



**The Effect of Financial Leverage and other firm's characteristics on
Real Earnings Management and Accrual Earnings Management: An
Empirical Study on listed Firms in the Egyptian Stock Exchange**

Prepared by

Dr. Dalia Mohamed Khairy El Madbouly

Assistant Professor of Accounting

Faculty of Commerce – Damnhour University

dolly19992002@yahoo.com

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Abstract:

This research empirically examines the effect of financial leverage and other firm's characteristics on the Real and Accrual based earnings management using a sample of Egyptian listed firms for 3 year's period starting from 2015 till 2017. The research investigates whether Egyptian firms use the Real earnings management (REM) to replace the Accrual-based earnings management (AEM) for earnings manipulation. The empirical results indicate that Egyptian firms use both the REM Real and the AEM to achieve its earnings objectives. In addition, the empirical results have found positive relationships between the financial leverage and both forms of earnings management techniques (the REM and the AEM); which is consistent with the debt hypothesis. The empirical results have also found a negative relationship between the both forms of earnings management (the REM and the AEM) and the firm's Audit quality, and the firm's size. However, the relationship is insignificant between the both forms of earnings management (the REM and the AEM) and the firm's age, dividends, and growth. Moreover, the results indicate that highly leveraged firms engage more in Accrual based earnings management than the Real earnings management.

Keywords: Financial leverage, real earnings management, accrual based earnings management, debt hypothesis, highly leveraged firms, Egyptian Stock Exchange.

1- Introduction:

Earnings are one of the most important accounting figures in the financial statement which receive much attention of different firm's stakeholders, as it conveys information about the firm's current performance and its potentials in the long-run. In fact, the firm's ability to generate profit in the future plays a very important role in determining its share price (Cudia and Cruz, 2018). Actually, the firm's share price is often measured by the present value of its future earnings. In addition, investors and analysts basically look to earnings to determine the attractiveness of a certain share. Firms with poor earnings prospects will typically have lower share prices than those with good prospects (Oraby, 2017). Moreover, earnings are used for many purposes in contractual agreements like debt covenants and for executive compensation and bonus plans (Rhodes, 2016).

In reality, financial reporting has allowed the exercise of accounting choices. However, accounting choices have appeared to be double-edged swords as earnings management comes in the exercise of these accounting choices. In the actual fact, Earnings Management (EM) is one of the most important topics in the accounting literature. Managers use earnings management to interfere in preparing the financial statements to reach the desired level of earnings to achieve their personal benefits as well as for the sake of the firms. Since company's value is directly related with future earnings, so earnings management plays a key role to determine the share price of a firm as well as to direct resource allocation in the capital market (Cudia and Cruz, 2018).

According to Healy and Wahlen (1999), Earnings Management (EM) occurs when managers use judgment in financial reporting to alter financial reports to either mislead some shareholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting practices (Healy and Wahlen, 1999).

The accounting literature have revealed two earnings management strategies which firms may use to manipulate earnings; the Real Earnings Management (REM) and the Accrual based Earnings Management (AEM) (Schipper, 1989; Healy & Wahlen, 1999; Roychowdhury, 2006). As earnings are composed of cash flow from operations and accruals, firms may engage in the REM and the AEM to manipulate earnings. According to the REM, firms may manipulate earnings by deviating from the firm's normal business operations, so that the cash flow from operations will be affected (Ewert & Wagenhofer, 2005, Rowchowdhury 2006), while according to the AEM, firms may change the level of accruals to reach the desired level of earnings. Managers use their judgments in financial reporting to manipulate earnings through using the GAAP's accounting principles (Healy and Wahlen, 1999).

Actually, the main idea of using the REM is the same as using the AEM which is to achieve the earnings target. However, the REM is more costly than the AEM, because managers under the REM choose short-term business decisions over the long-term ones and this will affect the firm's ability to generate income in the future. Managers give up some necessary economic decisions that are considered important for firm's long-term performance, such as reducing necessary expenses and/or postponing investments, although they may bring positive future value to the firm (Ipino and Parbonetti, 2017; Gao et al., 2017).

Actually, managers face several costs and constraints for using the two approaches of earnings management. With respect to the REM, the real activities manipulation must be done during the fiscal year and is realized at the end of the fiscal year. However, with respect to the AEM, there is a chance to be done at the end of the fiscal year after the real activities' manipulation. Actually, managers can adjust the amount of the AEM based on the realization of the REM. Accordingly, if the real activities manipulation is unexpectedly high or low, then managers will decrease or increase the amount of manipulation of accruals. In addition, using the real activities manipulation strategy needs economic resources that are not small and needs adequate funding. If the company is experiencing financial difficulties it is difficult to carry out overproduction and managers may have to make other choices to meet their targets. Thus, the firm can use the accrual-based manipulation together with the real activity manipulation either by way of substitution or simultaneously at the same time (Zang, 2012).

In fact, many researchers (Alareeni, 2018, Hoang & Phung, 2019, Zamria et al., 2013, Anagnostopoulou & Tsekrekos, 2016, Waweru & Riro, 2013) have examined the effects of the firm's characteristics on earnings management practice and in which leverage has been an important and informative indicator. In reality, high leveraged companies may be at risk of bankruptcy if they are unable to repay their due debts; and consequently, they could also be unable to find new lenders in the future. Therefore, if a company needs a new loan, lenders will use the reported numbers to evaluate the firms' financial health, credibility and viability. In addition, for highly leveraged firms' lenders will also require the firm to keep its debt within the acceptable limits. Actually, many previous studies (Beatty and Weber 2003; Dichev and Skinner 2002; DeFond and Jiambalvo 1994) have provided evidence that leveraged firms engaged in earnings management to avoid debt covenant default.

1.1. Research problem:

In fact, the two forms of earnings management, the REM and the AEM reduce the credibility of the financial statements and add bias in the financial statements especially as earnings management is done for certain purposes. Managers may use the AEM and the REM to achieve their target earnings (Fisher and Rosenzweig, 1995; Roychowdhury, 2006). Although, the REM cause bigger long-term costs as it has negative consequences toward future cash flow which reduce the firm's value, however managers prefer to use the REM to avoid auditors' and regulators' detection (Roychowdhury, 2006; Graham et al., 2005, Cohen et al., 2008, Cohen et al., 2008; Cohen and Zarowin, 2010). The REM is more difficult to detect because it is almost similar to a company's operational activity (Kim et al, 2010).

This research will examine whether the increase in the firm's leverage provides an incentive for managers to manipulate earnings through the real and accrual manipulation activities and whether the Egyptian firms use the REM to substitute for the AEM especially for high leveraged firms. The research will also examine whether the other firm's characteristics such as the firm's audit quality, performance, size, age, growth opportunities, and dividends will affect the earnings manipulation activities through the REM and AEM for firms listed in the Egyptian Stock Exchange. Accordingly, this research seeks to answer the following questions:

1. Does the financial leverage affect the REM for firms listed in the Egyptian Stock Exchange?
 2. Does the financial leverage affect the AEM for firms listed in the Egyptian Stock Exchange?
 3. Do the Egyptian firms use the REM to substitute for the AEM especially for high leveraged firms?
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4. Does the Audit Firm affect the firms' EM for firms listed in the Egyptian Stock Exchange?
5. Does the firm's performance affect the EM of firms listed in the Egyptian Stock Exchange?
6. Does the firm's size affect the EM of firms listed in the Egyptian Stock Exchange?
7. Does the firm's age affect the EM of firms listed in the Egyptian Stock Exchange?
8. Does the firm's dividend affect the EM of firms listed in the Egyptian Stock Exchange?
9. Does the firm's growth affect the EM of firms listed in the Egyptian Stock Exchange?

1.2. Research objective:

The purpose of this research is to investigate whether the increase in the firm's leverage provides an incentive for managers to manipulate earnings through the real and accrual manipulation activities, and to examine whether the Egyptian firms use the REM to achieve their earnings targets, and whether there exists any substitution or complementary relation with accrual-based strategies especially for highly leveraged firms. The research also aims at examining whether the other firm's characteristics such as the firm's audit quality, performance, size, age, growth opportunities, and dividends affect the earnings manipulation activities through the REM and AEM in an emerging capital market such as Egypt.

1.3. Research importance:

This research contributes to the literature of earnings management in an emerging market like the Egyptian capital market. Actually, the majority of the studies have examined the occurrence of the AEM, and only few previous studies which have examined the occurrence of REM and its interaction with AEM especially in emerging capital markets such as Egypt. Accordingly, this research is motivated by the following reasons:

First: this research provides critical information to know the earnings management techniques, the REM and the AEM techniques. Actually, this is important because the AEM alone; cannot explain the overall effect of earnings management activities.

Second, the effects of the financial leverage on earnings management can be seen from different theoretical points of view; “the debt hypothesis” and “the control hypothesis” and the empirical evidences from accounting researches are still inconclusive. In fact, empirical evidences are mixed with both positive and negative relationship between the firm’s financial leverage and earnings management.

Third, the preceding empirical researches have focused on investigating the effect of the leverage on earnings management in developed countries, however empirical researches on this issue is still limited in developing countries such as Egypt. Accordingly, this research aims to shed more lights on investigating this issue in an emerging capital market such as Egypt.

Fourth, previous empirical researches have focused on studying the effect of the leverage on AEM (Alzoubi, 2017; DeFond & Jiambalvo, 1994; Jelinek, 2007; Jha, 2013; Lazzem & Jilani, 2018; Sweeney, 1994). Actually, these findings have underestimated the total earnings management activities. However, as managers can use both the AEM and the REM either by a way of substitution or simultaneously at the same time (Zang, 2011); the effect of

the leverage should be considered in a comprehensive view of both of these strategies rather than in isolation to reach a definitive conclusion.

Fifth, this research provides critical information to know the effect of the firm's other characteristics such as the firm's audit quality, performance, size, age, growth opportunities, and dividends on both types of earnings management; the REM and the AEM for firms in case of an emerging capital market such as in the Egyptian environment.

1.4. Research methodology:

This Research reviews the accounting literature on the effect of the financial leverage and the other firm's characteristics on the both types of earnings management; the REM and the AEM in order to conclude the research hypotheses which will be tested using a sample of listed firms in Egyptian Stock Exchange. The research uses the Multiple Regression Model to test the research hypotheses in order to conclude the effect of the financial leverage and the other firm's characteristics on the both types of earnings management; the REM and the AEM in case of a developing country such as Egypt.

1.5. Research plan:

This research is organized as follow: Section two presents an overview of Earnings Management (EM) and its two types; the REM and the AEM. Section three presents the effect of the firm's financial leverage on the EM activities by the managers of firms; and the tradeoff between the REM and the AEM for highly leveraged firms. Section four presents the effect of the firm's other characteristics on the EM activities of firms and develops the research hypotheses. Section five presents the design of the empirical study. Section six presents the results of this research. Finally, section seven presents the research summary, conclusions, and recommendations.

2. Earnings Management (EM)- An Accounting View:

Financial statements contain accounting numbers and disclosures, which are considered vital information for stakeholders. Accordingly, it can be a source of manipulations to convey a desired outcome of a firm. Indeed, earnings are the most powerful indicator of the firms' activities, as the firm's ability to generate profit in the future plays a very important role in determining its share price. In fact, earnings management involves the use of acceptable accounting rules and procedures to achieve the desired ends. Actually, earnings management affects the financial reporting process in order to obtain some private gain (Schipper, 1989).

2.1- Earnings Management Techniques:

In fact, there are two earnings management Techniques; the Real Earnings Management (REM) and the Accrual Earnings Management (AEM). Actually, both types of earnings management reduce the credibility of the financial statements and add bias in the financial statements as earnings management is done for certain purposes. These two types of earnings management will be indicated below:

2/1/1- Accrual-Based Manipulation (AEM):

The Accrual earnings management (AEM) manipulates earnings within the Generally Accepted Accounting Principles (GAAP). Managers use their judgments in financial reporting to manipulate earnings through the GAAP's accounting principles. Accordingly, the true economic performance of the firm can be overestimated or underestimated by choosing among the different accounting methods or estimates. The AEM entails choosing from the accounting methods; the method which helps to reach the desired levels of earnings. Firms may change the level of accruals through changes in accounting estimates and policies, such as lowering bad debt expense,

changing the depreciation methods to accelerate or decelerate the depreciation expenses, and/or delaying asset write offs (Healy and Wahlen 1999, Dechow and Skinner 2000).

2/1/2. Real Activities Manipulation (REM):

The Real earnings management is an activity that involves changing the timing and the structure of the real transactions. It is an activity that involves deviating from the optimal plan to influence the earnings levels and to mislead the stakeholders that certain financial reporting purposes have been met in the normal operation. This happens by decreasing certain discretionary expenses such as research and development, selling and advertising expenses, and/or postponing a new profitable project. Accordingly, real activities manipulation is conducted by the managers through the daily activities of the firm during the current accounting period (Roychowdhury, 2006).

2.2. Real Activities Manipulation Techniques:

Real activities manipulation can be performed by three manipulation methods which are sales management, overproduction, and a reduction in discretionary spending (Roychowdhury, 2006).

According to the sales management technique, managers seek to increase sales during the accounting period in order to increase profits and to meet its profit targets. Accordingly, managers attempt to raise the reported earnings during the current period by cutting sales prices and/or extending credit terms to accelerate sales revenues. Researchers indicate that managers reduce the sales prices in the last quarter to accelerate product sales, avoid reporting losses, and meet short-term financial reporting goals (Jackson and Wilcox, 2000).

According to the overproduction technique, managers carry out the production on a large-scale. This is because the production on a large scale leads to a reduction in the fixed overhead costs as the fixed overhead costs will be divided over a large number of units and consequently the average unit cost and the cost of goods sold will decrease. However, this method should ensure that the inventory holding costs do not increase higher than the decrease in the fixed overhead cost per unit. There is much empirical evidence showing that managers manipulate earnings through cutting production costs (Thomas and Zhang 2002, Roychowdhury 2006).

According to the reduction in the discretionary expenditure technique, it happens when managers choose to decrease certain discretionary spending. These discretionary expenses could be the research and development, selling and advertising expenses, the general and administrative expenses such as employee training, and/or postponing a new profitable project (Thomas and Zhang 2002, Roychowdhury 2006).

2.3. Managers' choice between the REM and the AEM:

Empirical researches have shown that managers prefer to use the REM over the AEM (Graham et al. 2005, Cohen et.al, 2008, Enomotoa et al., 2015). Actually, the main reason for choosing the REM rather than the AEM is that AEM is the main focus of auditors and regulators for inspection (Gunny 2010). The firm's accounting choices made relating to the accrual have a greater risk of inspection by auditors and authorities in the capital market. Accordingly, AEM is a risky action and relying only on accruals management entails high risk of reporting manipulation which is considered a crime for managers; and managers could be sued for it. Yet, managers cannot be sued for deviations from the optimal plan or bad business decisions. However, firms may have limited flexibility to adjust the accrual, such limitations in reporting discretionary accruals (Graham et al., 2005, Murhadi, 2009).

On contrary, manipulation through the real business activities is more costly than through the accruals due to the economic consequences. Managers under the REM choose short-term business decisions over the long-term ones and this will affect the firm's ability to generate income in the future. They give up some necessary economic decisions that are considered important for firm's long-term performance, such as reducing necessary expenses and/or postponing investments, although they may bring positive future value to the firm (Ipino and Parbonetti, 2017; Gao et al., 2017). Moreover, using the real activities manipulation strategy needs economic resources that are not small and needs adequate funding. If the company is experiencing financial difficulties it is difficult to carry out overproduction and managers may have to make other choices to meet their targets.

In brief, managers face several costs and constraints for using the two approaches of earnings management. The costs of applying the REM equal to the economic consequences of deviating from optimal business activities, and its effect on firm's value, however the benefits of applying the REM outperform the costs if earnings targets are met (Gunny 2010, Zhang 2012, Joosten 2012).

Moreover, managers can use the accrual-based manipulation together with the real activity manipulation either by the way of substitution or simultaneously at the same time. With respect to the REM, the real activities manipulation must be done during the fiscal year and is realized at the end of the fiscal year. However, with respect to the AEM, there is a chance to be done at the end of the fiscal year after the real activities' manipulation. Actually, managers can adjust the amount of the accrual based earnings management based on the realization of the real earnings management.

Accordingly, if the real activities manipulation is unexpectedly high or low, then managers will decrease or increase the amount of manipulation of accruals. Thus, the firm can use the accrual-based manipulation together with the real activity manipulation either by way of substitution or simultaneously at the same time.

3. The effect of firm's Financial Leverage on Earnings Management:

The financial leverage measures the firm's level of indebtedness. The main motivation of firms to engage in earnings management is to influence the contractual outcomes, especially the debt covenants. The provisions of debt covenant require the firms to maintain or achieve a certain level of earnings as a part of the borrowing agreement. As a result, this set pressure on firms to engage in earnings management to influence such contractual outcomes in its behalf. Accordingly, Managers use voluntary accounting changes in order to increase earnings and eventually avoid violations of debt covenants (Fields, Lys, & Vincent, 2001).

In fact, many researchers (Uwuigbe & Uwuigbe, 2015) have examined the effects of the firm's characteristics on earnings management practice and in which leverage has been an important and informative indicator. Regarding the effect of the financial leverage on earnings management, there are two different arguments:

The first point of view is the control hypothesis; which assumes the **beneficial consequence of debt.** According to this point of view, debt financing is an effective monitoring mechanism which helps to reduce the manager's opportunistic behaviors due to the supervision of both creditors and investors. Moreover, increased debt will reduce the free cash flow and accordingly will reduce the manager's discretionary spending; which in turn will reduce the earnings management (Jensen, 1986). In fact, this

controlling effect of debts which **increase the financial reporting quality** is suggested by many researches (Ahn & Choi, 2009; Alsharairi, 2012; Jelinek, 2007; Rodríguez-Pérez & van Hemmen, 2010, Khanh & Thu, 2019).

Conversely, the second point of view is the debt hypothesis; this point of view suggests that high leveraged company will prefer to do earnings management (Dichev and Skinner, 2002; Beatty and Weber, 2003). In indebted firms, managers try to choose the accounting methods which increase the earnings of the current year on the expense of future years to avoid the violation of debt covenants and its associated additional costs such as refund obligation, renegotiation costs, etc. Thus, managers have motivations to manage earnings to increase profit and to avoid any violation of debt covenants which could be costly when they are close to the limits determined in the contract (Beatty and Weber, 2003, Watts & Zimmerman, 1986, Zamria et al., 2013).

In addition, other than the motivations of managers to manage earnings to avoid the violation of debt covenants; managers are also motivated to manage earnings to achieve better terms of further debt contract (Rodríguez-Pérez & van Hemmen, 2010; Watts & Zimmerman, 1986) and/or to maintain relationship for additional debts (Hoang & Phung, 2019).

In fact, the empirical results regarding the effect of leverage on earnings management have been mixed. Empirical results have found that leverage may have a positive or negative relationship with earnings management (Masri, 2018). Researchers have found that a large extent of evidence supporting the **debt hypothesis**. They have found a positive relationship between the leverage and the earnings management, which means that the increased leverage is associated with increased earnings management

(Norhayati, Rahayu & Noor 2013, Jaggi and Lee, 2002, Fung and Goodwin, 2013, Dichev and Skinner, 2002; Beatty and Weber, 2003, DeFond and Jiambalvo 1994; Sweeney, 1994; Becker, DeFond, Jiambalvo, and Subramanyam 1998; DeAngelo, DeAngelo, and Skinner 1994; Kim, Lisic, and Pevzner 2010; Jha 2013; Alzoubi 2017; Lazzem and Jilani 2018). Conversely, other researchers provide evidence supporting the control hypothesis; they have found a negative relationship between the leverage and the earnings management, which means that the increased leverage is associated with reduced earnings management (Jelinek, 2007, Jensen, 1986; Denis and Denis, 1993; and Wasimullah et al., 2010). Generally, empirical evidences are mixed with both of positive and negative relationship between the firm's financial leverage and earnings management. This research hypothesizes the first hypothesis to be as follows:

- H₁:** There is a significant positive relationship between the earnings management activities and the financial leverage of firms listed in the Egyptian Stock Exchange.
- H_{1a}:** There is a significant positive relationship between the REM and the financial leverage of firms listed in the Egyptian Stock Market.
- H_{1b}:** There is a significant positive relationship between the AEM and the financial leverage of firms listed in the Egyptian Stock Market.

3.1. High leveraged firms' tradeoff between the REM and the AEM:

Actually, researchers (Zang 2012, Joosten 2012, Badertscher 2011, Cohen et al. 2008, Cohen & Zarowin 2010) are interested to examine whether managers tradeoff between the accrual and real earnings management in earnings managing, and whether they use the accrual-based manipulation together with the real activity manipulation either by a way of substitution or

simultaneously at the same time. Zang (2012) examines whether managers use the real earnings management and the accrual earnings management as substitutes in earnings managing. Researchers found that managers determine the real manipulation before the accrual manipulation (Zang 2012, Roychowdhury 2006; Gunny 2005). Researchers used an empirical model to examine the sequentially of the real and accrual manipulations to test the tradeoffs between the two. Cohen et al. (2007) found that after SOX, the AEM declined significantly, while the REM increased significantly because it is harder to be detected.

Graham et al. (2005) conducted a recent survey which indicated that firms switched to REM although it is costly because it is harder to be detected. Graham et al. (2005) found that managers take real economic actions to maintain the accounting appearances. In particular, 80% of survey participants report that they would decrease discretionary spending on R&D, advertising, and maintenance to meet an earnings target. More than the half (55.3%) state that they would delay starting a new project to meet an earnings target, even if such a delay entailed a small sacrifice in value. In addition, Ewert and Wagenhofer (2005) found the most important factor which determines the substitution of AEM by REM is the real cost of earnings management.

In fact, managers face several costs and constraints for using the two approaches of earnings management. With respect to the REM, the real activities manipulation must be done during the fiscal year and is realized at the end of the fiscal year. However, with respect to the AEM, there is a chance to be done at the end of the fiscal year after the real activities' manipulation. Actually, managers can adjust the amount of the accrual based earnings management based on the realization of the real earnings

management. Accordingly, if the real activities manipulation is unexpectedly high or low, then managers will decrease or increase the amount of manipulation of accruals. In addition, using the real activities manipulation strategy needs economic resources that are not small and needs adequate funding. If the company is experiencing financial difficulties it is difficult to carry out overproduction and managers may have to make other choices to meet their targets. Therefore, highly leveraged firms tend to use the accrual earnings management than the real earnings management because using the real earnings management is highly costly especially if the company is experiencing financial difficulties. Accordingly, the second research hypothesis will be as follows:

H₂: High leveraged firms listed in the Egyptian Stock Exchange are less likely to involve in REM than the AEM.

4. The effect of firm's other characteristics on Earnings Management activities:

4.1. Auditor Quality:

External audit is intended to ensure financial statements' reliability and sincerity. In fact, the most fundamental assessment which the auditor performs is the evaluation of the client's survival and its ability to continue in operations. After the Sarbanes-Oxley Act in July 2002, auditors are more conservative in issuing the going concern opinion because of the increasing risks associated with the audit, as well as the increasing liability insurance and other related costs. With the increased supervision performed by the auditors, it will be increasingly difficult for managers to perform earnings management especially the AEM because it implies more risk and is more likely to attract the auditors' inspection.

Researchers have found that big size auditors (KPMG, EY, Deloitte & PWC), have better audit quality than small auditors (DeAngelo, 1981, Becker et al., 1998, and Krisnan, 2003). The Big-4 auditors is considered to be more competent than the non Big-4 auditors if seen from their education, training, and experience (Amijaya and Prastiwi, 2013), their independencies (Zou and Elder, 2002) and their good reputation (Christiani and Nugrahanti, 2014). Researchers indicates that the Big-4 auditors' competency eases the earnings management detection and accordingly reduces the AEM (Becker et al., 1998; Johnson et al., 2002; Balsam et al., 2003; Chen et al., 2011, and Inaam et al., 2012). Accordingly, companies which desire to conduct earnings management will switch from the AEM to the REM (Chi et al., 2011). These companies will choose the REM because it will be more difficult to be identified.

Empirical researches on the quality of audits especially after the post Sarbanes-Oxley indicate that there is a significant and negative relationship between the accrual manipulation and the Big auditors versus non-Big (Ryu et al 2006, Myers et al. 2003, Zang 2012). Firms audited by the Big4 have less discretionary accruals (Francis and Wang, 2008). Managers find it more difficult to convince the high-quality auditors versus the low-quality auditors by the aggressive accounting practices (Ryu et al 2006, Myers et al. 2003, Zang 2012). Further, Becker et al. (1998) note that the level of discretionary accruals is greater in companies not audited by an auditor belonging to 'Big Four'.

With respect to the effect of audit quality on the REM, some researchers have found that the auditor's size positively influences the REM (Chi et al., 2011; Inaam et al., 2012, Cohen and Zarowin, 2010). Meanwhile, other researchers have found that the auditor's size negatively influences the REM (Nihlati and Meiranto, 2014). Accordingly, the third hypothesis will be as follows:

H₃: Firms listed in the Egyptian Stock Market which are audited by a Big4 Audit Firm are less engaged in earning management practices.

H_{3a}: Firms listed in the Egyptian Stock Market which are audited by a Big4 Audit Firm are less engaged in REM practices.

H_{3b}: Firms listed in the Egyptian Stock Market which are audited by a Big4 Audit Firm are less engaged in AEM practices.

4.2. Firm's Performance:

The accounting literature suggests that the firm performance is a critical determinant of EM. In fact, there are two different arguments regarding the effect of the firm's performance on the EM. First; when the performance is low, the firms implement income-increasing strategies, i.e., they manage earnings upward. Second; when the performance is high, the firms implement income-decreasing strategies; that is they manage earnings downward. Thus, low performing firms adopt earning-increasing strategies to hide their low performance. Conversely, high performing firms adopt income-decreasing strategies to shift earnings from good years to bad years to reduce taxes and/or to avoid political costs (Mostafa, 2019).

Mostafa (2019) examines whether firms with low performance are more engaged in EM practices than firms with high performance in an emerging market like Egypt. Results indicate that managers of poor performance firms are more entitled in earnings manipulation activities to opportunistically bias earnings upwards; however, managers of high performance firms are not entitled in income-decreasing activities. Accordingly, this indicates that in Egypt EM is more practiced in poor performance firms than in high performance firms.

Other researchers have found that weak performance motivate managers to manage earnings in order to make the weakness less visible. Roychowdhury (2006) found that as the result is close to zero, managers are motivated to manage earnings in order to prevent losses. Other researchers have found that the protection of reputation is also a motivation to manage earnings (Hirshleifer, 1993). Thus, some managers manage earnings upward because of the fear of being dismissed as result of the poor performance of the firm, as well as for increasing their management compensations and to boost their firm's share prices.

In contrast, other researchers such as Hung et al. (2018) have found positive relationships between the firm's performance and the both types of EM; the REM and the AEM in the case of Vietnam. While, other researchers such as Rahman and Ali (2006) in the Malaysia context and the Alves (2012) in the Portuguese context, have found no relationship exist between the firm's performance and the EM activities.

As a result of these contradicting points of view, the relationship between the performance and EM is uncertain. Accordingly, this research examines the relationship between firm's performance and EM but we do not deduct the direction of this association.

- H4:** There is a significant relationship between the EM and the performance of firms listed in the Egyptian Stock Market.
- H4a:** There is a significant relationship between the REM and the performance of firms listed in the Egyptian Stock Market.
- H4b:** There is a significant relationship between the AEM and the performance of firms listed in the Egyptian Stock Market.

4.3. Firm's size:

In fact, there are two different points of view regarding the effect of the firm's size on the EM. **The first** point of view is that firm's size will have a negative effect on EM because of a number of reasons. First, large firms are most probable to design an effective internal control system as compared to smaller firms and this will help to reduce the probability of manipulating earnings by management (e.g., Beasley et al., 2000, Warfield et al., 1995). **Second**, large firms receive better audit services from the audit firms which help to prevent managers from manipulating earnings (e.g., Gore et al., 2007, Francis et al., 1999, Becker et al., 1998, Payne and Robb, 2000).

Third, the reputation costs involved if the credibility of financial information disclosed by large firms is compromised may prevent large firms from manipulating earnings. Fourth, the main focus of regulators relies on large firms and this will discourage such firms from engaging in EM activity (Lee and Choi, 2002). Fifth, large firms are likely to be under close inspection of outsiders than small firms and this will also discourage such firms from engaging in EM activity (Watts and Zimmerman, 1986, Koh, 2003).

Another point of view is that the firm's size will have positive effect on EM because of a number of reasons. First, capital market pressures to meet the expectations of analysts are greater on large firms than small firms and this creates an incentive for these firms to manipulate earnings to meet or beat these expectations (e.g., Richardson et al., 2002, Barton and Simko, 2002). Second, large firms have larger negotiating ability with auditors that they are more likely to ignore EM attempts by large clients (Nelson et al., 2002). Third, large firms have a wide range of accounting treatments available. Fourth, although large firms may have stronger internal control system, they also have stronger management power which may be used to override the internal control systems to manipulate earnings (Watts and Zimmerman, 1978, 1986, 1990).

Charfeddine, Riahi, and Omri (2013) have found that the firm's size is positively related to the discretionary accruals and large firms are more likely to engage in using discretionary accruals as opposed to small firms. On the opposite, Bassiouny (2016) provided evidence that firm's size was an insignificant determinant of a firm's level of earnings management, in case of Egypt. Also, Llukani (2013) provided the same evidence in case of Albania where earnings management was an insignificant determinant of a firm's level of earnings management (Cudia & Cruz, 2018).

Based on the above discussion, this research hypothesizes that the size of the firm has an effective role in constraining the earnings manipulation activities. Accordingly, the fifth hypothesis is assumed to be as follows:

H₅: There is a significant negative relationship between the EM and the size of firms listed in the Egyptian Stock Market.

H_{5a}: There is a significant negative relationship between the REM and the size of firms listed in the Egyptian Stock Market.

H_{5b}: There is a significant negative relationship between the AEM and the size of firms listed in the Egyptian Stock Market.

4.4. Growth opportunities:

Actually, firms with good growth opportunities need to obtain external funds to expand (Lemma and Negash, 2011), accordingly these firms have the incentive to improve its earnings quality to get a lower cost of capital (Gaio, 2010). In reality, these growth-firms will be under the market's inspection and needs to stop any earnings manipulating activities. Accordingly, some researchers expect a negative relationship between growth opportunities and EM activities of a firm (Shen and Chih, 2007).

Conversely, other researchers argue that the growth-firms will engage in earnings manipulation activities, because these firms need to obtain external funds and this will generate an incentive to signal a good picture about their future potential. Accordingly, it is probable that growth-firms engage in earnings manipulation activities (Richardson et al., 2002, Shen and Chih, 2007). As a result of these contrasting views, the relationship between the growth opportunities and EM is uncertain. Accordingly, this research examines the relationship between firm's growth opportunities and EM but we do not deduct the direction of this association.

H₆: There is a significant relationship between the EM and the growth opportunities of firms listed in the Egyptian Stock Market.

H_{6a}: There is a significant relationship between the REM and the growth opportunities of firms listed in the Egyptian Stock Market.

H_{6b}: There is a significant relationship between the AEM and the growth opportunities of firms listed in the Egyptian Stock Market.

4.5. Dividend policy:

In fact, dividend payments decrease the amount of internal funds available for the firms and increase its need for external financing (Lemma and Negash 2011). Accordingly, firms which pay higher dividends may have the incentive to improve its earnings quality in order to be able to obtain the needed external finance at a lower cost of capital. Accordingly, the relationship is expected to be a negative relationship between the dividend policy and the EM activity by a firm. Moreover, EM happens because of the desire to protect investors. So, a negative relationship is expected between the dividend policy and EM. La Porta et al. (2000) analyze dividend policy in different institutional contexts. They show that higher dividend is related to better shareholder protection.

On contrary, the signaling theory suggests that firms which pay higher dividends may be unwilling to reduce their payout ratio. However, these firms want to keep its payout ratios high and this may produce incentives to engage in aggressive accounting choices. Accordingly, the positive relationship is expected between the dividend policy and the EM activity by a firm (Lopes and Narciso, 2020).

Because of the lack of consensus, we examine the relationship between dividend policy and EM activity by a firm but we do not predict the direction of the relationship. Accordingly, the seventh hypothesis will be as follows:

H7: There is a significant relationship between the EM and the Dividend policy of firms listed in the Egyptian Stock Market.

H7a: There is a significant relationship between the REM and the Dividend policy of firms listed in the Egyptian Stock Market.

H7b: There is a significant relationship between the AEM and the Dividend policy of firms listed in the Egyptian Stock Market.

4.6. Firm's age:

Actually, long established firms tend to have low level of EM than the beginner firms. In fact, firms that have been in the market for long times tend to have low level of earnings because they are well known firms, have a good reputation to protect, have a great value in the market, and they also aware of the rules that govern their own practices. Besides, long established firms have gained more experience and have improved their financial reporting practices over time (Alsaeed 2006). In addition, long established firms try to enhance their reputation and image in the market (Akhtaruddin 2005). Accordingly, the older the firm is; the less possibility to engage in EM practices.

When a firm is well-known in the market, there is an argument whether the external parties are willing to question the firm or not. Often, long established firms are audited by one of the big auditors who have incentive to report material misstatements in order to protect their reputation (DeAnglo 1981). In addition, the governmental agencies always pay attention to well-known firms that have been in the market for a long time more than the newly entered firms. Accordingly, as the firm's age increases, the firm tends to improve its governance practices by issuing high quality financial reports without manipulations (Chalaki et al 2012). Accordingly, the eighth hypothesis will be as follows:

H₈: There is a significant negative relationship between the EM and the firms' age of firms listed in the Egyptian Stock Market.

H_{8a}: There is a significant negative relationship between the REM and the firms' age of firms listed in the Egyptian Stock Market.

H_{8b}: There is a significant negative relationship between the AEM and the firms' age of firms listed in the Egyptian Stock Market.

5. The Design of the Empirical Study:

5.1. Research population and Sample:

The population of this research consists of all firms listed in the Egyptian Stock Exchange during the period 2015-2017 which are 223 firms. The research sample consists of 160 firms' observations of 57 firms for 3 years period from 2015 till 2017 after excluding the outliers. The sample is an arbitrary sample which has taken into consideration the following in its selection:

- The firms included in the research sample are listed in the Egyptian Stock Exchange in this year.
- The shares of these firms have been traded in the Stock Market during this period.
- The firms included in the research sample are non-financial firms because the firms operating in the financial services have special nature and are subject to strict regulations on how they run their businesses and how much capital they need to set aside to be able to continue operating; which are different from other non- financial firms.
- The firms included in the research sample prepare its financial statements in the local currency.

The firms included in the research sample as divided into sectors are indicated in table (I) in the Appendix.

5.2. Data collection method:

The researcher has gathered the information from the web site of the Egyptian Stock of Exchange as well as from the annual financial reports of the listed firms for the period 2015-2017.

5.3. Statistical methods used in the analysis of data:

The data of this research is undergone for statistical analysis in order to check the validity of the hypotheses. The researcher used the SPSS program to provide the statistical indicators. The decision of accepting or rejecting of these hypotheses depends on the observed level of significance. The Data were analyzed on the assumption that the level of significance equals to 90%, it is meaning that the maximum acceptance probability of falling into the error is 0.1. The researcher used three Regression Models as follows:

5.4. Research Model:

5.4.1. The First Regression Model:

The following Multiple Regression Model is used to investigate the effect of leverage and other firm's characteristics on the REM of firms listed in the Egyptian Stock Exchange, this model will be as follows:

$$\text{REM}_{it} = \beta_0 + \beta_1 \text{LEV}_{it} + \beta_2 \text{Audit Firm}_{it} + \beta_3 \text{ROE}_{it} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{AGE}_{it} + \beta_6 \text{Dividends}_{it} + \beta_7 \text{growth}_{it} + \varepsilon_{it}$$

Measurement of the Research Variables:

With respect to the dependent variable, the dependent variable is the REM of firms listed in the Egyptian Stock Exchange. The REM is measured by the model of Roychowhury (2006), which is measured as follows:

Real Activities Manipulation through Cash Flow Operating Activities

$$\text{CFO}_t / \text{A}_{t-1} = \alpha_0 + \alpha_1 (1 / \text{A}_{t-1}) + \beta_1 (\text{S}_t / \text{A}_{t-1}) + \beta_2 (\Delta \text{S}_t / \text{A}_{t-1}) + \epsilon_t$$

Where:

$\text{CFO}_t / \text{A}_{t-1}$ = Cash flow operations in year t scaled by total assets in year t-1.

A_{t-1} = Total assets in year t-1.

$\text{S}_t / \text{A}_{t-1}$ = Sales in year t scaled by total assets in year t-1.

$\Delta \text{S}_t / \text{A}_{t-1}$ = the change in Sales scaled by total assets in year t-1.

α_0 = constant.

ϵ_t = error term in year t.

Real Activities Manipulation through the cost of production:

The cost of production is measured as by the research conducted by Roychowdhury (2006), as follows:

$$\text{PROD}_t / A_{t-1} = \alpha_0 + \alpha_1 (1 / A_{t-1}) + \beta_1 (S_t / A_{t-1}) + \beta_2 (\Delta S_t / A_{t-1}) + \beta_3 (\Delta S_{t-1} / A_{t-1}) + \epsilon_t$$

Where:

PROD_t / A_{t-1} : Cost of production in year t scaled by total assets in year t-1, where

$$\text{PROD}_t = \text{COGS}_t + \Delta \text{INV}_t$$

Real Activities Manipulation through Discretionary Costs:

The discretionary costs are measured as by Roychowdhury (2006), as follows:

$$\text{DISEXP}_t / A_{t-1} = \alpha_0 + \alpha_1 (1 / A_{t-1}) + \beta (S_{t-1} / A_{t-1}) + \epsilon_t$$

Where:

$\text{DISEXP}_t / A_{t-1}$: discretionary costs in year t scaled by total assets in year t-1.

With respect to the independent variables, the independent variables are the firm's financial leverage and a set of other firms' characteristics:

LEVG _{it}: leverage is a debt ratio which is measured by the Total Liabilities/Total Equity of the firm ((Innocent et al.,2014, Nassirzadeh et al.,2012, Nikoomaram et al., 2016).

Audit Firm _{it}: is a dummy variable for audit quality; which takes 1 if the firm is audited by a Big 4 auditor (Delloite, PWC, E & Y, and KPMG), and takes 0 if the firm is audited by a non Big 4 auditor (Isa et.al, 2013).

ROE $_{it}$: Return on Equity is a profitability ratio; which is measured by the Net income/ Total Equity of the firm (Aryantikaa & Sujana ,2018, Xiong, 2016).

SIZE $_{it}$: is a proxy for the firm size which is measured by the Natural log of the Market Equity value of the firm (Rezaei & Roshani, 2012).

AGE $_{it}$: The number of years since the firm's listed in the Egyptian Stock Market (Xiong, 2016).

Dividends $_{it}$: Total annual cash dividends distributable to common shareholders of the firm (Murage & Kenyatta 2019, Amidu, 2017).

Growth $_{it}$: is a proxy for the firm growth, calculated by the ratio of revenue year end minus revenue previous year and revenue previous year (Hoang & Phung, 2019).

5.4.2. The Second Regression Model:

The following Multiple Regression Model is used to investigate the effect of leverage and other firm's characteristics on the AEM of firms listed in the Egyptian Stock Exchange, this model will be as follows:

$$\text{AEM}_{it} = \beta_0 + \beta_1 \text{LEVG}_{it} + \beta_2 \text{Audit Firm}_{it} + \beta_3 \text{ROE}_{it} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{AGE}_{it} + \beta_6 \text{Dividends}_{it} + \beta_7 \text{growth}_{it} + \varepsilon_{it}$$

With respect to the dependent variable, the dependent variable is the AEM of firms listed in the Egyptian Stock Exchange. The AEM is measured using the Modified Jones Model 1995 (Cudia & Cruz, 2018, Hoang & Phung, 2019), as follows:

Total Accruals (TA):

$$\text{TA}_t = \text{NI}_t - \text{CFO}_t$$

Where:

TA_t: total accruals in year t,

NI_t: net income before extraordinary items in year t,

CFO_t : cash flows from operating activities in year t

$$\mathbf{TA = DA + NDA}$$

Where:

TA: total accruals,

DA: discretionary accruals,

NDA: non discretionary accruals

Non discretionary Accruals:

$$\mathbf{NDA_t = \beta_{1j} [1/A_{t-1}] + \beta_{2j} [\Delta REV_t - \Delta AR_t / A_{t-1}] + \beta_{3j} [PPE_t / A_{t-1}]}$$

Where:

NDA_t : Non discretionary accruals for firm j in year t,

A_{t-1}: Total assets for firm j in year t-1,

ΔREV_t: Change in the revenues (sales) for firm j in year t less revenue in year t-1 , **ΔAR_t** : Change in accounts receivables for firm j in year t less receivable in year t-1, **PPE_t** : Gross properties, plants and equipments for firm j in year t ,

β_{1j}, β_{2j}, β_{3j} are firm specific parameters

The residual value of the estimation equation also represents the discretionary accruals.

Discretionary accrual:

$$\mathbf{DA_t = TA_t / A_{t-1} - NDA_t}$$

5.4.2. The Third Regression Model:

The Third Regression Model is a Stepwise Regression Model which is used to examine the effect of leverage on the different earnings management strategy in the context of high leverage. This Regression Model is used to examine if the managers of the high leveraged firms' tradeoff between the real and the accrual earnings manipulations.

$$\text{LEVHIGH} = \alpha_0 + \alpha_1 \text{REM} + \alpha_2 \text{AEM} + \epsilon_t$$

Where:

The Dependent Variable is the High leveraged firms; which is a dummy variable that takes the value of 1 if the firm's leverage is greater than the median of the leverage of firm's sample in year t; and takes the value of 0 otherwise (Hoang & Phung, 2019).

The Independent Variable is the REM and the AEM as measured above.

6. Empirical results:

6.1. The Empirical results of the REM:

6.1.1. The Results of the Pearson Correlation Analysis:

In this research, The Pearson Correlation Analysis is used to assess the correlation between the REM and the firm's leverage and other variables. The results of the correlation analysis are presented in **Table (1) in the Appendix**.

The statistical results show that there is a significant positive relationship between the REM and the firm's leverage ($r = .143$) at ($P = .070$), According, this result support the first hypothesis H_1 , which states that there is a significant positive relationship between the REM and the firm's leverage.

In addition, the statistical results show that there is a significant negative relationship between the REM and the firm's Audit Firm ($r = -.209$) at ($P = .008$), According, this result support the third hypothesis H_3 , which states that there is a significant negative relationship between the REM and the firm's Audit Firm.

Also, the statistical results show that there is a significant negative relationship between the REM and the firm's ROE ($r = -.134$) at ($P = .090$), According, this result support the fourth hypothesis H_4 , which states that there is a significant relationship between the REM and the firm's ROE.

Besides, the statistical results show that there is a significant negative relationship between the REM and the firm's size ($r = -.222$) at ($P = .005$), According, this result support the fifth hypothesis H_5 , which states that there is a significant negative relationship between the REM and the firm's size.

However, the statistical results show that there is no significant correlation between the REM and the firm's growth ($r = .067$) at ($P = .398$), According, the sixth hypothesis H_6 is rejected; there is no significant relationship between the REM and the firm's growth.

However, the statistical results show that there is no significant correlation between the REM and the firm's dividends ($r = -.097$) at ($P = .225$), According, the seventh hypothesis H_7 is rejected; there is no significant relationship between the REM and the firm's dividends.

However, the statistical results show that there is no significant correlation between the REM and the firm's age ($r = .098$) at ($P = .219$), According, the eighth hypothesis H_8 is rejected; there is no significant relationship between the REM and the firm's age.

Robustness test:

This research performs a Robustness test to increase the confidence in the findings of the empirical study. The research runs again the same previous correlation matrix; however; the research instead of measuring the financial leverage as the (total debt to total equity); the research uses other two measures which are the firm's current liabilities to total equity (CL/TE) and the firm's interest and liabilities to total equity (Interest /TE) (Masri, 2018, Isa et.al, 2013).

The statistical results show that there is a significant positive relationship between the REM and the firm's leverage (measured by the current liabilities to total equity) ($r = .176$) at ($P = .026$), According, this result support the first hypothesis H_1 , which states that there is a significant positive relationship between the REM and the firm's leverage.

Also, the statistical results show that there is a significant positive relationship between the REM and the firm's leverage (measured by the interest and liabilities to total equity) ($r = .171$) at ($P = .031$), According, this result support the first hypothesis H_1 , which states that there is a significant positive relationship between the REM and the firm's leverage.

6.1.2 - Results of Regression Analysis:

To test the REM hypotheses, the first Multiple Regression Model is used. The results of running this Model using the SPSS are presented in Table (2) in the Appendix.

As mentioned in the Table (2) below, the Model Summary indicates that the Model is significant (Sig=.001) which means that the overall Model is accepted. The R Square=.153, and the Adjusted R Square= .114.

Table (2): Summary of the Multiple Regression Model of the REM on the firm's financial leverage and other firm's characteristics

| Variable | Expected Sign | Standardized Coefficients B | T | Sig. | Model Summary | | |
|-------------|---------------|-----------------------------|--------|------|---------------|-------------------|------|
| | | | | | R Square | Adjusted R Square | Sig. |
| LEVG | + | .148 | 1.797 | .074 | .153 | .114 | .001 |
| Audit Firm | - | -.206 | -2.537 | .012 | | | |
| ROE | +/- | -.205 | -2.548 | .012 | | | |
| Firm's size | - | -.180 | -2.207 | .029 | | | |
| Firm's age | - | .018 | .222 | .824 | | | |
| Dividends | +/- | -.126 | -1.621 | .107 | | | |
| Growth | +/- | .105 | 1.385 | .168 | | | |

To test the first hypotheses, the results of running the first Multiple Regression Model indicate that the leverage variable is significant ($t=1.797$, $sig=.074$). **Accordingly, the first research hypothesis (H₁) is supported;** there is a statistically significant positive relationship between the firm's leverage and the REM.

Also, the Audit Firm variable is significant at ($T= -2.537$, $sig=.012$). **Accordingly, the third research hypothesis (H₃) is supported,** there is a statistically significant negative relationship between the firm's Audit Firm and the REM.

In addition, the relationship between the firm's ROE and the REM is significant at ($T = -2.548$, $sig = .012$). Thus, **the fourth hypothesis is accepted**, there is a significant negative relationship between the firm's ROE and the REM.

Also, the relationship between the firm's size and the REM is significant at ($T = -2.207$, $sig = .029$). Accordingly, **the fifth hypothesis is accepted**, there is a significant negative relationship between the firm's size and the REM.

However, the relationship between the firm's Growth and the REM is insignificant at ($T = 1.385$, $sig = .168$). Also, the relationship between the firm's Dividends and the REM is insignificant at ($T = -1.621$, $sig = .107$). In addition, the relationship between the firm's age and the REM is insignificant at ($T = .222$, $sig = .824$).

Robustness test:

This research performs a Robustness test to increase the confidence in the findings of the empirical study. This research runs again the same previous test; however; the research instead of measuring the financial leverage as the (total debt to total equity); the research uses another measure which is the firm's current liabilities to total equity (CL/TE) (Masri, 2018, Isa et.al, 2013). The empirical results show the same results are indicated in table (3) below:

Table (3): Summary of the Multiple Regression Model of the REM on the firm's financial leverage using other measures

| Variable | Expected Sign | Standardized Coefficients B | T | Sig. | Model Summary | | |
|-------------|---------------|--------------------------------|--------|------|---------------|-------------------|------|
| | | | | | R Square | Adjusted R Square | Sig. |
| CL/TE | + | .175 | 2.148 | .033 | .160 | .122 | .000 |
| Audit Firm | - | -.249 | -2.956 | .004 | | | |
| ROE | +/- | -.150 | -1.988 | .049 | | | |
| Firm's size | - | -.160 | -1.925 | .056 | | | |
| Firm's age | - | .016 | .195 | .845 | | | |
| Dividends | +/- | -.134 | -1.747 | .083 | | | |
| Growth | +/- | .106 | 1.411 | .160 | | | |

As mentioned in the Table (3) above, the Model Summary indicates that the Model is significant (Sig.=.000) which means that the overall Model is accepted, the R Square=.160, and the Adjusted R Square= .122.

The statistical results show that there is a significant positive relationship between the firm's leverage and the REM (measured by the current liabilities to total equity) ($r = 2.148$) at ($P = .033$), According, this **result supports the first hypothesis** H_1 , which states that there is a significant positive relationship between the firm's leverage and the REM.

The statistical results also show that there is a significant negative relationship between the REM and the firm's Audit Firm. Besides, the statistical results also show that there is a significant negative relationship between the REM and the firm's ROE. In addition, the statistical results also show that there is a significant negative relationship between the REM and the firm's Log MV. Moreover, the statistical results also show that there is a significant negative relationship between the REM and the firm's dividends.

6.2. The Empirical results of the AEM:

6.2.1. The Pearson Correlation Analysis:

In this research, The Pearson Correlation Analysis is used to assess the correlation between the Accrual Earnings Management and the firm's leverage and other variables. The results of the correlation analysis are presented in Table (4) in the Appendix.

In this research, The Pearson Correlation Analysis is used to assess the correlation between the Accrual Earnings Management and the firm's leverage and other variables. The results of the correlation analysis are presented in Table (4).

The statistical results show that there is a significant positive relationship between the AEM and the firm's leverage ($r = .182$) at ($P = .026$), According, this result support the first hypothesis H_1 , which states that there is a significant positive relationship between the AEM and the firm's leverage.

In addition, the statistical results show that there is a significant negative relationship between the AEM and the firm's Audit Firm ($r = -.147$) at ($P = .075$), According, this result support the third hypothesis H_3 , which states that there is a significant negative relationship between the AEM and the firm's Audit Firm.

However, the statistical results show that there is a significant positive relationship between the AEM and the firm's ROE ($r = .327$) at ($P = .000$), According, the fourth hypothesis H_4 is accepted, there is a significant relationship between the AEM and the firm's ROE.

Also, the statistical results show that there is a significant negative relationship between the AEM and the firm's size ($r = -.134$) at ($P = .104$), According, this result support the fifth hypothesis H_5 , which states that there is a significant negative relationship between the AEM and the firm's size.

However, the statistical results show that there is no significant correlation between the AEM and the firm's growth ($r = .058$) at ($P = .480$), According, the sixth hypothesis H_6 is rejected; there is no significant relationship between the AEM and the firm's growth.

However, the statistical results show that there is no significant correlation between the AEM and the firm's dividends ($r = .064$) at ($P = .442$), According, the seventh hypothesis H_7 is rejected; there is no significant relationship between the AEM and the firm's dividends.

However, the statistical results show that there is no significant correlation between the AEM and the firm's age ($r = .043$) at ($P = .600$), According, the eighth hypothesis H_8 is rejected; there is no significant relationship between the AEM and the firm's age.

Robustness test:

This research performs a Robustness test to increase the confidence in the findings of the empirical study. The research runs again the same previous correlation matrix; however; the research instead of measuring the financial leverage as the (total debt to total equity); the research uses other two measures which are the firm's short term liabilities to total equity (CL/TE) and the firm's interest and liabilities to total equity (Interest /TE) (Masri, 2018, Isa et.al, 2013). The empirical results show the same results are indicated in table (4) in the Appendix.

The statistical results show that there is a significant positive relationship between the REM and the firm's leverage (measured by the current liabilities to total equity) ($r = .202$) at ($P = .014$), According, this result support the first hypothesis H_1 , which states that there is a significant positive relationship between the AEM and the firm's leverage.

The statistical results show that there is a significant positive relationship between the REM and the firm's leverage (measured by the interest and liabilities to total equity) ($r = .185$) at ($P = .024$), According, this result support the first hypothesis H_1 , which states that there is a significant positive relationship between the AEM and the firm's leverage.

6.2.2- Results of Regression Analysis:

To test the AEM hypotheses, the second Multiple Regression Model is used. The results of running this Model using the SPSS are presented in Table (5) in the Appendix.

Table (5): Summary of the Multiple Regression Model of the AEM on the firm's financial leverage and other firm's characteristics

| Dependent variable | Independent variables | predicted sign | Coeff. B | Sig. | R square | adjusted R Square | F | Sig. |
|--------------------|-----------------------|----------------|----------|------|----------|-------------------|-------|------|
| AEM | LEVE | + | .182 | .027 | .062 | .036 | 2.368 | .05 |
| | Audit Firm | - | -.141 | .085 | | | | |
| | Dividends | +/- | .070 | .390 | | | | |
| | Growth | +/- | .062 | .446 | | | | |

As mentioned in the Table (5) above, the Model Summary indicates that the Model is significant (Sig.= .05), the R Square=.062, and the Adjusted R Square= .036; which means that the overall Model is accepted.

To test the first hypotheses, the results of running the first Multiple Regression Model indicate that the leverage variable is significant ($t=2.238$, $sig=.027$). **Accordingly, the first research hypothesis (H₁) is supported;** there is a statistically significant positive relationship between the firm's leverage and the AEM.

Also, the Audit Firm variable is significant at ($t= -1.735$, $sig=.085$). Accordingly, the **third research hypothesis (H₃) is supported,** there is a statistically significant negative relationship between the firm's Audit Firm and the AEM.

However, the relationship between the firm's Dividends and the AEM is insignificant at ($t=.862$, $sig=.390$). Also, the relationship between the firm's Growth and the AEM is insignificant at ($t =.764$, $sig=.446$).

In fact, it is obvious from the correlation matrix; that there is a problem of Multicollinearity exists between the independent variables which are the log MV and the Audit firm, dividends, and firm's age. Accordingly, the Simple Regression Analysis is used to test the relationship between the AEM and these variables. The results of this Regression Analysis are shown in Table (6) below:

Table (6): A summary of Regression Analysis

| Dependent variable | Independent variables | predicted sign | Coeff. B | R square | adjusted R Square | T | Sig. |
|--------------------|-----------------------|----------------|----------|----------|-------------------|--------|------|
| AEM | Firm's size | - | -.147 | .02 | .015 | -1.795 | .075 |
| | Firm's age | - | .043 | .002 | -.005 | .525 | .600 |

Robustness test:

This research performs a Robustness test to increase the confidence in the findings of the empirical study. This research runs again the same previous test; however; the research instead of measuring the financial leverage as the (total debt to total equity); the research uses other two measures which are the firm's current liabilities to total equity (CL/TE) and the firm's interest and liabilities to total equity (Interest / TE). The empirical results show the same results are indicated in table (7-1) and (7-2) below:

Table (7-1): Summary of the Multiple Regression Model of the AEM on the firm's financial leverage using the current liabilities measure

| Dependent variable | Independent variables | predicted sign | Coeff. B | T | Sig. | R square | adjusted R Square | F | Sig. |
|--------------------|-----------------------|----------------|----------|--------|------|----------|-------------------|------|------|
| AEM | CL/TE | + | .253 | 3.05 | .003 | .086 | .061 | 3.37 | .01 |
| | Audit Firm | - | -.219 | -2.587 | .011 | | | | |
| | Dividends | +/- | .025 | .309 | .758 | | | | |
| | Growth | +/- | .071 | .882 | .379 | | | | |

As mentioned in the Table (7-1) above, the Model Summary indicates that the Model is significant (Sig.= .011), the R Square=.086, and the Adjusted R Square= .061; which means that the overall Model is accepted.

The statistical results show that there is a significant positive relationship between the firm's leverage and the AEM (measured by the current liabilities to total equity) ($r = 3.058$) at ($P= .003$), According, **this result support the first hypothesis H₁**, which states that there is a significant positive relationship between the firm's leverage and the AEM. The statistical results also show that there is a significant positive relationship between the firm's Audit Firm and the AEM. However, the statistical results show that there is no significant relationship between the firm's dividends and the AEM. In addition, the statistical results also show that there is no significant relationship between the firm's growth and the AEM.

Table (7-2): Summary of the Multiple Regression Model of the AEM on the firm's financial leverage using the interest measure

| H | Dependent variable | Independent variables | predicted sign | Coeff. B | T | Sig. | R square | adjusted R Square | F | Sig. |
|-----------------|--------------------|-----------------------|----------------|----------|--------|------|----------|-------------------|------|------|
| H _{1b} | AEM | Interest/TE | + | .240 | 2.876 | .005 | .080 | .054 | 3.09 | .01 |
| H _{2b} | | Audit Firm | - | -.219 | -2.573 | .011 | | | | |
| H _{6b} | | Dividends | | .027 | .332 | .741 | | | | |
| H _{8b} | | Growth | | .072 | .891 | .375 | | | | |

As mentioned in the Table (7-2) above, the Model Summary indicates that the Model is significant (Sig.= .018) which means that the overall Model is accepted, the R Square=.080, and the Adjusted R Square= .054.

The statistical results show that there is a significant positive relationship between the firm's leverage and the AEM (measured by the interest and liabilities to total equity) ($r = 2.876$) at ($P = .005$), According, **this result support the first hypothesis H₁**, which states that there is a significant positive relationship between the firm's leverage and the AEM. The statistical results also show that there is a significant positive relationship between the firm's Audit Firm and the AEM. However, the statistical results show that there is no significant relationship between the firm's dividends and the AEM. In addition, the statistical results also show that there is no significant relationship between the firm's growth and the AEM.

6.3. The Empirical results of the Stepwise Regression Model of the high leveraged firms' tradeoff between the REM and the AEM:

Table (8) in the Appendix indicates the results of running the Stepwise Regression Model of the high leveraged firms' tradeoffs between the REM and the AEM. The results indicate that the overall Model is accepted at (sig.= .01), the R Square=.042, and the Adjusted R Square=.036, the results indicate that high leveraged firms tend to use the AEM than the REM, the AEM variable is significant ($t=2.625$, sig=.010). Accordingly, the research hypothesis (H₁₁) is supported, High leveraged firms are less likely to involve in REM than the AEM.

A summary of the results of the research hypotheses is given in the following table:

Table (9): A Summary of the Results of the Research Hypotheses

| | Hypotheses | Result |
|----------------------------|---|---------------|
| The REM Hypotheses: | | |
| H _{1a} | There is a significant positive relationship between the REM and the financial leverage of firms listed in the Egyptian Stock Market. | Accepted |
| H ₂ | High leveraged firms are less likely to involve in REM than the AEM. | Accepted |
| H _{3a} | Firms audited by a Big4 Audit Firm are less engaged in REM practices. | Accepted |
| H _{4a} | There is a significant relationship between the REM and the firms' performance (ROE) of firms listed in the Egyptian Stock Market. | Accepted |
| H _{5a} | There is a significant negative relationship between the REM and the size of firms listed in the Egyptian Stock Market. | Accepted |
| H _{6a} | There is a significant relationship between the REM and the growth opportunities of firms listed in the Egyptian Stock Market. | Rejected |
| H _{7a} | There is a significant relationship between the REM and the Dividend policy of firms listed in the Egyptian Stock Market. | Rejected |
| H _{8a} | There is a significant negative relationship between the REM and the firms' age of firms listed in the Egyptian Stock Market. | Rejected |
| The AEM Hypothesis: | | |
| H _{1b} | There is a significant positive relationship between the AEM and the financial leverage of firms listed in the Egyptian Stock Market. | Accepted |
| | Firms audited by a Big4 Audit Firm are less engaged in | Accepted |

| | | |
|-----------------|--|----------|
| H _{3b} | AEM practices. | |
| H _{4b} | There is a significant relationship between the AEM and the performance of firms listed in the Egyptian Stock Market. | Accepted |
| H _{5b} | There is a significant negative relationship between the AEM and the size of firms listed in the Egyptian Stock Market. | Accepted |
| H _{6b} | There is a significant relationship between the AEM and the growth opportunities of firms listed in the Egyptian Stock Market. | Rejected |
| H _{7b} | There is a significant relationship between the AEM and the Dividend policy of firms listed in the Egyptian Stock Market. | Rejected |
| H _{8b} | There is a significant negative relationship between the AEM and the firms' age of firms listed in the Egyptian Stock Market. | Rejected |

7- Conclusions, Recommendations, and Suggested Future Research:

The accounting literature has revealed two earnings management strategies which firms use to manipulate earnings; the REM and the AEM. According to the REM, firms may manipulate earnings by deviating from the firm's normal business operations, so that the cash flow from operations will be affected, while according to the AEM, firms may change the level of accruals to reach the desired level of earnings. Managers use their judgments in financial reporting to manipulate earnings through using the GAAP's accounting principles. This research empirically examines the effect of financial leverage and other firm's characteristics on the Real and Accrual based earnings management using a sample of firms listed in the Egyptian Stock Exchange for 3 year's period starting from 2015 till 2017. The empirical results indicate that Egyptian firms use both the REM Real and the

AEM to achieve its earnings objectives. In addition, the empirical results have found positive relationships between the financial leverage and both forms of earnings management techniques (the REM and the AEM); which is consistent with the debt hypothesis. The empirical results have also found a negative relationship between the both forms of earnings management (the REM and the AEM) and the firm's Audit quality, and the firm's size, market capitalization. However, the relationship is insignificant between the both forms of earnings management (the REM and the AEM) and the firm's age, dividends, and growth. Moreover, the results indicate that highly leveraged firms engage more in Accrual based earnings management than the Real earnings management.

This research recommends that the Egyptian Stock Exchange must have a data base of firms that used the AEM; in addition to the firms that used the REM. Moreover, this research recommends that Accounting Conferences must stress the earnings manipulation topic with its types, the AEM and the REM.

In terms of future suggested researches, it is recommended that future researches examine:

- The effect of the REM on audit fees of firms listed in the Egyptian Stock Exchange.
- The effect of the AEM on audit fees of firms listed in the Egyptian Stock Exchange.
- The effect of the REM on the firm's cost of capital of firms listed in the Egyptian Stock Exchange.
- The effect of the AEM on the firm's cost of capital of firms listed in the Egyptian Stock Exchange.

- The effect of the REM on the market value of firms listed in the Egyptian Stock Exchange.
- The effect of the AEM on the market value of firms listed in the Egyptian Stock Exchange.
- The effect of the REM on the future earnings of firms listed in the Egyptian Stock Exchange.
- The effect of the AEM on the future earnings of firms listed in the Egyptian Stock Exchange.
- The effect of the REM on the firm growth of firms listed in the Egyptian Stock Exchange.
- The effect of the AEM on the firm growth of firms listed in the Egyptian Stock Exchange.
- The effect of REM on the External financing and the cost of Debt of firms listed in the Egyptian Stock Exchange.
- The effect of AEM on the External financing and the cost of Debt of firms listed in the Egyptian Stock Exchange.

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Appendix

Table (I): Firms included in the Research Sample by Sector:

| Sector | Number of firms in the sample | The percent of each sector in the sample |
|--|----------------------------------|---|
| Food and Beverage | 7 | 12.3 % |
| Real Estate | 7 | 12.3 % |
| Construction and Building Materials | 10 | 17.5 % |
| IT, Media & Communication Services | 4 | 7 % |
| Industrial goods, services, and Automobiles | 7 | 12.3 % |
| Healthcare and Pharmaceuticals | 5 | 8.8 % |
| Oil and Gas | 1 | 1.8 % |
| Chemicals | 5 | 8.8 % |
| Basic Resources | 5 | 8.8 % |
| Housing and Personal products | 6 | 10.5 % |
| Total | 57 | 100% |

Table (1): The Correlations between the REM and the firm's financial leverage and other independent variables

| | | REM | LEVG | Audit Firm | ROE | Firm's MV | Dividends | Firm's age | growth | CL/TE | Interest/TE |
|------------|---------------------|---------|--------|------------|--------|-----------|-----------|------------|--------|---------|-------------|
| REM | Pearson Correlation | 1 | .143 | -.209** | -.134 | -.222** | -.097 | .098 | .067 | .176* | .171* |
| | Sig. (2-tailed) | | .070 | .008 | .090 | .005 | .225 | .219 | .398 | .026 | .031 |
| | N | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| LEVG | Pearson Correlation | .143 | 1 | -.030 | .313** | -.215** | -.085 | .105 | .026 | .639** | .551** |
| | Sig. (2-tailed) | .070 | | .707 | .000 | .006 | .285 | .187 | .747 | .000 | .000 |
| | N | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| Audit Firm | Pearson Correlation | -.209** | -.030 | 1 | -.135 | .206** | -.066 | -.332** | .074 | .235** | .250** |
| | Sig. (2-tailed) | .008 | .707 | | .089 | .009 | .405 | .000 | .351 | .003 | .001 |
| | N | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| ROE | Pearson Correlation | -.134 | .313** | -.135 | 1 | .005 | .061 | .133 | .028 | -.079 | -.266** |
| | Sig. (2-tailed) | .090 | .000 | .089 | | .947 | .441 | .094 | .727 | .322 | .001 |
| | N | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| Firm's MV | Pearson Correlation | -.222** | - | .206** | .005 | 1 | -.203** | -.169* | .095 | -.259** | -.251** |
| | Sig. (2-tailed) | .005 | .215** | .009 | .947 | | .010 | .033 | .231 | .001 | .001 |
| | N | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| Dividends | Pearson Correlation | -.097 | -.085 | -.066 | .061 | -.203** | 1 | .078 | .028 | -.038 | -.055 |
| | Sig. (2-tailed) | .225 | .285 | .405 | .441 | .010 | | .329 | .729 | .632 | .492 |
| | N | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| Firm's age | Pearson Correlation | .098 | .105 | -.332** | .133 | -.169* | .078 | 1 | .026 | .000 | -.051 |
| | Sig. (2-tailed) | .219 | .187 | .000 | .094 | .033 | .329 | | .741 | .997 | .522 |
| | N | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| Growth | Pearson Correlation | .067 | .026 | .074 | .028 | .095 | .028 | .026 | 1 | .014 | .011 |
| | Sig. (2-tailed) | .398 | .747 | .351 | .727 | .231 | .729 | .741 | | .860 | .888 |
| | N | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |

| | | | | | | | | | | | |
|-------------|---------------------|-------|--------|--------|---------|---------|-------|-------|------|--------|--------|
| CL/TE | Pearson Correlation | .176* | .639** | .235** | -.079 | -.259** | -.038 | .000 | .014 | 1 | .971** |
| | Sig. (2-tailed) | .026 | .000 | .003 | .322 | .001 | .632 | .997 | .860 | | .000 |
| | N | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| Interest/TE | Pearson Correlation | .171* | .551** | .250** | -.266** | -.251** | -.055 | -.051 | .011 | .971** | 1 |
| | Sig. (2-tailed) | .031 | .000 | .001 | .001 | .001 | .492 | .522 | .888 | .000 | |
| | N | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table (2): Summary of the Multiple Regression Model of the REM on the firm's financial leverage and other firm's characteristics

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .391 ^a | .153 | .114 | .63193 |

a. Predictors: (Constant), growth, LEVG, Audit Firm, dividends, ROE, firm's age, firm's MV

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1 | Regression | 10.941 | 7 | 1.563 | 3.914 | .001 ^a |
| | Residual | 60.699 | 152 | .399 | | |
| | Total | 71.640 | 159 | | | |

a. Predictors: (Constant), growth, LEVG, Audit Firm, dividends, ROE, firm's age, firm's MV

b. Dependent Variable: REM

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.502 | .639 | | 2.350 | .020 |
| | LEVG | .022 | .012 | .148 | 1.797 | .074 |
| | Audit Firm | -.279 | .110 | -.206 | -2.537 | .012 |
| | ROE | -.369 | .145 | -.205 | -2.548 | .012 |
| | Firm's MV | -.063 | .029 | -.180 | -2.207 | .029 |
| | Firm's age | .002 | .011 | .018 | .222 | .824 |
| | Dividends | -.026 | .016 | -.126 | -1.621 | .107 |
| | Growth | .004 | .003 | .105 | 1.385 | .168 |

a. Dependent Variable: REM

Table (3): Summary of the Multiple Regression Model of the REM on the firm's financial leverage using other measures

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .400 ^a | .160 | .122 | .62913 |

a. Predictors: (Constant), growth, CL/TE, Firm's age, dividends, ROE, Firm's MV, Audit Firm

ANOVA^b

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1 | Regression | 11.478 | 7 | 1.640 | 4.143 | .000 ^a |
| | Residual | 60.163 | 152 | .396 | | |
| | Total | 71.640 | 159 | | | |

a. Predictors: (Constant), growth, CL/TE, Firm's age, dividends, ROE, Firm's MV, Audit Firm

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .400 ^a | .160 | .122 | .62913 |

b. Dependent Variable: REM

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.377 | .645 | | 2.134 | .034 |
| | CL/TE | .042 | .020 | .175 | 2.148 | .033 |
| | Audit Firm | -.338 | .114 | -.249 | -2.956 | .004 |
| | ROE | -.270 | .136 | -.150 | -1.988 | .049 |
| | Firm's MV | -.056 | .029 | -.160 | -1.925 | .056 |
| | Firm's age | .002 | .011 | .016 | .195 | .845 |
| | Dividends | -.028 | .016 | -.134 | -1.747 | .083 |
| | Growth | .004 | .003 | .106 | 1.411 | .160 |

a. Dependent Variable: REM

Table (4): The Correlations between the AEM and the firm's financial leverage and other independent variables:

| | | AEM | LEVE | Audit Firm | growth | ROE | Firm's MV | Dividends | Firm's age | CL/TE | Interest/TE |
|------------|---------------------|-------|-------|------------|--------|--------|-----------|-----------|------------|--------|-------------|
| AEM | Pearson Correlation | 1 | .182* | -.147 | .058 | .327** | -.134 | .064 | .043 | .200* | .183* |
| | Sig. (2-tailed) | | .026 | .075 | .480 | .000 | .104 | .442 | .600 | .015 | .026 |
| | N | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 |
| LEVE | Pearson Correlation | .182* | 1 | -.034 | .029 | .312** | -.220** | -.092 | .112 | .636** | .547** |
| | Sig. (2-tailed) | .026 | | .682 | .727 | .000 | .007 | .265 | .175 | .000 | .000 |
| | N | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 |
| Audit Firm | Pearson Correlation | -.147 | -.034 | 1 | .078 | -.151 | .209* | -.060 | -.339** | .242** | .256** |

| | | | | | | | | | | | |
|-------------|---------------------|--------|---------|---------|------|---------|---------|--------|--------|---------|---------|
| | Sig. (2-tailed) | .075 | .682 | | .348 | .067 | .011 | .471 | .000 | .003 | .002 |
| | N | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 |
| Growth | Pearson Correlation | .058 | .029 | .078 | 1 | .028 | .098 | .029 | .027 | .016 | .013 |
| | Sig. (2-tailed) | .480 | .727 | .348 | | .733 | .237 | .728 | .749 | .847 | .877 |
| | N | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 |
| ROE | Pearson Correlation | .327** | .312** | -.151 | .028 | 1 | .015 | .061 | .136 | -.083 | -.271** |
| | Sig. (2-tailed) | .000 | .000 | .067 | .733 | | .852 | .458 | .099 | .317 | .001 |
| | N | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 |
| Firm's MV | Pearson Correlation | -.134 | -.220** | .209* | .098 | .015 | 1 | -.202* | -.179* | -.266** | -.259** |
| | Sig. (2-tailed) | .104 | .007 | .011 | .237 | .852 | | .014 | .030 | .001 | .001 |
| | N | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 |
| Dividends | Pearson Correlation | .064 | -.092 | -.060 | .029 | .061 | -.202* | 1 | .078 | -.042 | -.058 |
| | Sig. (2-tailed) | .442 | .265 | .471 | .728 | .458 | .014 | | .345 | .609 | .484 |
| | N | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 |
| Firm's age | Pearson Correlation | .043 | .112 | -.339** | .027 | .136 | -.179* | .078 | 1 | .002 | -.050 |
| | Sig. (2-tailed) | .600 | .175 | .000 | .749 | .099 | .030 | .345 | | .977 | .546 |
| | N | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 |
| CL/TE | Pearson Correlation | .200* | .636** | .242** | .016 | -.083 | -.266** | -.042 | .002 | 1 | .970** |
| | Sig. (2-tailed) | .015 | .000 | .003 | .847 | .317 | .001 | .609 | .977 | | .000 |
| | N | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 |
| Interest/TE | Pearson Correlation | .183* | .547** | .256** | .013 | -.271** | -.259** | -.058 | -.050 | .970** | 1 |
| | Sig. (2-tailed) | .026 | .000 | .002 | .877 | .001 | .001 | .484 | .546 | .000 | |
| | N | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 | 148 |

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

Table (5): Summary of the Multiple Regression Model of the AEM on the firm's financial leverage using other measures

| Model Summary | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| dimension0 1 | .249 ^a | .062 | .036 | .82057300 |

a. Predictors: (Constant), dividends payout, growth, LEVETE, Audit Firm

| ANOVA ^b | | | | | | |
|--------------------|------------|----------------|-----|-------------|-------|-------------------|
| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| 1 | Regression | 6.377 | 4 | 1.594 | 2.368 | .056 ^a |
| | Residual | 96.288 | 143 | .673 | | |
| | Total | 102.665 | 147 | | | |

a. Predictors: (Constant), dividends, growth, LEVE, Audit Firm

b. Dependent Variable: AEM

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .093 | .107 | | .873 | .384 |
| | LEVE | .033 | .015 | .182 | 2.238 | .027 |
| | Audit Firm | -.239 | .138 | -.141 | -1.735 | .085 |
| | Growth | .002 | .003 | .062 | .764 | .446 |
| | Dividends | .018 | .020 | .070 | .862 | .390 |

a. Dependent Variable: AEM

Table (6-1): Summary of the Simple Regression Model of the AEM on the Firm's Market Value

| Model Summary | | | | |
|------------------|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| dimension 1 0 | .147 ^a | .022 | .015 | .82830448 |

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|------------------|-----------|----------|-------------------|----------------------------|
| dimension 1 0 | .147 a | .022 | .015 | .82830448 |

a. Predictors: (Constant), firm's MV

ANOVA^b

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-----------|
| 1 | Regression | 2.210 | 1 | 2.210 | 3.221 | .075 a |
| | Residual | 99.483 | 145 | .686 | | |
| | Total | 101.693 | 146 | | | |

a. Predictors: (Constant), firm's MV

b. Dependent Variable: AEM

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|-----------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| | | 1 | (Constant) | 1.442 | | |
| | firm's MV | -.148 | .082 | -.147 | -1.795 | .075 |

a. Dependent Variable: AEM

Table (6-2): Summary of the Simple Regression Model of the AEM on the Firm's Age

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .043 ^a | .002 | -.005 | .83776952 |

a. Predictors: (Constant), Firm's Age

ANOVA^b

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|------|-------------------|
| 1 | Regression | .194 | 1 | .194 | .276 | .600 ^a |
| | Residual | 102.471 | 146 | .702 | | |
| | Total | 102.665 | 147 | | | |

a. Predictors: (Constant), Firm's Age

b. Dependent Variable: AEM

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.004 | .240 | | -.018 | .986 |
| | Firm's Age | .007 | .014 | .043 | .525 | .600 |

a. Dependent Variable: AEM

Table (7-1): Summary of the Multiple Regression Model of the AEM on the firm's financial leverage using the current liabilities measures

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .299 ^a | .089 | .064 | .80863388 |

a. Predictors: (Constant), dividends, growth, CL/TE, Audit Firm

ANOVA^b

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1 | Regression | 9.159 | 4 | 2.290 | 3.502 | .009 ^a |
| | Residual | 93.506 | 143 | .654 | | |
| | Total | 102.665 | 147 | | | |

a. Predictors: (Constant), dividends, growth, CL/TE, Audit Firm

b. Dependent Variable: AEM

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .142 | .095 | | 1.507 | .134 |
| | CL/TE | .073 | .024 | .252 | 3.068 | .003 |
| | Audit Firm | -.354 | .139 | -.210 | -2.540 | .012 |
| | Growth | .003 | .003 | .069 | .861 | .390 |
| | Dividends | .015 | .020 | .060 | .748 | .456 |

a. Dependent Variable: AEM

Table (7-2): Summary of the Multiple Regression Model of the AEM on the firm's financial leverage using the interest measure

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .288 ^a | .083 | .057 | .81139801 |

a. Predictors: (Constant), dividends, growth, interest/TE, Audit Firm

ANOVA^b

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1 | Regression | 8.518 | 4 | 2.130 | 3.235 | .014 ^a |
| | Residual | 94.146 | 143 | .658 | | |
| | Total | 102.665 | 147 | | | |

a. Predictors: (Constant), dividends, growth, interest/TE, Audit Firm

b. Dependent Variable: AEM

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|-------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .165 | .094 | | 1.760 | .081 |
| | Interest/TE | .093 | .032 | .240 | 2.894 | .004 |
| | Audit Firm | -.354 | .140 | -.210 | -2.524 | .013 |
| | Growth | .003 | .003 | .070 | .869 | .386 |
| | dividends | .016 | .020 | .063 | .785 | .434 |

a. Dependent Variable: AEM

Table (8): Summary of Stepwise Regression Model of the high leveraged firms' tradeoff between the REM and the AEM

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|--------------|-------------------|----------|-------------------|----------------------------|
| dimension0 1 | .204 ^a | .042 | .036 | .33923 |

a. Predictors: (Constant), AEM

ANOVA^b

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1 | Regression | .793 | 1 | .793 | 6.890 | .010 ^a |
| | Residual | 18.182 | 158 | .115 | | |
| | Total | 18.975 | 159 | | | |

a. Predictors: (Constant), AEM

b. Dependent Variable: HighLEVEG

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .133 | .027 | | 4.931 | .000 |
| | AEM | .072 | .027 | .204 | 2.625 | .010 |

a. Dependent Variable: High LEVEG

Excluded Variables^b

| Model | | Beta In | T | Sig. | Partial Correlation | Collinearity Statistics Tolerance |
|-------|-----|-------------------|-------|------|---------------------|--------------------------------------|
| 1 | REM | .131 ^a | 1.694 | .092 | .134 | 1.000 |

a. Predictors in the Model: (Constant), AEM

تأثير الرافعة المالية والخصائص الأخرى للشركات على إدارة الأرباح الحقيقية وإدارة الأرباح على أساس الاستحقاقات: دراسة تطبيقية على الشركات المسجلة في البورصة المصرية

د. داليا محمد خيرى المدبولي

أستاذ مساعد المحاسبة

كلية التجارة – جامعة دمنهور

الملخص:

يهدف هذا البحث إلى دراسة تأثير الرافعة المالية والخصائص الأخرى للشركة على إدارة الأرباح الحقيقية وإدارة الأرباح على أساس الاستحقاقات وذلك باستخدام عينة من الشركات المصرية المسجلة في البورصة المصرية وذلك لمدة ٣ سنوات تبدأ من ٢٠١٥ حتى ٢٠١٧. يهدف هذا البحث إلى اختبار إذا ما كانت الشركات المصرية تستخدم إدارة الأرباح الحقيقية كبديل لإدارة الأرباح على أساس الاستحقاق للتأثير على الأرباح. وتوصلت النتائج التطبيقية إلى أن الشركات المصرية تستخدم كلاً من إدارة الأرباح الحقيقية وإدارة الأرباح على أساس الاستحقاقات لتحقيق أهدافها في التأثير على الأرباح. بالإضافة إلى ذلك، فلقد توصلت النتائج إلى وجود علاقة معنوية موجبة بين الرافعة المالية وإدارة الأرباح (الحقيقية وعلى أساس الاستحقاقات) وهو ما يتوافق مع فرض الديون. كما توصلت النتائج أيضاً إلى وجود علاقة معنوية سلبية بين إدارة الأرباح (الحقيقية وعلى أساس الاستحقاقات) وبين جودة المراجعة، وحجم الشركة. ولكن توصلت النتائج إلى عدم معنوية العلاقة بين إدارة الأرباح (الحقيقية وعلى أساس الاستحقاقات) وبين عمر الشركة، والتوزيعات، وفرص النمو. بالإضافة إلى ذلك، فلقد أوضحت النتائج إلى أن الشركات ذات المديونية المرتفعة تقوم بإدارة الأرباح على أساس الاستحقاق أكثر من إدارة الأرباح الحقيقية.

الكلمات المفتاحية: الرافعة المالية، إدارة الأرباح الحقيقية، إدارة الأرباح على أساس الاستحقاقات، فرض الديون، الشركات ذات المديونية المرتفعة، البورصة المصرية.