Djihed Boumenkar*
Soumeya Benali**
Mohamed Belaid***

IMPACT OF EARNINGS MANAGEMENT ON MARKET VALUE IN LIGHT OF DIVIDEND POLICY: AN ECONOMETRIC STUDY OF A SAMPLE OF SAUDI STOCK EXCHANGE-LISTED COMPANIES DURING THE PERIOD 2010–2021

Abstract: This study aimed at examining the impact of earnings management on market value under a dividend policy for a sample of institutions listed on the Saudi Stock Exchange and registered in TASI during the period (2010–2021). A descriptive analytical approach and a quantitative econometric analysis using One-Step System GMM Dynamic Panel Data Model were employed.

The study reported that all the institutions performed a short-term earnings management oscillating up and down by different proportions during the study period, and that there is an impact of earnings management on value market in both the absence and presence of the dividend policy. The study therefore points to the need for investors education about accounting manipulation in general and earnings management in particular as the latter has an impact on the market value of institutional shares and accordingly on their investment decisions.

Keywords: Earnings Management, Dividend Policy, Market Value.

Introduction

Over the past two decades, the topic of earnings management has been a subject of controversy among researchers and experts due to their differing opinions and orientations regarding its legitimacy and ethics. It has become a subject of discussion in research platforms with the emergence of many financial scandals of major leading companies on the global scene, which are considered financial fraud crimes, led by the U.S. energy giant Enron and the U.S. second biggest telecommunication WorldCom Corp.. Investors in the financial market rely heavily on the accounting information available to them from financial statements and reports, specifically on net profit. Therefore, every piece of information that reaches the financial market is likely to affect their view, which is reflected in the Stock market

---

* **Djihed Boumenkar** – Ph.D, Department of Management, Badji Mokhtar University, Annaba, Algeria, e-mail: djihed.boumenkar@univ-annaba.org

** **Soumeya Benali** – Ph.D. Lecturer-A, Department of Management, Badji Mokhtar University, Annaba, Algeria, e-mail: benali.soumaya.dz@gmail.com

*** **Mohamed Belaid** – Ph.D. Student, Department of Management, Abdelhafid Boussouf University Center of Mila, Algeria, e-mail: m.belaid@centre-univ-mila.dz

supply and demand, which in turn affects the market value of stocks and shares, and accordingly, the company's practice of earnings management is likely to affect the credibility, quality and accuracy of the financial information provided, which results in a change in investors' impression about the company's level of performance, as misleading financial information leads to an inaccurate evaluation, which distorts the market value and is reflected in the dividend policy that the company will adopt.

From the above, the main research question concerning this topic may be stated as follows:

To what extent does the practice of earnings management impact the market value in light of the dividend policy using a sample of financial Saudi Arabian Stock Exchange-listed firms during the period 2010–2021?

To initially answer the main research question, the following hypotheses will be presented, and tested hereafter:

– The financial Saudi Arabian Stock Exchange-listed firms did not practice earnings management during the period 2010–2021.

– There is no imapct of earnings management on the market value in the absence of a dividend policy for a sample of financial Saudi Arabian Stock Exchange-listed firms during the period 2010–2021.

– There is no impact of earnings management on the market value in the presence of a dividend policy for a sample of financial Saudi Arabian Stock Exchange-listed firms during the period 2010–2021.

The study seeks to uncover earnings management practices using MR model for a sample of financial Saudi Arabian Stock Exchange-listed and TASI registered firms, besides to build a econometric model to study the impact of earnings management practices on market value in light of the dividend policy using the sample of interest over the period extending from 2010 to 2021, with 2008 and 2009 as base years.

The study relied on the analytical-descriptive approach, which allowed for the presentation and analysis of different theoretical ideas and concepts and the accurate description of the study variables. It also relied on the quantitative econometric analysis method, using the Dynamic Panel Data Model according to a One-Step System GMM.

Literature Review

The term earnings management first appeared in an article published by Paul M. Healy under the title *"The Effect Of Bonus Schemes On Accounting Decisions"*, in which the researcher discussed the relationship between management rewards and the decisions that were taken, relying on accounting procedures, as he concluded that changes in accounting procedures by managers are linked to the adoption or modification of their bonus plan. Shipper believes that earnings management is *"an intentional intervention in the financial reporting process with the intention of achieving some private gains"*, while Scott believes that earnings management is *"a choice of accounting policies or tangible procedures that affect earnings, so that management can achieve pre-determined goals"*. Many previous studies have examined the relationship between accounting information and market value. The most prominent of these studies is that conducted by Gerald A. Feltham, James A. Ohlson, which aimed to study the relationship between the market value of and accounting data related to operational and financial activities. The study concluded that there is a strong relationship between market value and accounting data related to financial and operational activities . The following figure explains more the effect of accounting information on market value:
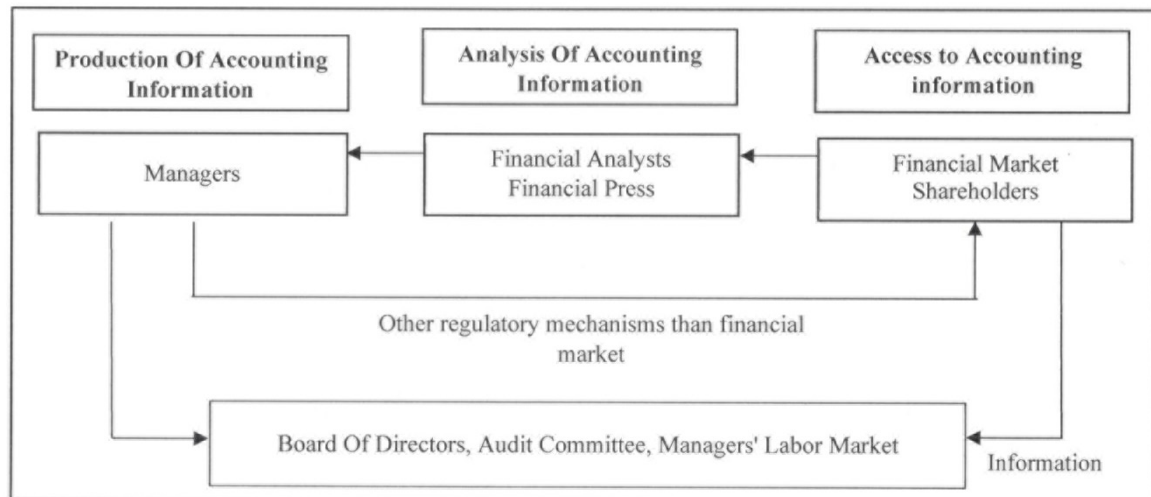
Figure 1: *Accounting information and its impact on market value Source: Charreaux Gérard. Gouvernance D'Entreprise et Comptabilité. France: 2éme édition, Economica, 2000, p 651.*

Numerous previous studies have addressed the relationship between earnings quality, earnings management and dividend policy. The most important of which is the study of Faiza Saleem, Mohd Norfian Alifiah (2017), which aimed to identify the impact of earnings management on the dividend policy of a group of oil and gas companies listed on Karachi Stock Exchange during the period 2008–2015, and concluded that there is a slight relationship between the practice of earnings management and dividend policy, and one of the main reasons for this relationship is the financial crisis that the world witnessed. This study is consistent with the one conducted by Ekanayaka & Wijesinghe (2021) who studied the impact of earnings management on the dividend policy of a group of companies in manufacturing sector and hotel sector listed in Colombo Stock Exchange during the period 2012–2019, as it also concluded that there is no significant impact of the practice of earnings management on dividend policy in both sectors . Similarly, Ammar Hussain, Minhas Akbar (2022) studied the relationship between earnings management and dividend policy for 3250 Chinese non-financial companies during the period 2009–2018. The study concluded that dividends restrict managers' practice of earnings management, as large companies that distribute dividends practice earnings management less than small companies, indicating that dividend policy restricts opportunistic behavior that leads to the practice of earnings management. Likewise, Jong Hwa Lee (2022) confirmed that foreign investors and dividends interactively hinder the company's practice of earnings management, by controlling the opportunistic behavior of managers, and he emphasized that the role of foreign investors is greater when their ownership of shares exceeds 5%. The practice of earnings management in financial statements is represented by accounting manipulations carried out by management within the generally accepted accounting principles (GAAP), using various methods to improve the appearance of financial statements and present them in a way that does not reflect their true status. The scope of this manipulation extends to include financial decisions taken at the corporate level, such as investment decisions, financing decisions, and dividend distribution decisions, as the latter is of particular interest due to its close connection with other financial decisions. Therefore, any manipulation at the level of these statements can enhance the market value of the company and attract new shareholders. Although these effects benefit the company in the short term, they may lead to many damages in the long term, most notably reducing the market value, loss of reputation and credibility. The following figure further illustrates the relationship between earnings management, dividend distribution policy, and market value:
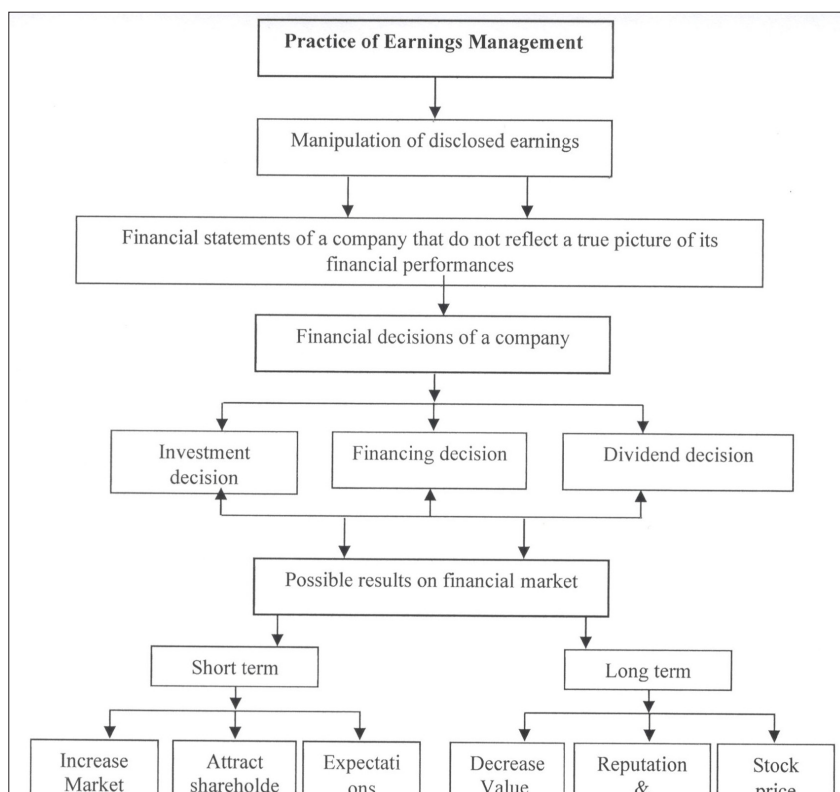
Figure 2: *The relationship between earnings management, dividend policy and market value*
Source: conducted by the researchers

Data and Methodology

To control the econometric study, the variables will be identified and estimated and the econometric study will be conducted to develop the general formula for the study model.

Identifying and measuring the study variables

This econometric study includes three variables, which are; 1. Independent variable, 2. Mediating variable and 3. Dependent variable, studied at the level of

$$EM = (\Delta wc / cfo)\ t - (\Delta wc / cfo)\ t\text{-}1$$

the financial Saudi Arabian Stock Exchange. The variables are identified and estimated as follows:

Where,

If the result of MR model to measure earnings management is equal to zero (0=EM), then the company does not practice earnings management and is given a dummy variable (0), but if the result is not equal to zero (0≠EM), then the company practices earnings management and is given the value (1). By using MR model to detect earnings management (EM) practices[1], it was found that all sample companies listed in the financial Saudi Arabian Stock Exchange and registered in TASI practice earnings management during the period 2010–2021, and the below table gives a summing-up:

---

[1] **Miller, J.** The Development Of The Miller Ratio (MR): A Tool To Detect For The Possibility Of Earnings Management (EM). *Journal of Business& Economics Research*, 07(01), 2009, p 84.

Table 1: *Practice of EM for the study sample during the period 2010–2021*

Company	Period review of EM practices	
	Up	**Down**
Arriyadh Development Company "TAMEER"	**6years**	**6years**
	2014,2015,2017 2018,2019,2021	2010,2011,2012 2013,2016,2020
Mouwasat Medical Services Co.	**5years**	**7years**
	2010,2013,2015 2017,2020	2011,2012,2014,2016 2018,2019,2021
Al-Babtain Power and Telecommunication Co.	**7years**	**5years**
	2011,2013,2014,2016 2017,2019,2021	2010,2012,2015 2018,2020
ALDREES Petroleum & Transport Services Company	**6years**	**6years**
	2012,2014,2015 2018,2020,2021	2010,2011,2013 2016,2017,2019
Masafi Saudi Arabian Co	**5years**	**7years**
	2012,2013,2017 2019,2021	2010,2011,2014,2015 2016,2018,2020
National Gas & Industerialization Company	**5years**	**7years**
	2012,2013,2016 2018,2020	2010,2011,2014,2015 2017,2019,2021
United International Transportation Company	**6years**	**6years**
	2012,2013,2015 2016,2017,2020	2010,2011,2014 2018,2019,2021
Abdullah Al-Othaim Markets Co.	**7years**	**5years**
	2011,2012,2013,2015 2017,2018,2020	2010,2014,2016 2019,2021
United Wire Factories Company (ASLAK)	**6years**	**6years**
	2011,2012,2015 2017,2019,2021	2010,2013,2014 2016,2018,2020
Eastern Province Cement Company	**6years**	**6years**
	2011,2014,2016 2018,2019,2020	2010,2012,2013 2015,2017,2021

	6years	6years
Arabian Cement Co.	2010,2014,2016 2017,2019,2020	2011,2012,2013 2015,2018,2021
	4years	**8years**
Qassim Cement Company	2011,2017,2019,2020	2010,2012,2013,2014 2015,2016,2018,2021
	6years	**6years**
Yanbu Cement Company	2011,2014,2015 2017,2019,2021	2010,2012,2013 2016,2018,2020
	5years	**7years**
Advanced Petrochemical Company	2011,2013,2014 2016,2019	2010,2012,2015,2017 2018,2020,2021
	6years	**6years**
Herfy Food Services Co.	2010,2013,2016 2018,2020,2021	2011,2012,2014 2015,2017,2019
	6years	**6years**
Al-Jouf Agricultural Development Co.	2011,2013,2014 2017,2018,2021	2010,2012,2015 2016,2019,2020
Number of Times	**100 times**	**92 times**

Source: conducted by the researchers

It can be seen from the previous table that all the sample of financial Saudi Arabian Stock Exchange-listed and TASI registered companies practiced earnings management (EM) in the short term during the period (2010–2021), at varying rates and in both directions, upwards and downwards. The total number of years in which these companies practiced earnings management (EM) upwards by deliberately inflating their profits was estimated at 92 times, while the number of years in which they practiced earnings management (EM) downwards by deliberately reducing their profits was estimated at 100 times. Thus, it can be noted that the difference between them was estimated at 08, so it can be said that there is a sort of balance between inflating and reducing profits in the study sample of financial Saudi Arabian Stock Exchange-listed and TASI registered companies.

– *Mediating variable: Dividend policy (DP)*

According to this study, the Mediating variable is the dividend policy (DP), as this variable will be measured by the cash dividend policy announced per share at the end of the fiscal year for each company of interest. The cash dividend policy was chosen due to its relation to the net profit after interest and taxes, as the profits distributed in cash to shareholders are what allows attaining the objective of the present study.

– *Dependent variable: Market value (MV)*

For this study, the dependent variable is the market value (MV). This variable will be measured by the stock market capitalization by multiplying the closing price of the share at the end of the fiscal year for each company of interest by the number of subscribed shares. The following equation summing up the above:

Market Value = Closing *Price x Number* of Subscribed *Shares*

Estimation of Dynamic Panel Data Models for the Study Sample

The dynamic panel data models were used to conduct the study, as this type of model allows the possibility of measuring the dynamic relationship by introducing the time element into the study model. The most appropriate alternatives that can be used is One-Step System GMM, which can serve the stated goal, considering that the data are compatible with the conditions set for it, and it also provides another possibility for analysis, measurement and modeling that simulates the data adopted in the study, and it is related to the use of mediating variables in the modeling, as the dividend distribution policy (LnDP) will be included as a mediator in a separate equation according to a One-Step GMM Estimator, which serves to solve the problem and achieve the goals. Therefore, this method was focused on in the estimation process similar to other methods.

Independence tests for study model variables

To conduct cross-sectional independence test in panel data models for each study variable to verify which generation of stability tests should be used, the CD-test is used, and the following table shows its results:

Table 2: *Results of CD-test for cross-sectional independence examination*

Variable	CD-test	p-value	Corr	abs(corr)
LNMV	15.45	0	0.407	0.476
LNEM	0.14	0.885	0.004	0.285
LNPD	3.54	0	0.093	0.328
Note: cross-section Under the null hypothesis of independence CD ~ N(0,1)				

Source: prepared by the researchers using Stata17 Statistical Software

From the results of CD-test shown in the table above, it is noted that for LNMV, CD-test value reached approximately 15.45, which is completely greater than the corresponding table value at a significance level of (5%), given that the probability value associated with this statistic is estimated at 0.00, which is completely less than the critical value (0.05). Accordingly, the null hypothesis is rejected and the alternative hypothesis for this test is accepted, which states that the sections are independent of each other. This is the same result that was reached for the dividend distribution policy (LNDP) variable, where CD-test value reached approximately 3.54, which is completely greater than the corresponding table value at a significance level of (5%), given that the probability value associated with this statistic is estimated at 0.00, which is completely less than the critical value (0.05). In contrast, for the earnings management (EM) variable, CD-test results were estimated at 0.14, which is completely less than the corresponding table value at a significance level of (5%), given that the probability value associated with this statistic is estimated at 0.885, which is completely greater than the critical value (0.05), and accordingly, the null hypothesis for this test is accepted, which states that the sections are not independent of each other.

Stability tests for study model variables

Stability tests will be conducted for the cross-sectional time series data (Panel Data) for the study variables, where the lags of the variables are determined according to a one-step system GMM, based on the degree of independence of the sections from each other as follows:

– Stability test for LNMV and LNPD

Based on the results of CD-test, LNMV and LNPD are independent of each other, and from there, the unit root stability tests for the second-generation panel data with cross-sectional time series will be conducted, by relying on CIPS test, the following table shows the results:

Table 3: *Results of CIPS test for the stability of LNMV and LNPD*

LNMV			
CIPS test	-1.44	N,T	(16,12)
d.LNMV			
CIPS test	-3.553	N,T	(16,11)
LNDP			
CIPS test	-2.86	N,T	(16,12)
Significance Lavel	**10%**	**5%**	**1%**
Tabular Value	**-2.11**	**-2.22**	**-2.45**

Source: prepared by the researchers using Stata17 Statistical Software

As it is clear from the above, the value of CIPS test for LNMVreached approximately -1.44, which is completely lower in absolute value than the corresponding table value at a significance level of (5%), which was estimated at -2.22. Accordingly, the null hypothesis for this test is accepted, which states that LNMV contains a unit root, meaning that this variable is not stable at the level. After conducting the first difference on the same variable, it was concluded that the value of CIPS test reached approximately -3.55, which is completely greater in absolute value than the corresponding table value at the same significance level, which was estimated at (-2.22). Hence, the null hypothesis is rejected and the alternative hypothesis for this test is accepted, which states that LNMV does not contain a unit root, meaning that this variable is stable at the first difference. As for LNPD, the value of CIPS test reached approximately -2.86, which is completely greater in absolute value than its corresponding table value at a significance level of (5%), which was estimated at 2.22. Thus, the null hypothesis is rejected and the alternative hypothesis for this test is accepted, which states that LNPD does not contain a unit root, i.e. this variable is stable at the level.

– Stability test for LNEM

Based on the results of CD-test, LNEM is not independent of each other, and accordingly, the unit root stability tests for the first generation panel data with cross-sectional time series will be conducted, by relying on Im-Pesaran-Shin panel unit root test.. The following table uncovers the results:

Table 4: *Results of Im-Pesaran-Shin panel unit root test for the stability of LNEM*

t-bar	t-tilde-bar	Z-t-tilde-bar	p-value
-5.21	-2.7162	-7.6969	0
Significance Level	**1%**	**5%**	**10%**
Tabular Value	**-2.02**	**-1.87**	**-1.79**

Source: prepared by the researchers using Stata17 Statistical Software

It can observed from table 4 above for LNEM that the values of the three statistics of the test (Im-Pesaran-Shin panel unit root test) reached approximately (-5.21; -2.7162; -7.69695.21) respectively, and they are completely greater in absolute values than the corresponding tabular value, considering that the probability value associated with this statistic is estimated at -1.87, which is completely less than the

critical value (0.05). Thus, the null hypothesis is rejected and the alternative hypothesis for this test is accepted, which states that LNEM does not contain a unit root, meaning that this variable is stable at the level. Therefore, it can be said that based on the results of the stability tests, LNPD and LNEM do not contain a unit root, i.e. they are stable at the level, while LNMV contains a unit root, i.e. it is stable at the level, and accordingly; the degrees of delay that can be adopted for the study model when estimating according to one-step system GMM are zero for the independent variables, while the dependent variable is delayed by one time period, which is what was adopted in the estimation process.

Estimation of Dynamic Panel Data Model using One-Step GMM

At this stage, the study model will be estimated using one-step system GMM, i.e. estimating the model through two stages, where the impact of LNEM on LNMV will be measured in the sample of companies of interest, under the assumption of the presence of an intermediate variable, which is LNPD, and its absence, and the results of estimating Dynamic Panel Data Model, using one-step system GMM, for this study are detailed on the table5 as follows:

Table 5: *Results of estimating Dynamic Panel Data Model using One-Step System GMM*

LNMV	Coefficient	Std. err.	t	P>t
L1.LNMV	0.824563	0.034781	23.71	0
LNEM	0.060556	0.010198	5.94	0
LNPD	0.103127	0.040199	2.57	0.011
F(3, 173) = 805.24		Prob > F = 0.000		
Arellano-Bond test for AR(2) in first differences:				
z = -0.20 Pr > z = 0.841				
Sargan test Difference (null H = exogenous)				
chi2(12) = 8.72 Prob > chi2 = 0.727				

Source: prepared by the researchers using Stata17 Statistical Software

Before analyzing the results obtained based on the estimated model above, two conditions for estimation must be verified according to one-step System GMM, which are:

– Quality of representation of Mediating variables

To verify the quality of the Mediator, which represents LNPD, in estimating the study model, Sargan test will be relied upon, as the statistical value of the test reached approximately 8.72, which is completely less than the corresponding tabular value at a significance level of (5%), considering that the probability value associated with this statistic is equal to 0.72, which is completely greater than the critical value (0.05). Therefore, the null hypothesis of this test is accepted, which states that the mediator included in this study represents the model well and contributes to increasing the interpretation of the results.

– The problem of second-order autocorrelation between the residuals for two time periods (AR2)

In order to verify that the estimated residuals do not contain the problem of second-order autocorrelation, Arellano-Bond test will be relied upon, as the statistical value of the test reached approximately -0.20, which is completely less than the corresponding tabular value at a significance level of (5%), considering that the probability value associated with this statistic is equal to 0.841, which is completely greater than the critical value (0.05), and thus, the null hypothesis of this test is accepted, which states that there is no second-order autocorrelation between the residuals for two time periods (AR2) in the study model.

Based on the analysis of the econometric tests described above, it can be said that the obtained model has an acceptable quality from a statistical and econommetric point of view, and its results can be relied upon in the analysis process with a high degree of reliability. Therefore, the general formula for the study model can be written as follows:

$$LNMV_{(it)} = 0.82L1.LNMV_{(it)} + 0.06\ LNEM_{(it)} + 0.10\ LNPD_{(it)} + \varepsilon_{it}$$

$$t = 1,2,3 \ldots 12,\ i = 1,2,3 \ldots 16$$

Therefore, it can be said through the previous table and the general formula of the model that the estimation results showed that L1.LNMV positively affects LNMV in the following period of time for the study sample of financial Saudi Arabian Stock Exchange-listed and TASI registered companies, as the value of this parameter is approximately 0.82. Therefore, an increase in L1.LNMV by 100% leads to an increase in LNMV in the following period of time for the sample of companies under study by an estimated 82%. As for LNEM, the estimation results reveales that this variable positively affects LNMV of the study sample, as the value of this parameter reached approximately 0.06. Thus, an increase in LNEM by 100% leads to an increase in LNMV of the study sample by an estimated value of 6%. As for LNDP, it should be noted that it is a new variable that was created in the second phase of the estimation method adopted in this study, as the positive sign of the parameter associated with LNDP indicates its positive effect on LNMV, where an increase in LNEM at 100% with an increase in LNDP, by 100% leads in turn to an increase in LNMV by 10%.

Conclusion

Based on the applied study of the subject, the following results were reached to conclude the paper:

– All the study sample of financial Saudi Arabian Stock Exchange-listed and TASI registered companies practice EM in the short term during the period (2010-2021), at varying rates and in both directions, up and down, Thus, it can be said that there is a sort of balance between inflating and reducing profits.

– L1.LNMV) positively affects LNMV in the time period following the study sample, which indicates that the good performance of companies and its value in the financial market during the previous year positively and significantly affects the market's estimation of its value in the year of interest.

–The practice of LNEM positively affects LNMV, as the increase in the practice of LNEM by 100% leads to an increase in LNMV of the companies under study by an estimated value of 6%, which reduces the state of uncertainty about the future of each company, which motivates investors and enhances their confidence in its present and future performance and sustainability, which prompts them to increase demand for the company's shares, which leads to improving its value in the financial market.

– LNDP is a new variable created in the second stage of the one-step system GMM adopted in this study. The study concluded that an increase in LNEM by 100% with an increase LNDP by 100% leads in turn to an increase in LNMV by 10%. This indicates that the company's distribution of cash dividends in the absence of credibility of financial statements affects the market value of the companies' shares by a greater percentage in the absence of dividend distributions. This is primarily due to the distribution of cash dividends that affect the market value because the investor usually invests in institutions that achieve an appropriate and regular financial return, because in his view this indicates the good position of the company that it is capable of achieving greater actual future cash flows. In the case of practicing earnings management, the copany may, however, fall into risks in the long term due to its distribution of cash dividends that are not matched by the actual cash flows. , i.e. based on fictitious profits that it did not achieve in the first place, which may cause it to fall into financial difficulty or financial failure, in addition to causing harm to the reputation of the company and losing its credibility in the financial market, which is reflected in its value in the financial market by collapsing its prices and then bankruptcy. For this, the management of the companies selected for study was unable to balance between

its manipulation of profits and its financial decisions represented in distributing cash dividends, which affected the decisions of shareholders, investors and financial analysts in the financial market, which is reflected mainly in the increase in its market value.

As at present, the research findings remains importance, and further research would be of importance to support all the other areas of management.

REFERENCES

Ekanayaka E.M.T.P, Wijesinghe M.R.P. Earnings Management and Dividend Policy: Evidence from a Frontier Market. *South Asian Journal of Business Insights*, 01(01), 2021, pp. 30–60.

Goel, S. The Earnings Management Motivation: Accrual Accounting vs. Cash Accounting. Australasian Accounting. *Business and Finance Journal*, 10(03), 2016, p 50.

Gerald A. Feltham, James A. Ohlson. Valuation and Clean Surplus Accounting for Operating and Financial Activities. *Contemporary Accounting Research*, 01(02), 1995, pp. 689–731.

Healy, P. The Effect of Bonus Schemes on Accounting Decisions. *Journal of Accounting and Economics*, 07(01-03), 1985, p 85.

Hussain, A. Akbar. M. Dividend policy and earnings management: Do agency problem and financing constraints matter?. Borsa Istanbul Review, 22(05), 2022, pp. 839–853.

Lee, J. Earnings quality, foreign investor and dividends. *Borsa Istanbul Review*, 30(01), 2022, pp. 58–72.

Miller, .J. The Development Of The Miller Ratio (MR): A Tool To Detect For The Possibility Of Earnings Management (EM). J*ournal of Business& Economics Research*, 07(01), 2009, p 84.

Saleem, F. Alifiah, M. The Effect of Earnings Management on Dividend Policy in Pakistan. *Sains Humanika*, 9(1–3), 2009, pp. 01–05.

William, S. Financial Accounting Theory. USA: Pearson, 7th edition, 2015, p 445.