


# “Cash flows and financial performance in the industrial sector of Saudi Arabia: With special reference to Insurance and Manufacturing Sectors”

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<b>ARTICLE INFO</b>	Abdul Rahman and Raj Bahadur Sharma (2020). Cash flows and financial performance in the industrial sector of Saudi Arabia: With special reference to Insurance and Manufacturing Sectors. <i>Investment Management and Financial Innovations</i> , 17(4), 76-84. doi: <a href="https://doi.org/10.21511/imfi.17(4).2020.07">10.21511/imfi.17(4).2020.07</a>
<b>DOI</b>	<a href="http://dx.doi.org/10.21511/imfi.17(4).2020.07">http://dx.doi.org/10.21511/imfi.17(4).2020.07</a>
<b>RELEASED ON</b>	Friday, 06 November 2020
<b>RECEIVED ON</b>	Monday, 05 October 2020
<b>ACCEPTED ON</b>	Monday, 02 November 2020
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<b>JOURNAL</b>	"Investment Management and Financial Innovations"
<b>ISSN PRINT</b>	1810-4967
<b>ISSN ONLINE</b>	1812-9358
<b>PUBLISHER</b>	LLC “Consulting Publishing Company “Business Perspectives”
<b>FOUNDER</b>	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

**36**



NUMBER OF FIGURES

**0**



NUMBER OF TABLES

**5**

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## BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"  
Hryhorii Skovoroda lane, 10,  
Sumy, 40022, Ukraine  
[www.businessperspectives.org](http://www.businessperspectives.org)

**Received on:** 5<sup>th</sup> of October, 2020

**Accepted on:** 2<sup>nd</sup> of November, 2020

**Published on:** 6<sup>th</sup> of November, 2020

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**Conflict of interest statement:**

Author(s) reported no conflict of interest

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# CASH FLOWS AND FINANCIAL PERFORMANCE IN THE INDUSTRIAL SECTOR OF SAUDI ARABIA: WITH SPECIAL REFERENCE TO INSURANCE AND MANUFACTURING SECTORS

## Abstract

A firm with proper cash flow management can increase its financial performance, while improper management might lead to financial failure. Therefore, it is significant for a firm to manage cash inflows and outflows properly. The current study investigates the effect of cash flow from operations (CFOs) on the financial performance of insurance and manufacturing companies in Saudi Arabia. The data were extracted from companies' annual reports by considering Return on Assets (ROA) and Return on Equity (ROE) as dependent variables, CFOs as an explanatory variable, firm size (SIZE) and Leverage (LEV) as control variables, and an industry dummy. The results report a positive and significant association between financial performance (ROA and ROE) and operating cash flows (CFOs), and a negative association for SIZE and LEV. Therefore, the study concludes that the firms' operating cash flows in the insurance and manufacturing sectors in Saudi Arabia affect financial performance.

## Keywords

operating cash flows, return on assets, return on equity,  
insurance, manufacturing, Saudi Arabia

## JEL Classification

L25, L61, M41

## INTRODUCTION

Financial performance evaluation is one of the most important concerns of all companies that use distinct financial resources to undertake successful projects to achieve profit maximization and wealth maximization. In this context, every business's economic prosperity involved in product and service activities depends upon the efficient and effective cash management within and outside the organization (Liman & Mohammed, 2018). A firm merely being profitable does not mean that it is financially stable. A firm's financial performance vests with its policies and cash flows and is determined with the help of return on assets (ROA), return on equity (ROE), and the objective is that the firm should be capable of generating cash through operating, financing and investing activities. Moreover, a firm's failure in compliance with proper management in operating cash flows might lead to a decrease in financial performance. Therefore, every firm should be able to manage its cash flows to reach the level of performance.

The cash flow statement is significant in its role in improving the efficiency and effectiveness of decisions by the decision making body in terms of proper financial planning, firm's earning capability and its spending, deep insight into the areas of operating activities and financing activities, stock pricing ability and payment of dividends to stockholders, etc. It also helps evaluate the company's liquidity posi-

tion in terms of cash generation and payment of short-term obligations (Alslihat & Al-nimer, 2017). This statement reports the movement of cash and its equivalents over time and its impact on the cash management of business (Atrill & McLaney, 2011; David et al., 2018).

Gombola et al. (1987) are the initiators in examining the impact of operating cash flows in predicting bankruptcy during the 1970s and found an insignificant relationship with corporate bankruptcy. They believed that the operating cash flow of a firm is a weak predictor of financial failure. There is a non-linear relationship between cash holding and financial performance for the listed and non-listed firms of Saudi Arabia (Alnori, 2020). The main aim of establishing companies is dynamism, corporate diversification, and earnings growth measured through different financial factors. Further, a firm's success depends upon its long-term investment, which requires a large amount of cash holdings in hand. Therefore, the spending of a huge amount of cash holdings on investments might have a negative impact on financial performance (Liman & Mohammed, 2018).

The companies in the insurance industry of Saudi Arabia face strong competition among themselves and the government, self-insurance, and other retention groups. The insurance industry is compared with the insurance sector in the GCC region. The market research on the insurance industry of Saudi Arabia reported many insights on the emerging insurance applications. The economy of Saudi Arabia is growing at a rapid transformation speed. The manufacturing industry is largely being supported in the objective of transformation. The manufacturing sector's advancement can be visualized by the plan prepared at a large level, which consists of industrial hubs, advanced infrastructure, an advanced supply of materials, highly sophisticated transportation, etc. Therefore, the current study intends to carry out the impact of cash flow from operations on companies' financial performance under the manufacturing and insurance sectors.

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## 1. LITERATURE REVIEW

Farshadfar et al. (2008) examined the relative ability to earn and cash flow data in forecasting future cash flow for Australian companies. They found CFOs powerful in predicting future cash flows than earning and traditional measures. Salehi et al. (2018) studied the effect of cash flow statements on audit fees on the companies listed on the Tehran Stock Exchange and found that excess cash holdings reduce the audit fees. Amuzu (2010) studied individual data points from 2003 to 2005 for listed Ghanaian companies. He determined the use of cash flow analysis in selected enterprises in Ghana. It was found that the income statements and balance sheets would not show that Ghanaian companies operate in a similar way to developed countries like the US. It was found that some companies had spent an extremely large amount in buying assets in cash, which almost but not quite in a vulnerable position. Bradbury (2011) examined the impact of direct and indirect cash flow statements on firms' financial performance. He found that the format of direct cash flow reporting is better in predicting firms' performance compared to the indirect reporting of cash flows. Almajali et al.

(2012) investigated the factors affecting the performance of Jordanian insurance companies. They report a positive association of liquidity, leverage, size, and competence on selected insurance companies' financial performance.

Similarly, Sayari and Mugan (2013) studied the effect of cash flows on the firms' bankruptcy using its different aspects. They found a negative association of operating cash flows with the firms' bankruptcy, while the other aspects have a positive relationship. Bhandari and Iyer (2013) intend to forecast failures of business using CFOs. They analyzed by DA model and the cross-validated approach method and Chi-square test. They found that 83.3 percent originally grouped and 79.5 percent cross-validated by a cross-validated approach. Velnampy and Kajanathan (2013) analyzed cash position and profitability among listed telecommunication firms in Sri Lanka. They found a little change in study variables between the two listed firms. However, they proved a significant association between cash position ratios and return on equity and assets in Dialog Telecommunications. Khan et al. (2013) studied the impact of different financial ratios on

stock return. They concluded that the variation in capital structure and firm performance does affect the shares return of the Pakistani textile industry. Atieh (2014) investigated the liquidity position of the pharmaceutical sector of Jordanian companies. The results show a difference between the traditional ratios of balance sheets and cash flow ratios, which derived from the cash flow statement.

Further, a study by Afrifa (2016) examines the association between cash flows and firm performance. He suggested that the firms with sufficient cash flows should invest in working capital, while less cash flow firms should invest less to reach the performance level. Ikechukwu et al. (2015) studied the impact of operating cash flows on the banks' profitability. They found a positive association between operating cash flows and the profitability of the banking sector in Nigeria. D. Nguyen and A. Nguyen (2020) examined the effect of cash flow statements on commercial banks' lending decisions. They reported that the statement of cash flows play a significant role in the lending decisions of banks. Augustine and Jacob (2017) examined the impact of CFOs on the performance of Nigerian companies. They reported that variables such as cash conversion, cash deposits are positively associated with return on assets while cash flow and firm size are negatively related. Ogbeide and Akanji (2017) studied the effect of CFOs on Nigerian insurance companies' financial performance. The findings reveal that the cash flow determines a significant role in determining the insurance sector's financial performance. They recommended that frequent cash flow in the insurance sector makes cash flow negative and causes a financial crisis. Habrosh (2017) examined the significant impact of the Cash flow, profitability, liquidity, and Capital ratio on companies' financial performance listed in the Indonesian stock exchange. The research results indicate that operating cash flow, ROA, CAR had a significant effect on company financial performance. Ukhriyawati et al. (2017) studied the influence of assets structure, capital structure, and risk management on financial performance and free cash flow by using intervening variables in Indonesia's listed banking companies. They found that free cash flow influences positively and significantly financial performance, whereas earnings influence positively and significantly the companies' value.

Furthermore, Liman and Mohammed (2018) examined the impact of cash flow and Nigerian companies' corporate financial performance. They found a positive and insignificant impact between cash flow and operating activities, and financial performance. They recommended that increasing financial leverage reduces agency costs associated with equity. Gupta and Mahakud (2019) examined the impact of financial development on corporate investment and the effect of financial development on the investment cash flow sensitivity. The study employed a generalized method of moment (GMM) estimate technique, and the result revealed that cash flow affects the investment decision of company financial performance positively. Miletic (2014) examined the problems in the application of cash flow statements. He reported that the statements of large firms are effective, while that of small and medium firms needs improvement. Günay and Fatih (2020) studied tourism companies listed on Borsa İstanbul Tourism (BIST) using the MAIRCA hybrid model. They found that cash ratio, cash to sales, and cash to long-term debts are the most important criteria in assessing firms' financial performance. Dimitrijevic (2015) reviewed the manipulations in cash flow statements and balance sheets. He reported that the firms have many techniques of manipulations to show the best results to the public.

The empirical studies review shows that the researchers have used different sectors, variables in examining the impact of cash flow from operations on financial performance. From the studies reviewed, few studies report a positive impact and a vice-versa by other studies, and a few more studies report insignificant relationships. Moreover, no studies explain the relationship between operating cash flows and companies' financial performance in Saudi Arabia. Therefore, the current study might be considered an initiator in conducting such a relationship between the two important sectors of Saudi Arabia.

## 2. HYPOTHESES

The current study examining the impact of operating cash flows on financial performance has the following hypotheses:

$H_0$ : There is no relationship between the operating cash flows and firms' financial performance in the industrial sector of Saudi Arabia.

$H_1$ : There is a positive relationship between the operating cash flows and firms' financial performance in the industrial sector of Saudi

### 3. RESEARCH METHODOLOGY

The study examines the impact of operating cash flows on the companies' financial performance in the manufacturing and insurance sectors listed on the Tadawul stock exchange during the period 2015–2018 for insurance companies, while it is 2014–2018 for manufacturing companies. The study sample consists of five (5) companies from each sector totaling 10. The sample size of the current study depends upon the availability of financial data.

#### 3.1. Data collection and analysis

The data were collected from companies' financial reports and were used to calculate different financial ratios employed as dependent and independent variables in the study. Descriptive statistics, correlation, pooled regression was adopted for empirical analysis. Further, the study conducted diagnostic tests, such as the test of normality, heteroscedasticity, multicollinearity, etc. to examine the robustness of the results.

#### 3.2. Measurement of study variables

The study employed three types of variables. Firstly, the Return on Assets (ROA) and Return on Equity (ROE) are the dependent variables. Secondly, the Cash Flow from Operations (CFO) is the inde-

pendent variable, and thirdly, the Firm Size (SIZE) and Leverage (LEV) are the control variables. The definitions of these variables are given in Table 1.

#### 3.3. Estimated regression model

The study estimates a pooled regression to examine the impact of operating cash flows on the financial performance. This type of regression examines different cross-sectional firms over some time, and it is beneficial over the evaluations carried out either through time series or cross-section methods (Raheman & Nasr, 2007). The regression model is as follows:

$$ROA_{it} = \alpha_0 + \beta_1 CFO_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 DUM_i + \varepsilon_{it}, \quad (1)$$

$$ROE_{it} = \alpha_0 + \beta_1 CFO_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 DUM_i + \varepsilon_{it}, \quad (2)$$

$$ROA_{it} = \alpha_0 + \beta_1 CFO_{it} + \beta_2 SIZE_{it} + \beta_3 DUM_i + \varepsilon_{it}, \quad (3)$$

$$ROE_{it} = \alpha_0 + \beta_1 CFO_{it} + \beta_2 SIZE_{it} + \beta_3 DUM_i + \varepsilon_{it}, \quad (4)$$

where in as per Eqs. 1 and 2  $\alpha_0$  is the constant, while  $\beta_1$  is the coefficient of independent variable  $CFO$  that should be positive and significant to explain the financial performance,  $\beta_2$  and  $\beta_3$  are control variables, while  $\beta_4$  is the coefficient of dummy variable that should be positive and significant to explain the manufacturing industry. Further, as per Eqs. 3 and 4  $\beta_3$  is the coefficient of the dummy variable.

### 4. EMPIRICAL RESULTS

This section provides descriptive statistics of selected variables, correlation analysis, and results

**Table 1.** Definitions of dependent and independent variables

Variables	Definition	Sign
Return on Assets (ROA)	Net Income before Tax /Total Assets	-
Return on Equity (ROE)	Net Income before Tax and Preference Dividend/Total Shareholders' Equity	-
Operating Cash Flows (CFO)	Net cash from operating activities/Cash and cash equivalents	(+)
Firm Size (SIZE)	Log of Total Assets	(+) or (-)
Leverage (LEV)	Total Liabilities/Total Assets	(-)
Dummy (DUM)	'1' if it is a manufacturing industry and '0' if it is an insurance industry	(+)



of pooled regression. Table 2 reports the descriptive statistics, such as mean, standard deviation, minimum, and maximum.

**Table 2.** Descriptive statistics of study variables

Variable	Mean	Standard deviation	Minimum	Maximum
ROA	0.086	0.075	-0.052	0.277
ROE	0.158	0.149	-0.174	0.387
CFO	3.381	1.590	-0.801	23.70
SIZE	5.732	6.403	2.903	9.339
LEV	0.436	0.388	0.095	0.830
Observations	45			

Table 2 reports the descriptive statistics of study variables, such as mean, standard deviation, and minimum and maximum values. The return on assets (ROA) and return on equity (ROE) have a mean of 8.6% and 15.8%. This shows that the companies in the manufacturing and insurance industries are earning 9 after tax for every 100 worth of total assets, while it is 16 after tax for every 100 issued value of an equity share. The operating cash flows (CFO) has a mean of 3.38 and minimum and maximum values of -0.80 and 23.70. This shows

**Table 4.** Result of regression analysis

Model 1: ROA				
Variable	$\alpha$	$\beta$	t-statistic	p-value
CONSTANT	0.250	-	3.77	0.00
CFO	-	0.009	4.26	0.00
SIZE	-	-0.019	1.95	0.05
LEV	-	-0.160	1.55	0.13
DUM1	-	-0.026	0.34	0.73
R <sup>2</sup>			0.517	
Adj. R <sup>2</sup>			0.469	
F-statistic			10.71 (0.000)	
DW statistic			1.003	
Jarque-Bera			0.012 (> 0.05)	
$ROA_{it} = \alpha_0 + \beta_1 CFO_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 DUM_i + \varepsilon_{it}$				
Model 2: ROE				
Variable	$\alpha$	$\beta$	t-statistic	p-value
CONSTANT	0.295	-	2.28	0.02
CFO	-	0.011	2.76	0.01
SIZE	-	-0.027	1.38	0.17
LEV	-	-0.036	0.18	0.86
DUM1	-	-0.006	0.04	0.96
R <sup>2</sup>			0.223	
Adj. R <sup>2</sup>			0.145	
F-statistic			2.87 (0.03)	
DW statistic			1.087	
Jarque-Bera			8.11 (< 0.05)	
$ROE_{it} = \alpha_0 + \beta_1 CFO_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 DUM_i + \varepsilon_{it}$				

that the cash inflows are 2,370, while the cash outflows are 80, and generating cash flows of 338. The dispersion of CFO is also low at 1.59. The firm size has an average of 5.73, while the minimum and maximum values are 2.90 and 9.34. This shows that the companies in the manufacturing and insurance industries are of different sizes (small and large). The dispersion is also high. The leverage has a mean of 0.44, which shows that the companies under both the sectors hold 44% of debt in their capital structure, which is less than 50%, and has low dispersion.

**Table 3.** Correlation analysis of study variables

Variable	ROA	ROE	CFO	SIZE	LEVERAGE
ROA	1.0000	-	-	-	-
ROE	0.7168	1.0000	-	-	-
CFO	0.5989	0.2559	1.0000	-	-
SIZE	0.3302	-0.1899	0.5444	1.0000	-
LEV	-0.4945	0.1235	-0.4281	-0.8056	1.0000

Table 3 reports the correlation between the dependent and independent variables. The correlation ranges from -1 to 1. The correlation analysis

of Model 1, where *ROA* is the dependent variable, shows that *CFO* and *SIZE* are positively correlated with *ROA*, while *LEVERAGE* is negatively correlated with *ROA*. Similarly, the correlation analysis of Model 2, where *ROE* is the dependent variable, shows that *CFO* and *LEVERAGE* are positively correlated with *ROA*, while *SIZE* is negatively correlated with *ROA*. Further, the *CFO* has a positive and negative correlation with *SIZE* and *LEVERAGE*, and *SIZE* is negatively correlated with *LEVERAGE*.

#### 4.1. Regression analysis

This sub-section reports pooled regression results, estimated under Models 1, 2, 3, and 4. Since the Leverage is insignificant in Models 1 and 2, the study estimated Models 3 and 4 by eliminating Leverage as a control variable.

Table 1 reports the regression results of Models 1 and 2. The regression result of Model 1, where *ROA* is the dependent variable, reports that the relationship with operating cash flows (*CFO*) is positive and significant at the 1% level of significance. Further, the regression result of Model 2, where *ROE* is the dependent variable, reports the result

similar to Model 1. This shows that an increase in cash flows shall increase the financial performance and indicate that the companies' total assets are utilized adequately to generate cash inflows largely. The relationship of firm size with *ROA* is negative and significant at the 5% level of significance, while it is negative and insignificant with the *ROE*. Further, the relationship of financial leverage with *ROA* and *ROE* is negative and insignificant. The dummy variable that differentiates between the insurance and manufacturing industry shows a negative and insignificant impact on the manufacturing industry's financial performance (*ROA* and *ROE*). The  $R^2$  of Models 1 and 2 is 0.52 and 0.22, which shows that the variables *CFO* explains 52% of the *ROA* variation, *SIZE*, *LEV*, and *DUM1* in Model 1, while the variation is 22% in Model 2. Further, the JarqueBera test shows that residuals in Model 1 are normally distributed, while the residuals in Model 2 are not normal. Moreover, the result of the DW test statistic shows the non-presence of autocorrelation in both models.

Table 5 reports the regression results of Models 3 and 4. The control variable financial leverage (*LEV*) has been dropped from these two models since it was insignificant in Models 1 and 2. The operating

**Table 5.** Result of regression analysis

Model 3: ROA				
Variable	$\alpha$	$\beta$	t-statistic	p-value
CONSTANT	0.260		3.87	0.000
<i>CFO</i>		0.009	5.17	0.000
<i>SIZE</i>		-0.026	2.84	0.006
<i>DUM1</i>		-0.129	3.22	0.002
$R^2$			0.488	
F-statistic			13.03 (0.000)	
DW statistic			1.092	
Jarque-Bera			0.49 (> 0.05)	
$ROA_{it} = \alpha_0 + \beta_1 CFO_{it} + \beta_2 SIZE_{it} + \beta_3 DUM_{it} + \varepsilon_{it}$				
Model 4: ROE				
Variable	$\alpha$	$\beta$	t-statistic	p-value
CONSTANT	0.297		2.33	0.024
<i>CFO</i>		0.011	3.09	0.003
<i>SIZE</i>		-0.028	1.64	0.109
<i>DUM1</i>		-0.029	0.38	0.700
$R^2$			0.222	
F-statistic			3.91 (0.02)	
DW statistic			1.095	
Jarque-Bera			8.34 (<0.05)	
$ROE_{it} = \alpha_0 + \beta_1 CFO_{it} + \beta_2 SIZE_{it} + \beta_3 DUM_{it} + \varepsilon_{it}$				

cash flow, which is the main explanatory variable in the study, is positive and significant with ROA and ROE at the 1% level of significance. The relationship of firm size with ROA is negative and significant at the 1% level of significance, while it is negative and insignificant with the ROE. The dummy variable, which differentiates between the insurance and manufacturing industry, shows a negative and significant impact on the manufacturing industry's financial performance (ROA). The  $R^2$  of Models 3 and 4 is 0.49 and 0.22, which shows that the variable CFO explains 52% of the variation in ROA, SIZE, and DUM1 in Model 3, while the variation is 22% in Model 4. Further, the Jarque-Bera test shows that residuals in Model 3 are normally distributed, while the residuals in Model 2 are not normal. Moreover, there is no autocorrelation in both models.

## 5. DISCUSSION

The current study examines the impact of operating cash flows on insurance and manufacturing sectors' financial performance in Saudi Arabia. The results reported in the previous sub-section show that the operating cash flow has a positive impact on the financial performance (ROA and ROE) of both the insurance and manufacturing sectors. This demonstrates that an increase in cash flows in these sectors shall enhance their financial performance. Further, the companies in these sectors are maintaining sufficient assets and effectively utilizing them. The result is consistent with the studies of Ogbeide and Akanji (2017),

Velnampy and Kajanathan (2013), Habrosh (2017), Augustine and Jacob (2017), Almajali et al. (2012), Gunay and Fatih (2020), Ateih (2014), Ukhriyawati et al. (2017), Ikechukwu et al. (2015) and inconsistent with the studies of Liman and Mohammed (2018), Amuzu (2010).

Further, the association between firm size and financial performance (ROA) is negative and significant, while it is insignificant with ROE. This shows that the companies selected as a sample are smaller, and hence managers might be showing less interest in the companies' growth that ultimately increases their benefits. Moreover, the size of the company does not have any impact on the shareholders' benefits. This is consistent with the previous studies of Azhar and Ahmed (2019), Abeyrathna and Priyadarshana (2019), Hirdinis (2019), Sundas (2019). Further, there is a negative and insignificant association between financial leverage and financial performance. This shows that the insurance and manufacturing sectors' firms are maintaining a feasible amount of debt, which might increase the firms' value. Even though insignificant, the result is consistent with the previous studies of Liman and Mohammed (2018), Gheshlaghi et al. (2014), Rajkumar (2014), Innocent et al. (2014).

Therefore, the results discussed above confirm that the firms' operating cash flows in the insurance and manufacturing sectors in Saudi Arabia affect profitability. This shows that the cash inflow in these sectors is more than the cash outflow, as evidenced in the summary statistics.

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## CONCLUSION

Every firm's important concern is to evaluate its financial performance, which in turn depends upon the effective utilization of cash flows. To improve the efficiency and effectiveness in management decisions in terms of financial planning, the cash flow statement plays a significant role. Moreover, the Kingdom of Saudi Arabia is venturing at a rapid pace to transform its economy from oil to non-oil sector, and further plans are prepared to advance the manufacturing sector. Therefore, it becomes significant to examine the impact of operating cash flows on companies' financial performance in the insurance and manufacturing sectors. The study considered ROA and ROE as dependent variables, CFOs as an independent variable, SIZE and LEV as control variables, and a dummy variable to recognize the sectors. The results report a positive and significant association between financial performance (ROA and ROE) and operating cash flows (CFOs), demonstrating an increase in financial performance due to an increase in cash flows and vice versa. The control variables, such as SIZE and LEV, are negatively associated with financial performance. The dummy variable, which differentiates between the insurance and manufacturing industry, is negatively associated with financial performance (ROA). Therefore, it can be concluded that the firms' operating cash



flows in the insurance and manufacturing sectors in Saudi Arabia affect financial performance. This study can be extended in several ways, firstly by including other financial performance measures, such as Tobin's Q, secondly by increasing the sample size, thirdly by making a comparative study between the insurance and manufacturing sectors, and lastly by including working capital as a dependent variable.

## AUTHOR CONTRIBUTIONS

Conceptualization: Abdul Rahman, Raj Bahadur Sharma.

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Formal analysis: Abdul Rahman.

Investigation: Abdul Rahman, Raj Bahadur Sharma.

Methodology: Abdul Rahman.

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Writing – original draft: Abdul Rahman, Raj Bahadur Sharma.

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