THE IMPACT OF INTANGIBLE ASSETS AND FIRM-SPECIFIC FACTORS ON CASH FLOWS: AN EMPIRICAL ANALYSIS OF PUBLIC FIRMS LISTED ON THE PAKISTAN STOCK EXCHANGE

FIAZ AHMAD SULEHRI[1], MUHAMMAD RIZWAN[2], ISMAIL SENTURK[3]

ABSTRACT

Cash flow plays a vital role to bring many benefits to the smooth functioning of the financial system and the economy as a whole. So, it is interesting to study factors affecting cash flow. This study has examined the impact of intangible assets and firm-specific factors on cash flow. We have done our empirical analysis of public firms listed on the Pakistan stock exchange for the years 2009 to 2020. The data has been collected from the financial statements of automobile sectors which are listed on public firms on the Pakistan stock exchange (PSX). Cash flow is most significantly influenced positively by the results that are expected to be generated by intangible assets. The firm size has a negative and significant impact on cash flow. The estimated results of firm growth have a significant and positive impact on cash flow. The estimated profitability results have a significant and negative impact on cash flow. The estimated results of earnings volatility have an insignificant and negative impact on cash flow. The overall results conclude that selected explanatory variables play an important role in determining the level of cash flow.

Keywords: Cash Flow, Intangible Assets, Firm Size, Growth Opportunity, Profitability, Earnings Volatility
JEL Codes: G12, L25

1. INTRODUCTION

Pakistan Stock Exchange (PSX) presents the overall macroeconomic situation of the country, any fluctuations in stock market have immediate and long run effects on real sector (Sulehri and Naeem, 2018; Naeem and Sulehri, 2019; Sulehri and Khan, 2020; Sulehri and Ali, 2020; Sulehri et al., 2021; Sulehri and Sharif, 2022; Audi et al., 2022; Senturk et al., 2022). One of the largest sectors of PSX is automobile. The automobile industry includes companies and organizations involved in the design, development, manufacture, marketing, and sale of automobiles. It is one of the largest companies in the world by revenue (from 16% in countries like France to 40% in countries like Slovakia). It is also the company that invests the most in research and development of the company. Early car manufacturing involved manual assembly by a human worker. The process evolved from engineers working on a stationary car, to a conveyor belt system where the car passed through multiple stations of more specialized engineers. Starting in the 1960s, robotic equipment was introduced to the process, and today most cars are produced largely with automated machinery.

The automobile industry in Pakistan is one of the fastest growing industries in the country, increasing by 171% between 2014 and 2018 only. It represents 3 percent of Pakistan's GDP and employs a workforce of over 3.5 million people as of 2018. 35th largest producer of automobiles. Its contribution to the national treasury is about 50 billion yen (220 million US dollars). The Pakistani auto market is one of the smallest but fastest growing in Asia. 269,792 cars were sold in 2018, but that fell to 186,716 in 2019 as a result of austerity measures. Honda, Toyota, and Suzuki currently dominate the car market. However, on March 19, 2016, Pakistan passed the "2016-21 Auto Policy", which provides tax incentives to new car manufacturers to set up factories in the country. In response, Renault, Nissan, Proton Holdings, Kia, SsangYong, Volkswagen, FAW, and Hyundai have shown interest in entering the Pakistani market. MGJW Automobile Pakistan has signed a Memorandum of Understanding (MoU) with Morris Garages (MG) Motor UK Limited to bring electric vehicles to Pakistan. NLC has signed an agreement with Mercedes Benz to

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[1] Lahore School of Accountancy and Finance, University of Lahore, Pakistan
[2] Lahore School of Accountancy and Finance, University of Lahore, Pakistan
[3] Department of Economics, Tokat Gaziosmanpasa University, Turkey

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manufacture Mercedes Actros trucks in Pakistan. Pakistan has not implemented any automotive safety standards or model upgrade policies. Suzuki continues to sell several of its older models, including the Bolan and Ravi. On July 8, 2021, Jolta Electric started producing electric motorcycles.

The cash flow statement is one of the most important governance documents for a company's existence. A Cash flow statement is a vital activity to establish the liquidity of a firm to monitor, evaluate, and maximize the net value earned. Understanding the elements that impact cash flow is important for efficient cash flow management. Since the beginning of 1966, the world has been more focused on cash flow and cash flow index studies. Cash flow is seen as a key indicator of an organization's financial health. Cash flow is important not just for credit ratings, but also for predicting the danger of bankruptcy for businesses. The failure of Lehman Brothers served as a wake-up call to firms that were mismanaging their cash flow. The cash-flow problem might have an impact on productivity and product quality (Nguyen, 2020).

The cash flow statement plays a critical role in improving the efficiency and effectiveness of decision-making in terms of proper financial planning, the firm's earning capability, spending deep insight into the areas of operating and financing activities, stock pricing ability, and dividend payment to stockholders among other things. It also aids in determining the company's liquidity status in terms of cash creation and short-term debt repayment. This statement shows how cash and its equivalents have changed over time and how it has affected corporate cash management (Harvey, 2013). These activities can contribute to the cash flows of an organization. Cash flows that are related to operating activities are referred to as Cash Flows from Operating Activities or Operating Cash Flows. These cash flows include things like net income as well as changes in current assets and liabilities (that are not tied to financing activities). Cash Flows from Investing Activities or Investing Cash Flows are the aggregate of sales and purchases of fixed assets. Cash Flows from Financing Activities include equity and debt changes (Ross et al., 2008; Alim et al., 2022).

This paper discusses the impact of intangible assets and firm-specific factors on cash flow to understand that cash flow is a topic of discussion among researchers and policymakers. Different studies (Rahman and Sharma (2020); Dahir et al., 2018; Mazloom et al., 2013; Chaney et al., 2011; Kaplan, 2004; Richardson, 2006; Ogbeide and Akanji, 2017; Firer and Williams, 2003; Barua and Saha, 2015; Gulec and Bektas, 2019; Yuliarti and Diyani, 2018; Dechow and Ge, 2006; Iyer and Harper, 2017; Cooke and Tippett, 2000; Zhou and Zhu, 2009; Goddard, 2005; Liargovas et al., 2017; B. Cheng et al., 2014; Brush et al., 2000; Ashtiani, 2013; Islam, Mansoor, Rahman, and Abd Wahab, 2020; Adi et al., 2016; Soumaya, 2012; Mendoza, 2015; Adam et al., 2019; Fawzi et al., 2015; Derekoy, 2020; Başar and Azgın, 2016; Gunay and Fatih, 2020; Senturk and Ali, 2021; Senurk, 2021; Sentur and Ali, 2022) provide different measures of cash flow. But none of the studies has tried to link cash flow with intangible assets and firm-specific factors for Pakistan Stock Exchange with panel data regression. So, this study opens new broadway and ventures of research.

The rest of the paper consists of four sections, namely a fabricated literature review on intangible assets and qualities thereof, as well as intangibility of the working hypothesis (Section2); the presentation of data, variables, and research methods that were used (Section3); and the interpretation of the results (Section4). Finally, Section 5 counterfeits the main conclusions, while also presenting the limitations and future research directions.

2. LITERATURE REVIEW
This section details the work of researchers where the impact of intangible assets is analyzed enabling other researchers to explore different facets of firm intangibility and they are corresponding direct and indirect significances for organizations, especially the organization's profitability.

2.1 INTANGIBLE ASSETS AND CASH FLOW
Rahman and Sharma (2020) examined Saudi Arabia and the impact of cash flow from operations on the financial performance of insurance and industrial firms. This study used return on assets and equity as dependent factors, with CFOs serving as an explanatory variable, firm size and leverage serving as control variables, and an industry dummy serving as a control variable. This study used pooled regression analysis to examine the connection between the variables. The findings show a positive and substantial relationship between financial success and operating cash flows and a negative relationship between size and leverage. As a result, the study indicated that operational cash flows in Saudi Arabia's insurance and manufacturing sectors impacted financial performance.

Kaplan (2004) investigated the influence of intangible assets on cash flows across listed banks from 2013 to 2018 for African economies. This study relied on secondary data from seven nations' panel data. Nigeria, Uganda, Zambia, Ghana, Botswana, Kenya, and Tanzania make up the research population. These nations are classified as Emerging Markets by the International Monetary Fund (IMF). This study used regression analysis to examine the link between intangible assets and cash flows. When the financial and investment levels of cash flow were regressed, the result indicated a significant P-value between intangible assets and operational cash flow, however, shown an insignificant connection when the financial and investing levels of cash flow were regressed. According to the report, listed banks should exercise caution when employing corporate strategies since they have both benefits and drawbacks.

Richardson (2006) examined the impact of free cash flow on the profitability of companies listed in Germany's automotive sector from 2007 to 2016. This research used a descriptive survey to investigate the effect. Consequently, the regression findings revealed a clear connection between free cash flows and the listed company's profitability. However, data from testing the proxies show that leverage has a negligible inverse influence on profitability (ROA) (Leverage, Current asset, Firm size, Capital liquidity, Sales growth, FCF).

Boujelben and Fedhila (2011) examined the association between intangible investments and the ability of firms to generate future operating cash flow in the case of Tunisia from 2001-2006. This study used a secondary data source to test the relationship among the variables and applied Panel regression analysis. The research concluded a positive and significant effect of intangible assets on future operating cash flows based on the results. First, this result confirms the main hypothesis of the resource-based view. Second, it is found that investments in R&D, quality, and advertising significantly affect future cash flows from operations. While the effect of R&D activities and quality persists until the third lagged period, the impact of advertising expenditures is rapid and temporary.

Osagie (2016) investigated the relationship between the size of a corporation, its age, and its operating cash flow. This study relied on data from Nigerian stock market-listed banks. Panel least square regression was used to investigate the relationship between the variables in this investigation. Based on the findings, the study found that size had no effect on operating cash flow and that age had no impact on operational cash flow. As a result, the researcher recommended that additional company characteristics should be considered when evaluating operating cash flows.

Derekoy (2020) concluded conventional and cash flow ratios have different definitions for calculating liquidity and solvency. Borsa Istanbul-listed textile, weaving, apparel & leather businesses of 22 companies were studied in the study. The research period is from 2013 to 2017. The t-test statistic was used to determine the difference between the four ratios calculated for each approach. Liquidity and solvency can be evaluated using either standard accrual-based ratios or cash flow ratios, but there are statistically significant differences between them.

2.2 SUBSTANTIATION OF HYPOTHESES

This research mainly explores the impact of intangible assets and the firm's specific factors on the firm's total cash flow. It has been found that intangible assets, firm size, growth opportunities, and profitability have a significant impact on a firm's cash flows. Although, earnings volatility has not had a significant impact on a firm's cash flow publicly listed on Pakistan Stock Exchange. The impact of earnings volatility was shown to be minimized by other factors such as corporate policy. Despite substantial revenues, some companies paid minimal dividends in the five years under scrutiny. In most cases, significant profit volatility correlated with reduced dividend payouts. The two variables had an inverse connection. High Earnings volatility implies low dividend distribution for these corporations. Moreover, findings suggested that the higher the intangible assets higher the firms' cash flow. On the other hand, earnings volatility has no impact on firm cash flow. Whereas, other firm-specific factors like firm size, growth opportunities, and profitability have a significant impact on a firm's cash flows. Overall, the model shows statistical explanatory power. The model also provides obvious explanations for previously unknown events and recommends future research directions. To begin from the main objectives of our paper i.e. the impact of intangible assets and firm-specific factors on cash flow.

Hypotheses 1 (H1) Intangible assets do have not a significant effect on the total cash flows of public firms listed on the Pakistan Stock Exchange.

According to the findings of this study, intangible assets do exert a noticeable influence on overall cash flow. So, we can reject the null hypothesis. Our estimated outcomes show that growth has the almost same type of impact on the whole sample of automobile sectors of Pakistan from the year of 2009 to 2020. Our results are consistent with Boujelben & Fedhila, 2011; Laborda et al., 2020; Mendoza, 2017).

Hypotheses 2 (H2). Firm size has not a significant effect on the total cash flows of public firms listed on the Pakistan Stock Exchange.

This shows that firm size does play important role in deciding the impact on cash flow. So, we can reject the null hypothesis. Our estimated outcomes show that growth has the almost same type of impact on the whole sample of automobile sectors of Pakistan from the year of 2009 to 2020. Our results are aligned with (Kadapakkam et al., 1998; Nugraha & Riyadhi, 2019; Taani, 2011).

In the new economy, the size of a company as measured by its physical infrastructures (such as property, plants, and equipment) will not be sufficient to improve a company's competitiveness. Investment in research and development (R&D) is also important for a company's success in the face of severe rivalry from competitors. Research and development operations have become fundamental activities for many big publicly traded firms in Pakistan, and they are often budgeted for in a reasonable amount in the yearly budget. Research and development efforts result in the creation of new intangible assets, which are recorded in the financial accounts of the firms. Assets that are not corporeal are known as intangible assets. In today's economy, intangible assets like patents, trademarks, copyrights, and business methods, as well as goodwill and brand awareness, are all prevalent. As a result, businesses must invest in both intangible and tangible assets to remain creative and maintain a competitive edge that leads to superior future performance(Orpurt, 2009).

Hypotheses 3 (H3). Growth has not had a significant effect on the total cash flows of public firms listed on the Pakistan Stock Exchange.

This shows that growth does play important role in deciding the impact on cash flow. So, we can reject the null hypothesis. Our estimated outcomes show that growth has the almost same type of impact on the whole sample of automobile sectors of Pakistan from the year of 2009 to 2020. Our results are aligned with (Kadapakkam et al., 1998; Nugraha & Riyadhi, 2019; Taani, 2011). In established and emerging economies, manufacturing requires "intangible assets" such as skills, organizational structures, know-how, and information. These assets are frequently huge and provide considerable productivity gains, according to research. For example, Jorgenson and Fraumeni (1995) conjectured; Human capital dwarfs physical capital in the U.S. economy and has risen through time; B. Hall (1993a), Griliches (1981), R&D assets produce a positive marginal product and market valuation, according to Lev. "Tobin's q" studies reveal that stock market valuations differ from book value.

Hypotheses 4 (H4). Profitability has not had a significant effect on the total cash flows of public firms listed on the Pakistan Stock Exchange.

This shows that profitability does play important role in deciding the impact on cash flow. So, we can reject the null hypothesis. Our estimated outcomes show that profitability has the almost same type of impact on the whole sample of automobile sectors of Pakistan from the year of 2009 to 2020. Our results are aligned with those (Ali et al., 2018; Brush et al., 2000; Dechow et al., 1998).

Improving the company's value and profitability will raise shareholder wealth and stakeholder interests. To increase company value, it's important to understand what elements affect it. When a firm is taken over, its market price reflects its value. In the previous quarter century, S&P 500 company values have diverged from book value. (Ocean Tomo, 2009)

Malackowski (2009) states value discrepancy or gap implies that the company's assets represent less than 20% of its real worth. Their analysis found that technological patents make up a large share of these intangible assets. The results of this study were strengthened by Ben McClure (2009) in his study of 3500 companies in the United States, which proved that the current book value was only 28% of market value (in 1975 still 95%), and Intangible assets' value has risen in the previous 20 years. The phrase suggests the disparity between book value and market value is due to intangible assets.

Hypotheses 5 (H5). Earnings volatility has not had a significant effect on the total cash flows of public firms listed on the Pakistan Stock Exchange.

This shows that earnings volatility does not play important role in deciding the impact on cash flow. So, we cannot reject the null hypothesis. Our estimated outcomes show that earnings volatility has the almost same type of impact on the whole sample of automobile sectors of Pakistan from the year: 2009 to 2020. Our results are aligned with (Jayaraman, 2008; Memon et al., 2018).

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3. MATERIALS AND METHODS
In testing the working hypotheses, this study assessed the impact of intangible assets and firm-specific factors on cash.

3.1 SAMPLE, DATA, AND VARIABLES
Secondary data for this study was gathered from the annual reports of the seventeen listed companies on the PSX 100 index. The companies' information is shown below. Furthermore, the data spans 2009 to 2020. 17 different companies in the auto sector were selected for analysis. This study used panel data.

Table 1

Variables	Symbol	Description
Intangible Assets	IntA	It is measured by their carrying value in the respective Financial Statements.
Firm size	Size	It is measured in the log of total assets
Growth opportunity	Grw-opp	It is measured by the % Change in Total Assets
Profitability	Prof	It is measured by the book value of earnings before tax and interest divided by the total asset (ROA)
Earnings volatility	EV	It is measured by the Standard Deviation of EBIT/ Total Assets
Total Cash flows	TCF	Extracted from cash flow statements

Cash flow has been selected as an explanatory variable, while intangible assets, firm size, growth, profitability, and earnings volatility have been used as explanatory variables. An intangible asset is measured by taking the difference between; Total Assets minus Fixed Assets In each of the separate statements of financial condition, current assets are assigned a carrying value. The log of total assets is used to assess the size of a company. Growth opportunity is measured by the %change in total assets. Profitability is measured by the book value of earnings before tax and interest divided by the total assets. Earnings volatility is measured by the standard deviation of earnings before interest and tax (EBIT) divided by total assets (ROA). The data of selected variables have been extracted from the financial statements of the relevant sectors.

3.2 DATA ANALYSIS METHODS
The study on the impact of intangible assets and firm-specific factors on cash flow employed correlation analysis and multiple linear regression analysis with alternative independent variables. The general econometric model is illustrated in Equation

$$Y_{TCF} = \alpha + \beta_1 X_{IntAIt} + \beta_2 X_{Sizeit} + \beta_3 X_{Gro-oppit} + \beta_4 X_{Profit} + \beta_5 X_{EVit} + \epsilon_{it}$$

4. RESULTS AND DISCUSSION

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Tcf	203	5.708	.754	2.71	9.04
Ita	203	5.398	1.023	2.71	9.04
Fsz	203	.84	.045	.73	.98
Growopp	203	5.17	1.224	2.71	9.04
Pr	203	.295	.32	0	.88
Ev	203	.128	.101	0	.43

Total cash flow which is the main dependent variable of this research study includes 203 observations of the firms included in this study. The average cash flow in the auto sector of selected companies is 5.708 and has a standard deviation of around .75 percent, besides; the minimum cash flow holding auto sector is 2.71 and the maximum cash flow of the auto sector is 9.04. Similarly, intangible assets serve as independent variables, and on average in the auto sector of selected companies is 5.398 and has a standard deviation above 1. The firm's size on average in the auto sector is 0.84 percent and the standard deviation is 0.045. Whereas, growth opportunities on average in the auto sector is 5.17 percent with a standard deviation of 1.244. Besides, profitability in the auto sector on average is 0.295 with a standard deviation of 0.32. In the last, there is fewer earnings volatility exists in the auto sector of Pakistan which is on average 0.128 percent with a standard deviation of 0.101. Now the models and their mean, standard deviation, and minimum and maximum values are described to overview the data as a whole.

Table 3. Pairwise Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) tcf	1.000					
(2) ita	0.593*	1.000				
(3) fsz	0.046	-0.072	1.000			
(4) growopp	0.127	-0.043	0.749*	1.000		
(5) pr	-0.217*	0.008	-0.139*	-0.112	1.000	
(6) ev	0.082	0.173*	-0.450*	-0.373*	-0.005	1.000
*** $p<0.01$, ** $p<0.05$, * $p<0.1$						

The correlation matrix of all the variables is shown in the above table. The table shows the pairwise correlation among all the variables under discussion. The correlation of the variable itself is always 1. The correlation among the variables of the study has mixed results positive and negative. Like, the correlation between a firm's total cash flow and intangible assets is positive and moderate significant, accordingly with the firm size it has a positive but weak insignificant, and with the firm's growth opportunities it has a weak and insignificant relationship with the total cash flow of the firms. Unlikely, profitability and total cash flow, have a negative and weak relationship. in the last, earnings volatility and total cash flow have a positive but weak relationship. Additionally, the correlation among the entire variable of the study is below the threshold of 0.9 which states that there is no multicollinearity among the variable of the study.

Table 4

Haussmann (1978) specification test	
	Coef.
Chi-square test value	6.793
P-value	0.236

Now, in the light of the Haussmann test, we could not reject the null hypothesis and, it is clear from the results above that the Haussmann test could not reject the null hypothesis as the P-value of 0.236 is above 0.05; as a result, we accept the Random Effect model in favor of fixed effect model.

Table 5: Regression Results Random Effect

Tcf	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Ita	.429	.045	9.51	0	.34	.517	***
Fsz	-3.89	1.758	-2.21	.027	-7.336	-.444	**
Growopp	.181	.061	2.97	.003	.061	.3	***
Pr	-.725	.212	-3.42	.001	-1.141	-.309	***
Ev	-.638	.466	-1.37	.171	-1.552	.275	
Constant	6.026	1.372	4.39	0	3.336	8.715	***
Mean dependent var	5.708		SD dependent var		0.754		
Overall r-squared	0.401		Number of obs		203		
Chi-square	115.874		Prob > chi2		0.000		
R-squared within	0.362		R-squared between		0.471		
*** $p<.01$, ** $p<.05$, * $p<.1$							

The overall model is significant. R^2 within entities captures 40 % and between the entities, the sector is 36% but R^2 captures the variation is 47%. It explains the variation in the dependent variable due to changes in the independent variables. For this study, it is clear that the auto sector cash flow is explained or impacted by; intangible assets, firm size, growth opportunities, profitability, and earnings volatility. Furthermore, the overall model is fit based on the F-statistic which has the probability of chi-square being less than 0.01; indicating the significance of the model up to 99 percent. Though the coefficients of the model are indicating different pictures with their value and sign. For instance, intangible assets have a positive and significant impact on firm total cash flows; it means if one unit change in the intangible assets the firm cash flow has a positive impact of up to 43 percent, and the result is aligned with (Boujelben & Fedhila, 2011; Laborda et al., 2020; Mendoza, 2017). Unlikely, Firm size has a negative and significant impact on

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firm total cash flows; it means, if one unit changes in the firm size, the firm cash flow has a negative impact up to 38 percent, similar results conjectured (Kadapakkam et al., 1998; Nugraha & Riyadhi, 2019; Taani, 2011). Besides, firm growth opportunities have a positive and significant impact on firms' total cash flow; conjecturing, if one unit change in the firm growth opportunities, the firm cash flow has a negative impact of up to 18 percent (Dogru et al., 2020; Habib, 2011). Whereas, a firm's profitability has a negative and significant impact on the firm total cash flows; which means if one unit changes in the firm profitability the firm cash flow has a negative impact of up to 73 percent; (Ali et al., 2018; Brush et al., 2000; Dechow et al., 1998). However, firms' earnings volatility has a negative and insignificant impact on firm total cash flows; it means if one unit changes in the earnings volatility the firm cash flow has a negative impact of up to 64 percent; (Jayaraman, 2008; Memon et al., 2018).

5. CONCLUSIONS

This research mainly explores the impact of intangible assets and the firm's specific factors on the firm's total cash flow. It has been found that intangible assets, firm size, growth opportunities, and profitability have a significant impact on a firm's cash flows. Although, earnings volatility has not had a significant impact on a firm's cash flow publicly listed on Pakistan Stock Exchange. The impact of earnings volatility was shown to be minimized by other factors such as corporate policy. Despite substantial revenues, some companies paid minimal dividends in the five years under scrutiny. In most cases, significant profit volatility correlated with reduced dividend payouts. The two variables had an inverse connection. High Earnings volatility implies low dividend distribution for these corporations. Moreover, findings suggested that the higher the intangible assets higher the firm's cash flow. On the other hand, earnings volatility has no impact on firm cash flow. Whereas, other firm-specific factors like firm size, growth opportunities, and profitability have a significant impact on a firm's cash flows. Overall, the model shows statistical explanatory power. The model also provides obvious explanations for previously unknown events and recommends future research directions. The majority of the transactions that contribute to this form of cash flow include the purchasing or selling of franchises and licenses, as well as business acquisitions and mergers, intangible assets have a significant influence on the cash flow generated by investing (reflected in goodwill). As may be shown through amortization or gains from long-term intangible assets, intangible assets can have a significant influence on the cash flow generated by operational operations. Because intangible assets also contain computer software, which is essential for firms that deal with both money and information technology, this is another significant reason why intangible assets have such a significant influence on a company's operational cash flow. The majority of companies that have intangible assets are involved in industries that need a significant amount of capital to be spent on items such as franchises, branches, and licenses; as a result, they engage in a great deal of investment activity. The analysis also indicates that there are sector-specific differences in how intangible assets affect cash flow. Because of this, generalizations are challenging for publicly traded firms in Pakistan. Management of these organizations must assess the type or sector of the company to make wise business decisions about intangible assets. These results are supported by the z-score test of differences in impacts of the beta coefficients of the variables per sector. The impact of intangible assets on liquidity varies substantially by industry.

The findings propose that sector-specific research be done to better understand intangible asset effects on cash flows, given these effects differ between sectors. To increase the sample size, future studies can include other sectors of the PSX 100 index. Intangible assets are revenue growth, profitability, share price, and competitiveness. Future research may utilize variables or dummies to account for time effects and sector features, improving model reliability. With all its good qualities, this study has some limitations. By improving these limitations, the outcomes of the study can be improved. This study is based on automobile sectors of the public listed stock exchange, if expanded to other sectors, the study can be improved. The data is based on the variables for the years from 2009 to 2020. Thus, by conducting and adding more years, the outcomes of the study can be improved. This study has used intangible assets, firm size, growth opportunity, profitability, and earnings volatility as explanatory variables, but by changing earnings volatility indicators, the outcomes can be improved. This study is based on panel data analysis but by conducting more tests, the results of the study can be improved.

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