



# **The mediation of the effect of leverage on the firm value through earnings management: Empirical evidence from Egypt**

**Prepared by**

**Shahenda Hamed Amin Siam**

**Teaching Assistant in the Accounting Department**

**Faculty of Commerce, Zagazig University**

**shahendahamed95@gmail.com**

**Journal of Business Research**

**Faculty of Commerce -Zagazig University**

**Volume 46 - Issue 1 January 2024**

**link: <https://zcom.journals.ekb.eg/>**

## **Abstract**

This study aims to examine the mediation of the effect of leverage on the firm value through earnings management. I used a sample of 56 companies listed on the Egyptian stock exchange distributed over 7 sectors during the period 2014 to 2019, to investigate the relationship between financial leverage and firm value. In addition, the indirect relationship between financial leverage and firm value is investigated. Debt to assets ratio is used to measure financial leverage, the sum of residual of accruals and residuals of real activities manipulation measures is used to measure earnings management. Tobin's Q is used to measure firm value. To test hypotheses a simple mediation model is tested using Hayes (2013) conditional process model. The results indicate that there is a positive relationship between leverage and firm value. The results also reveal that no indirect effect inferred and earnings management plays no mediating role in the relationship between financial leverage and firm value.

**Keywords:** *Financial leverage; earnings management; firm value.*

## **1. Introduction**

The firm value is the perception of investors of the firm, and is often associated with stock prices. According to the theory of the firm, the main purpose of the firm is to maximize the wealth or value of the firm.

Maximizing the value of a firm is very important, as by maximizing the value of the firm, one also maximizes shareholder's wealth, which is the main objective of the firm. The value of the firm is reflected in the bargaining power of the stock, if the firm is seen as a firm that has a good prospect in the future, the stock's value rises. The value of the firm can be seen through the market value equity (Hirdinis2019).

The firm value is the result of the work management does in many dimensions, which include growth, net cash flow from investment decisions and capital cost. For investors, firm value is an important concept because firm value is an indicator of how the market perceives the firm. Good firm performance leads to higher firm value. Creditors monitor firm value closely. For the creditor, the firm's value is related to the viability of the firm, i.e. whether the firm is considered capable or not of returning the loan provided by the creditor. If the implied value of the firm is not good, the investor will rate the firm as having a low value, (Rahman, 2014).

Jensen (1986) reported that when firms have extra internally generated funds more than investment requirements, debt forces managers to pay out funds that could otherwise have been invested in negative net present value projects thereby creating over-investment. This over-investment problem can be reduced if managers are forced to pay out excess funds for servicing debt,

therefore enhancing the firm's value. Myers (1993) suggests that a firm with outstanding debt may have the motivation to reject projects that have positive net present value if the benefits from accepting the project accrue to the bondholders thereby creating under-investment. This under-investment problem can harm the firm's value, especially for firms with a high levels of future investment opportunities.

The financial leverage can also affect earnings management, which affects firm value. The debt covenant hypothesis of positive accounting theory (Watts and Zimmerman, 1986) asserts that the closer a firm to the violation of credit agreement based on accounting numbers, the more the firm manager is motivated to select the accounting procedure which moves reported profit from the next period to the present one.

When financial leverage affects earnings management, the firm value also can be affected as one of the motivations of earnings management is to provide good news to corporate boards by showing good results in a certain period. This is a problem of potential endogeneity<sup>1</sup> that is, managers are reluctant to announce earnings below analysts' forecasts (Cohen et al., 2011) as it may have a negative effect on market price per share. As the market price per share affects the value of the firm, managers tend to manipulate the components of the balance sheet and income statements through accruals to maintain and/or maximize share price for the current and subsequent years.

---

<sup>1</sup> Endogeneity is a major methodological concern for many areas of business and management research that rely on regression analysis to draw causal inference. Roberts and Whited (2013, p. 493) broadly define endogeneity as 'a correlation between the explanatory variables and the error term in a regression'

There are many studies investigate the relationship between financial leverage and firm value, the relationship between financial leverage and earnings management, and the relationship between earnings management firm value, but there is no study investigates whether earnings management plays a mediator role in the relationship between financial leverage and firm value by using Hayes framework as an approach to investigate the mediating role of earnings management in this relationship.

## **2. Research question**

As the financial leverage is one motivation of earnings management and earnings management affects firm value so earnings management may play a mediating role of the relationship between financial leverage and firm value.

The Research problem can be expressed in the following questions:

- 1) How does financial leverage affect firm value?
- 2) What is the mechanism by which financial leverage affects firm value? To what extend earnings management constitute a mechanism for transferring the effect of leverage to the firm value?

## **3. Research objectives**

The objective of this study is to

- 1- Investigate the direct effect of financial leverage on firm value.
- 2- Investigate the mediation of the effect of leverage on the firm value through earnings management.

## 4. Research significance and contribution

This research contributes to

- Handling the shortcoming of previous studies that have tested the relationship between leverage and firm value without offering an explanation of how that effect takes place.
- Investigate whether earnings management plays a mediator role in the relationship between leverage and firm value.
- Introduce the conditional process analysis using Hayes (2013) process in testing the mediating role of earnings management in the relationship between financial leverage and firm value depending on bootstrap confidence intervals.

## 5. Literature review and hypotheses development

The conditional process analysis will be used in investigating the relationship between financial leverage and firm value with a mediator earnings management, the model can be stated as

Financial leverage  $\longrightarrow$  Earnings management  $\longrightarrow$  Firm value.

The literature review is structured according to this model and will consist of:

1. The total effect of financial leverage on firm value
2. The indirect effect of financial leverage on firm value
  - a- Financial leverage  $\longrightarrow$  Earnings management link
  - b- Earnings management  $\longrightarrow$  Firm value link
3. The direct effect of financial leverage on firm value

## 5.1. Total effect studies

Myers and Majluf (1984) s' "The pecking order theory" states that there is a relation between the capital structure and the value of the firm. The value of the firm can increase if the right structure of capital is used. A firm tends to use internal funding sources, when they are available, rather than external funds. And when internal funds are completely depleted, debt should be desired to equity because of tax benefits, the low transaction cost, and other advantages related to it. "The trade-off theory" also states that there is a relationship between the capital structure and the value of the firm. That is, a firm's value can increase if the proper debt equity mix is used in the firm.

Uzilawati et al, (2018),using a sample of 101 manufacturing firms listed on Indonesia stock exchange during the period 2012 to 2015, where debt to equity ratio is used as a proxy of the capital structure and price to book value is used to measure firm value, found that high firm value attracts investors to invest in these firms, and will improve the firm's operations as a result.

Wipperfurth (1966), analyzed the relationship between financial leverage and firm value in seven diverse industries which are marked of high degree of different characteristics such as cost, growth and demand. The study used debt to equity ratio as a measure of financial leverage and earnings to the market value of common stock as a measure of performance. The results indicate that there is a positive effect of leverage on firm value.

Ruan, et al (2011), using a sample of 197 China civilian-run firms listed on the Chinese stock market from 2002 to 2007, found that managerial

ownership has a negative effect on the total debt to total assets ratio and that the total debt to total assets ratio (as a measure of capital structure) has a negative effect on firm value (Tobin's Q is used as a proxy measure of firm value).

Raza (2013), using a 482 sample of non-financial firms listed on the Karachi stock exchange for the period 2004 to 2009, analyzed the effect of financial leverage on financial performance, found an inverse relationship between leverage and performance as long-term debt is more costly due to certain direct and indirect costs. Return on assets, return on equity and Tobin's Q are used to represent financial performance and financial leverage is represented by the ratio of debt to equity and the ratio of debt to asset.

Chadha and Sharma (2016), using a sample of 422 Indian manufacturing firms on the Bombay stock exchange for the period 2003-2004 to 2012-2013, found that there was no association between firm's value and financial leverage. However, variables such as size, profitability, age and growth of the firm had a significant and positive association with the value of the firm in the Indian manufacturing firms. Also, there was a significant association between firm value and the industry practice of the firm.

Barakat (2014), using a sample of 46 Saudi industrial firms listed on the Saudi stock market for the period 2009 to 2012, examined the effect of financial structure, financial leverage and profitability on industrial firm's value. He found a positive relationship between independent variables: return on equity and capital structure, and the dependent variable, stock market price. There was a weak and negative relationship between financial leverage



(measured by debt to asset ratio) and stock value (measured by firm stock market value) and this relationship is not significant, which revealed that changes in the level of financial leverage did not affect the value of the firm.

In sum, some previous studies find that financial leverage positively affects firm value. In other words, when financial leverage increases, the firm value increases. On the other hand, a significant negative relationship between financial leverage and firm value is found. Still, there are some studies that have found no significant relationship between the two variables.

Therefore, the first hypothesis in this research is as follows:

**H1: There is no relationship between financial leverage and firm value**

## **5.2. The indirect effect studies**

### **5.2.1. Financial leverage Earnings management link**

Othman and Zeghal (2006), using a sample of 1,674 Canadian and 1,470 French firm-year observations during the period of 1996-2000, found that contractual debt costs (measured by debt to equity ratio) cause earnings management (discretionary accruals are used to measure earnings management) in French firms and issuing new equity causes earnings management in Canadian firms.

Obeidat (2016) , using a sample of 29 firms out of the 83 firms listed on the Abu Dhabi securities exchange over 4 years from 2012 to 2015, examined the relationship between capital structure and earnings management. The results revealed that there is a significant and positive relationship between leverage (measured by total debt to assets ratio) and earnings management practices (measured by discretionary accruals).

Wassimullah and Abbas (2010), investigated the impact of leverage on the practices of earnings management in the textile industry of Pakistan. They revealed that highly leveraged firms cause low free cash flow because a large part of cash flow is used in the form of interest payments and the managers avoid investing in non-value maximizing projects. As a result, their prudent approach of avoiding investing in non-value maximizing project acts as a control over creating accruals. They found that when financial leverage increases the earnings management decreases thus supporting a negative association between earnings management and firm leverage.

Zamri et al., (2013), using a sample of 3,745 firm-year observations listed on the Bursa Malaysia for the period of 2006 to 2011, studied the effect of financial leverage on real earnings management (REM). The findings indicate that there is a negative relationship between financial leverage (measured based on the ratio of total liabilities to total assets) and earnings management activities (abnormal cash flow from operations, abnormal production costs and abnormal discretionary expenses as the proxy measures of real earnings management).

The impact of leverage on earnings management is viewed in two different ways. On the first hand, prior studies suggest that highly leveraged firms are more likely to manage their earnings (Dichev and Skinner, 2002 and Beatty and Weber, 2003). For example, According to Beatty and Weber, (2003), managers use income increasing accruals to decrease the likelihood of the firms violating debt covenants. On the other hand, Jensen, (1986), suggests that debt creation decreases opportunistic behaviors of managers. This is

because of the "control hypothesis" for debt creation. Managers use their own discretion, to control the firm's cash flow; however the role of debt control begins when managers have an obligation of making interest and a principal payment. This implies that high leverage may restrict the ability of managers to manipulate income-increasing accruals.

### **5.2.2 Earnings management** **Firm value link.**

Li (2010), using a sample of 7,861 US firms during the period 1988 to 2008, found that real earnings management practices of managers are associated with subsequent higher stock returns .

Gholami, et al(2012), using a sample of 1,200 US IPO firms for the period 2000 to 2010, found that initial public offering (IPO) firms engaged in earnings management with high investor beliefs having an effect on the long-run abnormal stock return performance.

Raoli, (2013), using a sample of 209 Italian firms listed on the Milan stock exchange for the period 1997 to 2010, examined whether managers do engage in earnings management to support firm's market valuation in the country's financial market. The study used total accruals as the measure of earnings management while the firm value was measured using the change in the market to book ratio. The findings of the study show that, the firm's market value in the Italy market is positively associated with earnings management.

Wardani and Hermuningsih (2013), in a sample of listed firms on the Malaysia stock exchange for the period 2006 to 2008, used the modified jones

model to measure discretionary accruals and price to book value as a proxy to measure firm value. The findings of the study show empirical evidence that accrual-based earnings management has a positive effect on firm value.

Arar et al. (2018), use a sample of (49) Jordanian Service firms listed on Amman stock market for the period of 2010 to 2015. The relationship between the share price and the earnings management is investigated by using the modified Jones Model (1995) to measure the earnings management. The findings of this investigation indicate that there is no relationship between earnings management and stock price.

In Darmwan et al.(2019),the sample of the study was all manufacturing firms listed on the Indonesia Stock Exchange (IDX) during the period 2013 to 2017.The sample was then selected using a purposive sampling method. The results of this study indicate that accrual earnings management (measured by discretionary accruals) did not affect the value of the firm (measured by Tobin's Q). Real earnings management has a negative impact on firm value.

Overall, leverage motivates earnings management and there is a relationship between leverage and earnings management highlighted by positive accounting theory. Also, there is a relationship between earnings management and firm value, so I study earning management as a mediator variable in the relationship between financial leverage and firm value.

The second hypothesis in this study is as follows:

**H2: Earnings management plays no mediating role in the relationship between financial leverage and firm value.**

### **5.3. The direct effect of financial leverage on firm value**

The third hypothesis in this study is as follows:

**H3: There is no direct relationship between financial leverage and firm value.**

## **6. Method**

### **6.1 Sample selection**

The population in the current study consists of all companies listed on the Egyptian stock exchange, except for banks and financial institutions because of their special nature.

A sample of 56 companies with 336 firm-year observations is selected from the population. The sample is distributed over seven sectors. All firms drawn from the population must be registered on the Egyptian stock exchange for the period 2014-2019. Each sector must include a sufficient number of firms in order to estimate accrual and real activities based earnings management model. When the research models are run, the researcher excludes outlier observations.

Sectoral distribution of the final sample is presented in table (1).

**Table1: Sectoral distribution of the final sample**

No	Sector	Years and number of companies					
		2014	2015	2016	2017	2018	2019
1	Personal and Household Products	6	6	6	6	6	6
2	Chemicals	6	6	6	6	6	6
3	Real Estate	8	8	8	8	8	8
4	Healthcare and Pharmaceuticals	10	10	10	10	10	10
5	Industrial Goods and Services and Automobiles	8	8	8	8	8	8
6	Construction and Materials	8	8	8	8	8	8
7	Food and Beverage	01	01	01	01	01	01
Total number of sample companies		65	65	56	56	56	56
Number of companies listed on the Egyptian stock exchange		214	221	222	222	220	218
Number of companies related to banks and financial institutions sector		38	43	46	47	49	51
Number of registered non-financial companies		176	178	176	175	171	167
Percentage of the total sample to the total number of registered non-financial companies		32%	%31	32%	32%	%33	34%

## 6.2 Study model

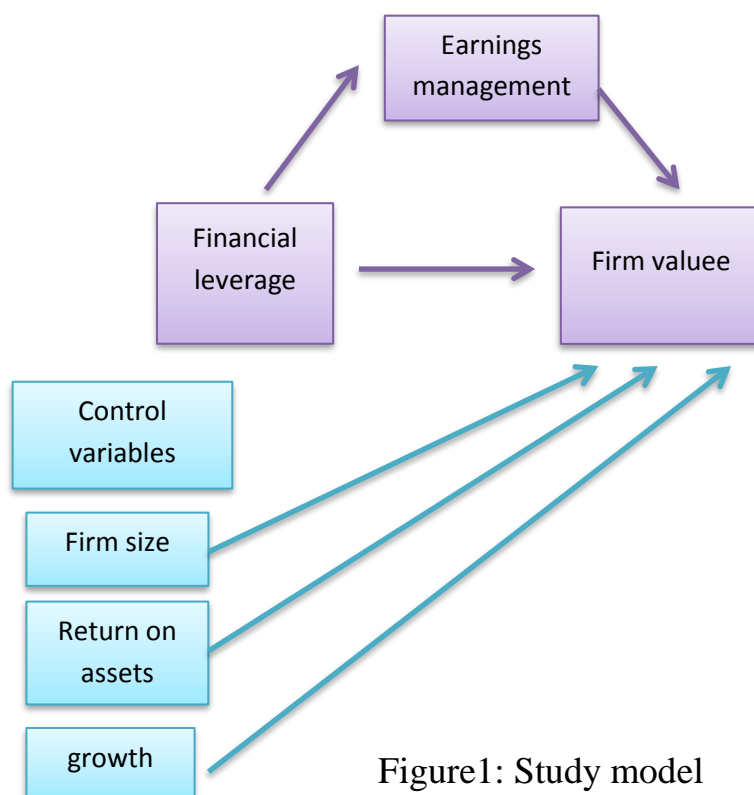


Figure1: Study model

Hayes (2013) conditional process model is used to examine the mediating role of earnings management in the relationship between leverage and firm value. The regression equation for predicting earnings management is presented as follows:

$$EM_{it} = \beta_0 + a LEV_{it} + \epsilon_{it} \dots \dots \dots (11)$$

The regression equation for predicting firm value considering the mediator is presented as follows:

$$FV_{it} = \beta_0 + c LEV_{it} + b EM_{it} + \beta_1 Size_{it} + \beta_2 ROA_{it} + \beta_3 Growth_{it} + \epsilon_{it} \dots \dots \dots (12)$$

The regression equation to estimate the total effect is presented as follows:

$$FV_{it} = \beta_0 + c LEV_{it} + \beta_1 Size_{it} + \beta_2 ROA_{it} + \beta_3 Growth_{it} + \epsilon_{it} \dots \dots \dots (13)$$

Table (2) introduces operational definition of model variables.

**Table 2: Operational definitions of study variables**

Variable	Symbol	Operational definition
Dependent variable:		
Market financial performance	FV	Tobin's Q = (market value of total shares + book value of debt) / book value of total assets.
Independent variable		
Financial leverage	LEV	Total debt/ total assets
Mediator variable:		
Earnings management	EM	The sum of residual of accruals and residuals of real activities manipulation measures.
Control variables:		
Firm size	SIZE	Ln(total assets)
Return on assets	ROA	Net income/total assets
Growth opportunity	GROWTH	(Sales in the current period – sales in the previous period) / sales in the previous periods

## **7. Empirical findings**

### **7.1. Descriptive statistics**

The financial leverage is between 0.01754 to 1.04771. The mean for the leverage of 0.42986 indicates that sample firms in general rely heavily on external funds, especially debt, to finance assets. The standard deviation is 0.21344. The value of Earnings management ranges from the minimum value of -0.39802 to a maximum value of 0.53617 with a mean value of 0.05298. The standard deviation is 0.11916 which exceeds the mean value indicating high variation in the level of earnings management practices among sample firms. The firm value (Tobin's Q), has a mean of 1.3632, which reveals that the market values of the sample firms are greater than their book values. That indicates that the sample firms has good growth prospects and the sample firms is more conservative. The range of TQ is between 0.18228 to 6.86126 and the standard deviation is 0.86472. As to control variables, the average ln size is 20.4206 for the sample firms with minimum value of 17.41745 and maximum value of 23.7938. The standard deviation is 1.2531, The ROA ranges from a minimum value of -0.15847 to a maximum value of 0.48284. And the standard deviation is 0.08506, and the mean value for growth opportunity ranges from a minimum value of -0.77523 to a maximum value of 4.50884 the average value is 0.199247, the standard deviation is 0.52035.



**Table 3: Descriptive statistics**

Variables	N	Minimum	Maximum	Mean	Std.Deviation
LEV	336	.01754	1.04771	.43072	.21344
TQ(FV)	336	.18228	6.86126	1.3632	.86472
EM	336	-.39802	.53617	.05298	.11916
FS	336	17.41745	23.79380	20.4206	1.2531
ROA	336	-.15847	.48284	.09551	.08506
GROWTH	336	-.77523	4.50884	.199247	.52035

**7.2. Correlation matrix**

There is a positive and significant relationship between Tobin's Q (TQ) and firm size (FS) and ROA. Also, there is a positive and significant relationship between leverage (LEV) and firm size. However, there is a negative and significant relationship between leverage and return on assets.

The correlation between the dependent variable (TQ) and mediator variable (EM) is 0.007 which indicates that there is a weak and insignificant relationship between the two variables.

There is no significant correlation between dependent variable (TQ) and the independent variable (LEV) and mediator variable (EM) which potentially indicates there is no significant relationship. There is a positive and significant relationship between firm size and return on assets. The correlation between explanatory variables is below 0.90 which indicates that there is no multicollinearity between the explanatory variables (Gujarati, 2003).

**Table 4: Correlation analysis**

	TQ	LEV	EM	FS	ROA	GROWTH
TQ	1					
LEV	-.05	1				
EM	.007	.047	1			
FS	.377***	.241***	.011	1		
ROA	.614***	-.304***	.013	.224***	1	
GROWTH	-.026	-.022	-.022	-.025	.082	1

## **7.3. Model validation**

### **7.3.1. Normality**

The normality assumption states that the regression residual follows the normal distribution with zero mean and constant variance. Although the normality assumption is not necessary for the estimation of regression parameters, it is needed to engage in statistical inference, namely testing of hypotheses (Gujarati 2003). One sample Kolmogorov – Smirnov test is used to test the normality of residuals.

Kolmogorov – Smirnov test statistics for equation (11) is 0.097, for equation (12) is 0.150, and for equation (13) is 0.154 with p-value equals 0.000, Hence, the null hypothesis which states that the residual of regression is not normally distributed cannot be rejected (the residual of regression is not normally distributed). To overcome the influence of outliers, I apply Winsorizing at the 1%.

### **7.3.2. Heteroscedasticity and Autocorrelation**

Heteroscedasticity occurs when the residuals have unequal variances (non-constant variance across the independent variable. Autocorrelation is defined as correlation between the members of a series of observations ordered in time (as in the series data) or space (as in cross sectional data) (Kendall and Buckland 1971 cited by Gujarati 2003). Durbin – Watson statistic is used to test autocorrelation.

Durbin-Watson test for equation 11 presented in table (5)

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.047 <sup>a</sup>	.002	-.001-	.11427440	1.249

Durbin-Watson test for equation 12 presented in table (6)

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.669 <sup>a</sup>	.447	.439	.617439436 889898	.963

Durbin-Watson test for equation 13 presented in table (7)

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.669 <sup>a</sup>	.447	.440	.616546438 488020	.963

In table (5) the Durbin – Watson d statistic is 1.2490 and in table (6) and table (7) the Durbin – Watson d statistic is 0.963. As Durbin – Watson d statistic  $< 2$ , so there is an autocorrelation problem. Clustered robust standard errors are used to correct for both heteroscedasticity and autocorrelation (Hoechle, 2007 and Holzacker et al., 2015). Consequently, the findings of the study models can be relied on.

### 7.3.3. Multicollinearity

Multicollinearity refers to the existence of a perfect or exact linear relationship among some or all explanatory variables of a regression model. The variance – inflating factor (VIF) is used to detect multicollinearity which shows how the variance of the estimator is inflated by the presence of

multicollinearity as the extent of collinearity increase, the variance of an estimator increases. If the VIF of a variable exceeds 10, the variable is highly collinear (Gujarati 2003). VIF for all explanatory variables in equation (11), equation (12) and equation (13) is less than 10 so there is no multicollinearity problem in research models.

## 8. Hypotheses tests

### 8.1. Testing hypothesis (1): Total effect

**H1: There is no relationship between financial leverage and firm value. Statistically the null hypothesis to test is(c=0)**

$$Fv_{it} = \beta_0 + cLEV_{it} + \beta_1 Size_{it} + \beta_2 ROA_{it} + \beta_3 Growth_{it} + \varepsilon_{it} \dots \dots \dots (13)$$

Table (8) shows the results for the total effect of financial leverage on firm value.

The prob F statistic is used to test the significance of the regression model. Prob F = 0.000 which indicates that model (13) is highly significant.

$R^2 = 44.7\%$ , which means that 44.7% of the variation in the dependent variable (FV) is explained by the independent along with the control variables.

The estimated value of total effect  $c = 0.304$ , it is marginally significant (p-value = 0.083) and indicate a positive relation between financial leverage and firm value, which means that H1 is rejected.

**Table (8): the results of the total effect of financial leverage on firm value.**

Explanatory variable	Unstandardized Coefficients			Standardized Coefficients	T	Sig.	Collinearity statistics	
	Predicted sign	Beta	Robust Std. Error	Beta			Tolerance	VIF
Constant		-2.349	.537		-4.376	.000***		
Leverage(LEV)	?	.304	.175	.078	1.738	.083*	.803	1.245
Firm size(FS)	+	.148	.026	.224	5.650	.000***	.841	1.189
Return on assets (ROA)	+	5.991	.516	.594	11.612	.000***	.804	1.244
Growth	+	-.129	.061	-.071	-2.119	.035**	.987	1.014

$R^2 = .447$   
Adjusted  $R^2 = 0.44$   
F statistics = 66.909  
Sig. = 0.000  
Durbin – Watson test = .963  
Kolmogorov – Smirnov test significant = 0.000  
N=336

## 8.2. Testing hypothesis (2): The indirect (mediating) effect

**H2: Earnings management plays no mediating role in the relationship between leverage and firm value. Statistically the null hypothesis to test is (ab=0)**

In a simple mediation model, a mediator variable (earnings management in the current study) influences the relationship between antecedent (independent) variable (leverage) and the outcome (dependent) variable (firm value). A simple mediation model (Hayes (2013) conditional process model) for the financial leverage and firm value relationship through Earnings management.

Bootstrapping is used to generate an empirically derived representation of the sampling distribution of the indirect effect in mediation analysis, and this empirical representation is used for the construction of a confidence interval for T (a-b). Unlike the normal theory approach, no assumption is made about the shape of the sampling distribution of (ab). Bootstrap confidence intervals better respect the irregularity of the sampling distribution of (ab) and, as a result, yield inferences that are more likely to be accurate than the using of the normal theory approach. The result is a test with higher power than the normal theory approach. When used to test a hypothesis, (Hayes2013). If the bootstrap confidence interval contains zero that means that there is no indirect relationship, i.e., (ab) is in significant.

$$EM_{it} = \beta_0 + a LEV_{it} + \varepsilon_{it} \dots \dots \dots (11)$$

In table (9) the estimated value of a=0.025 the prob F statistic is used to test the significance of the regression model. Prob F = 0.392 which indicates that model (11) is not significant.

In table (11) the estimated value of b= -0.062, sig = 0.88 which indicates that there is no relationship between earnings management and firm value.

R<sup>2</sup> =.002, which means that the variation in the dependent variable (EM) are not explained by financial leverage so there is no relationship between financial leverage and Earnings management.

**Table (9): the results of the effect of financial leverage on earnings management.**

	Unstandardized Coefficients			Standardized Coefficients	T	Sig.	Collinearity Statistics	
	Predicted sign	B	Robust Std. Error	Beta			Tolerance	VIF
Constant		.042	.014		3.011	.003		
Lev	?	.025	.029	.047	.882	.392	1.00	1.00

$R^2 = .002$   
Adjusted  $R^2 = -.001$   
F statistics = 0.735  
Sig. = 0.392  
Durbin – Watson test = 1.249  
Kolmogorov – Smirnov test significant = 0.000  
N=336

A 95% bias-corrected bootstrap confidence interval is shown in table (10).

The model coefficients are indicated on each path a (0.025) and b (-.062) the indirect effect of financial leverage on firm value through Earnings management is the product of these two coefficients (a and b). Accordingly, ab (-.0016). A 95% bias-corrected bootstrap CI is (-0.0389 TO 0.0323).

A 95% bias-corrected bootstrap confidence interval contains zero which indicates that the indirect effect of financial leverage on firm value is insignificant. In other word, the earnings management plays no mediating role in the relationship between financial leverage and firm value so H3 cannot be rejected.

**Table (10) A 95% bias-corrected bootstrap confidence interval**

Indirect effect(s) of X on Y			
	Effect	BootLLCI	BootULCI
EM	-.0016	-.0389	.0323

### 8.3. Testing hypothesis (3): Direct effect

**H3: There is no direct relationship between financial leverage and firm value. Statistically the null hypothesis to test is( $c=0$ )**

$$FV_{it} = \beta_0 + c \cdot LEV_{it} + bEM_{it} + \beta_1 Size_{it} + \beta_2 ROA_{it} + \beta_3 Growth_{it} + \varepsilon_{it} \dots (12)$$

Table (11) shows the results of the direct effect of financial leverage on firm value.

The prob F statistic is used to test the significance of the regression model. Prob F = 0.000 which indicates that model (12) is highly significant.

$R^2 = 44.7\%$ , which means that 44.7% of the variation in the dependent variable (FV) is explained by the independent, the mediator along with the control variables.

The estimated value of direct effect  $c = 0.306$ , it is marginally significant (p-value=0.073) and indicate a positive direct relation between financial leverage and firm value, which means that H2 is rejected.

**Table (11): Direct effect of financial leverage on firm value.**

Explanatory variable	Unstandardized Coefficients			Standardized Coefficients	T	Sig.	Collinearity statistics	
	Predict ed sign	Beta	Robust Std. Error	Beta			Toleran ce	VIF
Constant		-2.345	.539		-4.353	.000***		
Leverage (Lev	?	.306	.170	.079	1.797	.073*	.801	1.249
Earnings management (EM)	?	-.062	.406	-.009	-.151	.88	.996	1.004
Firm size(FS)	+	.148	.026	.224	5.645	.000***	.841	1.190
Return on assets(ROA)	+	5.994	.512	.594	11.697	.000***	.803	1.246
Growth	+	-.129	.061	-.071	-2.129	.034**	.986	1.014
$R^2 = .447$ Adjusted $R^2 = 0.439$ F statistics = 53.381 Sig. = 0.000 Durbin – Watson test = .963 Kolmogorov – Smirnov test significant = 0.000 N=336								



The results of the study are summarized in figure (2).

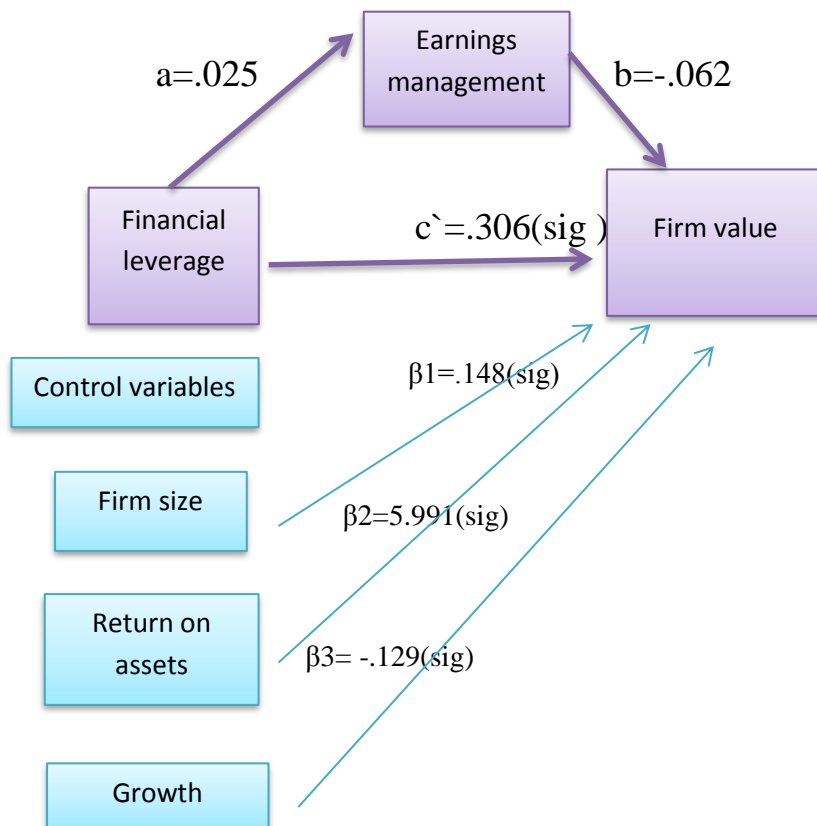


Figure 2: results of the study model

## 9. Discussion of results

### 9.1. The relationship between financial leverage and firm value

The current study indicates that financial leverage has a marginally significant positive effect on firm value, which means if the financial leverage increases the firm value increases and vice versa.

This result is consistent with tradeoff theory, where increasing debt through balancing benefits and costs will enhance the firm value, and it is also consistent with pecking order theory, and Uzilawati et al., (2018), who found a

positive association between leverage and the value of the firm and that using debt financing in the capital structure causes an increase in efficiency besides providing tax shield to the firm.

On the other hand the result of the current study, that indicates that the financial leverage has a marginally significant positive effect on the firm value is inconsistent with Ruan, et al., (2011), and Raza (2013), who found a negative relationship between financial leverage and firm value.

## **9.2. The indirect relationship between financial leverage and firm value through earnings management.**

The current study indicates that there is no effect of financial leverage on earnings management. This result is inconsistent with Zamri et al.,(2013), and Jensen( 1986) who find a negative relationship between financial leverage and earnings management. The result of the current study also is inconsistent with debt covenants hypothesis, Othman and Zeghal (2006), and Obeidat (2016) find a positive relationship between financial leverage and earnings management.

There are two views of the relationship between financial leverage and earnings management. According to the positive accounting theory the debt covenants is a basic incentive for earnings management so there is a positive relationship between them. And according to Jensen (1986) the debt creation reduces earnings management due to the “control hypothesis” so there is a negative relationship between them.

Upon inspecting the notes to financial statements of the sample companies searching for debt covenants. As appears in table (12), I find that there are

only 5 firms that have debt covenants, 3 of them have non-earnings related debt covenants and only 2 of them have earnings- related debt covenants. The general lack of debt covenants in the sample companies could explain the lack of a relationship between financial leverage and the earnings management.

**Table (12): Debt covenant frequencies in the sample companies**

<b>Companies</b>	<b>Number</b>	<b>Percentage</b>
<b>Companies having debt covenants:</b>		
• <b>Earnings-related debt covenants</b>	2	3.57%
• <b>Non-earnings related debt covenants</b>	3	5.35%
<b>Companies without debt covenants:</b>	51	91.1%

The current study indicates that earnings management carried out by managers to influence earnings does not have any impact on firm value.

This result is consistent with, Arar et al. (2018) and Darmawan et al. (2019). The market may perceive observed that earnings management is not dangerous or they cannot detect this practice so that the market does not give any response either positively or negatively to earnings management carried out by managers. This result is inconsistent with, Gholami (2012), and Raoli (2013) who indicates that there is a positive relationship between earnings management and firm value.

The indirect effect of financial leverage on firm value through earnings management is the product of the two coefficients (a and b). Which is (-.0016) . A 95%bias-corrected bootstrap CI is (-0.0375 to 0.0333) .As this confidence interval includes zero, no indirect effect is inferred and earnings management plays no mediating role in the relationship between financial leverage and firm value.

### **For The control variables:**

Firm size, the estimated value  $\beta_1=.148$ , (sig. =0.000) implies a positive and significant effect of firm size on the market financial performance. This result is consistent with Hidayah (2014), and Brealey et al ,(2017),Who find that the larger size of a firm causes more investors to pay attention to the firm. This will increase stock prices of firms that will, in turn, increase the value of the firm.

Return on assets, the estimated value of  $\beta_2=5.994$ , (sig. =0.000) implies a positive and significant effect of return on assets and firm value. This result is consistent with Terpstra and Verbeeten(2014), who find that the firm with high profits shows that the firm has good performance that generates positive signals for investors and increases the firm's stock price that will, in turn, increases the value of the firm.

Growth opportunity, the estimated value of  $\beta_3=-0.129$ , (sig. =0.034) implies a negative and significant effect of growth opportunity on the firm value. This result is consistent with Goh et al., (2022), who find that sales growth does not guarantee an increase of the profit of the firm and then has a negative impact on the firm value.

## **10. Conclusion**

This study explores the direct effect of financial leverage on firm value and investigates the indirect effect of financial leverage firm value through

earnings management. Using a sample of 56 non-financial firms distributed over seven sectors over the period from 2014 to 2019, with 336 firm–year observations.

Debt to assets ratio is used to measure financial leverage, the sum of residual of accruals and residuals of real activities manipulation measures is used to measure earnings management. Tobin’s Q is used to measure firm value. To test hypotheses a simple mediation model is tested using Hayes (2013) conditional process model.

The results reveal that there is a positive and significant direct relationship between financial leverage and firm value . The results also reveal that there is no mediating role of earnings management in the relationship between financial leverage and firm value. A plausible explanation of financial leverage on earnings management is the general lack of sufficient earnings related debt covenants in the study sample.

## Reference

- Arar, S. S., E. Al-sheikh.,and A. S. Hardan. 2018. The Relationship between Earnings Management and Stock Price Liquidity. *International Journal of Business and Management*, 13(4), 99-107.
- Barakat, A. 2014. The Impact of Financial Structure, Financial Leverage and Profitability on Industrial Companies Shares Value (Applied Study on a Sample of Saudi Industrial Companies). *Research Journal of Finance and Accounting*, 5(1), 55-66.
- Beatty, A., and J. Weber 2003. The Effects of Debt Contracting on Voluntary Accounting Method Changes. *The Accounting Review*, 78(1), 119–142.
- Brealey, R. A., S. C.Myers., and F. Allen. 2017. Principles of Corporate Finance (12. utgave). 2 Penn Plaza
- Chadha, S. and A. K.Sharma.2016.An Empirical Study on Capital Structure in Indian Manufacturing Sector, *Global Business Review*, 17(2), pp. 411–424.
- Cohen, L., A.J. Marcus, Z. Rezaee., and H. Tehranian, 2011. Earnings guidance, earnings management, and share prices, *International Research Journal of Finance and Economics*, 116, 121- 132.
- Darmawan, I. P. E., T.Sutrisno., and E.Mardiati. 2019. Accrual Earnings Management and Real Earnings Management: Increase or Destroy Firm Value? *International Journal of Multicultural and Multireligious Understanding*, 6(2), 8-19.
- Dichev, I. D., and D. J. Skinner. 2002. Large–sample evidence on the debt covenant hypothesis. *Journal of accounting research*, 40(4), 1091-1123. <https://doi.org/10.1111/1475-679X.00083>.

- Fosu, S. 2013. Capital structure, product market competition and firm performance: Evidence from south Africa, *The Quarterly review of Economics and Finance*, vol.53, issue 2, pp.140-151.
- Gholami, S., M. Nickjoo, and S. Nemati, 2012. The study of the relation between Earnings Management and Long Run Stock Performance, *Journal of Basic and Applied Scientific*.
- Goh, T., H. Henry, E. Erika, and A. Albert. 2022. Sales Growth and Firm Size Impact on Firm Value with ROA as a Moderating Variable. *MIX: JURNAL ILMIAH MANAJEMEN*. 12. 99. 10.22441/jurnal\_mix. 2022.v12i1.008.
- Gujarati, D. N. 2003. *Basic Econometrics*. 4th edition. New York: McGraw-Hill.
- Hayes, A. F. 2013. *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- Hidayah, N. 2014. The effect of company characteristic toward company value in the property and real estate company in Indonesia Stock Exchange. *International Journal of Business, Economics, and Law*, 5(1), 1-8.
- Hirdinis, M., 2019. Effect of capital structure and firm size on firm value moderated by profitability. *International Journal of Economics and Business Administration Volume VII*, Issue 1 pp. 174–191.
- Hoechle, D. 2007. Robust standard errors for panel regressions with cross-sectional dependence. *Stata Journal* 7 (3): 281–312.
- Holzacker, M., R. Krishnan, and M. D. Mahlendorf. 2015. The impact of changes in regulation on cost behavior. *Contemporary Accounting Research* 32 (2): 534–566.

- Jensen, M.C.1986 Agency Costs of Free Cash Flow, Corporate Finance and Takeovers. *American Economics Review*, 76(2), 323-329.
- Jermias, J. 2008. The relative influence of competitive intensity and business strategy on the relationship between financial leverage and performance. *The British Accounting Review*, vol. 40, issue1, pp71-86..
- Li, X. 2010.Real Earnings Management and Subsequent Stock Returns. pp. 1-48, available at Available at SSRN 1679832.
- Myers, S. C. and N. S. Majluf 1984.Corporate Financing and Investment Decision when Firms have Information that Investors do not have. *Journal of Financial Economics*, 13, pp. 187 – 221.
- Myers, S. C. 1993.Still Searching for Optimal Capital Structure. *Journal of Applied Corporate Finance*, Vol. 6, No. 1, pp. 4 – 14.
- Obeidat, M.I.S. 2016. Capital structure effect on the practices of earnings management phenomenon? The evidence of listed firms in Abu Dhabi securities exchange. *Asian Journal of Finance and Accounting*. 8 (2), 171–193.
- Othman, H.B., and D. Zeghal.2006. A study of earnings-management motives in the Anglo- American and Euro-Continental accounting models: The Canadian and French cases, *The International Journal of Accounting*, 41, pp. 406–435.
- Rahman, S. 2014. The role of intellectual capital in determining differences between stock market and financial performance. *International Research Journal of Finance and Economics*, Vol. 89, 46-77
- Raza, M. W. 2013. Affect of financial leverage on firm performance. Empirical evidence from Karachi Stock Exchange.



- Ruan, W., G. Tian., and S. Ma, 2011. Managerial ownership, capital structure and firm value: Evidence from China's civilian-run firms, *Australasian Accounting Business and Finance Journal*, 5(3), pp. 73-92.
- Raoli, E. 2013. Do Managers Engage in Earnings Management to Support Firm's Market Valuation? *Journal of Corporate Ownership and Control*, 10(2), 627- 645
- Terpstra, M., and F.H. Verbeeten. 2014. Customer satisfaction: Cost driver or value driver? Empirical evidence from the financial services industry. *European Management Journal*, 32(3), 499-508.
- Uzilawati, L. 2018. Optimisation of capital structure and firm value. *European research studies journal* 21(2), 705-713
- Wassimullah, T., and Z. Abbas. 2010. Can high leverage control the opportunistic behavior of managers: case analysis of textile sector of Pakistan. *Int. Res. J. Finance. Econ.* 47 (2010), 132–140 ISSN 1450-2887.
- Wardani, D., and S. Hermuningsih. 2013. Does Earnings Management Reduce Firm Value in Malaysia? Chiang Mai-Bangkok: *The 2nd IBSM, International Conference on Business and Management*, 4th Oct. 2013. Available from: <http://www.caal-inteduorg.com/ibsm2/proceedings/FP36>.
- Watts, R. L., and J. L. Zimmerman. 1986. Positive Accounting Theory. New York: Prentice Hall.
- Wipperfurth, R. 1966. Financial Structure and the Value of the Firm. *Journal of Finance*, 21(4), 615-633.
- Zamri, N., R.A. Rahman., and N.S.M. Isa. 2013. The impact of leverage on real earnings management. *Procedia Economic and Finance*, 7, 86-95, 26.

## المخلص

تهدف هذه الدراسة إلى اختبار الدور الوسيط لإدارة الدخل على العلاقة بين الرافعة المالية وقيمة الشركة. وتم استخدام عينة مكونة من 56 شركة مساهمه مصرية (336 مشاهدة) مدرجة في البورصة المصرية موزعة على 7 قطاعات غير مالية في الفترة من 2014 إلى 2019م لاختبار العلاقة بين الرافعة المالية وقيمة الشركة وأيضاً اختبار العلاقة غير المباشرة بين الرافعة المالية وقيمة الشركة. وتشير نتائج الدراسة إلى وجود علاقة موجبة بين الرافعة المالية وقيمة الشركة. كما تشير نتائج الدراسة أيضاً أنه لا يوجد علاقة غير مباشرة بين الرافعة المالية وقيمة الشركة وأن ادارة الأرباح لا تلعب دور وسيط في العلاقة بين الرافعة المالية وقيمة الشركة.

**الكلمات الدالة:** الرافعة المالية، ادارة الأرباح، قيمة الشركة.