The Simultaneity of Strategic Financial Decisions: Evidence from PSX listed Firms

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ARTICLE INFO	ABSTRACT
	This study investigates the interrelationships among financing, dividends, and the investment choices of non-financial firms listed on PSX. Unlike previous research, which primarily focused on developed nations with well-developed financial markets and investor protection laws, this study examines businesses in a developing economy characterized by fragile corporate governance, precarious investor protection laws, and political instability. The aim of this study is to shed light on the unique decision-making processes of managers operating in such contexts. This study employs a framework of simultaneous equations considering the flow of funds identity and utilizes the 3SLS estimation technique, which addresses the limitations of single-equation estimation methods. The findings reveal significant interdependencies among corporate financing, dividends, and investment decisions. Financing decisions positively influence dividend decisions and vice versa. Similarly, financing decisions positively impact investment decisions and vice versa. Moreover, dividends and corporate investments have been shown to be competing uses of funds. The results highlight the sensitivity of all three financial decisions to internal cash flows. Additionally, leverage and internally generated cash flows are identified as alternative sources of funds, while investment and dividend decisions are constrained by both internal funds and external debt. These findings align with the flow of funds approach and provide valuable insights for corporate managers and investors to understand the dynamics of financial choices in non-financial firms. This study contributes to the literature by filling a gap in knowledge regarding the interactions among financing, dividends, and investment decisions in emerging markets.

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1. Introduction

Since the poineering work of MM was published almost half a century ago, there has been a continuous debate about the interdependence of strategic financial decisions in finance literature. In an ideal market setting, internal funds and external debt are perfect replacements; thus, financing and dividend choices are not relevant to a firm's value, and decisions about the optimum investment level only affect firm value (Modigliani & Miller, 1958). These theorems suggest no interdependencies among financing, dividends, and investments in a perfect market. The opposing viewpoint would then contend that capital markets are so imperfect that, firms should consider fund raising decisions alongside fund spending choices. The literature on corporate finance extensively examines these company decisions (for example, (Acaravcı, 2015; Afza & Mirza, 2010; Aivazian, Ge, & Qiu, 2005; Mercatanti, Mäkinen, & Silvestrini, 2019; Rajan & Zingales, 1995; Sheikh, 2019; Thalib, Herdiyana, & Wahid, 2019; Titman & Wessels, 1988). However, mostly studies focused on the determinants of financing, investment, and dividend

decisions separately. These studies are criticized because of their single equation framework, which does not allow the analysis of the interdependence of strategic financial decisions. Studies that empirically examine strategic financial decisions using single equation methodologies fall short of offering a comprehensive picture of business behavior, as Gatchev, Pulvino, and Tarhan (2010) pointed out. Numerous researchers have pointed to possible connections among corporate investment, financing, and payout dsecisions (Dhrymes & Kurz, 1967; Ding & Murinde, 2010; Gatchev, Pulvino, & Tarhan, 2010; Lee, Lee, Chang, & Tai, 2016; McDonald, Jacquillat, & Nussenbaum, 1975; Mougoué & Mukherjee, 1994; Peterson & Benesh, 1983; Wang, 2010). However, these studies' approaches to analysis and conclusions vary. The majority of studies that have attempted to model the decisions made by corporations regarding investment, financing, and dividends in a simultaneous equation system also produce results that are inconsistent and contentious. Using simultaneous equation modeling, only a few recent studies, such as Sadaf, Oláh, Popp, and Máté (2018) and Ahmed Sheikh and Wang (2011) have attempted to explore the interdependent relationships between corporate financial decisions made by businesses in an emerging economy. While investigating the connection between Pakistani firms' strategic financial decisions and institutional ownership, Sadaf et al. (2018) explain that they were unable to determine whether these decisions were made simultaneously or in conjunction with one another.

The results show that decisions about leverage are negatively influenced by dividends, but dividend and investment decisions are not significantly affected by leverage. Using GMM and 3SLS, the study AHMED et al. (2021) also attempted to investigate the connections between strategic financial decisions. The findings indicate that the corporate financial decisions of companies listed on the Pakistan Stock Exchange (PSX) are not interdependent, and the application of simultaneous equation estimation in the context of an emerging economy remains controversial. Most previous examinations have taken a gander at organizations from developed countries, where financial markets are advanced and organizations do not need to stress their funds in light of better regulations safeguarding investors (Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2008; Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998), as well as an expanded market mix (Bekaert, Harvey, Lundblad, & Siegel, 2011, 2013). In addition to a number of other studies,Wang (2010) showed that managers of businesses operating in various socioeconomic contexts have a distinct method for making strategic financial decisions. Companies in emerging economies that simultaneously make strategic financial decisions merit further investigation (AHMED et al., 2021). We accept that this is the exact justification for why it is critical to grow the group of observational proofs on the interrelationships of financing, dividends and investment choices of firms working in emerging economies. The relationships among corporate investment, financing, and dividends of non-financial firms listed on the PSX are the primary focus of this study. This study provides an extensive perspective on the corporate choices making of firms working in Pakistan in an emerging economy.

The contributions of this study are as follows. First, it updates and expands the empirical evidence on the interrelationships of financial decisions. Second, this study is among the pioneering studies that have attempted to test the application of simultaneous equation modeling to study the interdependencies among corporate investment, financing, and dividend decisions in an emerging economy. Third, the study contributes to findings that show that investment, financing, and dividend choices are interdependent, and the results are consistent with flow-of-funds approach. The findings of the study show that financing choices positively affect dividends and vice versa. Decisions related to financing affect investment decisions positively and vice versa. Moreover, dividends and investments compete as uses of funds. The results are consistent with the flow-of-funds approach. All three strategic financial decisions are sensitive to internal cash flows. Alternative sources of funds include leverage and cash flow generated internally; however, decisions regarding investments and dividends are restricted by external debt in addition to internally generated funds. The pecking order view of how companies raise money is followed by that of those listed on the PSX. Investment, financing, and dividends are clearly interdependent and simultaneously determined by our findings.

2. Literature Review
The interdependency between investment, financing, and dividend decisions is a crucial area of study in corporate finance. These three decisions are integral to a firm's financial management and are closely interconnected. Investment decisions allocate money to different

projects or assets, while financing decisions decide on the best ratio of debt to equity to fund these investments. On the other hand, dividend decisions involve determining the distribution of profits to shareholders. Understanding the interplay between these decisions is essential for effective financial planning and value creation for shareholders. To maximize shareholder wealth, managers must make decisions regarding dividends, financing, and corporate investments. A company's financial and dividend decisions have no effect on its value in a market without taxes, transaction costs, or information asymmetry (Miller & Modigliani, 1961; Modigliani & Miller, 1958). In a perfect market, these irrelevance propositions suggest that investment and financing decisions are completely separate.

Businesses with unclear prospects operating in imperfect and incomplete capital markets may take their financial decisions into consideration when making investment decisions since external money is more expensive than internal funds, according to theoretical models of moral hazard and adverse selection. If the markets are sufficiently flawed, companies should also take into account the availability of both internal and external funding when making expenditure decisions. These three business decisions should be made concurrently and should be understood as interdependent processes. These tactical financial decisions can be linked together with the help of the flow-of-funds technique. Dhrymes and Kurz (1967) were the first authors to write about how investment, financing, and dividend decisions occur simultaneously. They claim that managers face two major challenges when it comes to raising funds from both internal and external sources and spending those funds on dividends and investments while adhering to the flow of funds identity constraint, or the requirement that cash sources equal cash uses. McCabe (1979); Partington (1985) discovered interdependencies by modeling three corporate decisions in a system of simultaneous equations using the flow-of-funds approach and rejecting the independence hypothesis. MM theorems were strengthened and renamed the separation principle presented by Fama and Miller (1972). The empirical support of the separation principle has been the subject of numerous studies. However, tests of the validity of the separation principle yielded mixed results.

McCabe (1979) finds that investment and financing decisions are highly interdependent. They argue that decisions about investing and financing are dependent on one another, and that investing and paying dividends are two different ways to spend money, so these findings contradict the separation principle. According to Peterson and Benesh (1983), market imperfections are significant enough to require joint decision-making for investment and financing. Partington (1985) and Peterson and Benesh (1983) conclude that corporate financial decisions are interdependent and reject Fama and Miller's separation principle. A one-way relationship, in which dividends are affected by investment and investment is not affected by dividends, was discovered by Kouki (2017) when studying the dynamic relationships between investment and dividends of Tunisian listed companies. The agency conflict hypothesis, which states that dividends depend on investment because of the risk of overinvestment, supports these findings. According to McDonald, Jacquillat, and Nussenbaum (1975), Smirlock and Marshall (1983), and Pruitt and Gitman (1991), no interdependence exists between dividends and investment, thus supporting the separation principle. To test the independence hypothesis proposed by Miller and Modigliani (1961); Peterson and Benesh (1983) conducted a cross-sectional investigation of businesses. Two-stage-least squares (2SLS) and seemingly unrelated regressions (SUR) are two alternatives that they have utilized. The outcomes of the two methods demonstrate that decisions regarding financing and investment are made jointly. Using the vector auto-regressive model (VAR), the study by Mougoué and Mukherjee (1994) find out that there is an inverse bidirectional relationship between dividend and investment, as well as a positive bidirectional relationship between investment and financing and dividend and financing. According to Deangelo and Deangelo (2006), decisions on fund spending and fund-raising are interdependent. Dunham's (2008) findings emphasize the simultaneous and interdependent nature of the investment and financing decisions.

Ding and Murinde (2010) examined how institutional ownership affects dividend and financing decisions, and found that UK companies make decisions about both simultaneously. The findings show that better dividend monitoring is a direct result of a larger institutional ownership ratio. A dynamic model that takes into account the joint determination of finance and investment decisions was developed by Gatchev, Pulvino, and Tarhan (2010). They also pointed out that empirical studies which use single-equation techniques to investigate strategic financial decisions do not provide a complete picture of how businesses behave. According to Wang

(2010), the distinct economic, political, and cultural environments of Taiwan and China influence decision patterns regarding investment and financing strategies. According to Wang (2010), business managers of firms operating in various economic, political, and social contexts have unique methods for making strategic financial decisions. She examines the causal relationships between investment, financing, and dividend decisions, and corporate performance. Using data from Pakistani companies, Maqbool and Sheikh (2022) examined the causal relationships between investment, financing, and dividend decisions and performance. The results show that financing decisions have a direct impact on a company's performance as well as on investment and dividend decisions. Decisions regarding dividends have an effect both directly on company performance and indirectly on investment decisions.

Different estimation methods are utilized in research that has been conducted on simultaneous equation modeling. Lee et al. (2016) discuss the possibility of endogeneity as a result of simultaneous strategic financial decisions. When estimating the simultaneous equation model, IV (instrumental variable) methods can be utilized to address the issue of endogeneity. The Dhrymes and Kurz (1967) model was further investigated using the GMM, 2SLS, and 3SLS. These estimates empirically support the fact that strategic financial decisions are interdependent and should be considered simultaneously. 2SLS and 3SLS have been utilized by Berger and Bonaccorsi Di Patti (2006) to address the issue of endogeneity and determine whether leverage and corporate performance are related. Hidthiir, Basheer, and Hassan (2019) conducted the Wu Hausman test to ascertain whether an endogeneity issue existed. Yuniningsih, Pertiwi, and Purwanto (2019) a system of equations to examine corporate financial decisions by including exogenous and predetermined explanatory variables that have an indirect impact on a firm's performance. According to Kirch and Terra (2019), there is evidence that financial decisions are influenced by financial constraints, and decisions regarding cash holdings, financing, dividends, and investments are interdependent. Firms in rich countries have lower investment-cash flow sensitivity over time, whereas firms in poor countries have stable sensitivity (Larkin, Ng, & Zhu, 2018). Owing to information asymmetry, financial constraints affect the simultaneity of the corporate finance trilogy.

According to Alnori, Bugshan, and Bakry (2020), decisions regarding corporate financing may impact investment decisions because an increase in external debt would make more funds available for investment, which would positively impact investment. The review directed by Sadaf et al. (2018) is among the few studies that endeavored to investigate the concurrence of financing, dividend and dividend choices with regard to developing business sectors. They investigate the effect of institutional ownership on the simultaneity of investment, financing, and dividend choices. The results of the study contradict those from developed nations and show that financing, dividends, and investment choices are not interdependent. AHMED et al. (2021) endeavored to research the interrelationships between financial choices in Pakistan. They discovered that there are no interdependencies between financing and investment decisions, but that dividends and investments have a one-to-one relationship, with dividends being influenced by investment. In the context of Pakistan's emerging economy, the application of simultaneous equation estimation methods is still debated. The aforementioned empirical evidence on the connections between decisions regarding investment, financing, and dividend payouts is mixed. Few studies have been published on the interdependence of investment, financing, and dividend decisions in emerging economies. The findings of studies conducted on emerging economies are contentious. In emerging economies, it is necessary to further investigate the controversy regarding the use of simultaneous equation estimation and the interdependence of corporate financial decisions. In conclusion, the results of previous empirical studies, such as Wang (2010) and Qi, Roth, and Wald (2017), make it clear that businesses in various economic, political, and cultural contexts choose their own investment, financing, and dividend strategies.

3. Material and Methods
3.1. Data
This empirical study aims to investigate the interrelationships among the investment, financing, and dividend decisions of non-financial sector firms listed on the PSX from 2014-2019. The difference in reporting and regulatory frameworks between the financial and non-financial sectors is why the financial sector was not included in the analysis. More importantly, because financial managers in the financial sector are required to adhere to regulations imposed by regulatory authorities, it is challenging to comprehend their decisions regarding investments,

financing, and dividends. All PSX-listed non-financial businesses during the study period were included in the analysis; however, businesses with insufficient data were excluded. Over the course of six years, the final sample included 292 businesses. "Balance Sheet Analysis of Non-Financial Firms" published by "State Bank of Pakistan" served as the source for the collection of data.

3.2. Measurement of Variables

Table I presents the definitions of the variables. All the variables utilized in this study were defined in previous studies so that comparisons could be made.

Table 1: Measurement of variables

Variables	Symbol	Measurement	Sources
Endogenous variables			
Investment	INV_{it}	Net operating fixed assets / Total assets.	(Blanchard et al., 1994; Maqbool & Sheikh, 2022)
Financing	LEV_{it}	Total liabilities / Total assets.	(Maqbool, 2021; Sheikh, 2019; Fama & French, 2002)
Dividends	DIV_{it}	Total dividend / Outstanding common stocks.	(Fama, 1974)
Exogenous variables			
Firm size	$SIZE_{it}$	Natural logarithm of total assets.	(Lin & Chang, 2011)
Profitability	$PROF_{it}$	Profit after taxes / Total assets.	(Hillman & Dalziel, 2003)
Liquidity	LIQ_{it}	Current assets / Current liabilities.	(Rajverma et al., 2019)
Growth Opportunities	MBR_{it}	The market price per share / The book value per share. The market price per share is calculated by dividing the year's high and low prices by 2. The ratio of shareholders' equity to the number of outstanding common stocks is known as book value per share.	(Rashid & Karim, 2018)
Sales Growth	$Sales\_G_{it}$	Percentage change in the sales of the firm	(Lin & Chang, 2011)
Cash Flow	CF_{it}	Net income after tax plus depreciation / Total assets	(Mirza & Azfa, 2010)

3.3. Methodology

Based on the framework of Dhrymes and Kurzs, we defined a three-equation simultaneous equation model in this study. The investment decision, financing choices, and the decision to distribute dividends are the three endogenous variables in the model.

$$LEV = f(INV, DIV, A) \tag{1}$$
$$DIV = f(INV, LEV, B) \tag{2}$$
$$INV = f(LEV, DIV, C) \tag{3}$$

Where *LEV* represents financing and vector *A* contains financing-related explanatory variables. *DIV* represents dividend and vector *B* contains dividend-related explanatory variables. *INV* represents investment, and vector *C* contains investment-related explanatory variables. The following describes how some control variables for vectors *A, B*, and *C* are added to the aforementioned model:

$$LEV_{it} = \beta_0 + \beta_1 INV_{it} + \beta_2 DIV_{it} + \beta_3 SIZE_{it} + \beta_4 Prof_{it} + \beta_5 LIQ_{it} + \beta_6 CF_{it} + \varepsilon_{it} \tag{4}$$
$$DIV_{it} = \beta_0 + \beta_1 INV_{it} + \beta_2 LEV_{it} + \beta_3 Sales\_G_{it} + \beta_4 Prof_{it} + \beta_5 LIQ_{it} + \beta_6 CF_{it} + \varepsilon_{it} \tag{5}$$
$$INV_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 DIV_{it} + \beta_3 MBR_{it} + \beta_4 INV_{it-1} + \beta_5 CF_{it} + \varepsilon_{it} \tag{6}$$

Where INV_{it} = investment of the firm, LEV_{it} = leverage of the firm , DIV_{it} = dividend of the firm, $SIZE_{it}$ = size of the firm, $Prof_{it}$ = profitability the firm, LIQ_{it} = liquidity of the firm, MBR_{it} = growth opportunities of the firm, $Sales\_G_{it}$ = Growth in sales of the firm, INV_{it-1} = 1st lag of investment of the firm, ε_{it} = error term, β_0 = y-intercept, $\beta_1 - \beta_6$ = Explanatory variables' coefficients. Endogeneity and a causal connection may exist between investment, financing, and dividends. The ordinary least squares (OLS) estimation method is not appropriate. The reason

behind this is because ordinary least squares (OLS) estimates are biased and inconsistent when some explanatory variables or right-hand side variables are not truly exogenous (Demsetz & Villalonga, 2001). The endogeneity issue can be approached in several different ways, including GMM, 2SLS and 3SLS. The cross-equation effects of the error terms are captured by three-stage least squares (3SLS), and in a system of equations, the error terms of all equations should be correlated. According to Zellner and Theil (1992), the 3SLS technique has the advantages of 2SLS. To address endogeneity, 3SLS was used to estimate the simultaneous equation model in this study. The explicit capability of 3SLS permits the examination of the interdependence of corporate decision-making regarding investments, dividends, and financing. According to Kapteyn and Fiebig (1981), 3SLS estimates are always preferred over estimates of 2SLS due to their inherent efficiency.

Table 2: Hypothesized Interrelationships among endogenous variables under flow of funds approach

Interrelationship	Expected sign	Economic argument
$INV_{it} \rightarrow DIV_{it}$	-	Investment spending and dividends payout are the competing uses of funds. So decrease in investment spending enable a firm to pay more dividends
$INV_{it} \rightarrow LEV_{it}$	+	When investment spending is increased it motivates a firm to go for external financing and to utilize its borrowing capacity
$LEV_{it} \rightarrow DIV_{it}$	+	Increase in leverage allows a firm to pay out planned dividend even when the profitability is low and internal funds are not sufficient in the short run
$LEV_{it} \rightarrow INV_{it}$	+	Investment is hindered and capital is rationed as a result of a decrease in debt.
$DIV_{it} \rightarrow INV_{it}$	-	The funds available for investment are reduced when dividends are increased.
$DIV_{it} \rightarrow LEV_{it}$	+	A rise in dividends restricts a company's ability to access internal funds and necessitates the use of its debt capacity for financing.

4. Results and Discussion

Table 3 presents summary statistics for all study variables. Leverage (LEV) has an average value of 57% and a standard deviation of 0.294. The high percentage of debt-financed assets indicates that PSX listed companies depend heavily on external financing, as noted by (Afza & Nazir, 2015). With a standard deviation of 0.222, the mean value of investment (INV) is 44.6%, which represents the operating fixed asset to total asset ratio. Less than one rupee per share, or 0.831, is the mean value of dividends (DIV) per share. The dividend has a minimum value of Rs. 0 per share and a maximum value of Rs. 47 per share. This is due to the fact that Pakistani companies are not required to distribute dividends. As a result, the majority of businesses keep their profits instead of paying dividends to their shareholders.

Table 3: Descriptive Statistics

Variable	Mean	SD	Min	Max
LEV_{it}	0.570	0.294	0.0681	2.692
DIV_{it}	0.831	3.067	0.000	47.000
INV_{it}	0.446	0.222	0.000	0.983
$SIZE_{it}$	15.488	1.632	11.299	20.318
$\text{Pr}of_{it}$	0.164	5.087	-31.366	185.097
LIQ_{it}	1.490	1.304	0.007	15.976
MBR_{it}	21.372	62.096	-287.675	1234.0
$Sales\_G_{it}$	0.313	8.477	-0.996	323.172
CF_{it}	0.064	0.125	-1.894	0.813

Prior to estimating the models, multicollinearity in the data was examined. For this, the coefficients of pairwise correlation between the variables were estimated. Table IV displays the correlation coefficients for the variables. Because the correlation coefficients between the independent variables were quite low, there was no evidence of multicollinearity.

Table 4: Correlation Matrix

	LEV_{it}	DIV_{it}	INV_{it}	$SIZE_{it}$	$Prof_{it}$	LIQ_{it}	MBR_{it}	$Sales\_G_{it}$	CF_{it}
LEV_{it}	1								
DIV_{it}	-0.107	1							
INV_{it}	0.197	-0.175	1						
$SIZE_{it}$	-0.097	0.135	-0.1780	1					
$Prof_{it}$	0.026	0.008	0.002	-0.006	1				
LIQ_{it}	-0.560	0.142	-0.348	0.015	-0.008	1			
MBR_{it}	0.0132	0.229	-0.1030	0.103	-0.141	-0.007	1		
$Sales\_G_{it}$	0.091	-0.000	-0.009	-0.004	-0.001	-0.022	-0.008	1	
CF_{it}	**-**0.415	0.233	-0.2040	0.238	-0.017	0.269	0.217	-0.001	1

The results of 3SLS are presented in Table 5. First, the results show that, in accordance with the flow of funds approach, debt financing *(LEV)* and dividends *(DIV)* are determined simultaneously. When complete structural equations are estimated in the simultaneous equation system, the relationship between leverage and dividends is found to be significant and positive, which is significant and negative in the pairwise correlation analysis. Firms with less debt financing pay fewer dividends and vice versa. Firms with high debt financing have sufficient funds to pay high cash dividends even when profitability and internal funds are low in the short run. However an increase in dividends restricts a company's ability to access internal funds and necessitates using its debt capacity for financing. Additionally, demand for debt is driven by dividend payouts. Our findings are consistent with those of (Dhrymes & Kurz, 1967; McCabe, 1979; Peterson & Benesh, 1983).

Table 5: Results of 3SLS Regression

Variable	LEV	DIV	INV
Const.	0.7255***	-12.842***	0.0440
	(0.7255)	(4.4520)	(0.0262)
LEV		18.2143***	0.0796***
		(5.6957)	(0.0263)
DIV	0.0532***		-0.0198**
	(0.0116)		(.0116)
INV	0.1027***	-1.9695***	
	(0.0419)	(0.7569)	
SIZE	-0.0011		
	(0.0027)		
Prof	0.0011	-0.0234	
	(0.0012)	(0.7444)	
LIQ	-0.1137***	2.0700***	
	(0.0058)	(0.6315)	
Sales_G		0.0054	
		(0.0159)	
MBR			0.0000
			(0.0001)
INV$_{it-1}$			0.8500***
			(0.0226)
CF	-0.9185***	16.9381***	0.0878***
	(0.0729)	(3.9938)	(0.0440)
N	1460	1460	1460
R²	0.1316	-1.7112	0.7356
Chi²	1069.09	640.92	5383.81
Prob. > Chi²	0.0000	0.0000	0.0000

Note: The significance level is shown by ***, **, and *, that is at 1 %, 5 %, and 10 %, respectively, and the t-statistics are in parentheses.

Second debt financing *(LEV)* is a simultaneous determinant of investment decisions *(INV)*. Firms with high investment have higher levels of debt financing. These findings reject the predictions of MM theorems and confirm that decisions regarding investments and financing are taken into account simultaneously considered. According to Ross (1977) and Myers and Majluf (1984), firms raise funds in a pecking order and favor debt over equity. When it comes to investment opportunities, optimistic managers in Pakistani businesses favor debt over equity to demonstrate to investors that businesses can repay the debt with anticipation of high cash flows in the future. Owing to its ability to force a company into liquidation and assist in monitoring managers, debt financing is also utilized as a tool to address investors' issues with information asymmetry. Hussain, Wen, Butt, Hussain, Qalati, and Abbas (2020) explain that businesses favor borrowing money from outside sources to benefit from investment opportunities because they believe they can pay off the debt with the money they make in the future. Our findings, which show that debt financing boosts investment funds and is driven by investment demand, are in line with those of Froot, Scharfstein, and Stein (1993); John and Nachman (1985); Lee et al. (2016); McCabe (1979); McDonald, Jacquillat, and Nussenbaum (1975).

Third, the significant coefficients of investment *(INV)* and dividend *(DIV)* demonstrate that decisions regarding investments influence decisions regarding dividends, and vice versa. According to the dividend equation's negative and significant coefficient on investment, businesses cut dividends to increase their investment spending, rather than using external resources. The negative coefficient of dividends in the investment equation indicates the constraining effect of dividends on investment spending. This shows that the managers of Pakistani companies trade-off between dividend outlays and investment spending to allocate scarce financial resources rationally. The results of the simultaneous determination of investment and dividend decisions are consistent with those of Higgins (1972); Lee et al. (2016); McCabe (1979); Peterson and Benesh (1983); Switzer (1984). The following section discusses the outcomes of the additional exogenous variables. According to the flow of funds framework, cash flow *(CF)* has a negative and significant relationship with leverage *(LEV)* and a positive relationship with investment *(INV)* and dividend decisions *(DIV)*. Alternative sources of funding include external debt and internal cash flow; when companies have high cash flows, they tend to borrow less. Hence, Pakistani firms follow fund-raising hierarchy predicted by pecking order. Cash flow is the primary determinant of dividend decisions, and Pakistani companies may indicate to investors that they have a high cash flow by choosing to pay high dividends.

In addition, cash flow is a significant factor in investment decisions. Pair-wise correlation analysis shows an inverses relationship between cash flow and investment, which cannot be interpreted economically. The simultaneous equation analysis revealed a positive association between the two, suggesting that the availability of internally produced cash for investment is likely to be a deterrent for Pakistani enterprises. Firm Size (SIZE) is not an important factor affecting debt financing. Profitability (Prof) shows a positive but negligible (insignificant) link with debt financing and a negligible (insignificant) negative correlation with dividend decisions. Liquidity (LIQ) is a negative and significant determinant of debt financing decisions, and a positive and significant determinant of dividend decisions. As a result, businesses with high liquidity ratios have more cash on hand to pay dividends and require less outside funding. Our findings support the conclusions reached by Myers and Majluf (1984); Nijenhuis (2013); Rajan and Zingales (1995); Thalib, Herdiyana, and Wahid (2019); Titman and Wessels (1988). When making investing selections, the market-to-book ratio (MBR) is not a significant consideration. There is a strong and positive correlation between investment and the lag in investment (INV_{it-1}). To sum up, our findings demonstrate that decisions about investments, financing, and dividends are made simultaneously. As the money flow concept predicts, these strategic decisions are reasonably related and collaboratively chosen.

5. Conclusion

By modeling investment, finance, and dividend payment decisions in a simultaneous equation system, this work empirically explores the links between them. Our findings demonstrate how decisions about leverage have an impact on investments and vice versa. Investment decisions have a positive influence on leverage decisions, and leverage decisions have a favorable impact on investment decisions. Demand for investments drives debt financing, hence a decline in debt financing causes capital rationing and deters investment. Additionally, decisions regarding dividends are influenced by decisions regarding leverage, and vice versa. The

relationship between leverage and dividends is both bidirectional and positive. An increase in debt financing provides funds to pay out planned dividends even when internal funds are limited, and an increase in dividends limits its access to internal funds and forces a firm to use its debt capacity. Investment decisions influence dividend decisions and vice versa. Investments and dividends have a negative bidirectional relationship. Dividends and investments are two different ways to spend money. To allocate limited funds, managers of PSX-listed companies must choose between investing in and paying dividends. The findings are completely in line with the flow-of-funds approach. All three strategic decisions (investment, financing, and dividends) are sensitive to internally generated cash flow. The coefficient of cash flow in the leverage equation is negative, which shows that leverage and cash flow are alternative sources of funds. The fact that the coefficient of cash flow in the dividend and investment equations is positive indicates that both external debt and internally generated money limit payouts and investments. Businesses that are listed on the Pakistan Stock Exchange raise capital according to the POT, which implies that internal funds are preferred initially, with debt and equity being used as a last resort. Decisions about investments, financing, and dividends are made concurrently and in tandem in PSX-listed companies as a developing market. It is advisable to examine the connections among these tactical choices using a simultaneous equation framework. Our results contribute to the understanding of how businesses behave when making strategic decisions in emerging economies. The research's conclusions will have a significant impact on future studies on corporate finance in particular and strategic management in general. Similar to other studies, this study has some limitations. Pakistan was the only nation that was the subject of this study. These findings can be generalized by repeating this study in other emerging economies. The simultaneous nature of strategic financial decisions should be further investigated by including additional factors such as various types of firm' ownership, reputation risk (Khan & Sukhotu, 2020), corporate risk (Mackay & Moeller, 2007) and country-specific factors such as the economic and political environment (Sadaf et al., 2018).

5.1. Practical Implications

The study's conclusions have applications for managers, investors, and legislators. In order to prevent unfavorable outcomes, managers must first understand how decisions on investments, financing, and dividends are related to one another. These findings suggest that management should consider investment, financing, and dividend decisions simultaneously. When making a corporate decision, management must be aware of any additional influence. The findings of this study are also helpful to investors. Thus, dividend decisions are important to investors. Usually, they choose high dividend paying firms because they give a positive signal about future earnings prospects and ignore their impact on investment and financing decisions. This study provides findings about the interactions of dividend decisions with investment and financing decisions and how dividend decisions impact other decisions. This study mainly focuses on firms operating in an emerging economy, Pakistan, where the institutional context is different from that of firms operating in developed economies. These findings also have implications for policy-makers. The simultaneous analysis of investment, financing, and dividend decisions provides guidance to the government on how they can provide a favorable environment for the corporate sector in terms of financing and investment. This suggests that the government can enhance investments by adjusting its tax policy on dividends.

5.2. Limitations and suggestions for future research

In developing economies, finding trustworthy and readily available data can be difficult. The study's reliance on financial data from Pakistani businesses raises questions about its timeliness, quality, and completeness. This might have an impact on how solid the empirical results are. The study is restricted to Pakistan, despite the fact that it advances our knowledge of financial choices in developing economies. A more comprehensive understanding of the interdependence of company financial decisions would be possible through comparative studies conducted across several emerging markets. The intricacy of these linkages may still be oversimplified, even though the study uses simultaneous equation modeling (SEM) to examine the interdependencies across investment, financing, and dividend decisions. The precision of SEM may be constrained by its underlying assumptions, which include linearity and the elimination of potential endogeneity problems. Pakistan's distinct political, economic, and regulatory landscape may have an impact on business conduct in ways that aren't relevant in other situations. As a result, the results' external validity can be compromised. Macroeconomic factors that can have a big impact on corporate financial decisions, such interest rates, inflation rates, and exchange

rates, are not fully taken into account in this study because it mainly concentrates on firm-level data.

Cross-country comparative analyses should be taken into account in future research to investigate how the interdependencies among business financial decisions differ in various emerging economies. This could make it easier to spot general trends and variations across markets. A more thorough knowledge of how external economic conditions affect the interdependence of investment, financing, and dividend decisions may be obtained by incorporating macroeconomic issues into the research. Researching how corporate financial decision-making develops over time through longitudinal studies would shed light on how these interdependencies adapt to shifting market dynamics, legislative frameworks, and economic cycles. Examining how financial decisions are related to one another across various sectors in an emerging market may assist identify sector-specific dynamics and adjust financial plans. The findings could be made more robust and predictive by utilizing sophisticated econometric techniques like machine learning, dynamic panel data models, and structural equation modeling with latent variables. To better understand how managerial heuristics and biases affect the interdependencies among financial decisions, future research could include behavioral finance theories. This would give the study of company financial behavior a psychological component. A more thorough understanding of how corporate governance procedures impact business strategies may be obtained by looking at how factors like executive compensation, ownership structure, and board makeup shape the interdependencies across financial decisions. Future research can develop a more thorough and nuanced knowledge of the intricate interrelationships among business investment, finance, and dividend decisions by addressing these limitations and pursuing these pathways, especially in the context of emerging economies.

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