“The effect of dividend payments and firm’s attributes on earnings quality: empirical evidence from Egypt”

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ARTICLE INFO	Gehan A. Mousa and Abdelmohsen Desoky (2019). The effect of dividend payments and firm’s attributes on earnings quality: empirical evidence from Egypt. *Investment Management and Financial Innovations*, *16*(1), 14-29. doi:10.21511/imfi.16(1).2019.02
DOI	http://dx.doi.org/10.21511/imfi.16(1).2019.02
RELEASED ON	Thursday, 10 January 2019
RECEIVED ON	Friday, 25 May 2018
ACCEPTED ON	Thursday, 18 October 2018

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JOURNAL	"Investment Management and Financial Innovations"
ISSN PRINT	1810-4967
ISSN ONLINE	1812-9358
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
69	0	5

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BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10, Sumy, 40022, Ukraine

www.businessperspectives.org

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THE EFFECT OF DIVIDEND PAYMENTS AND FIRM'S ATTRIBUTES ON EARNINGS QUALITY: EMPIRICAL EVIDENCE FROM EGYPT

Abstract

This empirical study aims mainly to investigate the effect of both dividend payments (DP) and five firm`s attributes (firm size, firm leverage, firm performance, legal form and audit quality) on earnings quality (EQ) of the most active listed firms in Egypt. A sample of 552 firm-year observations during four years from 2014 to 2017 was used. Hierarchical Multiple Regression (HMR) was used to regress the six independent variables on firms' EQ through the absence of firms' earnings management (EM), which was estimated through discretionary accruals (DAC). Main results show that there is some divergence in EM practices over the four years and might suggest that EM by listed firms in Egypt exists especially in the first two years (2014 and 2015); however, relatively lower EM practices are found in the last two years (2016 and 2017). Correlation results show a number of significant relationships between the EM and three independent variables (firm leverage, legal form and audit quality). HMR results are in line with the results obtained via Pearson correlation.

Keywords dividend payments, earnings quality, the Egyptian Exchange (EGX), firm attributes

JEL Classification M41

Received on: 25th of May, 2018
Accepted on: 18th of October, 2018

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INTRODUCTION

The research area of the corporate dividends has attracted a large number of researchers in various fields and many studies have appeared in different streams. One of these streams is studies examining the relationship between dividend payments (DP) and earnings quality (EQ) based on the argument that dividends reveal information regarding EQ such as future earnings, sustainable earnings and stable cash flows (Caskey & Hanlon, 2005; Skinner & Soltes, 2011; Tong & Miao, 2011). The current study has been motivated by this stream of literature. It investigates the effect of both the DP and firms' attributes on EQ in the Egyptian capital market. Jensen et al. (2010) pointed out that a reduction in firm dividends is associated with a decrease in its value. Therefore, managers who tend to decrease their dividends keep such action as a "last resort".

Managers use DP as a tool to communicate with corporate shareholders to demonstrate its performance. Cash dividends are normally founded on actual profits of a given form that reflect its performance, because it is difficult and problematical for managers distributing dividends when there are no profits (Sirait & Siregar, 2014). One character of the fairness of reported earnings is dividends (Breeden, 2003). Skinner and Soltes (2011) provided evidence on DP as a better indication of EQ. The authors found that firms with DP have higher EQ than

http://dx.doi.org/10.21511/imfi.16(1).2019.02

non-dividend paying firms. In addition, dividends provide strong evidence to investors on a good corporate financial performance that can be maintained with a solid cash basis (Caskey & Hanlon, 2005).

On the other hand, EQ considers one of the unique characteristics of financial reporting. It has attracted the interest of a wide range of stakeholders of the company such as credit rating agencies, analysts, accounting researchers, regulators and standard setters. As a result, there are various benchmarks and views used to measure the EQ. Ismail et al. (2015, p. 20) stated that "a high quality of reported earnings is demanded, especially for the purpose of making investing and financing decisions. However, earnings management (EM) practices may affect the quality of accounting earnings. This behavior occurs when managers manipulate the earnings figure during the preparation of financial statements through the use of discretionary provisions allowed by certain accounting standards".

Dividends consider a sign for reliability and credibility of reported earnings (Malkiel, 2003). Firms with high EQ are willing and able to regularly pay dividends, because their future earnings can be sustained in contrast firms that engage in EM practices, which will not produce cash. Earnings derived from such practices are not sustainable. Firms with higher DP have higher EQ, because they must be sustained by a strong cash basis. Firms tend to raise their DP if they are expecting an increase in their future earnings (Caskey & Hanlon, 2005). Gopalan and Jayaraman (2012) argued that DP can help to reduce EM, because dividends will limit private control benefits for managers inside the company, which may reduce the possibility to manipulate earnings. In this line, Leuz et al. (2003) provided evidence on when private control benefits of corporate managers are limited, EM is less pervasive.

The current study contributes in the following directions. First, our study builds on the rising literature in EQ and DP through extending previous research on EQ and corporate attributes in emerging markets such as Egypt especially, relatively little is identified about this important area of research in such markets. For example, Adaoglu (2000) argued that there are substantial differences in corporate DP policy between the developing and developed markets; therefore, research on emerging markets is a crucial matter. Second, findings of the current study may help to improve the understanding of corporate dividend policy and its relationship with the EQ. Consequently, investors, regulators and different interested parties can benefit from our findings. Third, this study could support in investigating other capital markets in the Middle East area, which might reflect a general contribution on dividend policy and EQ areas. Finally, it is interesting to evaluate the relationship between DP and EQ in different environments such as Egypt especially, prior studies have documented mixed results such as Chemmanur et al. (2010) who found that firms in Hong Kong use more flexible policies for DP and are less engaged in dividend smoothing than USA firms.

The study is structured as follows. Section 1 presents the theoretical framework of the study. Section 2 provides the related literature and the development of hypotheses. Section 3 offers background on Egyptian capital market. Sections 4 and 5 report research methods and empirical findings. Lastly, final section presents the conclusion and limitations of the study.

1. THEORETICAL FRAMEWORK OF THE STUDY (AGENCY AND SIGNALING THEORIES)

The topic of corporate dividend policy has a historical development with a great interest in the literature. Therefore, several theories with different explanations and hypotheses are appeared starting from dividend policy irrelevance theory that was provided by Miller and Modigliani (1961). Such theory is based on certain assumptions such as a firm works in an advanced stock market and investors are able to make rational decisions. Miller and Modigliani (1961) argued that DP could notify information on corporate future cash flow. Other theories such as the tax preference theory and the

tax penalty have addressed the preference of investors related to ratios of DP in the light of tax rate, the required rate of return, capital gains and their desire to improve the market valuation of a given firm's stocks (Al-Malkawi, 2007). Moreover, the agency and signaling theories are the most widely used theories for the interpretation of the corporate dividend policy.

Signaling theory is built on the information asymmetry, which exists between managers of the firm (insiders) and its shareholders (outsiders). Firm managers may use their private information on firm's financial performance to broadcast information to others engaged in the market for a specific purpose such as influence on share price or to posit that firms could pay dividends to signal their upcoming prospects. In other words, firm managers use dividends to signal particular information to investors (Miller & Rock, 1985).

In signaling theory, DP is seen as signals for good news on good-quality firms (Bali, 2003). Sirait and Siregar (2014) argued that firms with DP are expected to have higher EQ than others. Several studies argued that change in dividends (increase or decrease) reveals a signal (good or bad) on corporate future earnings (Hanlon et al., 2007). On contrast, other studies found no relationship or weak impact of the information content of dividends on firm's future earnings (Grullon et al., 2005; Brav et al., 2005).

On the other hand, recent changes in business and changing ownership patterns have led to the emergence of agency problems, which result from the separation of control and ownership in business. Consequently, owners face agency problems like moral hazard and adverse selection, as well as information asymmetry (Jensen & Meckling, 1976). According to agency theory, managers of a firm use dividends as a tool in resolving agency-based conflicts, which may occur between firm managers and outside shareholders (Jensen, 1986). It was reported that investors prefer an increase in dividends, because this leads to decreased cash free that managers can use in their private benefits, consequently, they may invest in unsuccessful projects (Jensen, 1986). Dividends reflect efficient contracting between firm managers and minority shareholders, at the same time, they convey a commitment of a firm to act in the highest interests of firm shareholders (La Porta et al., 2000).

Faccio et al. (2001) compared DP in East Asia and Europe to address the significance of agency conflicts between majority and minority shareholders. They found that large shareholders are supporting lower dividends, because they can get private benefits from assets under their control and the cash flows. DP consider an important tool that help shareholders to decrease the free cash flows available for managers inside the firm for discretionary spending, hence imposing better control on financial resources, while managers may prefer not paying dividends or reduce the level of dividends. They have incentives to keep more cash free inside the firm, which gives them the chance to enhance personal benefits. La Porta et al. (2000, p. 2) stated that "unless profits are paid out to shareholders, they may be diverted by the insiders for personal use or committed to unprofitable projects that provide benefits for insiders". From the agency perspective, firms with high DP will decrease the agency costs of free cash flow and reduce the opportunities to exploit company resources for personal interests (Pinkowitz et al., 2006). Based on earlier arguments, it can be claimed that although both theories (agency and signaling) can help in providing a reasonable basis for explaining the relationship between DP and EQ, the results for studying such relationship may be varied in different environments with variety of corporate attributes.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Considering the main objective of this study, the appropriate literature can be grouped into three groups of research as follows:

2.1. An overview on EQ

What is meant by "earnings quality"? In fact, the literature provides several definitions of EQ. This means that there is no sole definition of EQ, as well as there is no sole measure of this concept. For example, the American FASB in its Statement of

http://dx.doi.org/10.21511/imfi.16(1).2019.02

Financial Accounting Concepts (SFAC) No. 1 defined EQ as "higher quality earnings provide more information about the features of a firm's financial performance that is relevant to specific decision makers". Ewert and Wagenhofer (2010) defined EQ as "the reduction of the market's uncertainty about the firm's terminal value due to the earnings report". The authors developed a measure for EQ to reflect the effects of a variation of the manager's incentives and information, and of accounting risk. The findings of their study supported that persistence, value relevance, predictability, and accrual quality are narrowly related to their EQ measure.

When managers' decisions are taken with an eye to effect on comprehensive or net income, they are likely to be engaged in EM. Managers have the flexibility in dealing with the accruals system, which gives opportunities for EM through accrual adjustments. They may increase or decrease current reported earnings. For example, Coles et al. (2006) reported that firms of high (low) earnings show significantly positive (negative) discretionary accruals (DAC). Heather et al. (2017) argued that EM is a try in attracting potential investors through building up the financial position perceptions of such investors.

Moreover, AICPA (2009) argued that "EM occurs when firm management has the opportunity to make accounting decisions that change reported income and exploits those opportunities". Liu et al. (2017) pointed out that "management's accounting-related choices provide opportunities to manage earnings through timing of transactions and making estimates". The literature on EQ has presented several metrics to proxy for EQ. There is no agreement on these metrics or even concepts that describe high or low EQ. Following prior literature (Coles et al., 2006; Othman & Zeghal, 2006; Tong & Miao, 2011), the current study used the Jones' model (1991) to estimate firms DAC as the proxy of EQ.

In Egypt, a number of empirical studies documented that Egyptian firms are engaged in EM practice (Khalil, 2005, 2006; Abulkhair, 1997, 1999; Mousa, 2011; Riyadh, 2012; Ali & Desoky, 2015). For example, Khalil (2005, 2006) examined EM practices by the Egyptian firms and reported that Egyptian firms exercise EM. Abulkhair (1997, 1999) reported a clear growth in the amount of DAC in the financial reports of the Egyptian firms, whether positive or negative. Mousa (2011) reported that listed firms in Egypt are practicing EM via the increase in reported income. Also, Riyadh (2012) found that there is a contrary relationship between the EM and corporate governance (CG) Finally, Ali and Desoky (2015) investigated the impact of a number of CG mechanisms on EQ of Egyptian listed firms before and after implementing the Egyptian Code of CG in 2006. They found that the implementation such a Code of CG decreased the EM practices and improved EQ.

2.2. The relationship between DP and EQ

A number of prior empirical studies have investigated the relationship between DP and EQ (Caskey & Hanlon, 2005; Grullon et al., 2005; Hanlon et al., 2007; Chen et al., 2007; Skinner & Soltes, 2011; Sirait & Siregar, 2014; Desoky, 2016; Deng et al., 2017; He et al., 2017). However, there is no consistent conclusion on such association. Three reasons for the positive relationship between DP and EQ are identified in the literature. First, DP need more persistent earnings and stable cash flow. Second, DP decrease the free cash flow that available for managers inside the company, which may reduce the opportunity to use such cash for private personal interests, consequently, this can mitigate agency problems. Third, investors interpret DP as a sign for the credibility of firm's reported earnings and believe that DP convey information on firm's performance and future earnings (Brav et al., 2005; Deng et al., 2017).

Deng et al. (2017) examined the association between DP and EQ and documented a positive effect of DP on EQ. Tong and Miao (2011) reported that US firms with large DP have higher EQ (lesser absolute values of DAC) than those with small dividends or no dividend. Similarly, Skinner and Soltes (2011) studied the association between dividends and earnings persistence for 30 years and documented that firms with DP have more persistent earnings than other firms do. Caskey and Hanlon (2005) showed that firms with EQ pay dividends more than firms that committed of accounting fraud. In Indonesia, Sirait and

Siregar (2014) examined the relationship between DP and EM using 90 manufacturing listed firms from 2005 to 2009. The main result of this study revealed that dividends have a significant positive association with EQ.

In an international study, He et al. (2017) found a significant negative relationship between dividend policy and EM using a large sample of 23,429 firms from 29 countries. The overall results supported that DP have a positive effect on EQ. Chen et al. (2007) reported that DP are an indicator of EQ. They found that firms distributing dividends and increasing dividend amounts have lower risk of information, consequently, more accurate earnings information. In contrast, using 27 firms listed in the Bahrain Bourse (BHB) for a period of 10 years starting from 2004 to 2013, Desoky (2016) reported that cash dividends have no clear impact on EM. Similarly, Grullon et al. (2005) found that dividends have no impact on future earnings information. Based on previous discussions, the following research hypothesis is formulated:

H1: There is a significant association between DP and EQ.

2.3. Firm's attributes and EQ

2.3.1. Firm's size

Extensive literature has provided evidence on the critical role that firm size may play in manipulating the earnings (Hutchinson & Leung, 2007). In USA, Jones (1991) argued that large firms might have incentives to manage their earnings as they are targeted by pressure groups, lobbies, analyst and institutional investor scrutiny. Large firms have an incentive to smooth or reduced earnings. In contrast, small firms manage their earnings to avoid losses (Lee & Choi, 2002). Using a sample of Canadian and French firms, Othman and Zeghal (2006) documented that firm size impacts EM magnitude. Such result is supported by the results of Chung et al. (2005) and Desoky (2016) who showed a significant positive association between firm size and EM. In contrast, Siregar and Utama (2008) reported no impact of firm size on EM in Indonesia. Similarly, Qathami and bin Abdul Mohsen (2010) and Howeidi (1998) in Kuwait. It can be argued that the literature on the impact of firm size on EQ provides mixed results. Accordingly, the following hypothesis is suggested as:

H2: There is a significant association between firm size and EQ.

2.3.2. Firm's leverage

The literature on the association between EM and financial leverage has shown conflicting findings. For instance, some studies (DeAngelo et al., 1994; Becker et al., 1998; Desoky, 2016) reported a significant negative relationship between leverage and EM. Firms with high leverage levels may face increased monitoring by different parties such as creditors and bankers, and this may reduce using of positive DAC (DeAngelo et al., 1994). This result is supported by Qathami and bin Abdul Mohsen (2010) who documented that leverage is significantly associated with EM. Coulombe and Tondeur (2001) found that debt covenants can be restricted to non-optimal spending and place firms with high level of debts under greater lender scrutiny. Managers might try to improve earnings via the selection of income-increasing accounting methods in firms with debt covenants (Press & Weintrop, 1990). In contrast, Othman and Zeghal (2006) reported some evidence from Canada and France that leverage is not correlated with EM for Canadian firms, while it is correlated with EM for French firms. Accordingly, the literature offered varied results concerning the association between firm leverage and its EQ. So, the following hypothesis can be formulated:

H3: There is a significant association between firm leverage and EQ.

2.3.3. Firm's performance

The literature reported that firms with poor performance conduct EM practices to elude earnings decreases and losses. For example, Charoenwong and Jiraporn (2009) showed that listed firms in Thailand are practicing EM to avoid reporting earnings reduction and losses. Similarly, Desoky (2016) found a significant negative correlation between firm performance and EM. Qathami and bin Abdul Mohsen (2010) reported that firms use different behavior based on their financial performance. They concluded that firms with loss

http://dx.doi.org/10.21511/imfi.16(1).2019.02

practice positive EM, in contrast, profitable firms practice negative EM. Similarly, Yoon and Miller (2002) found that Korean industrial firms are likely to select income-increasing strategies when they have negative performance; while firms are likely to select income-decreasing strategies when they have positive performance. It is clear that mixed findings were provided regarding the relationship between firm performance and EQ. Hence, the following research hypothesis can be formulated:

H4: There is a significant association between firm performance and EQ.

2.3.4. Legal form

Egypt has implemented a privatization program since the 1990s. As a result of such practice, a large number of public sector firms were sold to individual or institutional investors in the sense of converting some firms from public ownership to private ownership. In addition, the government remains as a partner in some public firms by a certain percentage. Consequently, there are two types of legal form of the listed firms, which are privately owned and jointly owned firms (with partially government ownership). The literature has documented the importance of regulations that impose a protecting legal framework, which outlines the terms and methods of execution of transactions involving conflicts of interest and related-party transactions (Ducassy & Guyot, 2017). The interest of legislators is to protect different stakeholders' interests from such actions. For example, Aguilera and Jackson (2003) reported that the government force is an important factor to activate governance, since it sets the legal framework aiming to protect the interests of minority stockholders. La Porta et al. (2000) reported that DP are an indication for an effective legal system that protects shareholders and forces corporate managers to pay dividends. Moreover, prior studies found that legal form of the firm plays a critical role in financial disclosure (Hope, 2003). Based on the above arguments, it is expected that legal form of the firm can affect many corporate decisions, including the practice of EM. In light of the above, our fifth hypothesis is formulated as follows:

H5: There is a significant association between legal form and EQ.

2.3.5. Audit quality

Huguet and Gandía (2016) pointed out that audit quality can play a significant role in improving the credibility of the financial statements and accounting information, helping to reduce financing costs, and reducing the opportunistic behavior of managers. Top audit firms such as the Big Four auditors have the ability to provide quality audit work, because they have many clients with many different resources such as technology and qualified staff for the audit process (Miko & Kamardin, 2015). Therefore, it is expected that the higher the quality of an external auditor, the lower EM and the higher the EQ. Several studies have documented that high-quality audit firms are more likely to notice EM and not allow to be conducted (Becker et al., 1998; Francis et al., 1999; Kouaib & Jarboui, 2014). Low level of DAC was reported with big audited firms by Chung et al. (2005) and Francis et al. (1999). In contrast, other studies such as Othman and Zeghal (2006), Siregar and Utama (2008) found that audit quality has no significant impact on EQ. In light of the above discussion, the effect of audit quality on EQ has mixed findings, therefore, the final hypothesis is formulated as follows:

H6: There is a significant association between audit quality and EQ.

3. BACKGROUND OF THE EGYPTIAN CAPITAL MARKET[1]

The emergence of the Egyptian Stock Exchange (EGX) dates back to the formation of the Alexandria Stock Exchange in 1883, then the formation of the Cairo Stock Exchange in 1903. EGX is one of the eldest exchanges in the area of Middle East. It is an active member of the World Federation of Exchanges (WFE), a member of the African Stock Exchanges Association (ASEA), a founding member of the Arab Stock Exchanges Union, and a member of the International Organization of Securities

1 Information in this section is based on the 2016 and 2017 EGX annual reports and EGX website. http://www.egx.com.eg/arabic/homepage.aspx

Commissions (IOSCO). EGX is keen to promote best CG practices among listed firms through the listing and disclosure rules, in addition, to play a significant role in establishing sustainability frameworks for global and regional capital markets. EGX strives to improve transparency in Egyptian capital market and ensure that sustainability is well defined and disclosed by listed firms.

Based on the 2017 report of EGX, year 2017 witnessed the continued recovery in the performance of the global economy as international institutions raised their forecasts for economic growth from 3.6% to 3.7% despite this improvement is limited, but it is a confirmation of the continuation of the positive trend in many countries. The economy has seen signs of recovery in a number of important indicators, with economic growth in the region being 5.2% during the first quarter of the year 2017/2018 with expectations of the government targeting 5.5% instead of 4.6% as expected by International Monetary Fund. On the other hand, reserves in EGX witnessed a remarkable improvement to record 36.7 billion compared to 19 billion in October 2016. Moreover, the inflation rate has also fallen to 26% in November 2017 from 35% in July 2017 with expectations of continued decline during the coming period, in addition to the noticeable improvement in the status of the budget sector where the World Bank expects that the budget deficit is declining for the current fiscal year to 8.8% compared to 10.8% in previous year.

Moreover, EGX has a set of achievements in 2017, for example, EGX ranked as first in the Arab countries in 2017 and continues as one of the leaders of the world markets since 2013. The EGX recorded the fourth highest level of trading in the history of the stock exchange, where daily volume exceeded the billion mark compared to 741 million in 2016. The EGX succeeded in attracting more than 22,000 new investors and about 1,164 new foreign firms entering the market. The improved performance of the net foreign purchases on the EGX recorded 7.5 billion in 2017 and more than 13 billion in 2016. Egyptian market contributed to the rise in market capitalization to break the 800 billion, which means a surplus of 200 billion in 2016. The EGX witnessed clear development in the performance of its main indices of the market. For example, the main index of the EGX increased by about 22% at the level of the Arab countries during 2017. At the same time, the size of firms listed on the EGX rose to 156% as the capitalization of listed firms jumped to 2.4 billion.

4. RESEARCH METHODS

4.1. The sample

This empirical investigation is based on a sample, which contains the most active listed firms in the Egyptian Exchange (EGX) covering the 2014–2017 financial periods. The EGX 100 Index, which was created in August 2009, includes the most active 100 firms. The construction of the EGX 100 is reviewed semi-annually to include some firms and exclude others. The total number of listed firms was 222, 222, 221 and 214 in 2014, 2015, 2016 and 2016 financial years, respectively. 138 listed firms were selected in the study presenting 552 firm-year observations in the four financial years. To be included in the sample, a firm should be one of the EGX 100 firms in one or more financial period. The selected firms represent most sectors in the EGX as shown in Table 1. Annual reports of each sampled firm were investigated to obtain the information needed for the study variables.

Table 1. Firms included in this investigation

Sector	No. of firms	% of firms
1. Industrial	256	46.4
2. Financial institutions	36	06.5
3. Real estates	76	13.8
4. Investment	72	13.0
5. Service and others	112	20.3
Total	552	100.0

4.2. Definition of study's variables

4.2.1. Estimation of the dependent variable (DAC)

In the current study, the absence of EM is used to measure EQ. Consistent with the previous literature, absolute value of DAC is used as a proxy for EQ (Schipper & Vincent, 2003; Iyengar et al., 2010). The Jones' (1991) model, which was modified in 1995 by Dechow et al., is the most broadly used method to measure EM in the accounting literature. The current study estimates the absolute value of DAC us-

http://dx.doi.org/10.21511/imfi.16(1).2019.02

ing this modified model. Based on the modified model, total accruals (TAC) are assessed through a cross-sectional regression of previous periods' yearly change in gross PPE and revenue on TAC of firm i at year t. The original Jones' (1991) model was modified in 1995 by Dechow et al. through amending the revenues change by the receivables change. The modified model work to eliminate any conjectured tendency of the Jones' (1991) model to assess DAC with error when discretion is exercised over revenues (Dechow et al., 1995).

Total accruals (TAC_{it}) of firm i in the year t are calculated as the difference between cash flows from operations (CFO) and earnings as follows:

$$TAC_{it} = EARNINGS_{it} - CFO_{it}. \quad (1)$$

Besides, TAC is regressed against its components and the error term by the following formula:

$$\frac{TAC_{it}}{TASS_{it-1}} = a\left(\frac{1}{TASS_{it-1}}\right) + \frac{b(\Delta REV - \Delta REC)}{TASS_{it-1}} + c\frac{PPE}{TASS_{it-1}} + e_{it}, \quad (2)$$

where TAC_{it} – total accruals for year t for firm i, $TASS_{it-1}$ – lagged total assets, ΔREV_{it} – revenues of year t minus revenues of firm i in year $t-1$, ΔREC_{it} – receivables for firm i in year t minus receivables in year $t-1$, PPE_{it} – property, plant, and equipment of firm i in gross in year t, e_{it} – error term in year t for firm i. Followed Kothari et al. (2005), this model uses assets as the deflator for mitigating heteroscedasticity in residuals. Based on the modified Jones' model, the change in revenue in the above equation was adjusted by the change on accounting receivables (REC), because a firm management could boost current period earnings by an early recognition of revenue. Dechow et al. (1995) proposed that the adjustment resulting from the change in accounting receivable may overcome any endogenous bias, which may occur because of the change in revenue.

Furthermore, DAC is calculated via the use of fitted amounts of regression coefficients to calculate normal accrual (NAC), which is subtracted from total accruals to estimate firms' DAC using the following equation:

$$DAC_{it} = TAC_{it} - NAC_{it}. \quad (3)$$

In this study, EQ is measured by the absence of EM. In other words, the absolute value of DAC is used in this investigation as a proxy for EQ.

4.2.2. Control and independent variables

Considering the objective of the study, independent variables used include a set of six variables on both DP and corporate attributes, namely, dividend payment, firm size, firm leverage, legal form and audit quality. As discussed earlier in this study, the literature provided varied results on the association between the EQ and some of the independent variables. The literature provides evidence on the association between a number of variables, among them firm industry type, board independence and board size and EQ. Accordingly, the above three variables were used to control for potential influences on EQ (Jaggi et al., 2009; Xie et al., 2003). Definitions and related proxies of all variables used in this investigation are presented in Table 2.

Table 2. Summary of all the variables included in the study

Variables	Symbol	Definitions
Dependent variable		
Firm EM	FDAC	DAC (measured by Jones' model)
Control variables		
Firm industry	FINDUS	Adapted from the EGX sector Indices classification
Board size	BSIZE	Number of the board of directors
Board independence	BINDEP	% of external directors to total number of board members
Independent variables		
DP	DIVPAY	Cash dividend per share/the closing share price
Firm size	FSIZE	Firm market capitalization
Firm leverage	FLEVER	Total liabilities over total assets
Firm performance	FPERFO	Net income over total assets (ROA)
Legal form	LEGFOR	A dummy variable takes one if the firm is joint owned and zero if it is private owned
Audit quality	AUDQUA	A dummy variable gives one if the firm accounts are audited by one of the Big Four audit firms and zero otherwise

Notes: 1. Information on the above variables was collected at the end of each financial period. 2. Predicted signs of all independent variables, which are based on their expected effects on the dependent variable, are (+ or –).

4.3. Data analysis

Descriptive, univariate (Pearson correlation), multivariate statistics were used in the current study. The linear regression (Hierarchical Multiple Regression – HMR, which also referred to as sequential regression) has been used for the EM as a dependent variable and 6 independent variables (DIVPAY, FSIZE, FLEVER, FPERFO, LEGFOR and AUDQUA) after statistically controlling for three control variables (FINDUS, BSIZE and BINDEP). The aim of the HMR usage is to remove the possible effect of control variables. Control variables were entered at step 1 followed by dependent variables in step 2 (Pallant, 2013). The HMR model was estimated in this study as follows:

The model (all variables):

$$DAC = \beta_0 + \beta_1 DIVPAY + \beta_2 FSIZE + \\ + \beta_3 FLEVER + \beta_4 FPERFO + \beta_5 LEGFOR + \\ + \beta_6 AUDQUA + \beta_7 FINDUS + \\ + \beta_8 BSIZE + \beta_9 BINDEP + \varepsilon,$$

where DAC – discretionary accruals, which is a proxy of EM (the dependent variable), β_0 is a constant, $\beta_{i,i=1,\ldots,9}$ is parameters, then ε is for error term. Moreover, regression analysis was carried out to assess the opportunity for any multicollinearity, which may occur among two or more independent variables. Results revealed that intercorrelation among variables was not appearing to be problematical, therefore multicollinearity would not be a thoughtful worry in this study (values of variance inflation factors (VIF) and related tolerance levels for independent variables were less than 2 and more than 0.60, respectively).

5. RESULTS

5.1. Descriptive results

Table 3 shows descriptive results for all variables included. It shows the average *DAC* for the sample of 552 firm-year observations over the four years (2014–2017), which is 0.076 with a standard deviation of 0.181 and –0.308 and 0.872 as a minimum and maximum *DAC* values. Also, the table shows the above measures for each year covered in the study from 2014 to 2017. These results refer to some variations in the EM practices of the sampled firms over the four years and might suggest that EM by listed Egyptian firms exist, especially in the first two years (2014 and 2015); however, relatively lower results were found in the last two years (2016 and 2017). The above finding is consistent with what was revealed by a number of studies conducted in Egypt and documented that Egyptian firms are engaged in EM practice (Khalil, 2005, 2006; Abulkhair, 1997, 1999, Mousa, 2011; Riyadh, 2012). In general, the above finding may reveal that EM practices by the listed firm in Egypt tend to be lower in the last years compared to previous years. As lesser practice of EM refers to more EQ, the above finding may propose that EQ was little improved in the last two years.

Furthermore, Table 3 shows that the maximum and minimum of board size is 19 and 2, respectively; and the mean score for board size is 8.22 members with a standard deviation of about 3. Board independence ranged between 0% and 100% with a mean of 53.15% (a standard deviation of 30.14%). The above finding indicates that, on average, more than half of board members of the sampled firms are independent, but in some firms there are no independent members, while in others all members are independent.

Concerning independent variables, Table 3 reveals that the average mean of firm DP (cash dividend per share/the closing share price) is 0.042% of the sample firm-years (standard deviation of 0.172%). The maximum and minimum of DP are 2.959% and 0%, respectively. Firm size of the sampled firms is ranging from EGP 15,435 million to 134,604.283 with an average of EGP 4,148.786 million. The average mean of firm leverage is 50.7% (standard deviation of 35.5%). The table reveals that the mean of firm performance (ROA) is only 2.81% with a standard deviation of 11.6%. Additionally, 52.9% of the sampled firms are privately owned, while 47.1% are jointly owned. Further, only 24.4% of firms are audited by one of the Big Four audit firms, while the majority of sampled firms (76.6%) are not. Overall, external auditors, particularly greatly reputable ones such as Big Four audit firms, exercise a constraining impact on EM resulting in improved EQ.

http://dx.doi.org/10.21511/imfi.16(1).2019.02

Table 3. Descriptive statistics of variables included in this study

Variables	Minimum	Maximum	Mean	SD
Dependent variable				
Firm EM (FDAC)				
The whole period (2014–2017)	–0.308	0.872	0.076	0.181
2014	–0.353	0.872	0.077	0.179
2015	–0.329	0.774	0.079	0.180
2016	–0.308	0.753	0.073	0.168
2017	–0.269	0.814	0.070	0.156
Control variables				
Board size (BSIZE)	2	19	8.22	2.97
Board independence (BINDEP), (%)	0	100	53.15	30.14
Independent variables				
DP (DIVPAY)	0	2.959	0.042	0.172
Firm size (FSIZE), EGP'000	15,435	134,604.283	4,148.786	11,773.381
Firm leverage (FLEVER)	0.001	4.687	0.507	.355
Firm performance (FPERFO)	–0.855	.510	0.028	0.116
Legal form (LEGFOR)	Jointly owned 260 (47.1%)	Privately owned 292 (52.9%)	–	–
Audit quality (AUDQUA)	Big Four 140 (24.4%)	Not Big Four 412 (74.6%)	–	–

Note: 1. The above findings are based on 552 firms. 2. For more details on each variable, refer to Table 1. 3. The above information covers a period of 4 years (2014–2017). 4. All amounts are in Egyptian pound (EGP) (EGP 1 = USD): 0.139 (2014), 0.128 (2015), 0.055 (2016) and 0.057 (2017). 5. Annual reports which are in USD were transferred to Egyptian pounds. 6. Market capitalization is calculated at end of December of each financial period.

5.2. The univariate analysis

Correlation results show findings on the association between EM (DAC) from one side and dividend payment and firm characteristics (the independent variables) and control variables from the other. Table 4 presents coefficient correlations and reveals a number of significant relationships between the EM and three out of six independent variables (FLEVER, LEGFOR and AUDQUA); and two out of three control variables (FINDUS and BINDEP).

For example, as predicted, Table 4 reveals that EM is significantly negatively associated with three independent variables, namely, firm leverage (FLEVER), firm legal form (LEGFOR) and quality of the audit firm (AUDQUA) with correlation values of –0.220, –0.174 and –0.308, respectively. However, the correlation results are weak for FLEVER and LEGFOR, while it is moderate for AUDQUA. Concerning firm leverage, the result may confirm the argument that firms of high leverage may experience further monitoring by various external parties (e.g. creditors and bankers) and this may decrease the adoption of EM resulting in increased EQ. This result is in line with findings reported by previous studies, including DeAngelo et al. (1994), Becker et al. (1998), Qathami and bin Abdul Mohsen (2010), Desoky (2016) who reported a significance association between firm leverage and EM. However, it is not consistent with finding revealed in 2006 in Canada by Othman and Zeghal who found no significant relationship between FLEVER and EM.

Although the significant correlation finding on legal form (LEGFOR) is weak, it may confirm what was expected earlier that legal form of a firm may affect a number of corporate decisions, including the practice of EM. Regarding the audit quality (AUDQUA), the correlation result, which is significant and moderate, confirms the argument that auditors in Big Four audit firms have the ability to perform quality audit work; and is in line with a number of previous studies such as Miko and Kamardin (2015), Becker et al. (1998), Francis et al. (1999), Kouaib and Jarboui (2014) and Chung et al. (2005). The above result supports what was expected earlier that the higher the quality of an external auditor, the lower EM and the higher the EQ.

Moreover, Table 4 revealed that there is very weak and non-significant association between the EM

Table 4. Correlation between the EQ and other variables

Variables	FDAC	FINDUS	BSIZE	BINDEP	DIVPAY	FSIZE	FLEVER	FPERFO	LEGFOR	AUDQUA
FDAC	1	–	–	–	–	–	–	–	–	–
FINDUS	.123**	1	–	–	–	–	–	–	–	–
BSIZE	–.005	–.010	1	–	–	–	–	–	–	–
BINDEP	–.202*	–.107*	.206**	1	–	–	–	–	–	–
DIVPAY	–.011	–.097*	.164**	.092*	1	–	–	–	–	–
FSIZE	–.032	–.010	.108*	.030	.034	1	–	–	–	–
FLEVER	–.220**	.008	–.018	.138**	–.069	.081	1	–	–	–
FPERFO	.139	.031	.159**	–.036	.133*	.149**	–.449**	1	–	–
LEGFOR	–.174**	.012	–.020	–.058	–.073	.149*	.068	.063	1	–
AUDQUA	–.308**	.092*	.165**	.042	–.040	.181**	.159**	–.005	.250**	1

Notes: * correlation is being significant at the level of 0.05 (2-tailed), ** correlation is being significant at the level of 0.01 (2-tailed). 1. Dependent, independent and control variables were defined in Table 2. 2. All coefficients are based on 552 observations.

and the other three independent variables, namely, DP (DIVPAY), firm size (FSIZE) and firm performance (FPERFO). The above results indicate that DP by the sampled firms are not associated with their practice of EM, consequently, EQ of such firms. It is consistent with results reported by Grullon et al. (2005) and Desoky (2016). However, the above finding is not consistent with some previous studies (e.g. Deng et al., 2017; Tong & Miao, 2011; Caskey & Hanlon, 2005; Sirait & Siregar, 2014; He et al., 2017) whose results supported that DP have an impact on EM. Relating to FSIZE, the weak and non-significant association refers to no effect of firm size on EM by the sampled firms. This finding is in line with what was reported previously by Siregar and Utama (2008), Qathami and bin Abdul Mohsen (2010), Howeidi (1998). Nevertheless, it conflicts with other findings reported by Jones (1991), Othman and Zeghal (2006) and Chung et al. (2005). Similarly, Table 4 reveals weak and non-significant positive correlation of 0.139 between EM and FPERFO. This refers to a weak association between firm performance and EM. This may not confirm what was reported in the literature that firms practice diverse behavior based on their financial performance such as firms with loss adopting positive EM; conversely, firms with profit may adopt negative EM; both cases are affecting firm's EQ. The above result is not consistent with findings reported in other part of the world such as Thailand (Charoenwong & Jiraporn, 2009), Korea (Yoon & Miller, 2002). Concerning control variables, Table 4 shows that two out of three control variables (FINDUS and BINDEP) are significantly correlated with EM, but the third (BSIZE) is not.

Although the univariate analysis shows significant association between two independent variables (FPERFO vs. FLEVER), it does not refer to a serious problem of multicollinearity in this study, because it is only 0.449 and does not exceed 0.700 (Pallant, 2013). In conclusion, only three out of six independent variables are significantly correlated with EM, then impact the firm EQ. They are firm leverage (FLEVERG), legal form (LEGFOR) and audit quality (AUDQUA). However, other variables are not.

5.3. The multivariate analysis

As mentioned earlier in subsection 4.3 above, the Hierarchical Multiple Regression (HMR) has been used in this investigation. The aim to use HMR is to remove the possible effect of control variables and to identify which independent variable(s) included in this study contribute to the prediction of its dependent variables (EM), then impact the EQ. Table 5 shows two sets of regression results (model 1 and model 2), which are both significant models. Control variables (FINDUS, BSIZE and BINDEP) were entered at step 1 of the HMR (representing model 1), which is significant (p-value is 0.033) in the explanation of EM with F-value of 2.925 and an adjusted R^2 of 8.8%. All variables are included in model 2, which is significant (p-value is 0.000) in the explanation of EM with F-value of 8.143 and a total adjusted R^2 of 21.6%. Importantly, Table 5 shows the value of the R^2 change, which is 15.5%, meaning that independent variables explain an additional 15.5% of the firm's EM.

In general, it is possible to conclude that results of the HMR analysis are consistent with Pearson

http://dx.doi.org/10.21511/imfi.16(1).2019.02

Table 5. Results of hierarchical regression models

Variables	Model 1		Model 2	
	Standardized coefficients (Beta)	*t*-value	Standardized coefficients (Beta)	*t*-value
(Constant)	–	1.659	–	4.032
FINDUS	.128	2.958	.144	3.485
BSIZE	–.013	–.295	.014	.324
BINDEP	.311	.249	.237	.874
DIVPAY	–	–	–.024	–.581
FSIZE	–	–	.026	.603
FLEVER	–	–	–.220	–4.639
FPERFO	–	–	–.061	–1.274
LEGFOR	–	–	–.117	–2.760
AUDQUA	–	–	–.271	–3.943
R^2	–	.116	–	.271
Adjusted R^2	–	.088	–	.216
R^2 change	–	.116	–	.155
F-value	–	2.925	–	8.143
p-value	–	.033	–	.000

Notes: 1. Both models are based on 552 observations. 2. The first block of regression (model 1) includes three control variables (FINDUS, BSIZE and BINDEP) to statistically control for these variables, while the second block (model 2) includes all variables (control and independent variables) used in the study. 3. Significant coefficients are in bold.

correlation results (subsection 5.2). For example, model 2 shows that three out of six independent variables are significantly explaining EM and impacting the firm EQ. They are firm leverage (FLEVERG), legal form (LEGFOR) and audit quality (AUDQUA). This finding may support hypothesis H3 formulated earlier in this study, which states that "There is a significant association between firm leverage and EQ". The above result is in line with DeAngelo et al. (1994) and Becker et al. (1998) who found a significant negative correlation between firm leverage and EM. It is also consistent with finding revealed in 2010 by Qathami and bin Abdul Mohsen who found a significant correlation between EM and leverage. Conversely, the above finding is inconsistent with Othman and Zeghal (2006) who found that leverage is significantly associated with EM.

Regarding legal form, results of HMR analysis support what was expected earlier in this research that legal form of the firm can affect many corporate decisions, including the practice of EM, then the firm EQ. Accordingly, H5, which states that "There is a significant association between legal form and EQ", is accepted. Similarly, HMR results support H6 stating that "There is a significant association between audit quality and EQ". This finding is in line with what was documented by other previous studies (Becker et al., 1998; Francis et al., 1999; Chung et al., 2005, Kouaib & Jarboui, 2014) that high-quality audit firms are more likely to realize EM and not allow EM to be conducted. In contrast, the above finding is not in line with other previous studies (Othman & Zeghal, 2006; Siregar & Utama, 2008) who documented that audit quality has no significant influence on EM.

Conversely, HMR results reveal that DP (DIVPAY), firm size (FSIZE) and firm performance (FPERFO) may not significantly explain firm EM. The result concerning DP (DIVPAY) is not consistent with what was reported by previous studies (Caskey & Hanlon, 2005; Tong & Miao, 2011; Sirait & Siregar, 2014; Deng et al., 2017) who found that DP have an impact on EQ. Therefore, H1, which stated that "There is a significant association between DP and EQ", is rejected and the alternative one is accepted. Table 5 also reveals that firm size is not significantly explaining firm EM. This result is not in line with what was found by Jones (1991), Lee and Choi (2002), Othman and Zeghal (2006), Chung et al. (2005) who documented a significant association between the firm size and EM. However, this finding agrees with what was reported by Siregar and Utama (2008) in Indonesia and Howeidi (1998) in Kuwait who found no impact of firm size on EM. According to this result, H2, which stated that "There is a significant association be-

tween firm size and EQ", is rejected and the alternative one is accepted. Similar finding is revealed concerning firm performance (FPERFO), which does not support the argument that firms with poor performance conduct EM practices to evade losses and decreases on earnings (Charoenwong & Jiraporn, 2009; Yoon & Miller, 2002). Based on this result, H4, which stated that "There is a significant association between firm performance and EQ", is rejected and the alternative one is accepted. In summary, HMR results support accepting H3, H5 and H6 and rejecting the alternative ones; but they support rejecting H1, H2 and H4 and accepting the alternative hypotheses.

CONCLUSION

This study aims mainly to empirically investigate the impact of DP and five firm attributes (independent variables, namely, firm size, firm leverage, firm performance, legal form and audit quality) on EQ of the most active listed firms on EGX after statistically controlling for three control variables. This investigation was based on 552 firm-year observations during a period from 2014 to 2017. Pearson correlation and Hierarchical Multiple Regression were used to regress the six independent variables on firms' EQ through the absence of firms' EM, which was assessed through firms' DAC. The modified Jones' (1991) model, which is one of the most common models to estimate the EM, was used. Descriptive statistics showed that there is some divergence in EM practices over the four years and might suggest that EM by listed Egyptian firms exist especially in the first two years (2014 and 2015); however, relatively lower results were found in the last two years (2016 and 2017). This finding may propose that firms' EQ was little improved in the last two years. A number of significant relationships between EM and three out of six independent variables (FLEVER, LEGFOR and AUDQUA) were found. Results of the regression analysis (HMR) were in line with the results obtained via Pearson correlation. In summary, HMR results support accepting H3, H5 and H6; but they support rejecting H1, H2 and H4.

The current study is not free from limitations. Even though it can contribute to understanding the effect of DP and other firm attributes on EQ of firms listed in EGX, results of such investigation could not be generalizable to other countries with various stages of development, culture and business environment characteristics. Accordingly, it is encouraging to replicate this study in other countries having many similarities to the Egyptian environment. This study concentrates only on DP and a limited number of firm's attributes. It is highly recommended and will be of great benefits if some CG mechanisms such as size and independence of audit committee, the experience and number of meeting of BOD, and the presence of nomination and remuneration committee to be included in a future study. This investigation was based only on a sample of the most active listed firms included in the EGX 100. It is recommended that future research may extend the sample to include other listed firms not included in EGX 100 ignored in the current investigation. This study focused on a relatively short period of four years (2014–2017). It is recommended to extend future research to include longer period covering earlier years. A comparative study of the impact of DP and other firm attributes of EQ for different countries with emerging capital markets might also be fruitful. Finally, several gaps in the EQ research area still need to be filled, for example studying the reasons why companies with similar activities could have different behavior in EM is still fertile ground for future research.

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