicates that the panel regression model utilized in this study is a good predictor in the sense of ROA. It indicates that 75% of the variance in profitability ROA of non-financial listed enterprises has been explained (Colombo, 2021; Musleh Alsartawi, 2020; Kolmakov & Polyakova, 2019; Islam et al., 2021).

4. Conclusion

The overall conclusion, interpretation, and summary of the data revealed that the FCF has a positive effect on the profitability in both indicators of ROA and ROE of PSX's non-financial firms. Additionally, the fixed and random effects are used to illustrate the results of independent variables (FCF, leverage, and firm size). For hypotheses testing the random effects model is taken into consideration under the random effects ROA model's FCF coefficient is 0.04, and the p-value is 0.05, which is less than 0.05 (Hoenen & Kostova, 2015; Vinod, 2020). It suggests that FCF has significant effects on ROA in non-financial listed firms in Pakistan Stock Exchange. With a leverage coefficient of 0.002 and a p-value of 0.005, the data shows that leverage has significant effects on ROA in non-financial listed firms in Pakistan Stock Exchange. The firm's size has a beta value of -0.122 and a p-value is 0.000 which is below 0.05 at 5%, 1%, and 10% confidence intervals (Ali et al., 2018).

4.1 Practical Implications

This study will be useful to financial analysts, stock market brokers, investors, the sugar industry, the pharmaceutical industry, the telecommunication industry, the cement industry, the textile industry, and other industries that struggle with the effective utilization of free cash flow to maximize their profitability. Listed firms should prioritize cash flow management. This entails tracking and analyzing cash inflows and outflows to maximize free cash flow. By controlling cash flows, organizations can allocate resources to productive investments, debt payments, or dividend payouts, increasing profitability. Firms should carefully examine investment opportunities and distribute free cash flows to profitable ventures. Discounted cash flow analysis and net present value estimates can assist find value-enhancing projects. This optimizes FCF use, improving firm profitability. Capital structure should be managed to maximize free cash flow utilization. Determine the right debt-equity mix. Firms can make debt repayment, share buyback, and stock issuance decisions by evaluating the cost of capital, interest rates, and risk profile. An appropriate capital structure improves profitability and free cash flow utilization. FCF and company profitability must be monitored regularly. Cash flow management should be evaluated using financial statements, cash flow statements, and profitability ratios. This constant examination helps organizations identify areas for improvement, make modifications, and capitalize on profit potential.

4.2 Theoretical Implications

FCF allow listed companies to invest in successful projects. Financial theory states that corporations with positive free cash flows can make value-enhancing initiatives like R&D, mergers and acquisitions and capital expenditures. These investments can boost efficiency, creativity, and business profitability. Financial limitations can affect FCF and profitability. Limited-access firms may use internal money, including free cash flows, to finance operations and investments. Higher FCF can remove financial limitations, allowing corporations to pursue profitable projects and increase profitability. FCF can increase agency costs in a corporation. Agency theory says managers may have incentives to use surplus funds for their personal gain rather than maximize shareholder wealth. They may waste money, overspend, or pursue unprofitable ventures that don't benefit shareholders. Agency expenditures reduce corporate profitability.

4.3 Recommendations

The study is specific to non-financial listed firms on the PSX; it can also be carried forward to SMEs and finance-listed companies. This research can be extended to stock exchanges in South ASEAN region, Europe, and the United States. Since it may be made more general by integrating additional independent variables like the cash conversion cycle, working capital management, debt management ratios, and equity ratios, only fixed and random effect models were used in this study. Moreover, Tobin's Q, gross margin, and profit margin ratios may be used to gauge the dependent variable. The model only examined random and fixed effects, so it is recommended that other statistical models and approaches, such as ARDL, GMM, CS ARDL, and NARDL approach, be used to examine the model.

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