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## The Impact of Financial Reporting Quality on Firm's Financial Performance: Evidence from Egypt

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### Abstract

The main objective of this research is to examine the impact of Financial Reporting Quality (FRQ) on firm's Financial Performance (FP). In this research, a sample of 61 Egyptian firms listed in the Egyptian stock Exchange is used for a period of five years from 2014 to 2018. The Panel Least Squares (PLS) and Estimated Generalized Least Square (EGLS) Regression analysis are employed to test the research hypotheses. The modified Jones model (1995) is used to measure FRQ, and Return on Equity (ROE) and Earnings per Share (EPS) are used to measure firm's FP. The results of this research revealed that FRQ has a significant positive impact on ROE, while it has a significant negative impact on EPS. This implies that the lower the FRQ, the lower the ROE and the higher the EPS.

**Keywords:** Financial Reporting Quality, Financial Performance, Return on Equity, Earnings per Share.

### Introduction

Recently, FRQ has received a great attention worldwide especially after the collapse of the global giant companies at the end of the last century. FRQ is concerned with the extent to which the reported financial information provide relevant and reliable information about the company's economic performance and its financial position to help firm's stakeholders and capital providers to make rational investment, credit and similar resource allocation decisions. Therefore, FRQ plays an important role in improving the firm's Performance and the financial health of the economy.

FRQ is a broad concept as it is responsible for delivering both financial and non-financial information faithfully to firm's stakeholders to help them in making sound decisions. Therefore, there is no general consensus among researchers upon a certain definition for FRQ. The term FRQ refers to the accuracy with which financial reports disclose the information related to the company's operations and its ability to estimate expected cash flows (Biddle *et al.*, 2009; Callen *et al.*, 2013). Tang *et al.* (2008) and Robinson & Muter (2004) refer to FRQ as the extent to which the financial statements provide real and fair information about the company's economic performance and its financial position. Consistently, Bushman *et al.*, (2004) refers to FRQ as the credibility of the accounting information presented in financial reports by providing information free from distortion and to be prepared in the light of a set of legal, monitoring, professional and technical standards to

achieve the purpose of their use. Therefore, it is concluded that FRQ can be defined as the degree to which financial reports represent faithfully all financial and non-financial information related to the interests of firm's stakeholders to assist them in making rational investing and financing decisions by evaluating accurately the firm's operations, financial position and its financial performance in addition to estimating the expected cash flow under the accounting standards and regulatory requirements.

The importance of FRQ stems from the crucial role that it plays for the interest of all parties conducting with the enterprise and the economy as a whole. FRQ helps to reduce the cost of capital by reducing the information asymmetry (Houcine, 2017; Rad *et al.*, 2016) between senior and small investors as high quality of information presented in financial statements reduces the risk of loss for small investors (Gomariz & Ballesta, 2014; Burgstahler *et al.*, 2006). This leads to attracting more money to markets. Also, it reduces the information asymmetry between managers and shareholders which leads to reducing conflict of interests between them and agency costs (Wang *et al.*, 2015; Li & Wang, 2010) on the basis that thematic and verifiable information facilitates the effectiveness of shareholders' exercise of their rights (Li & Shroof, 2009; Beest *et al.*, 2009). Moreover, FRQ improves the efficiency of capital allocation (Li & Wang, 2010) as it helps managers and investors to evaluate investment opportunities and select the best projects. Furthermore, FRQ provides accurate information to company's board of directors which can allow them to monitor activities of managers and reducing their managerial incentives from engaging in value-destroying projects or investments (Ahmed & Duellman, 2007). As high FRQ decreases the authority and power of managers in making decisions which service only their own interests and direct them to make efficient and appropriate investment decisions (Chen *et al.*, 2011). Generally, FRQ plays an important role for reducing the risk of unknown as this type of risk arises and increases in the business environment when managers, shareholders, suppliers, investors, creditors and other parties dealing with the firm are unable to assess the business risks or expect the returns, which results from lack of information that helps them to do so (Turner, 2000). Therefore, high FRQ allows market agents to gain full understanding of all operations and activities of companies by decreasing the vagueness surrounding certain events (Jo & Kim, 2007)

Prior literature showed an obvious debate concerning the relationship between FRQ and firm's FP. Several studies confirmed that there is a significant positive relationship between FRQ and FP (e.g. Chakroun & Amar, 2019; Salehi *et al.*, 2018; Umobong & Ogbonna, 2017; Machdar *et al.*, 2017; Jamkarani & Hozi, 2016; Martínez-Ferrero, 2014; Bukenya, 2014; Gill *et al.*, 2013; Chen *et al.*, 2011). High FRQ means that companies have low Earnings Management (EM) as it is used as an adverse indicator for FRQ. This implies that higher FRQ and lower EM are associated with achieving higher FP. As providing high FRQ can reduce information asymmetry between investors, creditors and other market participants. In addition, it can resolve agency problems between firm managers and its shareholders which results in reducing the agency costs and capital costs. Also, providing high FRQ maintains a good reputation of the company which in turn increases the loyalty and confidence among its customers, investors and creditors which can be reflected positively on FP.

On the other hand, some researchers concluded that there is a negative relationship between FRQ and FP, implying that lower FRQ and higher EM are associated with achieving higher FP (e.g. Ngunjiri, 2017; Lopes *et al.*, 2011). As these studies are conducted in new emerging markets that suffer from unhealthy economy. These markets focus only on reported income regardless the quality of reported information (Izadi *et al.*, 2015). Low FRQ means that companies have high EM, indicating that there

is an approach from management to increase profits to reach the targeted profits for different reasons. The management may want to improve its image in front of firm's owners in order to continue in their work or to achieve self-benefits if their bonus depends on the achieved profits. Also, management may practice EM to obtain loans without violating the terms of borrowing and to improve the company's negotiating position as creditors consider accounting profits as a basis for making their credit decisions. Moreover, managers may engage in managing their earnings to support market valuation of their firms.

There are also few studies which found that there is insignificant relationship between FRQ and FP as it is conducted in new emerging markets and small economies where market participants doesn't pay an attention to the quality of financial information presented in financial statements (Moshi, 2016). Thereby, it doesn't affect firms' FP. Thus, these inconsistent results among previous studies regarding the relationship between FRQ and FP, requires more investigation to determine the impact of FRQ on firm's FP.

Therefore, the previous literature showed inconsistent results concerning the relationship between FRQ and firm's performance. Therefore, the main objective of this paper is investigating the impact of FRQ on Egyptian firms' FP to determine whether firms utilize EM practices through decreasing FRQ to enhance their firm's FP. The current paper contributes to the prior literature by extending the literature on FRQ. Moreover, it is one of the few researches which investigate the association between FRQ and firm's FP to explore the extent to which Egyptian firms depend on EM practices through decreasing FRQ to enhance its FP. This research is organized as follows; section 2 presents the literature review and hypotheses development. Section 3 shows the empirical tests including the sample selection procedures, measurement of variables and results. Finally, the last section presents the conclusions of the study.

### **Literature Review and Hypotheses Development**

FRQ is a procedure of reporting financial exercises of businesses formally. FRQ ensures and enforces the company to display good and precise information that reduces the mystery and the collision in information provided for all interested users such as shareholders, investors, creditors and other market participants. Previous studies ensure that qualified and accurate financial reporting is considered an effective and important tool for making feasibility analysis, financial analysis and interpretation (Al-dmour *et al.*, 2018). Krishnan *et al.* (2005) argued that the accuracy and reliability of data disclosed by organizational information systems is crucial not only for producing reliable and accurate financial reports, but also for the overall performance and success of businesses.

A stream of previous studies have examined the association between FRQ and firm's performance. For instance, Chakroun & Amar (2019) investigated the impact of EM on firm's FP in France. The panel least squares analysis was used to analyze the data based on a sample of 311 French firms over a period of 5 years from 2010 to 2014. EM was proxied by modified Jones model (Dechow *et al.*, 1995) and FP was proxied by Return on Assets (ROA), ROE, Tobin's Q and Marris ratio. The results of the study revealed that EM had a significant negative impact on ROA and ROE which implied that the higher the FRQ, the higher the ROA and ROE. However, EM had a significant positive impact on Tobins Q and Marris ratio which implied that the higher the FRQ, the lower the Tobins Q and Marris ratio. Thus, it was concluded that EM had a negative effect on FP underlying the opportunistic perspective, while EM had a positive effect on FP underlying the informative perspective.

Salehi *et al.* (2018) examined the impact of FRQ measured by Earnings Quality (EQ) and financial information disclosure on firms' stock returns. Panel data analysis was conducted on a sample consisted of 1680 firm-year observations from listed companies in the Tehran Stock Exchange (TSE) covering a period from 2009 to 2014. The empirical evidence of employing ordinary least squares regression analysis revealed that modified Jones (1991) and Francis *et al.* (2005) which were used as measures of EQ were significantly and positively related to stock returns. On the other hand, the results of this study suggested that EM and disclosure quality were not significantly related to companies' stock return.

Umobong & Ogbonna (2017) investigated the influence of EQ used as a measure of FRQ and income smoothing on pharmaceutical firms performance measured by price earnings ratio, ROE and ROA. The study used ANOVA and independent T test to analyze the data based on a sample of all manufacturing companies listed on the Stock Exchange of Nigeria for a period from 2006 to 2014. The results showed that there was a linear, significant and positive relationship between EQ and firms' FP measured by ROA and ROE. Moreover this study concluded that EQ had weak, nonlinear and insignificant relationship with market price of firms' shares. So, it was recommended that management should improve corporate governance, enhance internal control systems and comply with accounting standards, while alleviating the use of discretionary powers by firms' managers.

Machdar *et al.* (2017) examined the impact of EQ, real EM and conservatism as proxies of FRQ on firms' performance moderated by information asymmetry to show its role on these relationships. The study used a sample consisted of 298 manufacturing firms listed in the Stock Exchange of Indonesia and the Singapore Stock Exchange covering a period of 10 years from 2004 to 2013. This study employed smoothing income and quality of accruals as indicators of EQ and used accrual-based conservatism and hidden reserve as indicators for conservatism, while discretionary expenditures, discretionary production and discretionary cash flows as measures for real EM. The dependent variable was the firms' performance which was measured by stock return. The findings indicated that EQ was positively associated with firms' performance but EM had negative effects on companies' performance. Also this study revealed that the relationship between EQ and companies' performance was weakened by information asymmetry, but the impact of information asymmetry strengthened the relationship between real EM and company's performance.

Ngunjiri (2017) aimed to explore the relationship between EM (accruals) and FP on a sample consisted of 66 firms listed in Nairobi Securities Exchange in Kenya covering a period from 2012 to 2016. The study employed regression analysis in order to analyze the data. The results revealed that FP was influenced significantly and positively by EM, firm size and market to book ratio. Also, it was indicated that EM, firm size and market to book ratio had a significant and positive impact on stock return among firms listed at Nairobi Securities Exchange in Kenya.

Moshi (2016) examined the effect of EM on firm's FP in Tanzania. The sample of the study includes all registered manufacturing firms at Dar-es-salaam stock exchange over a period of ten years from 2005 to 2014. EM was proxied by Discretionary Accruals (DA), while FP was measured by NPM, debt to equity, debt to assets, ROA and current ratio. The empirical evidence of using multiple regression analysis found that EM had a significant impact on NPM and current ratio. However, there was an insignificant impact of EM on ROA, debt to equity and debt to assets ratio. These results indicated that EM had a significant impact on leverage and asset management performance ratios, while there was an insignificant impact of EM on profitability ratios.



Jamkarani & Hozi (2016) analyzed the impact of accrual based EM on future FP. The study used a sample consisted of 120 companies listed on Tehran stock exchange (TSE) covering a span of seven years from 2006 to 2013. Dechow model presented in 2002 was used to measure EM and ROA was used to measure FP. The results of multiple regression analysis revealed that EM had a significant negative effect on ROA which implied that there was a significant positive relationship between FRQ and ROA.

Martínez-Ferrero (2014) investigated the consequences of FRQ on firms' FP. This study used an unbalanced sample from 25 different countries from 2002 till 2010. It employed EM, accounting conservatism and accruals quality as indicators of FRQ and market to book ratio as an indicator of corporate performance. The results showed that the FRQ was significantly and positively related to FP, implied that the higher the FRQ (associated with better EQ, better accounting conservatism and better accruals quality), the higher the firm's FP which was measured by market proxies to reflect the stakeholders trust in the company at the past, present and future.

Gill *et al.* (2013) examined the effect of EM practices on firm's performance and other stakeholders. This study adopted a co-relational research design on a sample consisted of 250 manufacturing companies from Top 500 firms which were listed on the Bombay Stock Exchange covering a period from 2009 to 2012. EM was measured by managed revenues, total accruals (balance sheet approach), total accruals and DA (cash flow approach). Firm performance and the value of manufacturing firms in India were measured by ROA and market value. This study concluded that the practice of EM had an adverse impact on ROA in the subsequent year which consequently affected the whole performance of Indian firms. Furthermore, it was found that EM practices were associated negatively with prices of shares and firm's market value.

Lopes *et al.* (2011) investigated the influence of FRQ on FP of European firms. The Abnormal Accruals (AA) methodology was adopted to determine the impact of FRQ on companies' FP measured by ROA and ROE based on a sample of 17 European countries from 1997 to 2006. The findings of this study emphasized that there was a mechanical relationship between AA which was used as a measure of FRQ and accounting measures of FP including ROA and ROE, implied that the decrease in FRQ would increase ROA and ROE and vice-versa. The results regarding to lag AA approach revealed that the expected relationship between lagged positive AA and FP measures was negative so the current FP of European firms would be reduced when higher AA was found in the previous years. Therefore, when comparing current FP with the AA of previous year, it was suggested that the reverse impact didn't occur for two successive years.

Therefore, these conflicting results in the previous literature back mainly to the difference in perception of users of financial statements including investors, creditors and other stakeholders regarding the FRQ due to the environment, whether it was conducted in developed countries, developing countries or new emerging markets. Also, differences in these results may be due to using different measures for FRQ and FP. Thus, the above discussion leads to the following hypotheses:

$H_1$ : There is a significant positive relationship between Earnings Management and Return on Equity.

$H_2$ : There is a significant positive relationship between Earnings Management and Earnings per Share.

### Research Design

This section introduces how the sample has been selected; sources of data collected, variables used in this research and their measurement and the empirical models have been applied.

### Sample Selection

The population of the research includes all Egyptian firms listed in the EGX 100 index of August 2018 of the Egyptian stock exchange. EGX 100 index has been used as it includes the most 100 active firms in the market. The final sample includes all sectors except for all financial institutions such as banks, insurance firms and brokerage firms as these firms have different capital structure and investment decisions. Also, the final sample excludes seven sectors including telecommunication, healthcare and pharmaceutical, media, oil and gas, retail and technology as these sectors include less than five firms each. As the modified Jones Model by Dechow, Sloan & Sweeney (1995) used to measure FRQ required that each sector should have at least five firms in each year to estimate DA. The sample of this research covers a period of five years from 2014 to 2018. The final sample consists of 61 firms with 305 observations. The researcher depends on secondary data in order to conduct statistical analysis. Data is collected from the annual financial statements of the firms including balance sheet, income statement and statement of cash flows which are available on Thomson Reuters Database and the official websites of firms. The distribution of the sample according to the sector is shown in table 1.

Table 1. The Distribution of the Sample

Description	Number of Firms	Number of Observations
Initial Sample: EGX 100	100	500
Less: Excluded Firms	(39)	(195)
<b>Final Sample</b>	<b>61</b>	<b>305</b>
Chemical	6	30
Industrial Good, services and Automobiles	8	40
Food and Beverage	11	55
Construction and Material	9	45
Basic Resources	5	25
Personal and Household Products	6	30
Travel and Lesuire	5	25
Real State	11	55
<b>Final Sample</b>	<b>61</b>	<b>305</b>

### Measurements of the Variables

#### FRQ and Firm's Performance

FRQ is the main independent variable concerning the relationship between FRQ and firm's FP. In this research, FRQ is measured by EM using modified Jones model by Dechow *et al.* (1995). This model is chosen because it is one of the most common mathematical models for measuring DA as an adverse indicator for FRQ as mentioned in previous studies. According to this model, the absolute value of the DA is calculated by the following steps:

1. Estimating the total accruals by using cash flow method. According to this model, total accruals are the difference between net income and the net cash flows from operating activities.

$$TACC_{it} = NI_{it} - CFO_{it} \quad (1)$$

2. Conducting a cross-sectional ordinary least square (OLS) regression to estimate the following parameters  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  for each industry in each year.

$$TACC_{it} / A_{it-1} = \beta_1 (1 / A_{it-1}) + \beta_2 (\Delta REV_{it} - \Delta AR_{it} / A_{it-1}) + \beta_3 (PPE_{it} / A_{it-1}) + e_{it} \quad (2)$$

All model variables were divided by the total assets of the company at the beginning of the period with the aim of eliminating the effect of size differences among firms.

3. Calculating Non-DA by using these estimated parameters from the previous equation.

$$NDA_{it} = \beta_1 (1 / A_{it-1}) + \beta_2 (\Delta REV_{it} - \Delta AR_{it} / A_{it-1}) + \beta_3 (PPE_{it} / A_{it-1}) \quad (3)$$

4. Estimating the DA as the difference between total accruals and Non-DA.

$$DA_{it} = TACC_{it} / A_{it-1} - NDA_{it} \quad (4)$$

Where  $TACC_{it}$  is total accruals of firm  $i$  in year  $t$ ;  $NI_{it}$  the net income after tax of firm  $i$  in year  $t$ ;  $CFO_{it}$  the cash flow from operating activities of firm  $i$  in year  $t$ ;  $A_{it-1}$  the total assets of firm  $i$  in year  $t-1$ ;  $\Delta REV_{it}$  the Sales revenues of firm  $i$  in year  $t$  less sales revenues in year  $t-1$ ;  $\Delta AR_{it}$  the net accounts receivables of firm  $i$  in year  $t$  less net accounts receivables in year  $t-1$ ;  $PPE_{it}$  the gross value of property, plant, and equipment of firm  $i$  in year  $t$ ;  $NDA_{it}$  the non-discretionary accruals of firm  $i$  in year  $t$ ;  $DA_{it}$  the discretionary accruals of firm  $i$  in year  $t$ ; and  $e_{it}$  The remainder of the model expresses a random error, representing discretionary accruals that reflect the poor FRQ. Finally, the absolute value of  $DA$  is used as a measure of EM, where the lower absolute value of  $DA$  refers to lower EM and consequently higher FRQ.

FP is the dependent variable used in this research. In this research, FP is measured by two indicators which are ROE and EPS. ROE is used to measure how well a company utilizes investments to generate profits for firm's shareholders. It is computed as the net income after tax divided by total shareholder's equity of firm  $i$  at year  $t$  (Chakroun & Amar, 2019; Umobong & Ogbonna, 2017; Lopes *et al.*, 2011). EPS is considered one of the valuable and widely used measures for shareholders' wealth. EPS is used to measure the amount of income earned for each share of common stock during an accounting period. It is computed as net income after tax divided by end of period common shares outstanding (Bagh *et al.*, 2016).

Empirical models used in this research include control variables which are expected to have an effect on firm's FP. Based on the prior literature, the control variables include Firm Size (SIZE), Debt to Equity ratio (DR), Current Ratios (CR) and Sales Growth (SG) (Chakroun & Amar, 2019; Sharif & Islam, 2018; Ajaya & Swagatika, 2018; Kasozi, 2017; Jamkarani & Hozi, 2016; Martínez-Ferrero, 2014; Gill *et al.*, 2013; Banos-Caballero *et al.*, 2012; Brealey *et al.*, 2011; Deloof, 2003). SIZE is measured by using the natural logarithm of firm's total assets. DR is computed by the ratio of total debt to total shareholders' equity. CR is computed as the ratio of current assets to current liabilities. SG is computed as current year sales minus last year sales divided by last year sales.

Based on the previous discussion, the following empirical models are formulated as follows:

$$\text{Model (1): } ROE_{it} = \beta_0 + \beta_1 (DA)_{it} + \beta_2 (SIZE)_{it} + \beta_3 (SG)_{it} + \beta_4 (DR)_{it} + \beta_5 (CR)_{it} + E_{it}$$

$$\text{Model (2): } EPS_{it} = \beta_0 + \beta_1 (DA)_{it} + \beta_2 (SIZE)_{it} + \beta_3 (SG)_{it} + \beta_4 (DR)_{it} + \beta_5 (CR)_{it} + E_{it}$$

Where  $ROE_{it}$  is the return on equity of firm  $i$  at year  $t$ ;  $EPS_{it}$  the earnings per share of firm  $i$  at year  $t$ ;  $DA_{it}$  the discretionary accruals of firm  $i$  at year  $t$ ;  $SIZE_{it}$  the firm size of firm  $i$  at year  $t$ ;  $SG_{it}$  the sales growth of firm  $i$  at year  $t$ ;  $DR_{it}$  the debt ratio of firm  $i$  at year  $t$ ; and  $CR_{it}$  the Current ratio of firm  $i$  at year  $t$ .



## Empirical Study

### Descriptive Statistics

This section shows the descriptive analysis of dependent, independent and control variables used in the current research. Descriptive statistics are employed to describe the characteristics of the sample and test the validity of the normal distribution. Descriptive statistics results include the mean, the median, the maximum value, the minimum value, the standard deviation, the skewness, the kurtosis and the Jarque-Bera test of each variable. The results are shown in table 2.

Table 2. Descriptive statistics of the variables concerning all variables

	ROE	EPS	DA	CR	DR	SIZE	SG
<b>Mean</b>	0.128	0.265	0.258	1.414	0.266	14.426	0.120
<b>Median</b>	0.103	0.230	0.140	1.320	0.130	14.361	0.120
<b>Maximum</b>	0.497	1.016	1.173	2.840	1.160	18.383	0.595
<b>Minimum</b>	-0.235	-0.510	5.05E-05	0.230	-0.581	10.115	-0.370
<b>Std. Dev.</b>	0.153	0.305	0.272	0.627	0.315	1.727	0.196
<b>Skewness</b>	0.279	0.276	1.372	0.357	0.884	-0.098	0.071
<b>Kurtosis</b>	2.797	2.859	4.034	2.320	2.961	2.682	2.707
<b>Jarque-Bera</b>	4.482	4.127	108.489	12.355	39.097	1.767	1.343
<b>Probability</b>	0.106	0.127	0.000	0.002	0.000	0.413	0.511
<b>Observations</b>	305	305	303	305	300	304	305

Table 2 presents the descriptive statistics of all variables used in the current research. The descriptive statistics for dependent variables shows that the mean (median) values of ROE and EPS are 0.128 (0.103) and 0.265 (0.230) with a standard deviation of 0.153 and 0.305 respectively. The skewness and (kurtosis) values of ROE and EPS are 0.279 (2.797) and 0.276 (2.859) respectively indicating that the values of ROE and EPS are normally distributed because the value of skewness should be between -1 and +1 and the value of kurtosis should be between -3 and +3. Additionally, jarque-bera test is used to measure the normal distribution of all variables employed in this research with a significance level greater than 0.05. Hence, ROE and EPS are normally distributed at (4.482, p-value = 0.106) and (4.127, p-value = 0.127) respectively.

Furthermore, the descriptive statistics of DA shows that a mean of 0.258 and a median of 0.139 with a standard deviation of 0.272, implying that the average of the whole sample engaging in EM practices with different degrees. The skewness and kurtosis of DA are 1.372 and 4.034 respectively, indicating that values of DA are normally distributed. However its p-value of jarque-bera test is 0.000 which indicates that DA values are not normally distributed.

The descriptive statistics of control variables reveal that the mean (median) values of SIZE, CR, DR and SG are 14.426 (14.362), 1.414 (1.320), 0.266 (0.130) and 0.120 (0.120) with a standard deviation of 1.727, 0.627, 0.315 and 0.196 respectively. The values of skewness (kurtosis) of SIZE, CR, DR and SG are 0.098 (2.682), 0.357 (2.320), 0.884 (2.961) and 0.071 (2.707) respectively, indicating that all control variables are normally distributed. According to jarque-bera test, SIZE and SG are normally distributed at p-value of 0.413 and 0.511 respectively, however CR and DR are not normally distributed because their p-values are 0.002 and 0.000 respectively which is lower than 0.05.

### Diagnostic Statistics

Before conducting the regression analysis, diagnostic tests are carried out on all empirical models in order to assess the validity of these models used in the current research and to ensure that the results are not biased. Diagnostic tests involve group unit root test, Kao Residual Co-integration test and Pearson’s correlation test.

### Group Unit Root Test

Group unit root test is employed to test the stationarity of time series in order to ensure that the mean, variance and other statistical properties are invariant (constant) overtime, which helps to predict the behavior of variables used in the empirical model easily. A stationary time series allows the researcher to generalize the results of the model for future periods. However, non-stationary time series leads to unreliable inferences. This test measures the stationary of the time series through the following statistical techniques: Augmented Dickey-Fuller (ADF), Philips–Perron (PP), and Im, Pesaran and Shin W-stat (IPSW) at a significant level less than (0.05) (Gujarati, 2015). Table (3) presents the group unit root test for all empirical models used in the research.

Table 3. Group Unit Root Test Concerning All Empirical Models

Model	Levin, Lin & Chu (LLC)		Im, Pesaran and Shin W-stat (IPSW)		Fisher Chi-square (ADF)		Fisher Chi-square (PP)	
	Statistic	Prob.	Statistic	Prob.	Statistic	Prob.	Statistic	Prob.
<b>Model (1)</b>	-20.4282	0.0000	-18.2408	0.0000	310.267	0.0000	297.645	0.0000
<b>Model (2)</b>	-20.3734	0.0000	-18.0495	0.0000	305.603	0.0000	295.390	0.0000

Table 3 shows that the P-values of LLC, IPSW, ADF and PP tests are Significant at (p value=0.000) which is less than (0.05) indicating that all variables included in all empirical models have stationary time series. Thus, the results of these empirical models used in this research can be generalized to future time periods.

### Kao Residual Co-integration Test

The Kao test specifies cross-section specific intercepts and homogeneous coefficients on the first-stage regressors under the null hypothesis of no co- integration for panel data. It is used to test for the existence of long-term stable equilibrium relationships among time series variables which mean that they show similar behavior during the duration of the research. The Kao test is based on the (ADF) t-statistic criteria, at a significant level less than (0.05) (Gujarati, 2015). Table (4) presents Kao Residual Co-integration Test for panel data for all empirical models used in this research.

Table 4. Kao Residual Co integration Test Concerning All Empirical Models

Model	Kao Residual Co integration Test (ADF)	
	t-Statistic	Prob.
<b>Model (1)</b>	-3.751020	0.0001
<b>Model (2)</b>	-3.905499	0.0000

According to Table 4, it can be revealed that there are long-term equilibrium relationships between the dependent and independent variables of the panel data in all empirical models used in the research, based on the Kao-statistic, at a significant level less than (0.001). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted which stated that there is co integration for panel data used.

**Pearson’s Correlation Test**

In this research, Pearson’s correlation test is employed to measure the validity of the multicollinearity assumption between the independent variables used in each empirical model which is considered as a condition of regression analysis. As the existence of high correlation between two or more variables, makes it difficult to determine the contribution of each variable in the interpretation of changes in the dependent variable. According to the criteria of statistical analysis, the existence of a correlation in excess of (0.9) between any two or more independent variables is considered a high correlation that can result in distortion of the relationship between one of the two variables and the dependent variable. Tables 5 show Pearson correlation coefficients for all empirical models used in the research.

*Table 5. Pearson’s Correlation Matrix Concerning Model (1) and Model (2)*

Variables	DA	SIZE	SG	DR	CR
DA	1.000000 -----				
SIZE	0.037553 0.5184	1.000000 -----			
SG	0.058813 0.3116	0.181029 0.0017	1.000000 -----		
DR	-0.073175 0.2078	0.253044 0.0000	0.037554 0.5184	1.000000 -----	
CR	-0.231442 0.0001	-0.277075 0.0000	0.020762 0.7211	-0.334889 0.0000	1.000000 -----

From Tables 5, it is shown that the highest correlation exists between DR and CR ( $r = -0.33$ ). Therefore, it is concluded that there is no multicollinearity problems among the independent variables used in all empirical models of the research (DA, SIZE, SG, DR and CR) to the extent to which the results of the regression analysis can be affected because there is no correlation higher than (0.9) among these variables.

**Regression Analysis**

A multiple regression analysis is employed to test the hypotheses of the research. Multiple regression analysis is used to determine the effect of each independent variable on the dependent variable in each empirical model through applying Panel Least Squares (PLS) and Estimated Generalized least squares (EGLS) regression.

### Testing the First Hypothesis

The first model is used to test this hypothesis. The first model includes EM measured by DA as an independent variable and ROE as a dependent variable in addition to using SIZE, SG, DR and CR as control variables. It should be noted that lagged dependent variable ROE (-1) is employed in the model as its inclusion in this model can reduce the occurrence of auto correlation arising from model misspecification. Moreover, EGLS technique is used in this model for estimating the unknown parameters in case of auto correlation problems in a regression model as it will give better results and high significance. This section presents the findings of the first empirical model. Table 6 presents panel EGLS regression analysis to test the first empirical model.

Table 6. EGLS Regression Model to Determine the Effect of EM on ROE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROE(-1)	0.350115	0.100032	3.500024	0.0006
DA	-0.037215	0.011798	-3.154403	0.0019
SIZE	0.016464	0.014467	1.138036	0.2567
SG	0.075828	0.018724	4.049818	0.0001
DR	0.000697	0.010656	0.065444	0.9479
CR	-0.003824	0.006319	-0.605169	0.5459
C	-0.150435	0.201156	-0.747852	0.4556

  

Effects Specification			
R-squared	0.912756	Mean dependent var	0.223072
Adjusted R-squared	0.879976	S.D. dependent var	0.260978
S.E. of regression	0.087080	Sum squared resid	1.311849
F-statistic	27.84530	Durbin-Watson stat	2.329552
Prob(F-statistic)	0.000000		

$$\text{ROE} = 0.350114914086 * \text{ROE}(-1) - 0.0372153431997 * \text{DA} + 0.0164637575137 * \text{LNSIZE} + 0.075827643062 * \text{SG} + 0.00069733756812 * \text{DR} - 0.00382393238367 * \text{CR} - 0.150434627234$$

As shown in Table 6, there is a significant negative relationship between DA and ROE. In other terms, the lower the EM and the higher the FRQ is associated with achieving higher ROE. Thus, H<sub>5</sub> is rejected. It is also shown that there is a significant positive impact of one year lagged value (-1) of ROE on current year ROE. Therefore, the inclusion of ROE (-1) contributes in explaining the changes in the current year ROE. Moreover, It is found that SG has a significant positive effect on ROE, whereas CR, SIZE and DR have an insignificant negative effect on ROE

Furthermore, F-test reveals that the model is significant as its value is (27.84, P-value=0.000). The R squared value of the model is 0.91, implying that DA, SIZE, SG, DR and CR explain about 91.5 of the changes in ROE. It is also shown that the model has no serial correlation problem in the residuals as the score of Durbin-Watson is (2.1).

### Testing the Second Hypothesis

The second model is used to test this hypothesis. The second model includes EM measured by DA as an independent variable and EPS as a dependent variable in addition to using SIZE, SG, DR and CR

as control variables. It should be noted that lagged dependent variable EPS (-1) is employed as its inclusion in this model can reduce the occurrence of auto correlation arising from model misspecification. This section presents the findings of the second empirical model. Table 7 presents PLS regression analysis to test the second empirical model.

Table 7. PLS Regression Model to Determine the Effect of EM on EPS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EPS(-1)	0.239426	0.076409	3.133487	0.0020
DA	0.212036	0.101275	2.093659	0.0378
SIZE	-0.125543	0.062887	-1.996340	0.0475
SG	0.204941	0.080148	2.557035	0.0114
DR	0.145328	0.095503	1.521715	0.1299
CR	0.101254	0.039128	2.587769	0.0105
C	1.761007	0.899052	1.958738	0.0518

  

Effects Specification			
R-squared	0.732024	Mean dependent var	0.267803
Adjusted R-squared	0.624833	S.D. dependent var	0.303834
S.E. of regression	0.186101	Akaike info criterion	-0.288311
Sum squared resid	5.887725	Schwarz criterion	0.715354
Log likelihood	103.4532	Hannan-Quinn criter.	0.116138
F-statistic	6.829181	Durbin-Watson stat	2.169284
Prob(F-statistic)	0.000000		

  

$$\text{EPS} = 0.23942592407 * \text{EPS}(-1) + 0.212035519334 * \text{DA} - 0.125543278654 * \text{LNSIZE} + 0.204941252562 * \text{SG} + 0.145327740343 * \text{DR} + 0.101254125914 * \text{CR} + 1.76100732553$$

From Table 7, it is found that there is a significant positive relationship between DA and EPS as its P value = 0.03 which is lower than 0.05. This means that the more practicing of EM and the lower FRQ is associated with achieving higher EPS. Thus, H<sub>6</sub> is accepted. It is also found that there is a significant positive impact of one year lagged value (-1) of EPS on current year EPS. Therefore, the inclusion of EPS (-1) contributes in explaining the changes in the current year EPS. Concerning to control variables; SG and CR are significantly and positively related to EPS, but SIZE is negatively and significantly related to EPS. Also, it is found that DR has an insignificant effect on EPS.

In addition, the F-test value is (6.82, P value=0.000) which means that this model is significant. The value of R squared is 0.73, indicating that about 73% of the variations in EPS are explained by the independent variables (DA, SIZE, SG, DR and CR). The Durbin-Watson score is (2.1) which reveals that there is no problem of autocorrelation in that model.

### Discussion of the Findings

This section discusses the main empirical findings of the current research. The results indicate that there is a statistical significant and negative impact of practicing EM on ROE. In other terms, there is a significant positive relationship between FRQ and ROE. This indicates that practicing EM and



reducing FRQ will harm firm's shareholders as the lower the ROE, the less wealth the firm is creating for its shareholders, and the less return they can expect from their investments. Managers use EM practices in favor of their interests not in favor of firm's shareholders. Managers may adjust earnings to transfer wealth from shareholders to themselves. Also, EM practices result in distorted financial statements that don't present a true and fair view of the financial position of the firm. Therefore, the information presented in financial statements can be misleading and detrimental to the investors. Thus, it can erode the value of shareholders' investment in the firm. In addition, providing high FRQ reduces information asymmetry between shareholders, managers, creditors and other market participants which can help them to take more rational decisions reduce cost of capital and improve the efficiency of its allocation. Also, it can resolve agency problems between managers and its shareholders which in turn can reduce agency costs. Thus, providing high FRQ will be reflected positively on ROE. Thus,  $H_1$  is rejected which assumed that practicing EM and reducing FRQ are associated positively with ROE. These results consist with Chakroun & Amar (2019) and Umobong & Ogbonna (2017) who addressed that the higher the FRQ, the higher the ROE. While, these results contradict with Lopes *et al* (2011) who found that there is a negative relationship between FRQ and ROE.

Moreover, the findings revealed that there is a significant positive impact of EM on EPS. In other words, there is a significant negative impact of FRQ on EPS. This implies that firm's management takes decisions that increase EPS, while destroying shareholders value. Management use EM practices to hide the actual FP of the firm and try to show it better through increasing EPS in order to attract potential investors and satisfy existing investors in addition to having positive impact on the stock market valuation of companies' shares and influencing stock prices positively. As a higher EPS is a sign of higher earnings, strong financial position and therefore, a reliable company for investors to invest their money. Management can use deceitful accounting information to conceal much of the debt they utilize to finance their EPS as more borrowing doesn't create more value for the firm. Therefore,  $H_2$  is accepted which stated that there is a significant positive impact of EM on EPS.

## Conclusion

This research aims at investigating the impact of FRQ measured by the modified Jones model Dechow *et al.* (1995) on Egyptian firm's performance measured by ROE and EPS to determine whether firms utilize EM practices to enhance their firm's performance. This research used a sample consisted of 61 Egyptian listed firms over a period of 5 years from 2014-2018.

Previous literature found mixed and conflicting results concerning the association between FRQ and firm's performance. Most of prior studies indicated that there is a significant positive association between FRQ and firm's performance (e.g. Chakroun & Amar, 2019; Umobong & Ogbonna 2017; Machdar *et al.*, 2017; Jamkarani & Hozzi, 2016; Martínez-Ferrero, 2014; Gill *et al.*, 2013; Chen *et al.*, 2010). On the other hand, other studies found that there is a significant negative association between FRQ and FP (e.g. Ngunjiri, 2017; Lopes *et al.*, 2011). However, Moshi (2011) found that there is an insignificant association between FRQ and firm's performance.

The results revealed that there is a significant positive impact of FRQ on ROE. In other words, the more the involvement of EM practices, the lower the ROE. This indicates that practicing EM and reducing FRQ will harm firm's shareholders as the lower the ROE, the less wealth the firm is creating for its shareholders, and the less return they can expect from their investments. Also, EM practices result in distorted financial statements that don't present a true and fair view of the financial position

of the firm. Therefore, the information presented in financial statements can be misleading and detrimental to the investors. Thus, it can erode the value of shareholders' investment in the firm. These results consist with Chakroun & Amar (2019) and Umobong & Ogbonna (2017) who addressed that the higher the FRQ, the higher the ROE. In addition, these results indicated that there is a significant negative impact of FRQ on EPS. Alternatively, these results found that there is a significant positive impact of EM on EPS. This implies that firm's management use EM practices to take decisions that increase EPS, while destroying shareholders value. They use EM to hide the actual FP of the firm and try to show it better through increasing EPS in order to attract potential investors and satisfy existing investors in addition to having positive impact on the stock market valuation of companies' shares and influencing stock prices positively. As a higher EPS is a sign of higher earnings, strong financial position and therefore, a reliable company for investors to invest their money.

### Contribution and Implications

This research is considered one of the few researches which examine the impact of FRQ on Egyptian firms' FP and the findings indicate that managers use their discretion on accruals to increase EPS in order to reflect a good image to the market about their performance in order to attract new investors, while harming firm's shareholders' value. As managers use EM practices through reducing FRQ in favor of their interest not in favor of firm's shareholders. Therefore, firms should have a good act or law such as a code of corporate governance rule, which is believed to be able to mitigate the agency problem and can ensure that the management uses the good side of EM through reasonable and proper practices that can serve the overall firm's FP and safeguard the shareholders' return.

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