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**Impact of Earnings Management on
Investor's Sensitivity using
Shareholders' Value Creation**

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Impact of Earnings Management on Investor's Sensitivity using Shareholders' Value Creation as a Mediator

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Abstract

This research aims to determine to what extent earnings management influence the shareholders' value creation and to examine the relation between shareholder's sensitivity and earnings management. The originality of this research consists in the fact that the researchers provide an overview of the earnings management and its effect of the shareholder's sensitivity using the shareholders' value creation as a mediator for that relation. The researchers conducted the research through presenting literature review about the variables of the research and used a secondary data to investigate the relation between the variables of the research through constructing a regression model to fit within the Pharmaceutical companies that are listed in the Egyptian exchange market for years 2006-2013.

To verify the research hypotheses, the Structure Equation Modeling and panel data analysis are used. The results indicate that there is an association between earnings management and shareholders' value creation and shows that the association between the shareholders' value creation and investor's sensitivity are strong. The results also indicate that there is a negative association between the earnings management and the investor sensitivity. The results are very logic since not all the investors are those knowledgeable of the earnings management measurements tools. The investors will be more sensitive toward the low earnings management practice by management.

Keywords: Earning Management - Performance Evaluation - Shareholders' Value Creation - Investors Sensitivity.

Introduction

The earning management is one of the most important tools for the financial statements window dressing. Managers conduct earnings management through variety of methods to affect the decisions taken by the shareholders and the potential investors. This research focuses on the effect of the earning management on the share value creation and the investor sensitivity. The research is motivated by the need to clarify the relation between earnings management and investor's sensitivity through creating value to shareholders.

The theory of value added has traditionally suggested that every company's primary goal is to maximize the wealth of its shareholders, which should be a given since it is the shareholders that own the company and any potential investor expects a good return on his / her investment.

This research is trying to investigate the relation between the earning management and the performance of listed Pharmaceutical companies in the Egyptian stock exchange market and its effect on the investor's sensitivity. The performance of the companies will be measured through the shareholders' creation value and the investor's sensitivity and how they are affected by the earning management techniques used by the management.

Earnings management is to be considered as the main technique for manipulating financial information and for decreasing transparency of financial reports and to cause misleading signals for shareholders and even for stakeholders affecting their decision, making process and it leads also, to best interest of managements (Ronen and Yaari, 2008).

The shareholders' value to be created whenever the return for shareholders is to exceed the cost of equity A Company creates value for the shareholders when the shareholder return exceeds the equity's cost (the required return to equity) (Brian, 2014).

The prior researches have focused on investor sentiment from the market level perspective, in this research a firm specific investor sensitivity measure to be proposed. The research focuses on the positive and negative signals embedded in news items about the firm. As an example for data to be rated by an independent entity is the data from Thomson Reuters News Analytics which uses a linguistic analyzing engine to rate the news items in real-time (Steven et al., 2013).

The structure of this research is as follows: Section 1 comprises the research objectives

and hypotheses development. Section 2 introduces the relationship between earning management and shareholder value creation. Section 3 shows the measures of shareholders' value creation. Section 4 shows the difference between value creation and rising stock price. Section 5 introduces the relationship between earnings management and investor sensitivity. Section 6 presents the research methodology. Section 7 provides empirical results. Finally, section 8 concludes.

1. Research Objectives and Hypotheses Development

The main objectives of this research are to:

1. Examine the impact of earnings management on shareholders' value creation.
2. Examine the impact of shareholders' value creation on the investor sensitivity.
3. Examine the impact of earnings management on the investor sensitivity.
4. Examine the impact of earnings management on the investor sensitivity using the shareholders' value creation as a mediator.

Based on the research objectives, the following hypotheses were developed:

H 1: There is a significant relationship between earning management and shareholders' value creation.

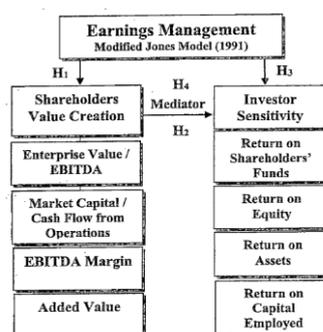
H 2: There is a significant relationship between shareholders' value creation and investor sensitivity.

H 3: There is a significant relationship between earning management and investor sensitivity.

H 4: There is a significant relationship between earning management and investor sensitivity using shareholders' value creation as a mediator.

Figure (1) presents the research conceptual framework that is developed based on the research objectives and shows the four research hypotheses and variables.

Figure (1) Conceptual framework in this research



2. Earning Management and Shareholders' Value Creation

Shareholders' value creation is very important issue in nowadays marketplace. Businesses seek to enhance their performance and create value for shareholders through increasing wealth for their shareholders and increasing satisfaction to their customers and other stakeholders.

Earnings management is defined as the process by which the management can potentially manipulate the financial statements to represent a favorable one in the interests of themselves, investors and stakeholders. The demand for earnings management derives from current shareholders' desire to influence prospective investors' perceptions of the firm's value (Dye, 1988).

Firms seek to create value must provide a higher return in excess of the cost of capital over a period of time (Favaro, 1998). In other words, the firm must achieve a positive economic profit after deducting expenses and a capital charge from the revenue generated, the result should be greater than zero. In summary, value creation occurs when the company generates more wealth for their shareholders that they could not have been able to generate for themselves (Van Home, 2002). Consequently, the creation of value by a firm translates to increase or enhancement of the worth of its stakeholders.

Earnings management to be performed by the management through applying different accounting methods or changing specific accounting estimations. For the purpose of deceiving the shareholders or to influence the decision of third party that will be involved in an contractual agreement with the company like a bank in case of a loan or even just for improving or enhancing the benefits to be received by the managers (Helly and Wallen, 1999).

It has been extensively investigated in research filed and practice field of accounting. An enormous number of researches had been found that discussing reasons, signs and impact of earning management on the company performance and even on the auditors work (Armstrong et ah, 2010). One of The most *influential* researches in the earning management field was Jones's study (1991); that facilitated and accelerated the discovery of earnings management. Other researches also, followed the same pattern by modifying Jones model or by even setting other models for detecting the earning management like (Dechow et al., 1995; Dechow et ah, 2010; Fan et ah, 2010).

In the context of the financial scandals, such as Parmalat (Italy, 2003) Royal Ahold (USA, 2003); and Penny Stock. (India, 2006); earnings management turned to be an essential concept for researchers everywhere trying to enhance the image of accounting and auditing profession. All cases that followed the Enron case led the world to the

importance of detecting the earning management (Dechow et al., 2012).

The earnings management literature tries to present and justify the incentives of managers to manipulate earnings, and methods of doing that and the impact of applying such methods. These issues to be considered as a significant area of inquiry within financial reporting research (Bernard and Skinner, 1996).

Despite all these facts that earnings management is that important, the studies that have been conducted for detection of earning management accused of some shortcomings, most often accepted as a byproduct of using these techniques. Therefore, the main purpose of this study is to perform a critical analysis of earnings management and its impact on the investor sensitivity using the share value creation as a mediator.

3. Measuring Shareholders' Value Creation

In nowadays market, the shareholders' value creation is the key to success in any company. There is increasing demand to measure, manage and report the creation of shareholders' value on a regular basis. In this field, many measures have been developed for the shareholders' value analysis that claim to measure and quantify the shareholders' value and wealth (Baker and Wurgler, 2006).

A firm value creation for the shareholders can be created through generating a firm's return on assets that is greater than its cost of capital or the required return to equity. Therefore, by definition, value creation is the increase in shareholders wealth coming because of the firm's operational efficiency. The different determinants of the value created by an organization to include: the classical accounting measures such as return on equity, operating profit margin and return on investment. (Ronen and Yaari, 2008).

Profitability is seen by many as a very important value driver, which can be improved by achieving relevant economies of scale. However, profitability itself is a function of performance and a prerequisite for value creation and the strongest determinant of total shareholder returns. (Baker and Wurgler, 2006).

Positive shareholder value results from improving cash flow from operations and minimizing the cost of capital by making optimal capital structure decisions. The cash flow from operations is determined by the value drivers and is affected by operational and investment decisions taken by management.

Value creation measures require some modifications and adjustments to the firms' financial statements to move from the external reporting requirements of the accounting standards based on an accrual basis to bring the reported earnings closer to cash flows (IMA, Statements on Management Accounting No. 67).

The value creation measures are not well designed under the traditional financial

performance measures for example financial ratios and earnings growth. The time value of time must be taken into consideration by considering not only the earnings flow but also the discounted cash flow value, as it is one of the most appropriate approaches for measuring value. The firms must set its goals and objectives within these measures and to translate them into short-term financial performance targets (Brian, 2014).

The firms should consider also the non-financial measures for measuring the value creation. The non-financial performance measures include innovativeness, customer satisfaction and employee satisfaction. Such measures support the value maximization. The most successful firms are usually the ones that precisely excel these areas (Sarah and Tony, 1998).

Non-financial goals must, however, be carefully taken into consideration along with company's financial conditions. Firms' objectives should be designed to fit within the different levels of the firm. The value creation ability of the firm can be measured through the non-financial goals measures of the firm that can be explicitly used like level of customer service quality, market share, product quality, or productivity. The value creation can be measured also through financial and accounting measures like cost per unit, cycle time, or defect rate (Timothy, 1994).

4. Value Creation versus Rising Stock Price

Value (Wealth) creation refers to periodic (annual) changes in the shareholders wealth. Through applying on the companies listed in the stock exchange market the shareholders wealth to be generated mainly from the return on the stocks, which are capital gain, equity raised and dividend paid by the company. Since stock prices reflect investor expectations, about future, cash flows, the company is required to select investments, with positive net present value (NPV) (IMA, Statements on Management Accounting No. 67).

The shareholders' value to be generated when the company generates revenues over the economic costs of generating these revenues. Costs include all the economic costs in addition to the opportunity cost of using the capital. This value adds mostly to shareholders because they are the residual owners of the firm (Fernandez, 2002).

If the capital providers do not receive a return to compensate their risk, they will start in searching for other investments with better returns, since they will get their capital diminishing. The company with low value creation will be suffering getting new fund to finance its operations through either raising capital or getting loans from creditors (Sarah and Tony, 1998).

It is essential for the researchers to distinguish between two important concepts. The first concept is the stock price and this can be measured through the stock exchange market indexes and the second concept which is the value creation which is the value perceived by the shareholders through the company's result of operations. In the stock exchange market, the price of the share can fall down even if the company is generating more return because this return is lower than the expected value by the market. (Elton et al. 2011).

Higher return on investment is the basic motive for any investor. Return is the total return on the capital investment. Market return, according to Elton et al. (2011): "Market Return is the results obtained from investments. Return can be either real return, which has happened, or expected return, which have not happened yet but expected to happen in the future". The abnormal Return to be used to measure the market reaction against an event for which information is published (Nuryaman, 2013).

Elton et al. (2011) posited abnormal return is the excess of actual return occurs against the normal return. If the announcement contains information, then the market is expected to react as the announcement is welcomed by the market. Market reaction is indicated by the existence of price changes on the concerned securities. The capital market research field is the main research approach that is concerned with measuring the impact of information disclosure on the stock prices and return (Elaine and Andrew, 2009).

This causes the stocks prices tend to fluctuate. Stocks price movements, that constantly change, make investors need to perform analysis in deciding to invest. Earnings information in published financial reports is one of the keys for investors in making investment decisions. Thus, it can be concluded that the earnings information in company, which conducts earnings management, can lead to the investors taking wrong investment decisions. High rates of earnings management in a company indicate the increasing risk, and causes lower return of shares that will be accepted by the investors (Nuryaman, 2013).

5. Earnings Management and Investor Sensitivity

Investor sentiment to be defined as the degree of optimism or pessimism about asset prices which is not backed by fundamental information (Baker and Wurgler, 2006). Many researchers have analyzed the relation (impact) of investor sentiment on asset prices based on well-known psychological fact that people with high (low) sentiment tend to make overly optimistic (pessimistic) judgments and choices (Dashan et al., 2013).

Managers can perform earnings management using variety of methods such as

operational decisions, financing and investment. Earnings manipulating methods include methods and policies modification and estimates modification; manipulation of accruals, manipulation of discretionary accruals and changes in costs of research and development (Bernard and Skinner, 1996).

Managers using earnings management to overestimate the value of the firm is one of the main reasons for manipulation (Healy and Wahlen, 1999). For earnings management to happen, the cost of eliminating the effect of earnings management by investors must outweigh the benefits of eliminating the effect of this earnings manipulation (Watts and Zimmerman, 1986). When investors are very attentive on earnings signals, the cost of managing earnings by managers (e.g. reputation cost) will be high this is why managers may lose their jobs and reputations if the investors discovered the earnings management activities. The cost of eliminating the effect of earnings management by highly attentive investors is likely to be lower than the cost of managing earnings by managers. Thus, investors with high experience and knowledge should be able to reduce the occurrence of earnings management and rationally respond to managers' opportunistic behaviors (Lakshmanan, 2000).

Many investors are interested only in the ability of the company to produce cash. These investors that concerned more with cash flow measurement and analysis assume that this way makes managers of the company think more like shareholders because it make them concentrating their attention on the actual value of the company. For example, the decision whether they can reinvest the capital in a specific investment at a level that adds value to the company or to either give it back to shareholders in the form of dividends or buy back the company's shares, which can be expected to raise the value of those still in exchange market (circulation) (Sarah and Tony, 1998).

Investors need qualified and accurate information to conduct the analysis of stock investment in the capital market, and one of the sources of the information used is financial report. In the preparation of the financial reports in accordance to Financial Accounting Standards, states that the management can select and apply accounting policies that are suitable for the presentation of the real financial position of the company (Steven et al., 2013).

Investor expectations perform a central role in justifying capital market-driven earnings management because Investors are not usually with complete view or knowledge about the financial reporting environment, and they are forming their expectations in the presence of uncertainties, or using potentially mis- specified models. Firm managers can shift earnings over time through influencing stock prices (Scott and William, 2011).

The earnings management practices will result in disclosure of fake financial information of the company that is violating the actual circumstances. This is very essential for the investors, as investors will be unable to assess the investment funds appropriately. The reliability of the financial statements and results of operations of the firm would be reduced dramatically, thus reducing the quality of earnings, as the presented earnings information does not indicate the reality of actual results, which in turn will have an impact on the stock price (Nuryaman, 2013).

Another reason for the earnings management is investor demand for stocks that report positive earnings, which, in turn, result in a relative aggregate market value of stocks. This is why managers try to increase, or at least maintain, the current stock price levels, which will result in a positive earnings through increasing abnormal accruals in periods when investors prefer positive earnings (Shiva et al., 2007).

Even if investors can observe accruals, they cannot categorize fully what portion of accruals is discretionary and which is not. For example, asset-intensive firms have high depreciation, and rapidly growing firms have revenues that exceed cash sales (Teoh et al., 1998a). Badrinath, Gay and Kale (1989) argue that institutional investors normally avoid companies that experience large fluctuations in earnings or firms that are perceived as risky. Therefore, intuitional investors tend to prefer companies with smoother earnings streams (Badrinath et al., 1989). The reaction of the investors to the different types of news (positive or negative) is affecting significantly the value creation of the firm. The way of measuring the effect of this news through specific events will be handled partly through this research (Hans, 2010).

In general, this literature tells that investors to be optimistic (pessimistic) during periods of high (low) investor sensitivity, and that is leading to overvaluation (undervaluation) that reverses in the future (Brown and Clift, 2005, Baker and Wurgler, 2006, Lemmon and Portniaguina, 2006). Recently, researchers have taking place to examine the effect of investor sentiment through the accounting context. Hribar and McInnis (2012) find that during periods with positive market sentiment the analysts' forecasts of earnings are to be more optimistic. Bergman and Roychowdhury (2008) stating that investor sentiment are affecting managers' tendency to provide positive forecasts, while Seybert and Yang (2012) find that firms providing lower returns around the time resulting in negative earnings guidance. Mian and Sankaraguruswamy (2012) provide evidence that market's response to unexpected earnings is much related to market-wide investor sentiment.

6. Research Methodology

The research hypotheses was tested and verified by using regression model analysis for

data of 11 pharmaceutical companies listed in the Egyptian stock exchange market. The data was collected from the annual financial reports and statistically analyzed to examine the impact of earnings management on investor's sensitivity using shareholders' value creation as a mediator for the period 2006-2013.

First, to examine the association between shareholders' value creation and earnings management, the following regression model is used:

$$SVC_{it} = \alpha + \beta EM_{it} + \varepsilon_{it}$$

Where:

SVC = Shareholders' Value Creation, measured using Enterprise Value / EBITDA, Market Capital / Cash Flow from Operations, EBITDA Margin and Added Value. Table (1) shows the definitions of measures of the dependent variable shareholders' value creation.

EM = Earning Management, measured using Modified Jones Model (1991).

it = i denotes the cross-sectional dimension and t represent the time period.

α = Denotes the fixed effect on shareholders' value creation.

β = Coefficients of the independent variables.

ε = Random error-term.

Table (1): Measures of Shareholders' Value Creation (SVC)

Dependent Variable	Measure	Definition
Shareholders' Value Creation (SVC)	Enterprise Value / EBITDA (X1)	The EV/EBITDA ratio is a comparison of enterprise value and earnings before interest, taxes, depreciation and amortization. This is a commonly used metric for estimating the business valuations. It compares the value of a company, inclusive of debt and other liabilities, to the actual cash earnings exclusive of the non-cash expenses.
	Market Capital / Cash Flow from Operations (X2)	Market Cap is a measurement of business as total market value of all of outstanding shares at a given time, and can be used to compare different companies based on their size. Market Capital = Shares Outstanding x Share Price Operating Cash Flow reveals the quality of a company's reported earnings and is calculated as follows: Operating Cash Flow = EBITDA - Taxes

Dependent Variable	Measure	Definition
	EBITDA Margin (X3)	A measurement of a company's operating profitability. It is equal to earnings before interest, tax, depreciation and amortization (EBITDA) divided by total revenue. Because EBITDA excludes depreciation and amortization, EBITDA margin can provide an investor with a cleaner view of a company's core profitability.
	Added Value (X4)	Added value in financial analysis of shares is to be distinguished from value added. It is used as a measure of shareholders' value, calculated using the formula: Added Value = Price that the product/service is sold at minus cost of producing the product.

Second, Investor sensitivity levels are affected *by* firm-level decisions to manage earnings (EM) and shareholders' value creation (SVC). From this perspective, we assume that investor sensitivity can be represented in the following form:

$$\text{Investor Sensitivity (IS)} = f(\text{EM}, \text{SVC})$$

To examine the association between shareholders' value creation and investors' sensitivity, the following regression model is used:

$$\text{IS}_{it} = \alpha + \beta \text{SVC}_{it} + \varepsilon_{it} \dots\dots\dots(1)$$

$$\text{IS}_{it} = \alpha + \beta_1 \text{Entrp Val/EBITDA}_{it} + \beta_2 \text{Mkt Cap/OCF}_{it} + \beta_3 \text{EBITDA Mrg}_{it} + \beta_4 \text{Add Val}_{it} + \varepsilon_{it} \dots\dots\dots(2)$$

Where:

IS = Investors Sensitivity, measured using Return on Shareholders' Funds, Return on Equity, Return on Assets and Return on Capital Employed. Table (2) shows the definitions of measures of the dependent variable . investor sensitivity.

SVC = Shareholders' Value Creation, measured using Enterprise Value / EBITDA, Market Capital / Cash Flow from Operations, EBITDA Margin and Added Value.

it = i denotes the cross-sectional dimension and t represent the time period.

α = Denotes the fixed effect on Investors Sensitivity.

β = Coefficients of the independent variables,

ε = Random error-term.

Third, to examine the association between the Investors' sensitivity and earnings

management, the following; regression model is used:

$$IS_{it} = \alpha + \beta EM_{it} + \varepsilon_{it}$$

Where:

IS = Investors Sensitivity, measured using Return on Shareholders' Funds, Return on Equity, Return on Assets and Return on Capital Employed.

EM = Earning Management, measured using Modified Jones Model (1991).

it = i denotes the cross-sectional dimension and t represent the time period.

α = Denotes the fixed *effect* on shareholders' value creation.

β = Coefficients of the independent variables.

ε = Random error-term.

Table (2): Measures of Investors Sensitivity (IS)

Dependent Variable	Measure	Definition
Investors Sensitivity (S V)	Return on Shareholders' Funds (RSF) (X 5)	Return on Shareholders' Funds helps firms to know whether the firm has earned enough returns to repay its shareholders or not. This ratio is calculated in either two ways: Return on Shareholders' Funds = (Net profit after taxes / Total shareholders' funds) x 100 Return on Shareholders' Funds = ((Net profit after taxation & preference dividend) / (Ordinary share capital + Reserves)) x 100
	Return on Equity (ROE) (X 6)	ROE is a measure that shows an investor how much profit a company generates from the money invested from its shareholders. Return on Equity (ROE) = $\frac{\text{Net Income}}{\text{Book Value of Equity}}$
	Return on Assets (ROA) (X 7)	Return on Assets (ROA), which is defined as earnings before interest and taxes for the fiscal period divided by total assets for that same period.

Dependent Variable	Measure	Definition
	Return on Capital Employed (ROCE) (X 8)	A financial ratio that measures a company's profitability and the efficiency with which its capital is employed. Return on Capital Employed (ROCE) is calculated as: ROCE = Earnings Before Interest and Tax (EBIT) / Capital Employed x 100 Capital Employed as shown in the denominator is the sum of shareholders' equity and debt liabilities; it can be simplified as (Total Assets - Current Liabilities).

Earnings Management (Modified Jones Model (1991))

Discretionary accruals are calculated through total accruals minus nondiscretionary accruals (accruals that are related to sales growth, receivables, and property, plant, and equipment).

The model can be represented as follows:

$$TNA = \beta_0 + \beta_1 (1/ATA) + \beta_2 (\Delta Sales - \Delta Rec/ATA) + \beta_3 (GPPE/ATA) + \varepsilon$$

$$TDA = TNA / ATA - TNDNA / ATA$$

Where:

TNA= Total net accruals.

TNDNA = Total nondiscretionary accruals.

ATA = Average total assets.

Δ Sales = Change in sales.

Δ Rec = Change in accounts receivable.

GPPE = Gross plant, property and equipment.

β = The estimated relationship of the independent variable to the dependent variable.

ε = Represents the composite effect of all variables not explicitly stated as an independent variable, it is an estimate of discretionary accruals.

To estimate the nondiscretionary accrual amounts, firm-specific amounts for each independent variable are used for each period/year over a sequence of periods/years. In essence, think of each data item [(TNA / ATA), (1/ATA), (ΔSales - ΔRec / ATA) and (GPPE / ATA)] as coming from the same firm, with each data set being from a different time-period.

The independent variables are data items that should have some relationship to

nondiscretionary accruals. For example, normal accruals driven by sales, PP& E, expected sales growth and current operating performance. One of the most commonly used model to estimate the nondiscretionary accrual component is the Modified Jones Model (1991).

Once β_0 , β_1 , β_2 and β_3 have been estimated for the cross-section of firms for the period (which is calculated by the computer running a regression equation), we have denoted these estimates as β_0 , β_1 , β_2 , β_3 . Use these cross-sectional coefficients along with a specific firm's data to estimate the individual firm's nondiscretionary accruals for the period. After processing, the calculation results in an estimate for nondiscretionary accruals scaled by average total assets.

7. Empirical Results

This section includes the statistical results of the research. The researchers used three statistical analyses, which are the panel data modeling analysis, structure equation modeling and the path analysis in order to verify the four hypotheses of the research.

- Descriptive Statistics

The researchers used the mean, Skewness, and Kolmogorov-Smirnov values to test the normality of the data related to the dependent and independent variables of the research. The researchers carried out descriptive statistics that includes means, standard deviation, standard error, and the measures of distribution, as shown in table (3).

Table (3): Descriptive statistics for research dependent and independent variables

No.	Variables	Mean	Standard Deviation	Standard Error	Skewness	Kolmogorov-Smirnov	
						Statistic	Sig.
1	Enterprise Value / EBITDA: X1	5.4045	3.95731	0.59659	0.689	0.189	0.001***
2	Market Cap / Cash flow from operations: X2	8.0231	4.25401	0.64132	0.630	0.122	0.096
3	EBITDA Margin: X3	20.8195	8.24217	1.24255	-0.999	0.142	0.026*
4	Added Value: LN X4	10.565	0.9926	0.1496	-0.409	0.134	0.046*
5	Return on Shareholder Funds: X5 (%)	18.9131	8.74598	1.31851	0.080	0.093	.200
6	ROE (%): X6	15.4991	6.63210	0.99983	0.016	0.110	.200
7	ROA (%): X7	10.5271	4.78083	0.72074	-0.145	0.111	.200
8	Return on Capital Employed (%): X8	16.1447	6.17757	0.93130	0.028	0.150	0.014*
9	EM: X9	-0.000125	0.0507282	0.0076475	0.262	0.083	.200

* parameter is significant at the (.05) level.

*** parameter is significant at the (.001) level.

According to descriptive statistics in table (3), the following can be concluded:

- The arithmetic mean of Enterprise Value / EBITDA is (5.4045), with Skewness coefficient (0.689) tends to right, which indicates the non-normality distribution of Enterprise Value / EBITDA values, since the significant of Kolmogorov-Smirnov statistic less than (0.05).
- The arithmetic mean of Market Cap / Cash Flow from Operations is (8.0231), with Skewness coefficient (0.689) tends to right, which indicates a normality distribution of Market Cap / Cash Flow values, since the significant of Kolmogorov-Smirnov statistic greater than (0.05).
 - The arithmetic mean of EBITDA Margin from operations is (20.8195), with Skewness coefficient (-0.999) tends to left, which indicates the non-normality distribution of EBITDA Margin values, since the significant of Kolmogorov-Smirnov statistic less than (0.05).
- The arithmetic mean of Added Value is (10.565), with Skewness coefficient (-0.409) tends to left, which indicates a normality distribution of ADD VALUE values, since the significant of Kolmogorov-Smirnov statistic greater than (0.05).
- The arithmetic mean of Return on Shareholder Funds (%) is (18.9131), with Skewness coefficient (0.080) tends to right, which indicates a normality distribution of Return on shareholder funds (%) values, since the significant of Kolmogorov-Smirnov statistic greater than (0.05).
- The arithmetic mean of ROE (%) is (15.4991), with Skewness coefficient (0.016) tends to right, which indicates a normality distribution of ROE (%) values, since the significant of Kolmogorov-Smirnov statistic greater than (0.05).
- The arithmetic mean of ROA (%) is (10.5271), with Skewness coefficient (- 145) tends to left, which indicates a normality distribution of ROA, since the significant of Kolmogorov-Smirnov statistic greater than (0.05).
 - The arithmetic mean of Return on capital employed (%) is (16.1447), with Skewness coefficient (0.028) tends to right, which indicates non-normality distribution of Return on capital employed (%) values, since the significant of Kolmogorov-Smirnov statistic less than (0.05).
 - The arithmetic mean of Earnings Management is (-0.00012539), with Skewness coefficient (0.262) tends to right, which indicates a normality distribution of Earnings management values, since the significant of Kolmogorov-Smirnov statistic greater than (0.05).

The researchers can conclude that all the variables of the research are normally distributed except for the enterprise value, EBITDA margin, add value, return on capital employed, with Kolmogorov-Smirnov statistic significant values less than (0.05).

The descriptive analysis showed the significant and normality of the financial measures used by the researchers to evaluate the performance of companies.

Research Hypotheses Verification

1. Hypothesis One Verification

The researchers used the Structure Equation Modeling (SEM), as shown in table (4) to verify the significance of the relationship between earning management and shareholders' value creation.

Table (4): SEM analysis for first hypothesis

Path		Standardized Estimate	Unstandardized Estimate	S.E.	C.R.	P-value
Enterprise Value / EBITDA: (X1)	← EM	-.490	-.799	.217	-3.686	0.001***
Market cap / Cash Flow from Operations: (X 2)	← EM	-.485	-.847	.233	-3.640	0.001***
EBITDA Margin: (X3)	← EM	-.420	-.782	.258	-3.031	.002**
Added Value: (X 4)	← EM	-.422	-.766	.251	-3.054	.002**

** Significant at level less than (0.01)

*** Significant at level less than (0.001)

There are significant negative linear relationships between the constructs of shareholders' value creation: Enterprise value / EBITDA, Market cap / Cash flow from operations, EBITDA margin, and Added Value and the earnings management values at significant level less than (0.01) (0.001) respectively.

These results comply with the assumption made by the researchers regarding hypothesis one.

$$\begin{aligned} \text{Enterprise Value / EBITDA} &= - 0.490 \text{ EM} \\ \text{Market cap / Cash Flow from Operations} &= - 0,485 \text{ EM} \\ \text{EBITDA Margin} &= 0-.420 \text{ EM} \\ \text{Added Value} &= - 0.422 \text{ EM} \end{aligned}$$

The SEM modeling equations are illustrated graphically in figure (2) showing the coefficient for the impact of the earning management on the shareholders' value creation variables.

Figure (2): Illustrating the SEM values for earning management and shareholders' value creation constructs

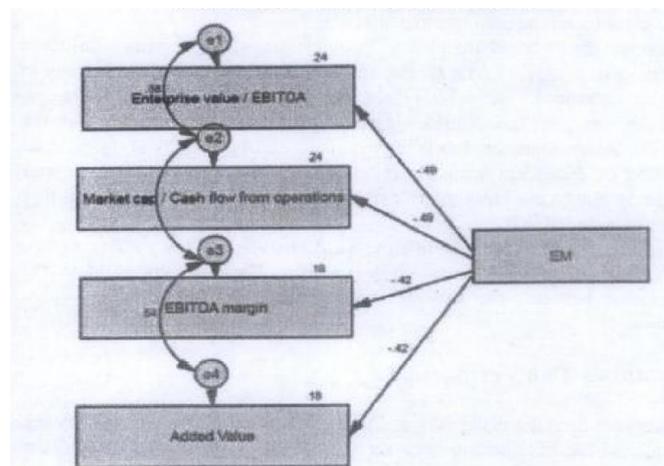


Table (5): The goodness of fit indices in the SEM of the first hypothesis

Chi-Square (CMIN)	3.169	Normed Fit Index (NFI)	.976
Degree of Freedom	3	Relative Fit Index (RFI)	.920
Level of Significance (P)	.366	Incremental Fit Index (IFI)	.999
Normed Chi-Square (CMIN/DF)	1.056	Tucker Lewis Index (TLI)	.995
Root Mean Square Residual (RMR)	.131	Comparative Fit Index (CFI)	.999
Goodness of Fit Index (GFI)	.972	Root Mean Square Residual	.036

Adjusted Goodness of Fit Index (AGFI)	.861	Approximation (RMSEA)	
R ² . XI = 17.8 %	R ² : X2 = 17.6%	R ² :X3 = 23.6%	R ² :X4 = 24%

Table (5) shows the statistical results of measuring the goodness of fit of the first hypothesis SEM model. The researchers reached the following results:

- All the goodness of fit measures of the model indicate that all indicators at acceptable limits or greater than cut-off values, especially GFI, NFI, RFI, IFI, TLI, and CFI close to one. The fit measures indicate the goodness of fit of the final structural model and its ability to measure the effect of the share value creation on the earnings management.
- The constructs of the shareholders' value creations are showing significant R2 values of 17.8%, 17.6%, 23.6%, and 24% for ranging from 17.6 % up to 24% for Enterprise value / EBITD, Market cap / Cash flow from operation, EBITDA margin, and Added Value respectively. This means that the SEM (Structure equation modeling) explain nearly (18-24%) from total variation of dependent variable shareholders' value creation, and the rest percent is due to the random error in the regression or other variables that were not included in the study.
- The researchers can conclude that the SEM analysis and the goodness of fit results validate the first research hypothesis. These results validate the association between the earnings management and shareholders' value creation.

2. Hypothesis Two Verification

The researchers used the panel data analysis as shown in table (6) to verify the significance of the relationship between shareholders' value creation and the investor sensitivity.

- Total Panel (Balanced) Observations

The total panel observation analysis used to test the total impact of the independent variables on the total variables of the dependent variable of the second hypothesis.

Table (6): Total panel estimation model to determine the impact of the most significant constructs of shareholders' value on the investor sensitivity

No.	Independent Variables	Estimated Coefficient	T-test		F-test		R ² %
			Value	Sig.	Value	Sig.	
1	Constant	17.92422	2.243242	0.0336	30.51329	0.001***	92.10
2	Enterprise Value/ EBITDA: (X1)	-0.206530	-1.436213	0.1629			
3	Market cap / Cash Flow from Operations: (X2)	0.137899	0.902174	0.3752			
4	EBITDA Margin: (X3)	0.501606	5.828499	0.001***			
5	Added Value: (X4)	-1.687733	-2.290445	0.0304*			

* Parameter is significant at the (.05) level

*** parameter is significant at the (.001) level

According to the panel estimation model using least squares, autoregressive errors, the following can be concluded:

- Coefficient of Determination

The independent variables (shareholders' value creation constructs) were accepted in the model, and the correspondents explain (92.10%) from total variation of dependent variable (investor sensitivity), the investor sensitivity, the remaining percent due to either the random error in the regression model or other independent variables excluded from regression model. The results from table (6) shows the significant of the relation between the shareholders' value creation constructs and the investor sensitivity creation and this is validating the research second hypothesis.

- **F-test**

F-test is used to determine if there is a linear relationship between the dependent variable (investor sensitivity) and a subset of the independent variable (shareholders' value creations. Since the value of F-test is (30 .51329) with significant at the (.001) level, then the researchers can concludes that the constructs of the shareholders' value creation were accepted and it has a significant effect on the investor sensitivity.

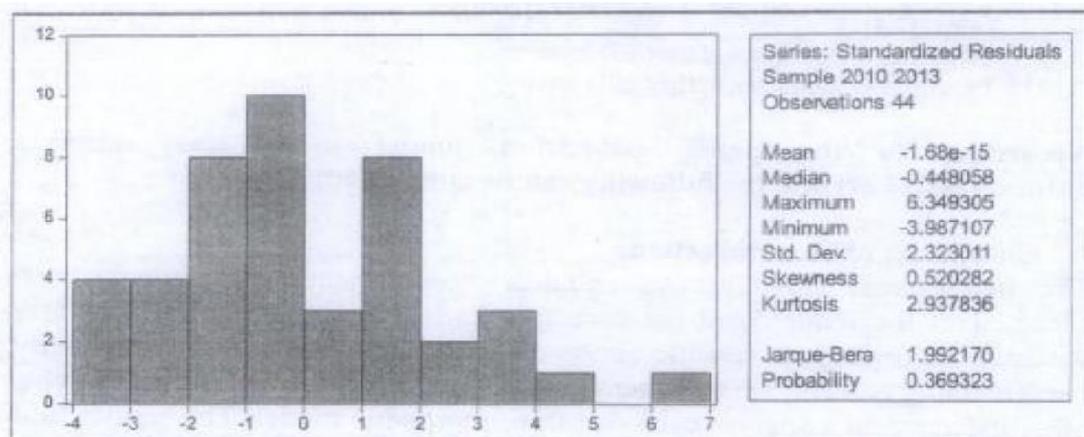
- **T-test**

T-test results are useful in determining the significant value of each of the individual independent variable (shareholders' value creation) coefficient in the regression model. Table (6) shows that the most significant independent constructs that were accepted in the model are: EBITDA margin, with a significant level less than (.001) and Added Value, with a significant level less than (0.05) respectively.

- **The Jarque- Bera Test**

Since the significance value of the test statistic (>0.05), then we would not reject the null hypothesis. The researchers can conclude that the observed distribution corresponds to or equal the theoretical distribution, i.e. the observed errors are normally distributed. Then we can conclude that the fit of goodness of the model is high, that the model is accepted, and that the constructs of the independent variable (shareholders' value creation) has a significant impact on the dependent variable (investor sensitivity) as shown in figure (3).

Figure (3): Jarque-Bera test results



- **The Regression Model**

Based on the statistical results related to hypothesis two above, the researchers can build the regression model that represent the effect of the constructs of the shareholders' value creation on the dependent variable (investor sensitivity) using the following regression equation:

$$\text{Investor Sensitivity} = 17.92422 - 0.206530 \text{ Enterprise Value / EBITDA} + 0.137899 \text{ Market Cap / Cash Flow from Operations} + 0.501606 \text{ EBITDA Margin} - 1.687733 \text{ Added Value}$$

- **Test Cross-Section and Period Fixed Effects**

There are three sets of tests: The first set consists of two tests (“Cross-section F” and “Cross-section Chi-square”) that evaluate the joint significance of the cross-section effects using sums-of squares (F-test) and the likelihood function (Chi-square test). The corresponding restricted specification is one in which there are period effects only. As shown in table (7), the two statistic values (5.71 and 51.1 respectively) and the associated p-values strongly reject the null that the cross-section effects are redundant. The researchers used the cross section and the period fixed effects tests to validate that all the independent variables have an impact through the time series data and the period fixed effect data.

Table (7): Redundant fixed effects tests

Effects Test	Statistic	d.f.	Prob.
Cross-section Fixed	5.707496	(10,26)	0.0002
Cross-section Chi-square	51.112459	10	0.0000
Period Fixed	1.773970	(3,26)	0.1768
Period Chi-square	8.193737	3	0.0422
Cross-Section/Period Fixed	5.277629	(13,26)	0.0002
Cross-Section/Period Chi-square	56.832948	13	0.0000

The next two sets of tests evaluate the significance of the period dummies in the unrestricted model against a restricted specification in which there are cross-section effects only. The forms of the statistic strongly reject the null of no period effects.

The remaining results evaluate the joint significance of all of the effects, respectively. Both of the test statistics reject the restricted model in which there is only a single intercept.

- **Cross Section Fixed Effect Test Equation**

The most significant independent variable constructs were accepted in the Cross-section fixed effects test equation is: Added Value and EBITDA margin with

significant level at less than (0.05). The variables affecting the cross section are shown in table (8).

Table (8): Cross-section fixed effects test equation

Variable	Coefficient	Std. Error	T-Statistic	Prob.
Enterprise Value / EBITDA: X 1	-0.713670	0.124017	-5.754616	0.0000
Market Cap / Cash Flow from Operations: X 2	-0.213715	0.114657	-1.863947	0.0705
EBITDA Margin: X 3	0.172189	0.057408	2.999378	0.0049
Added Value: LNX 4	0.406424	0.459893	0.883737	0.3827
Constant	8.220120	4.981894	1.649999	0.1076
Effects Specification				
Period fixed (dummy variables)				
R-squared	0.748996	Mean dependent var	10.52708	
Adjusted R-squared	0.700190	S.D. dependent var	4.780833	
S.E. of regression	2.617740	Akaike info criterion	4.925466	
Sum squared resid	246.6923	Schwarz criterion	5.249864	
Log likelihood	-100.3602	Hannan-Quinn criter.	5.045768	
F-statistic	15.34631	Durbin-Watson stat	1.027785	
Prob(F-statistic):	0.000000			

Table (8) showing the results of the cross section fixed effect test where the researchers can conclude that the coefficient of the independent variable constructs and that some

of the variables are positively influencing the investor sensitivity and others are negatively influencing the investor sensitivity under the cross section fixed effects test only. The Adjusted R-squared value is 70%, which indicate the significant impact of the proposed measures in explaining the variations of the dependent variable trough the cross section test.

- **Total Panel (Balanced) Observations for Period Fixed Effect Test Equation**

The most significant independent variables were accepted in the period fixed effects test equation are: EBITDA margin and Market cap / Cash flow from operations, with significant level at less than (0.05).

Table (9): Period fixed effects test equation

Variable	Coefficient	Std. Error	T-Statistic	Prob.
Enterprise Value / EBITDA: (X1)	-0.651381	0.321925	-2.023396	0.0523
Market Cap / Cash Flow from Operations: (X2)	0.446037	0.314931	1.416302	0.1673
EBITDA Margin: (X3)	0.720243	0.174335	4.131361	0.0003
Added Value: (X4)	-1.508499	1.553911	-0.970775	0.3397
Constant	19.79673	16.83262	1.176093	0.2491
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.915011	Mean dependent var	18.91307	
Adjusted R-squared	0.873982	S. D. dependent var	8.745976	
S.E. of regression	3.104730	Akaike info criterion	5.368655	
Sum squared resid	279.5412	Schwarz criterion	5.976902	
Log likelihood	-103.1104	Hannan-Quinn criter.	5.594222	
F-statistic	22.30158	Durbin-Watson stat 1.728528		
Prob (F-statistic)	0:000000			

According to table (9) of the period fixed effects test, the researchers can conclude that the coefficient of the independent variable constructs. The test shows also, the positive

and negative relations between the independent variable constructs on the dependent variable (investor sensitivity) under the Period fixed effects test only. The table also, shows Adjusted R-squared 87.39% at significant level < 0.001 that reflects the significant impact of the proposed measures of the independent variable.

- Total Panel (Balanced) Observations for Cross Section and Period Fixed Effect Test Equation:

The total panel test for cross section and period fixed effect tests are used to verify the previous separate tests shown above and to identify the most significant independent variable constructs on the dependent variable under the cross section and the period fixed effect tests. The results in table (10) shows that the most significant measures of the shareholders' value creation are Added Value and EBITDA margin with a positive relationship with the dependent variable (investor sensitivity) and Enterprise value / EBITDA and Market cap / Cash flow from operations with a negative impact on the dependent variable (investor sensitivity). The result of the aggregate test are verifying the two other separate tests with Adjusted R-squared 71.60% at significant level at 0.001 that reflect the high interpretation power of the model.

Table (10): Cross-section and period fixed effects test equation

Variable	Coefficient	Std. Error	T-Statistic	Prob.
Enterprise Value / EBITDA: (X 1)	-0.814127	0.217476	-3.743517	0.0006
Market cap / Cash Flow from Operations: (X 2)	-0.645230	0.199577	-3.232989	0.0025
EBITDA Margin: (X 3)	0.376140	0.100870	3.728970	0.0006
Added Value: (X 4)	2.730055	0.811128	3.365750	0.0017
Constant	-8.183704	8.786763	-0.931367	0.3574
Effects Specification				
R-squared	0.743288	Mean dependent var	38.91307	
Adjusted R-squared	0.716959	S.D. dependent var	8.745976	
S.E. of regression	4.653001	Akaike info criterion	6.019546	
Sum squared resid	844.3662	Schwarz criterion	6.222295	

Variable	Coefficient	Std. Error	T-Statistic	Prob.
Log likelihood	. -127.4300	Hannan-Quinn criter.	6.094735	
F-statistic	28.23033	Durbin-Watson stat	1.126233	
Prob (F-statistic)	0.000000			

Table (11) shows Residual Cross-Section Dependence Test. The results for the Breusch-Pagan LM test. It shows the test statistic value, test degree-of-freedom, and the associated p-value. In this case, the value of the test statistic, 79.85 is well into the upper tail of a chi square, and we strongly reject the null of no correlation at conventional significance levels.

Table (11): Breusch-Pagan test

Test	Statistic	d. f.	Prob.
Breusch-Pagan LM	79.84890	55	0.0159
Pesaran scaled LM	1.320441		0.1867
Bias-corrected scaled LM	-0.512892		0.6080
Pesaran CD	-1.340616		0.1800

Table (11) shows also, Pesaran scaled LM, Bias-corrected scaled LM and Pesaran CD tests that are asymptotically standard normal, and the test statistic results due to a strongly accept the null at conventional levels i.e. there are No cross-section dependence (correlation) in residuals.

Since the significant of Breusch-Pagan are greater than 0.05, then the researchers can conclude that there is no cross section dependence and that there is an association between the shareholders' value creation and the investor sensitivity are strong. According to the results of the panel data analysis, the researchers can validate the second hypothesis.

3. Hypothesis Three Verification

The researchers used the structure equation modeling, as shown in table (12) to verify the significance of the relationship between earning management and the investor sensitivity.

Table (12): SEM analysis for third hypothesis

Path			Standardize d Estimate	Unstandardize d Estimate	S. E	C.R.	P
Return on Shareholders ' Funds (%): (X 5)	←	EM	-.370	-.850	.326	2.611	.009 *
ROE (%): (X 6)	←	EM	-.401	-.887	.309	2.869	.004 *
ROA (%): (X 7)	←	EM	-.339	-.715	.302	2.366	.018 *
Return on Capital Employed (%): (X 8)	←	EM	-.232	-.482	.309	1.561	.119

* Significant at level less than (0.05)

*** Significant at level less than (0.001)

Table (12) indicates that there are significant negative linear relationships between the constructs of investor sensitivity: return on shareholder funds, ROE (%), ROA (%), and the earnings management values at significant level less than (0.01) (0.05) respectively with the exception of the return on capital employed (%) that has significant level greater than (0.05). This validates the third research hypothesis, and yields the following regression models.

$$\text{Return on Shareholder Funds (\%)} = - 0.370 \text{ EM}$$

$$\text{ROE (\%)} = - 0.401 \text{ EM}$$

$$\text{ROA (\%)} = - 0.339 \text{ EM}$$

$$\text{Return on Capital Employed (\%)} = - 0.232 \text{ EM}$$

The SEM modeling equation is illustrated graphically in figure (4) showing the relation, and impact of relation (Wight) between earning management and the investor sensitivity constructs. Table (13) shows the statistical results of measuring the goodness of fit of the third hypothesis SEM model.

Figure (4): illustrating the SEM values for earning management and investor sensitivity constructs

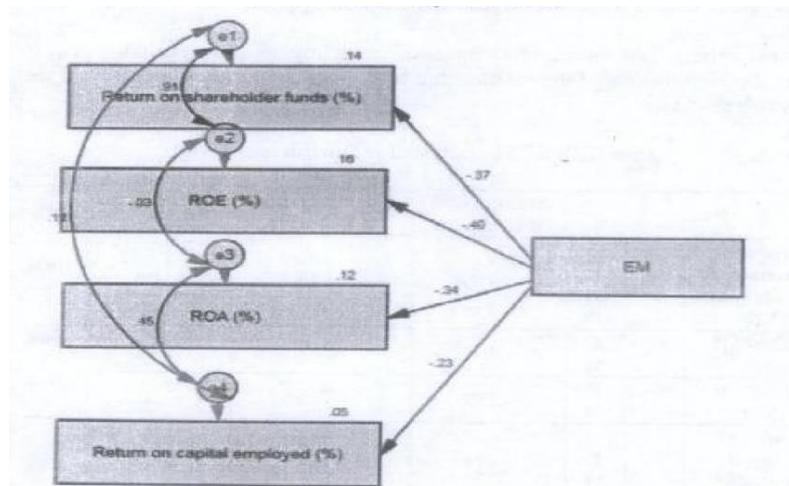


Table (13): The Goodness of Fit Indices in the SEM of the third hypothesis

Chi-Square (CMIN)	4.986	Normed Fit Index (NFI)	.957
Degree of Freedom	2	Relative Fit Index (RFI)	.783
Level of Significance (P)	.083	Incremental Fit Index (TFT)	.974
Normed Chi-Square (CMIN/DF)	2.493	Tucker Lewis Index (TLI)	.858
Root Mean Square Residual (RMR)	.088	Comparative Fit Index (CFI)	.972
Goodness of Fit Index (GFI)	.959	Root Mean Square Residual Approximation (RMSEA)	.086
Adjusted Goodness of Fit Index (AGFI)	.693		
$R^2: X5 = 54\%$ $R^2: X6 = 11.5\%$ $R^2: X7 = 16.10\%$ $R^2: X8 = 13.7\%$			

From table (13), the researchers noticed the following:

- All the goodness of fit measures of the model indicate that all indicators at acceptable limits or greater than cut-off values, especially GFI, NFI, RFI, IFI, TLI, and CFI close to one. The fit measures indicate the goodness of fit of the final structural model and its ability to measure the effect of the share investor sensitivity on the earnings management.
- The constructs of the shareholders' value creations are showing significant R^2 values of 54%, 11.5%, 16.10%, and 13.7% for Return on shareholder funds, and ROE, ROA, and return on capital employed respectively. This means that the SEM

(Structure equation modeling) explain nearly (12-54%) from total variation of dependent variable investor sensitivity, and the rest percent is due to the random error in the regression or other variables that was not included in the research. The results showed that the impact of the investor's sensitivity is stronger than the impact of the shareholders' value creation.

- The researchers can conclude that there is a negative association between the earnings management and the investor sensitivity, which validate the research hypothesis three. The results are very logic since not all the investors are those knowledgeable of the earnings management measurements tools.

4. Hypothesis Four Verification

The researchers used the structure equation modeling, as shown in table (14) to verify the significance of the relationship between earning management and the investor sensitivity using the shareholders' value creation as a mediator.

Table (14): SEM analysis for fourth hypothesis

Path			Standardized Estimate	Unstandardized Estimate	S.E.	C.R.	P
Shareholders' Value Creation	←	EM	-.385	-.690	.252	-2.739	.006**
Investors Sensitivity	←	Share Value Creation	.713	.731	.110	6.664	0.001***

** significant at level less than (0.01)

*** Significant at level less than (0.001)

Table (14) shows that there is a significant negative linear relationship between earning management and the investor sensitivity using the share value creation as a mediator at significant level greater than (0.01). While, the results shows a positive linear relationship between the share value creation and investor sensitivity construct with a significance level less than (0,001) which is a consistent results in accordance to statistical results presented previously in the research. The results of the regression equation validate the fourth research hypothesis, and yield the following regression models:

Shareholders' Value = -0.385 Earning Management

Investor Sensitivity = 0.713 Shareholders' Value

The SEM modeling equation is illustrated graphically in figure (5) showing the association between earning management and the investor sensitivity constructs using the shareholders' value creation as a mediator. Table (15) shows the statistical results of measuring the goodness of fit of the fourth hypothesis SEM model.

Figure (5): Illustrating the SEM values for fourth hypothesis

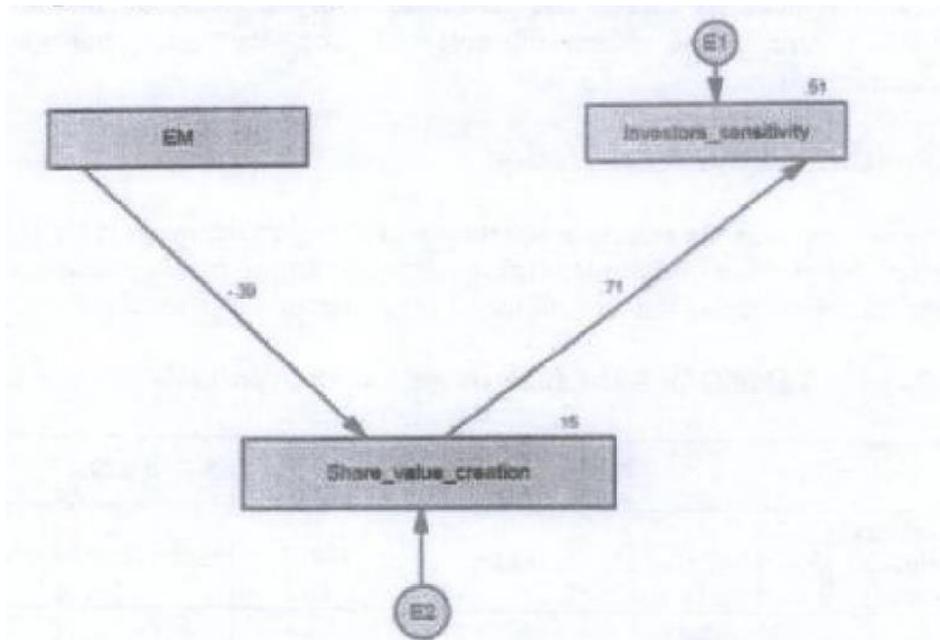


Table (15): The Goodness of fit indices in the SEM of the fourth hypothesis

Chi-Square(CMIN)	4.735	Normed Fit Index (NFI)	.888
Degree of Freedom	1	Relative Fit Index (RFI)	.663
Level of Significance(F)	.030	Incremental Fit Index (IFI)	.909
Normed Chi-Square(CMIN/DF)	4.735	Tucker Lewis Index (TLI)	.714
Root Mean Square Residual (RMR)	.105	Comparative Fit Index (CFI)	.905
Goodness of Fit Index (GFI)	.935	Root Mean Square Residual Approximation (RMSEA)	.295
Adjusted Goodness of Fit Index (AGFI)	.610		
R ² : Shareholders' Value = 14.90%		R ² : Investor Sensitivity = 50.80%	

From table (15), the researchers noticed the following:

- All the goodness of fit measures of the model indicate that all indicators at

acceptable limits or greater than cut-off values, especially GFI, NFI, RFI, IFI, TLI, and CFI close to one. The fit measures indicate the goodness of fit of the two structural models and their ability to measure the effect of the earning management on investor sensitivity using the share value creation as a mediator.

- The constructs of the shareholders' value creation and investor sensitivity are showing significant R² values of 14.90%, and 50.80% respectively. This means that the SEM (Structure equation modeling) explain nearly (15-51%) from total variation of dependent variable investor sensitivity, using the shareholders' value creation as a mediator and the rest percent is due to the random error in the regression or other variables that were not included in the research.
- The researchers can conclude that the impact of the earning management on the investor sensitivity using the shareholders' value creation is valid but with less significant association between the earnings management and the shareholders' value creation as a mediator, where R² value is 14.90%, that other variables may to be considered. The impact on the of the shareholders' value creation are positively correlated with the investor sensitivity. These results validated the fourth hypothesis.

8- Conclusion

To fill the gap in the literature regarding the effect of the earning management on the sensitivity of the investor in the Egyptian market, the researchers try to clarify this relation through measuring the relation between the earning management and the investor's sensitivity using the shareholders' value creation as a mediator.

The research findings show the association between earnings management and shareholders' value creation and the also shows that there are an association between the shareholders' value creation and the investor sensitivity are strong. According to the results of the Structure Equation Modeling and panel data analysis, the researchers can validate the first and second hypothesis.

The results also indicate that there is a negative association between the earnings management and the investor sensitivity, which validate the research hypothesis three. The results are very logic since not all the investors are those knowledgeable of the earnings management measurements tools. The investors will be more sensitive toward the low earnings management practice by management.

Finally, the research concludes that the impact of the earning management on the investor sensitivity using the shareholders' value creation is valid but with less significant association between the earnings management and the shareholders' value

creation as a mediator, where R^2 value is 14.90%, that other variables may to be considered. The impact on the of the shareholders' value creation are positively correlated with the investor sensitivity. These results validated the fourth hypothesis.

This research is limited to Pharmaceutical Companies listed in the Egyptian stock exchange market and it is recognized that further research is necessary to establish the exact nature of the causal linkages between earning management and investor sensitivity.

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