

## The Corporate Governance and Interdependence of Investment and Financing Decisions of Non-Financial Firms in Pakistan

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### Abstract

This study investigates the interdependence between financing and investment decisions in the presence of corporate governance factors of three hundred non-financial companies listed on the emerging market of Pakistani Stock Exchange (PSX). The sample is chosen randomly over a five-year period from 2012 to 2017. Using a panel data methodology, the regression models are derived based on the simultaneous equation modeling. Four factors of corporate governance mechanisms are identified: family ownership, managerial ownership, board size and board composition. This is among the earliest studies in Pakistan to consider simultaneity of financing and investment decisions by adopting Panel Data estimation technique. The major contributions of this study are: first, financing and investment decisions must be determined simultaneously. The results show that both investment and financing have positive impacts on each other and there exists a simultaneity among them.

**Keywords:** Financing; Investment; Corporate governance; 2SLS.



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### 1. Introduction

The performance of the corporate sector is at the heart of economic productivity and economic growth. In an era of globalization, the growth in corporate credit is seen as a lubricant of the economic engine (Sheikh and Qureshi, 2017) and investments are attributed to its efficiency. Researchers (Alan and Gaur, 2018; Basheer, 2014; Halling *et al.*, 2016) with different theoretical models have tried to explain the impact of corporate governance on the investment and financial decisions. However, the relationship between the corporate governance and financial decisions they are still a puzzle, whose parts don't seem to be fixed.

Firm financial decisions such as capital structure and investments are interdependent (Alan and Gaur, 2018; Chevalier, 2004; Childs *et al.*, 2005; Halling *et al.*, 2016). Many prior investigations have tried to explore the link between different factors to these decisions, however, the majority of them has studied this decision separately or independent of each other. It seems inappropriate to study these two decisions in isolation, as an investment which is usually seen as a proxy for firm growth is capitalized by internally generated financing i.e. cash or externally raised funds such as debt or equity. Both the internal and external financing has certain cost and benefits. Different theoretical justifications such as agency theory, pecking order theory, and cash flow theory are used to explain their relationship. However, managers of these firms still have no access to a single formula for these decisions

One of the most influencing factor, which hurdle in managerial agreement on one single formula is agency cost, agency cost is the cost arises from the conflict of interest between managers and shareholders. Though, capital markets around the world have derived legal frameworks in form of corporate governance codes to promote the ethical standards and reduce the agency conflict between owners and managers of the firm. The code of corporate governance in developing countries like Pakistan resemble in form resemble with those in UK and USA, however, in substance they differ as the legal framework of these countries is easy to manipulate. The importance of corporate firms in generating a country's higher productivity and better.

This study aims to examine the effect of corporate governance mechanisms on financing and investment decisions simultaneously. Most of the previous studies only examine the effect of corporate governance mechanisms on investment (Bernstein *et al.*, 2010; Cohen *et al.*, 2017; Heyden *et al.*, 2017) or the effect of corporate governance mechanisms on financing decisions (Boateng *et al.*, 2017; Detthamrong *et al.*, 2017; Salehi *et al.*, 2017). However, the current study is different from these study in a context that it is aimed to investigate the interdependence of investment and financing decisions. In addition to that, we are also interested in finding the impact of corporate governance on the interdependence of these two financial decisions. In author knowledge this among the pioneering study on this issue in the context of Pakistan.

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## 2. Hypothesis Development

### 2.1. Financing and Investment Decisions

Extant literature shows that debt is an effective monitoring mechanism to monitor managerial actions. For that reason, it is hypothesized that debt, specifically the creditors, provide better monitoring services. Actually, debt financing is seen as a proxy for ownership control and check on managerial activities which lower the agency cost and increase the firm value. Meanwhile, it is also argued that debt financing compels a manager to go for investment projects with positive net present value (Alan and Gaur, 2018; Halling *et al.*, 2016). Meanwhile a higher amount of tax also acts as a tax shield (Sheikh and Qureshi, 2017). Though the majority of researchers argued that debt financing is in a positive relationship with an investment decision, however, some studies (Aivazian *et al.*, 2005; Ridha and Bajka, 2010; Serrasqueiro, 2017). also shown a negative relationship between them. Jensen and Meckling (1976) and Jensen (1986) argue that debt can function as a disciplining mechanism to reduce free cash flow or reduce agency conflict between managers and shareholders through imposing fixed obligations on the firm. It is expected that higher growth leads to higher debt ratio because high growth firms imply a high demand for the fund and this could lead to a positive impact of growth on debt ratio (Bassey *et al.*, 2014). Moreover, Myers (1977) state that growth firms face high agency problems. Therefore, when growth firms issue more debt it could be used as a monitoring tool to reduce the agency problem between majority and minority shareholders. Reducing the level of debt helps to mitigate the cost of the risky debt that incentivizes the under-investment problem. Therefore, the following hypothesis is developed:

*H1: Financing decision affects investment decision.*

*H2: Investment decision affects the financing decision.*

### 2.2 Corporate Governance Factors

The main corporate governance characteristics that have been identified to affect the financing and investment decisions of firms include family ownership, government ownership, state ownership, managerial ownership, board size and board composition. Ownership structure will affect financing and investment decisions. Since Pakistan listed firms are largely controlled by large shareholders such as families, government and other institutional ownership (Claessens and Fan, 2002), it is important to investigate how different types of ownership are influencing financing and investment decisions. Therefore, the following hypotheses are developed to examine the effects of corporate governance characteristics on financing and investment decisions.

### 2.3. Family Ownership

The empirical evidence on the effect of family ownership on the financing policy is not conclusive. It is not clear whether family control and leverage are positively or negatively related, and there are theoretical arguments to support each point of view. It is argued that in closely held firms, debt is used by the controlling insiders to benefit themselves at the expense of minority shareholders. According to Liew *et al.* (2017), the debt could facilitate the expropriation of minority shareholders by providing the controlling shareholders with the opportunity to make use of considerable resources without lessening their rights to vote. Chakraborty (2018) conjecture that family firms have a tendency to employ debt over other alternatives. Due to their long-term commitments to the firms, they prefer to alleviate the agency problem between majority and minority shareholders by using debt. This is why family firms utilize more debt in their capital structure. Nonetheless, there is less need for issuing bonds to act as disciplining instrument for managers in family firms because the owners themselves act as managers and family wealth concentration occurs in business and family heritage also support the argument of a negative relationship between family ownership and financing policy (Mutlu *et al.*, 2017). Empirical research that supports the positive effects of family ownership on investment includes (Schmidt and Fahlenbrach, 2017). On the other hand, family firms might display excessive risk-aversion and the oversight of mergers or other opportunities for expansion owing to their concern for the family bequest (Faccio *et al.*, 2018).

Therefore, it is hypothesized that:

*H3: There is a relationship between family ownership and financing decision.*

*H4: There is a relationship between family ownership and investment decision*

### 2.4. Managerial Ownership

Friend and Lang (1988) argue that increased ownership of insiders leads to reducing leverage level as managers try to reduce the bankruptcy risk. This leads to a negative relationship between managerial ownership and leverage (Wahyudin and Solikhah, 2017). However, increased managerial ownership could lead to increase the manager's influence and voting power. Consequently, they might change the debt level to maximize their personal benefits by obtaining more cash (Ruan *et al.*, 2009). This could lead to a positive relationship between managerial ownership and financing decision (Short *et al.*, 2002). There are arguably two schools of thought on the relationship between managerial ownership and investment decision. In line with the incentive, the majority of studies indicate that management control or managerial ownership has a positive effect on a firm's investment decision (Bernstein *et al.*, 2010). On the other hand, in line with the entrenchment effect, managerial ownership is perceived to have a negative effect on a firm's investment decision (Matzler *et al.*, 2015). Therefore, it is hypothesized that:

*H5: There is a relationship between managerial ownership and financing decision.*

*H6: There is a relationship between managerial ownership and investment decision.*

## 2.5. Board Size

Firms that have large boards have a tendency to maintain a low debt ratio and prefer to issue equity (Heyden *et al.*, 2017). The underlying notion is that a large board eventually translates to the board's coercion of management to depend less on debt to improve the performance of the firm. However, empirical results from China point to a positive relationship between board size and debt ratio (Iqbal and Javed, 2017). These findings indicate that large boards are more entrenched owing to their monitoring by regulatory bodies and they focus on high debt level to improve the value of the corporation. Lipton and Lorsch (1992) point out that, even when the board's monitoring capacity increases with an increase in its size, the outcome costs will still exceed the benefits. Due to the nature of a large board of directors, which is usually more diversified, there will be a wide range of opinions and ideas for solving a problem or making a decision. For that reason, it seems like a small board of directors responds to the rapidly changing competitive environment more effectively. Nevertheless, (Kyereboah-Coleman, 2008) argues that a larger board provides effective monitoring, which means investment decisions are made in the best interest of owners. This finding shows that the board size positively influences the firm's growth opportunities, which indicates that the larger the board size, the better the chances of the firm to grow. Therefore, it is hypothesized that:

Therefore, it is hypothesized that:

*H7: There is a relationship between the board size and financing decision.*

*H8: There is a relationship between board size and investment decision.*

## 2.6. Board Composition

Non-executive directors' presence in the board indicates that the company is being effectively monitored and as such, lenders deem such company as worthy of their credit and in turn, the company is able to raise long-term funds via debt financing with ease. Nor *et al.* (2017) external directors enhance the ability of the firm to protect itself from both internal and external threats due to their ability to reduce the conflict between managers and shareholders. Consequently, increases the firm's ability to raise funds. In brief, the higher the number of nonexecutive directors in a firm, the higher the possibility that the firm has a high debt level. Iqbal and Javed (2017) show that firms with more external directors tend to have high debt level, while Detthamrong *et al.* (2017) find a negative relationship between the board composition and leverage. This finding shows that firms use bondholders to monitor managerial decisions. Nor *et al.* (2017) found that board composition has a significant impact on firms investment decisions. Meanwhile, Ali (2018) reported that the proportion of outside directors on a board is positively related to a firm's investment opportunities. Therefore, it is hypothesized that:

*H9: There is a relationship between the board composition and financing decision.*

*H10: There is a relationship between board composition and investment decision.*

## 3. Data and Methodology

### 3.1. Data Source

Considering the objectives of the current study, the secondary data 138 of non-financial listed firms operating in the textile sector over the period of 6 years from 2012 to 2017 is collected from the annual reports. Initially, all the textile firms operating in the textile sector were chosen as a sample of the study. However, later the firms with a leverage ratio of more than 1 and those with missing data are dropped from the final sample and the final sample comprises of 138 firms. The definition of variables used in this study are adopted from previous studies and are given in Table 2

**Table-1.** Definition of Variables

Variable	Proxy	Definition
Financing	<i>FIN</i>	Total debt to total assets
Investment	<i>INV</i>	Market-to-book ratio (MTBV). Net investment divided by last period's gross fixed assets
Family Ownership	<i>FO</i>	Family firm if a person or a group related by family ties holds the largest voting block of at least 10% of the total votes
Managerial Ownership	<i>MO</i>	Total shares held by executive directors over total common shares
Board Size	<i>BS</i>	The number of directors on the board
Board Composition	<i>BC</i>	The number of non-executive directors to total number of directors
Profitability	<i>PROF</i>	EBIT to total asset
Firm Size	<i>SIZE</i>	The ratio of dividend payment to total asset
Interest Rate	INTEREST	Interest rate
Non-Debt Tax Shield	<i>NDTS</i>	Depreciation and amortization expenses to total assets
Cash Flow	<i>CF</i>	The cash flow is measured as net profit plus depreciation to total asset

### 3.2. Model Specification

To find the interdependence of investment and financing decisions, and to examine the impact of corporate governance on investment and financing decision we have used the following models:

$$INV_{it} = \alpha_0 + \alpha_1 FO_{it} + \alpha_2 MO_{it} + \alpha_3 BS_{it} + \alpha_4 BC_{it} + \alpha_5 NDTS_{it} + \alpha_6 PROF_{it} + \alpha_7 SIZE_{it} + \alpha_8 INTREST_{it} + \alpha_9 CF_{it} + \alpha_{10} FIN_{it} + \varepsilon_{it} \dots \dots \dots (1)$$

$$FIN_{it} = \alpha_0 + \alpha_1 FO_{it} + \alpha_2 MO_{it} + \alpha_3 BS_{it} + \alpha_4 BC_{it} + \alpha_5 NDTS_{it} + \alpha_6 PROF_{it} + \alpha_7 SIZE_{it} + \alpha_8 INTREST_{it} + \alpha_9 CF_{it} + \alpha_{10} INV_{it} + \varepsilon_{it} \dots \dots \dots (2)$$

### 3.3. Pre-test Specifications

In the panel data econometric analysis, there are three main models: pooled Othe LS model, FE model, and RE model. In order to identify which methodology is appropriate, three statistical tests are used namely restricted Cook-Weisberg (CW) or Breusch-Pagan (BP) test, Wooldridge test, and Hausman specification test. First, the Breusch-Pagan (BP) test and Wooldridge test are performed to compare the pooled OLS and FE model, the key difference between them lies in the assumption of the individual effects; pooled OLS assumes that there is no individual heterogeneity while FE model assumes there is an individual heterogeneity. The null hypothesis is no individual effects. If the restricted F-test produces a low p-value (<0.05), then fixed effects estimates are chosen over pooled OLS because there is enough evidence that the individual effects are present. Meanwhile, Breusch-Pagan test is used to compare between pooled OLS and RE models. The key difference between them lies in the assumption of the individual effects. In the RE model,  $\alpha_i \neq \alpha$ ; specifically, the RE assumes that the individual specific effects  $\alpha_i$  are distributed independently of the regressor and included in the error term. Therefore, a statistical test can be developed based on the idea of whether the random component of individual effect or just random effect is present or absent. In this case, a statistical test called the LM test can be used. Basically, if LM test produces a high chi-square value, indicative of a low p-value (<0.05), then the null hypothesis that the individual effect is zero or the pooled estimate is appropriate is rejected. Therefore, random the effects technique is chosen over pooled OLS.

Finally, the Hausman specification test is performed to compare between the FE model and the RE model. The key difference between them is the assumption of whether there is a correlation between the individual effects and the explanatory variables. A statistical test can be developed based on the presence or absence of this correlation. Hence, the Hausman test can be used. Rejection of the null hypothesis means correlation exists between the individual effects and the other regressors in the model, thus suggesting that the RE model is rejected in favor of the FE model.

### 3.4. Descriptive Analysis

Table 2 provides the descriptive statistics of the variables used in this study. In order to understand the general characteristics of the sample, this table reports the minimum, maximum, mean and standard deviations based on unbalanced panel data from 2008 to 2013.

Table-2. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
FIN	828	0.00030	0.99769	0.5848	0.208
INV	828	0.02500	0.78869	0.6048	0.190
FO	828	0.00091	0.98963	0.6320	0.263
MO	828	0.00000	0.96923	0.4918	0.225
BS	828	-5.00000	11.0000	7.432	0.183
BC	828	0.00000	1.0000	0.281	0.018
PROF	828	-0.47689	0.29285	0.0282	0.083
SIZE	828	14.0020	17.0321	15.5099	1.65
INTREST	828	0.95000	0.140000	0.6314	0.022
NDTS	828	0.00000	0.98930	0.0494	0.09
CF	828	-0.44568	0.92172	0.0923	0.134
Valid N (listwise)	828				

### 3.5. Correlation Analysis

The bivariate correlations are examined between the explanatory variables to find out highly correlated independent variables which cause multicollinearity problem. Table 3 presents the matrix of Pearson correlation in order to measure the degree of relationship between the variables in this study. For all of the variable-pairs, none of the correlation coefficients have a value higher than 0.8. According to Judge *et al.* (1988), a value of more than 0.8 could lead to a multicollinearity problem. The highest correlation coefficient of 0.68 is observed for the relationship between managerial ownership and family ownership. Nevertheless, this high relationship is expected as family-owned firms usually appoint their own family members as managers. Some variable-pairs have absolute values of bivariate correlation between 0.30 and 0.50 (see, for example, size, board size-firm size, board composition-managerial ownership and tangibility-non-debt tax shield).

Table-3. Correlation Analysis

	<i>FIN</i>	<i>INV</i>	<i>FO</i>	<i>MO</i>	<i>BS</i>	<i>BC</i>	<i>PROF</i>	<i>SIZE</i>	<i>INTEREST</i>	<i>NDTS</i>	<i>CF</i>
<i>FIN</i>	1										
<i>INV</i>	-0.1830	1									
<i>FO</i>	-0.0257	0.1483*	1								
<i>MO</i>	-0.0810	0.1188	0.8929	1							
<i>BS</i>	0.1456	-0.4363	0.1129	0.0579	1						
<i>BC</i>	0.1308	-0.2847	-0.0828	-0.0674	0.0882	1					
<i>PROF</i>	-0.0220	0.2994	-0.1216	-0.0935	-0.3391	-0.0720	1				
<i>SIZE</i>	-0.1095	0.1030	-0.0027	0.0334	-0.2807	-0.2236	0.3642	1			
<i>INTREST</i>	-0.0342	0.0292	-0.1009	-0.0538	-0.1771	0.1142	0.1906	0.1061	1		
<i>NDTS</i>	0.0604	-0.2966	0.0367	-0.0288	0.5245	0.0672	-0.1263	-0.1620	-0.1484	1	
<i>CF</i>	-0.0342	0.0292	-0.1009	-0.0538	-0.1771	0.1142	0.1906	0.1061	-0.2236	0.3642	1

### 3.6. The Financing Model

Financing decision pooled OLS estimation suffers from heteroscedasticity problem based on Cook-Weisberg (CW) or Breusch-Pagan (BP) test, which shows a chi-square value of 34.56 with a p-value of 0.000. Financing decision pooled OLS estimation also suffers from autocorrelation problem based on Wooldridge test for autocorrelation in panel data that shows an F-value of 293.823 with a p-value of 0.000. The existence of both heteroscedasticity and autocorrelation warrants the use of robust standard errors for pooled OLS.

Table 4.4 shows the outcomes of pooled OLS, random effects and fixed effects for the financing model. In order to choose the most appropriate model, three statistical tests are used. First, the restricted F-test is performed to compare the pooled OLS with the FE model. F-test shows an F-value of 31.5 with a p-value of 0.000. Therefore, fixed effects estimates are chosen over pooled OLS. Second, LM test is performed to compare the pooled OLS with RE model. LM test shows a chi-square value of 1944.08 with a p-value of 0.000. Therefore, the random effects technique is chosen over pooled OLS. Finally, the Hausman test is performed to compare the FE model with the RE model. The Hausman test shows that the fixed effect model is the appropriate model since the Hausman test produces a chi-square of 664.25 with a p-value of 0.000. As noted earlier, simultaneity can cause endogeneity problem, which occurs when one or more dependent variables are jointly established with the other dependent variables, usually with the help of an equilibrium mechanism (Wooldridge, 2006). Based on information asymmetric and agency theories, it is expected that investment and financing might be simultaneously determined. Wu-Hausman test is performed to determine the existence of the endogeneity problem.

Table-4. Results of Financing Model

Variables	Pooled	Random	Fixed
	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Constant	-0.455 (0.009) ***	-0.030 (0.000) ***	-0.205 (0.000) ***
Investment	0.135 (0.000) ***	0.119 (0.000) ***	0.122 (0.000) ***
Board Size	0.005 (0.315)	-0.004 (0.278)	-0.003 (0.180)
Board Composition	-0.108 (0.065) *	-0.027 (0.094)	-0.014 (0.198)
Managerial Ownership	-0.004 (0.942)	-0.003 (0.921)	-0.029*** (0.003)
Family Ownership	-0.061 (0.328)	-0.016 (0.626)	-0.003 (0.933)
Profitability	-0.713 (0.000) ***	-0.335 (0.000) ***	-0.306 (0.000) ***
Firm Size	0.045 (0.000) ***	0.070 (0.000) ***	0.132 (0.000) ***
Interest Rate	0.958 (0.023) **	0.963 (0.010) **	1.133 (0.002) ***
Cash Flow	-1.275 (0.001) ***	-0.179 (0.344)	-0.075 (0.692)
Non Debt Tax Shield	0.107 (0.778)	-0.060 (0.797)	0.042 (0.868)
R2	0.405	0.424	0.591

### 3.7. Investment Model

Investment decision (Tobin's Q) pooled OLS estimation suffers from heteroscedasticity problem based on Cook-Weisberg (CW) or Breusch-pagan (BP) test that shows a chi-square value of 2398.78 with a p-value of 0.000. Investment decision pooled OLS estimation also suffers from autocorrelation problem based on Wooldridge test for autocorrelation in panel data that shows an F-value of 4.869 with a p-value of 0.028. This implies that robust standard errors must be used to correct the problems.

Table 5 shows the results of pooled OLS, random effects model and fixed effects model for the investment regression model. Three statistical tests are used to choose the appropriate model. First,

F-test shows an F-value of 17.851 with a p-value of 0.000. Therefore, fixed effects estimates are chosen over pooled OLS. Second, the LM test has a chi-square value of 1451.77 with a p-value of 0.000. Therefore, the random effects technique is chosen over pooled OLS. Finally, the Hausman test produces a chi-square of 504.48 with a p-value of 0.000, this shows that the fixed effect model is the appropriate model.

Based on the FE model, there are five significant variables which are total liabilities, family ownership, profitability, firm size and interest rate. Four of them are the same variables which are significant in the financing model. Financing decision (total liabilities) is statistically significant at 1% level and is positively related to investment opportunities. This implies that as leverage increases, firms tend to increase investment. GLICs ownership is statistically significant at 5% level and is negatively related to investment opportunities.

Table-5. Results of Investment Model

Variables	Pooled	Random	Fixed
Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Constant	0.528 (0.424)	1.090 (0.163)	8.434 (0.000) ***
Total Liabilities / Total Assets	1.262 (0.014) **	0.944 (0.000) ***	1.245 (0.000) ***
Board Size	-0.001 (0.952)	0.001 (0.950)	-0.009 (0.590)
Board Composition	-0.070 (0.797)	-0.126 (0.505)	-0.158 (0.450)
Managerial Ownership	-0.377 (0.146)	-0.134 (0.538)	-0.321 (0.210)
Family Ownership	-0.645 (0.002) ***	-0.466 (0.044) **	-0.063*** (0.000)
Profitability	6.430 (0.000) ***	3.192 (0.000) ***	2.605 (0.000) ***
Firm Size	0.011 (0.729)	-0.004 (0.904)	-0.382 (0.000) ***
Interest Rate	-5.340 (0.071) *	-4.262 (0.135)	-5.005 (0.070) *
Cash Flow	-0.085 (0.337)	0.001 (0.979)	0.022 (0.480)
Non Debt Tax Shield	0.055 (0.295)	0.044 (0.291)	0.028 (0.530)
R2	0.330	0.3075	0.400

\* Significant at the 10% level.

\*\* Significant at the 5% level.

\*\*\* Significant at the 1% level

Profitability is statistically significant at 1% level and positively related with investment opportunities. Firm size is statistically significant at 1% level and is negatively related to investment opportunities. Finally, the interest rate is statistically significant at 10% level and is negatively related to an investment decision.

## 4. Conclusions

The scope of this study is to examine the impact of managerial ownership on corporate cash holdings and leverage simultaneously on the Pakistani manufacturing listed firm. This study examines the data of 138 companies listed on Pakistan stock exchange over the period from 2012 to 2017. The period from 2012 to 2017 is selected because it comes before implementation of the revised code of corporate governance of Pakistan 2012. This study aims to examine the effect of corporate governance mechanisms on financing and investment decisions simultaneously. Most of the previous studies only examine the effect of corporate governance mechanisms on investment (Bernstein *et al.*, 2010; Cohen *et al.*, 2017; Heyden *et al.*, 2017) or the effect of corporate governance mechanisms on financing decisions (Boateng *et al.*, 2017; Detthamrong *et al.*, 2017; Salehi *et al.*, 2017). However, the current study is different from these study in a context that it is aimed to investigate the interdependence of investment and financing decisions. In addition to that, we are also interested in finding the impact of corporate

governance on the interdependence of these two financial decisions. In author knowledge this among the pioneering study on this issue in the context of Pakistan.

Agency cost theory suggests that leverage could be used to reduce agency problems that linked to an investment decision. On the other hand, information asymmetric theory suggests generally, firm managers are better informed about characteristics of firms' cash flow and investment opportunities than investors. In the model the family ownership and managerial ownership appears in negative relation. To achieve the research objective the current study has employed panel data methodology. To identify which methodology is appropriate, three statistical tests are used namely restricted Cook-Weisberg (CW) or Breusch-Pagan (BP) test, Wooldridge test, and Hausman specification test. Therefore, it is worthwhile to study the relationship between cash holding and leverage simultaneously. In both models, The managerial ownership appears in a non-linear relationship with both cash holding and capital structure decisions of textile firms. The results of the study are also providing support to agency theory, pecking order theory and the signaling theory.

Simultaneity can cause the endogeneity problem, which occurs when one or more dependent variables are jointly established with the other dependent variables, usually with the help of an equilibrium mechanism (Wooldridge, 2006). Based on information asymmetric and agency theories, it was expected that cash holdings and leverage might be simultaneously determined. Therefore, the Wu Hausman test is performed to determine the existence of the endogeneity problem. The p-value of both models is significant. This indicates that the investment and capital structure can be determined simultaneously. Meanwhile the positive coefficient in both of our model indicates that a high level of leverage increase investments.

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