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The Effects of Cash Flow Management on the Financial Performance of Listed Manufacturing Firms in Ghana

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Abstract
The study investigated the effect of cash flow management on financial performance of listed manufacturing firms in Ghana. Specifically, the study examined the effect of operating cash flows, investing cash flows, financing cash flows and free cash flows on financial performance. The study used a panel data of 10 conveniently selected firms over a 7-year period from 2012 to 2018. Pooled Ordinary Least Squares, Fixed Effect and Random Effect Models to analyze the data. The results indicates that operating cash flows has a negative and statistically significant impact on financial performance, investing cash flows does not have any significant effect on financial performance while financing cash flows has a direct and significant effect on financial performance. Lastly, free cash flow was found to have a positive and significant effect on financial performance of listed manufacturing firms in Ghana. The study concludes that policies by investors or equity holders should not focus entirely on investment cash flows but rather, operating cash flows, financing cash flows and free cash flows as they are found to significantly affect financial performance.
Keywords: Cash Flow management, financial performance, operating cash flow, investing cash flow, financing cash flow, free cash flow
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1. Introduction

Efficient use of scarce resources is the key to the success of any organization. This includes proper cash flow management to ensure a high return on equity for investors (Afrifa & Tingbani, 2018). Cash flow management is key to the effective and efficient operation of any business, as a profitable organization can experience liquidity problems if it does not manage cash efficiently(Liman & Mohammed, 2018a; Soet et al., 2018). This is because profit is not cash. Ali and Hamad (2021) and Gardi (2021) pointed out that an organization's financial performance depends on its ability to effectively manage cash flows from its operational, financial and investment activities.

Cash flow management involves managing the organization's working capital in the form of customer cash, trade payables, and inventories related to the organization's improved financial performance (Musah & Kong, 2019;

Tunio et al., 2020). According to IAS 7, companies' cash flows can be divided into operating, investing and financing activities. Its main purpose is to provide information about the company's cash receipts and cash expenditures and thus serves as a supplemental closure to the income statement and balance sheet (Gardi, 2021; Setiany, 2021).

The cash flow statement can serve as an important tool for decision-making in the organization, e.g. for financial planning, the organization's ability to generate income and expenses, a detailed insight into the operational and financing activities, the ability to determine stock prices and pay dividends to shareholders, among others (Günay & Fatih, 2020). It also helps in assessing the liquidity of a company in regarding the generation of cash and the payment of short-term debt (Rahman & Sharma, 2020). The cash flow statement reports the movement of cash and its equivalents over time and its impact on the management of cash operations (Adjei et al., 2018).

Globally, cash is vital to the business and continued survival of every business entity, including manufacturing companies. Cash is required on a daily basis to meet the Company's financial needs and other obligations as they come due. Managing the cash flows of the manufacturing industry can be challenging given the specifics of the industry. The slowdown in the growth rate of some of these companies may be related to the problem of poor cash and cash equivalents management, among others (Sabău-Popa et al., 2021).

Global fluctuations in the income statements and current financial results of many companies have occurred in most parts of the world. This is the result of a lack of understanding and application of cash flow management in day-to-day operations. This has caused many companies to become illiquid, while others eventually failed (Karas & Režňáková, 2020).

In Ghana, many companies, particularly the manufacturing industry, experience poor financial performance, which in turn affects the ability to handle the company's day-to-day obligations such as taxes, payroll delays and dividends, as well as dividends to their shareholders due to a lack of capital. The problems were mainly related to poor cash flow management. Therefore, it is important to know and understand the implications of cash flow management and how it impacts business performance.

The influence of cash flows on the financial performance of organizations is well researched in the literature (Agbata et al., n.d.; AL-NASSAFI, 2022; Liman & Mohammed, 2018b; Nugraha & Riyadhi, 2019) with little attention in Ghana (Adjei et al., 2018; Hamza et al., 2015; Malm, 2020), these studies examined the relationship between cash flows and performance from a static point of view. This study fills a gap by examining the relationship between longitudinal changes in cash flow metrics and changes in company performance over time. These methods help determine which cash flow metrics to monitor and which to manipulate to improve business performance. Also, no significant work seems to have been done on the impact of cash flow management on the financial performance of listed manufacturing companies in Ghana, with an additional emphasis on free cash flow (Nyamador, 2021; Opoku-Asante et al., 2022). This limited evidence in the Ghanaian context, along with the importance of cash flow management, is consistent with research on the impact of cash flow and financial performance in Ghana.

The banking sector cleanup in Ghana in recent times was necessitated by corporate governance failures and liquidity issues and it is imperative that, other sectors of the economy, especially the manufacturing take a cue from it. The effective and efficient cash flow management of manufacturing firms is the focus of this study.

2. Literature Review

Numerous studies have been conducted on the relationship between cash flow and the financial performance of companies. Mbula et al. (2016) examined the impact of receivables on company profitability. Using the ex post facto design, both variables were found to be positively related. Amah et al. (2016) examined the relationship between cash flow and financial performance of banks listed on the Nigerian Stock Exchange from 2005 to 2013. Analysis of data using correlation and regression techniques and net income as a proxy firm's performance, the study revealed that cash flows from operating activities have a strong positive relationship with performance, while cash flow from financing activities have a negative relationship with performance.

Tonni, Moeljadi, Atim and Kusuma (2016) examined the effect of company-specific variables; free cash flows, leverage and interest on stock returns with financial performance as intervening variables. The study used data from 51 companies listed on the Indonesian Stock Exchange for the period 2009-2013. According to the results of the study, the insignificant impact of free cash flows on the company's return on shares was noted. Liman and Mohammed (2018a) studied the impact of cash flow on the financial performance of five (5) listed conglomerates in Nigeria. Secondary data obtained from the company's annual reports and financial statements for the period 2005 to 2014 was used for the study. By introducing descriptive, correlation and panel data regression analysis, the study found that operating cash flow had a negligible positive impact on a company's financial performance as measured by ROA.

Kamran et al. (2017) studied the influence of cash flow on the profitability of listed companies in the Karachi period from 2010 to 2014. According to the study, free cash flow was significantly positively related to corporate profitability. Lai et al. (2020) examined the impact of free cash flow on corporate performance in Malaysia. Panel

data for the period from 2008 to 2012 was used for the study. The study's regression analysis indicates that free cash flow had a significantly inverse effect on the company's financial performance as measured by ROA and Tobin's Q.

Sadaf and Junaid (2016) discussed the impact of free cash flow on the profitability of 30 companies on the Karachi Stock Exchange. The study used data for the period from 2010 to 2014. The results of the study showed that free cash flow had a significant positive impact on the company's profitability.

Rahman and Sharma (2020) conducted a study on the effect of cash flow on financial performance of insurance and manufacturing companies in Saudi Arabia. Using data from the annual reports of companies considering Return on Assets (ROA) and Return on Equity (ROE) as dependent variables, operating cash flow as an explanatory variable, firm size and Leverage as control variables, and an industry dummy. The study showed a significant positive relationship between operating cash flow and financial performance and a negative association for size and Leverage

Ogbeide and Akanji (2017) discussed the relationship between cash flows and the financial performance of insurance companies in Nigeria. The study used time series data from twenty-seven (27) listed insurance companies for the period 2009 to 2014. The cash flows had a significant impact on the economic performance of the companies through the OLS regression estimation.

Mohammed and Yusheng (2019) examine the relationship between cash flow and corporate financial performance of companies listed on the Ghana Stock Exchange using data from fifteen (15) companies. Using Pearson's product-moment correlation coefficient, their result showed that cash flows had a statistically significant positive correlation with the business performance of companies, measured by ROA. An insignificant positive relationship between cash flows and ROE and ROCE was also shown by the result.

3. Methodology

The study examined the effect of cash flow on the financial performance of listed manufacturing firms on the Ghana Stock Exchange as at august 2018. The study used the annual report available on their website from 2012 to 2018. The study used purposive sampling technique to select 10 manufacturing firms listed on the Ghana Stock Exchange. These firms include Alu Works, Sam Woode, Benso Oil Palm, Cocoa Processing Company, Camelot Ghana, Guinness Ghana, PZ Cussons, Unilever Ghana, Fan Milk Limited and Mechanical Lloyd Limited.

The study analyzed the data using the pooled OLS, fixed and random effect estimation techniques. Also the study used the hausman test to determine whether fixed or the random effect best explains the estimations. This study made good use of Diagnostic Checks such as Breusch-Pagan/ Cook-Weisberg test for the presence of iheteroskedasticity, the Variance Inflating Factors for the presence of multicollinearity, the Breusch-Godfrey test for the presence of serial correlation and the Jarque-Bera test for normality tests to determine the reliability of the econometric model used for the study.

3.1. Measurement of Variables

Financial performance which is measured as return on equity (ROE) and return on asset (ROA) was used as the dependent variable for the study. While operating cash flow (OCF), investing cash flow (ICF), financing cash flow (FCF) and free cash flow (FrCF) were used as the independent variables. The control variables for the study were firm age, firm size, and financial leverage (Lev). The definitions of these variables are indicated in table 1

Table 1. Variable, Description and Measurement, and a'Priori Expectation of Parameters

Variable	Description and Measurement	a'Priori Expectation
ROA	return on Asset measured as the ratio of net income to total assets	N/A
ROE	return on equity is measured as the ratio of net income to shareholders equity	N/A
OCF	Operating cash flow measured as the cash flows from operating activities	+/-
ICF	Investing cash flow is measured as cash flow from investing activities	+/-
FCF	Financing cash flow is measured as cash flow from financing activities	+/-
FrCF	Free cash flow measured as net income plus depreciation less working capital.	+/-
Age	Firm age is measured as the total number of years the firm has been in operation	+/-
Size	Firm size is measured as the natural log of the total asset	+/-
Lev	Financial leverage is measured as the ratio of total asset to total liabilities	+/-

Source: Author's Construct (2023)

3.2. Model Specification

Following Rahman and Sharma (2020), the researcher specifies the relationship between cash flow management and financial performance as:

$ROE/ROA_{it} = \alpha + \beta_1 OCF_{it} + \beta_2 ICF_{it} + \beta_3 FCF_{it} + \beta_4 FrCF_{it} + \beta_5 Age_{it} + \beta_6 Size_{it} + \beta_7 Lev_{it} + \mu_{it}$……………………………………………………………….(1)

Where ROE/ROA_{it} where ROE is return on equity and ROA is return on asset which is used as the measure of financial performance of the ith firm at time t, OCF_{it} represent the operating cash flows of the ith firm at time t, ICF_{it} represent the investing cash flows of the ith firm at time t, FCF_{it} represent the measurement of financing cash flows of the ith firm at time t, $FrCF_{it}$ represent the measurement of free cash flow of the ith firm at time t, Age_{it} represent the measurement of firm age of the ith firm at time t, $Size_{it}$ represent the measurement of firm size of the ith firm at time t, Lev_{it} is financial leverage of the ith firm at time t, α is the intercept and β is the coefficient in the model whilst μ represents the error term.

4. Results and Discussions

This section presents and discusses the empirical results of the study. The summary statistics of the variables, correlations analysis and the regression results of the data collected are presented in this section.

4.1. Descriptive Analysis

This section presents the mean, standard deviation, the minimum and maximum values of the variables as shown in table 2.

Table 2: Descriptive statistics on cash flow management and financial performance.

Variable	Mean	Std. Dev.	Min	Max
ROA	0.086	0.094	-0.097	0.345
ROE	0.036	2.178	-16.282	4.123
OCF	0.039	0.108	0	0.342
ICF	0.323	0.369	0	0.891
FCF	0.209	0.240	0	0.745
Size	14.928	2.810	10.675	18.898
Age	3.679	0.299	2.995	4.094
Lev	6.741	33.505	0.051	267.549
FrCF	12.784	3.399	5.834	18.673

Source: **Author's Construct (2023)**

Table 2 shows that the average Returns on Asset is approximately 0.086. This means that for every GHS1.00 asset owned, the respective firms achieve about 8.6 pesewas in return. On the average, Returns on Equity of the manufacturing companies over the years is approximately 0.036. This implies that for every GHS 1.00 equity owned, the equity holders achieve a profit of about 3.60 pesewas in returns. On the average, the operating cash was 0.039, which means that for every GHS 1.00 invested, a return of 3.6 pesewas is generated. This means that the firms spends more than what they make from operations. Investing cash flow was averagely 0.323 means for every GHS1.00 raised from equity or debt, a returns of GHS 3.23 is generated which will make it difficult for repayment. Financing cash flow was 0.209. The free cash flow also recorded an average of 12.784. With regards to the control variables, the mean size of the firms is 14.92, suggesting that listed firms can offer about 15 different products or services to their clients simultaneously. The mean age of the firms is approximately 36 years, which implies that, the selected listed manufacturing firms have been in Ghana for a long period of time and are therefore deemed to be conversant with the market system, which may have positive implications with regards to their financial performance.

The average financial leverage for the firms over the study period was about 6.74. This suggests that for each GHS1 investment, the firms use about GHS6.74 debt to finance their investment activities and to increase the returns of the investment. This is an indication that the firms rely heavily on their debt when undertaking financial transactions.

4.2. Correlation Analysis

Table 3 presents the correlation analysis of the variables, the results shows a weak negative and statistically significant linear correlation between operating cash flows and investing cash flows at the value of -0.373. Investing cash flow was found to have a weak, but a statistically significant negative linear correlation with age at -0.452. This relationship was found to be significant at the 5% level of significance. Adding, a weak negative and a statistically significant linear association was found between cash flows from investing activities and firm size at -0.324.

Surprisingly, size and cash flow happened to have a strong positive linear relationship at 0.576, statistically significant at the 5% level. Finally, financial leverage and cash flow were found to have a strong positive and statistically significant linear association at 0.566, significant at the 5% level of significance. However, since correlation does not imply causality, the researcher proceeded further to employ a panel data regression analysis to estimate the actual effects of operating cash flows, investing cash flows, financing cash flows, free cash flows,

age, size and financial leverage on the financial performance of Ghanaian listed manufacturing firms. Again, a cursory look at the correlation matrix reveals that none of the variables are correlated with each other, suggestive of the non-existence of multicollinearity amongst the variables.

Table 3: Correlation Analysis

	OCF	ICF	FCF	FrCF	Age	Size	Lev
OCF	1.000						
ICF	-0.006	1.000					
FCF	-0.373*	0.044	1.000				
FrCF	-0.027	-0.452*	-0.059	1.000			
Age	0.200	0.090	0.061	-0.119	1.000		
Size	0.043	-0.324*	0.084*	0.576*	0.132	1.000	
Lev	-0.043	0.009	-0.034*	0.566*	-0.139	0.201	1.000

** Denotes statistical significance at 5% level.*
Source: Author's Construct (2023)

4.3. Model Selection: Pooled OLS/Fixed Effect versus Random Effects

The model was to examine the effect of institutional ownership on financial performance among listed firms in Ghana using panel data regression which can be pooled, fixed-effects or random-effect model. The study determined whether fixed effect or random effect model was appropriate using Hausman Specification Test. Random effect is correlated with the independent variable whereas the fixed-effect does not correlate with the variables. The decision rule, for Hausman Specification test is rejecting the null hypothesis when the p-value is significant. Since the p-value of the Hausman Test is 0.93 for ROA model and 0.97 for ROE model which are all greater than the 5% significance level, the study does not reject the null hypothesis and therefore concludes that random effect model is appropriate. The results of the Hausman Test are displayed on the regression results Table 4.3.

4.4. Regression Analysis

This section presents the regression results of the study. The Pooled OLS, Fixed Effect Model (FEM) and Random Effect Models (REM) are presented for both dependent variables Return on Asset (ROA) and Return on Equity (ROE)

Table 4: Regression results on the effect of cash flow management on financial performance

	ROA			ROE		
	Pooled OLS	FEM	REM	Pooled OLS	FEM	REM
OCF	-0.181**	-0.012*	-0.012**	-0.192***	-0.185***	-0.185***
	(-2.43)	(-1.77)	(-1.91)	(-4.01)	(-3.78)	(-3.98)
ICF	-0.002	-0.010	-0.009	0.008	-0.005	-0.002
	(-0.33)	(-1.54)	(-1.44)	(0.20)	(-0.12)	(-0.06)
FCF	0.011	0.066	0.051	0.926***	0.925**	0.892***
	(0.22)	(1.23)	(1.04)	(2.65)	(2.46)	(2.60)
FrCF	0.004	0.002	0.009	0.009**	0.003**	0.001**
	(0.92)	(1.11)	(1.72)	(2.37)	(1.92)	(1.73)
Age	-0.017	-0.244	-0.048	-0.681***	-2.020	-1.742
	(-0.47)	(-1.05)	(-0.54)	(-2.82)	(-1.24)	(-1.56)
Size	-0.015**	0.004*	-0.019*	-0.002	0.168	-0.015
	(-3.17)	(0.01)	(-1.65)	(-0.08)	(0.62)	(-0.25)
Lev	0.005	-0.009	-0.005	-0.066***	-0.071***	-0.067***
	(-1.53)	(-1.69)	(1.42)	(-24.97)	(-17.84)	(-24.85)
Obs.	63	63	63	63	63	63
Overall R^2	0.368	0.090	0.275	0.940	0.723	0.945
F-Stats	3.610	2.130	15.92	139.72	139.50	1056.49
P-value	0.000	0.005	0.025	0.000	0.000	0.000
Hausman		2.13			2.74	
Prob>Chi^2		0.952			0.907	

***Source:* Author's Construct (2023)**

The study examines the effect of institutional ownership on the profitability of some selected listed manufacturing firms in Ghana using panel data regression. Table 4. measures the proportion of the variation in the dependent variables (ROA/ROE) that was explained by variations in the independent and control variables (operating cash flows, investing cash flows, financing cash flows, free cash flows, age, firm size, and financial

leverage). The R Square value of 0.946 from the regression model indicates that the independent and control variables explain about 94.6% of the dependent variable. This indicates that, approximately 5.4% of the variation of financial performance can be explained by other variables outside the model.

The results in Table 4 shows that the overall model is statistically significant as the F-test of ROA and ROE was 15.92 and 1056.49 respectively and the p-values of 0.000 for both ROA and ROE are less than 0.05. This indicates that the ROA and ROE strongly explain the independent variables; operating cash flows, investing cash flows, financing cash flows, free cash flows, age, firm size, and financial leverage. This is a clear indication that these cash flow management strategies adopted by the listed manufacturing firms has a significant impact on their financial performances (ROA and ROE). It implies that the variables jointly significant in explaining the variation in the ROA and ROE realized by the firm over the period 2012 - 2018.

The coefficient of operating cash flows (-0.185) is negative, which is also statistically significant at 1%. This indicates an inverse relationship between operating cash flows and ROE. Thus, an increase in the net cash generated from their operating activities eventually leads to a fall in financial performance. This result is consistent with authors such as Libby et al. (2014) who indicated in their work that operating cash flows and working capital management is crucial in the success of the operations of the firm. Further, an empirical investigation by Jabbari et al. (2013) found an inverse and statistically significant impact of net cash generated from operations on financial performance. On the contrary, Oyadonghan and Bingilar (2014) found out that operating cash flows have significant positive relationship with corporate performance.

The coefficient of investing cash flows is negative, suggesting that there is a negative relationship between cash flows from investing activities and returns on asset. This relationship is found to be statistically insignificant. The magnitude of the coefficient indicates that, increasing net cash generated from investment activities does not have any impact on both asset and equity returns. This results stem from the basic premise that maybe listed manufacturing firms purchase more long-term assets than what they were able to sell. Since long term assets may have future benefits, it tends not to have any effect on the profitability of the firm in the short run. This result is supported by empirical findings from Taillard (2012) who also documented no relationship between net cash flows from investment activities and financial performance.

From Table 4, financing cash flows have a positive impact on ROE. This means that, cash generated from financing activities and ROE move in the same direction, such that, a unit increase in the net cash generated from financing projects to an improvement in the equity returns by approximately 0.89, all other things being equal. This result was also statistically significant at 1%. The result may come as a result of the fact that the firms are able to adequately manage excesses from cash investments of company owners, cash repayments of loans, cash dividends received by shareholders and the supply of stocks or bonds and are therefore able to influence positively, their stock market returns. The result is supported with evidence by Kramer and Johnson (2009) and Williams, et al., (2014) who also reported a positive and statistically significant impact of financing cash flows on profitability. Oyadonghan and Bingilar (2014) also revealed that financing cash flows have significant positive relationship with corporate performance.

Free cash flow has a positive relationship with ROE. This means that free cash flow and equity returns move in the same direction such that a unit increase in free cash flow is meant to increase returns to equity holders by approximately 0.001, all other things held constant. This result is statistically significant at the 1%. The results could be attributed to the fact that the listed manufacturing firms invest their excess cash into projects that have positive net present values and are therefore able to improve upon their financial performance. Consistent with the study by Mwangi et al. (2014) prior to the agency cost theory, an increase in free cash flow will increase investment levels as a manager who has a considerable free cash flow might over-invest so as to increase their personal compensation as well as market value of the firm.

The study also shows an inverse relationship between firm size and ROA. The estimates show that an increase in the size of listed manufacturing firms is found to worsen ROA by -0.019. This result is statistically significant at the 10%. This result implies that as manufacturing firms listed on the GSE expands in size the oversight function exercised by its management suffers. This is largely due to the bureaucratic nature of operations mostly seen by firms as they expand in size. This tend to reduce the continuous flow of operational activities by the firms and hence, a reduced profit. The result contradicts the trade-off theory which stipulates that larger firms tend to be more diversified in terms of corporate governance measures and are therefore less prone to bankruptcy than firms with less diversified governance structures, which tend to reflect in their stock returns.

From Table 4, the coefficient of financial leverage is negative, suggesting that there is a negative relationship between leverage and ROE. This relationship is found to be statistically significant at the 1% level. The magnitude of the coefficient, ceteris paribus, increasing financial leverage by a unit will result in a fall in ROE by -0.067. This finding is consistent with Enekwe et al. (2015) who reported that debt ratio and debt-equity ratio have negative relationship with equity returns. Similarly, Al-Tally (2014) who examined the effects of financial leverage on firm performance among Saudi Arabia's listed firms reported that lower leverage levels tend to lead to higher profit margins and returns on both assets and equity.

4.5. Diagnostic Tests

Table 5 reports the results of the diagnostic test for the estimated models. The correlation matrix on Table 3 indicates that none of the variables are perfectly correlated with each other. This is confirmed by the results of the multicollinearity test using the Variance Inflating Factor (VIF) of 1.63, within the acceptance range of 1-10. It can thus be concluded that the data does not suffer from the problem of multicollinearity.

The model passed the normality test. Based on the p-value of 0.000 of the Jarque-Beranormality test, it can be concluded that the residuals are normally distributed across observations. The results of the Wooldridge test for autocorrelation in panel data indicates a p-value greater than 0.05 which implies that there is no serial correlation in the data. The Breusch-Pagan test for Heteroskedasticity test shows a p-value of about 0.014 which is less than the p- value of 5%. That is, we accept that there is heteroskedasticity and conclude that the error terms are changing over time.

Table 4: Diagnostic Tests

Test Statistic	Chi/F Version
Normality Test	Chi(2) = 0.000
Serial Correlation	Chi(2) = 0.198
Heteroskedasticity Test	Chi2(1) = 0.014

Source: Author's Construct (2023)

5. Conclusions

The importance of cash flow management to the financial success of every organization is critical. Effective cash flow management enhances the efficiency of financial planning by management. The recent development in Ghana's financial sector calls for an urgent need for the sectors such as manufacturing to ensure an efficient and effective management of cash flow. The study investigated the effect of cash flow management on the financial performance of manufacturing firms in Ghana. The results of the study indicated that, manufacturing firms who increase their net cash generated from their industrial activities worsens their profitability levels. Again, listed manufacturing companies who generates more cash from their investment projects does not change their current asset and equity returns. Furthermore, firms who generates more cash from their financing activities was found to significantly improve upon their financial performance. Finally, free cash flows were found to have a negative and statistically significant effect on equity returns. The study can conclude that policies by investors/equity holders should not focus entirely on investment cash flows but rather, operational cash flows, financing cash flows and free cash flows as they are found to significantly affect financial performance.

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