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MUHASEBE FİNANSMAN (İNGİLİZCE) BİLİM DALI

THE IMPACT OF CAPITAL STRUCTURE ON ACCRUAL-BASED AND REAL EARNINGS MANAGEMENT: EVIDENCE FROM JORDAN

Doktora Tezi

MONIRA ABUJASSAR

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Istanbul 2021

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ÖZET

SERMAYE YAPISININ TAHAKKUKA DAYALI VE REEL KAZANÇ YÖNETİMİ ÜZERİNDEKİ ETKİSİ: ÜRDÜN'DEN KANITLAR

Sermaye yapısı üzerine ampirik araştırmalar, kaldıraç oranları ile ölçülen sermaye yapısının firma, sektör ve ülke özelliklerinin bir fonksiyonu olduğunu göstermektedir. Bu tez çalışması, kaldıraç oranlarını bağımsız değişken olarak kullanarak sermaye yapısının bağımlı değişken olan tahakkuka dayalı ve reel kazanç yönetimi üzerinde bir etkisinin olup olmadığını inceleyerek katkı sağlamaktadır. Bu çalışma, kaldıraç varlığında, daha düşük yakalanma olasılığı nedeniyle kazanç manipülasyonu taktikleri uygulayan firmaların kazanç yönetimini uygulamayı tercih edeceklerini varsaymaktadır. Tahakkuk kazanç yönetimini ölçmek için Dechow, Sloan ve Sweeney, (1995) ve Kothari, Leone ve Wasley (2005) modelleri ile beş kazanç yönetimi ölçütü tahmin edilmiştir. Roychowdhury (2006) modeli, operasyonlardan nakit akışı, üretim maliyeti ve isteğe bağlı giderler gibi modelleri gerçek kazanç yönetimi için temsilci olarak görmektedir. Bu tez, gelişmekte olan bir pazardan, Ürdün pazarından, bazı ampirik kanıtlar sunmaktadır. Tez, dokuz yılı kapsamakta (2011 -2019) ve böylece her değişken için toplam 774 firma-yıl gözlemi veren bir panel veri analizi kullanmaktadır. Panel veri regresyon modelleri, bankalar ve finans kurumları hariç olmak üzere, Ürdün Amman Borsası'nda işlem gören 86 şirketten oluşan örneklem üzerinde uygulanmıştır. Veriler heteroskedastisite ve otokorelasyon açısından kontrol edilmiş ve heteroskedastisiteyi kontrol etmek için dayanıklı regresyon uygulanmıştır. Bu analiz, içsellik sorunları ile ilgili endişeleri gidermek ve bu tür bir durumda heterojenlik ve otokorelasyon sorunuyla başa çıkmak için genelleştirilmiş bir moment modeli yönteminin tahmin edilmesiyle desteklenmiştir (Arellano ve Bond, 1991).

Bu tezin sonucu değişkenler arasındaki ilişkinin değerli bir açıklamasını sağlamaktadır. İlgili çalışmaların önceki sonuçlarıyla tutarlı olarak, bulgular, bir firmanın sermaye yapısının temsilcisi olarak finansal kaldıraç oranı ile tahakkuka dayalı ve gerçek kazanç yönetimi arasında istatistiksel olarak anlamlı pozitif bir ilişkiye işaret etmektedir. Bu sonuç, iki finansal kaldıraç ölçüsü için geçerlidir (toplam borcun varlıklara oranı ve toplam borcun özkaynaklara oranı). Bununla birlikte, sermaye yapısının temsilcisi olarak alternatif bir kaldıraç ölçütü (uzun vadeli borç/özkaynak oranı) kullanıldığında, kaldıracın tahakkuka dayalı ve gerçek kazanç yönetimi üzerindeki etkisinin, tüm kazanç yönetimi ölçümleri ile anlamlı ve negatif bir ilişkide olduğu gözlemlenmiştir, ancak uzun vadeli borç/özkaynak oranının, (Kothari v.d., 2005) modeline göre ölçülen tahakkuk kazanç yönetimi ve üretim maliyetini reel kazanç yönetiminin temsilcisi olarak kullanan (Roychowdhury, 2006) modeline göre ölçülen reel kazanç yönetimi üzerinde önemli bir etkisi olmadığı görülmektedir.

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ABSTRACT

THE IMPACT OF CAPITAL STRUCTURE ON ACCRUAL-BASED AND REAL EARNINGS MANAGEMENT: EVIDENCE FROM JORDAN

Empirical capital structure researches show that capital structure measured by leverage ratios is a function of firm, industry, and country characteristics. This thesis contributes by examining whether capital structure by employing leverage ratios as independent variables have an impact on accrual-based and real earnings management as dependent variables. This study hypothesize that in the presence of leverage, firms that engage in earnings manipulation tactics will exhibit a preference for earrings management due to a lower possibility of getting caught. Five measures of earnings management were estimated through the models of Dechow, Sloan and Sweeney (1995), and Kothari, Leone and Wasley's (2005) were used in the study for measuring accrual earnings management. Roychowdhury's (2006) model considers models such as cash flow from operations, production cost and discretionary expenses as a proxy for real earnings management. It provides some empirical evidence from an emerging market, especially from the Jordanian market. The thesis used a panel data analysis over nine years (2011–2019), giving a total of 774 firm-year observations for each variable. Panel data regression models were applied on a sample size of 86 companies listed on the Amman Stock Exchange of Jordan, excluding banks and financial institutions. Data were checked for heteroskedasticity and autocorrelation, and robust regression was applied to control the heteroskedasticity; this analysis was supplemented with estimating a generalized method of moment model to address any concerns regarding endogeneity problems and to deal with the problem of heterogeneity and autocorrelation in such case (Arellano and Bond, 1991).

The result of this thesis provided a valuable explanation of the relationship between variables. Consistent with the prior results of related studies, findings indicated a statistically positive association between a firm's financial leverage as a proxy of the firm capital structure and accrual-based and real earnings management. This result hold for two measures of financial leverage (total debt to assets ratio and total debt to equity ratio). However, when we used alternative leverage measure (long–term-debt to equity ratio) as a capital structure proxy, the impact of leverage on accrual-based and real earnings management was a significant and negative relationship with all earnings management measurements, but long–term debt to equity ratio did not appear to have a significant impact on accrual earnings management measured by (Kothari et al., 2005) and with production cost as a proxy for real earnings management measured by (Roychowdhury, 2006).

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LIST OF ABBREVIATIONS

AEM	Accrual Earnings Management
ASE	Amman Stock Exchange
CFO	Cash Flow from Operations
CFOA	Cash Flow from Operating Activities
COGS	Cost of Goods Sold
DISEXP	Discretionary Expenses Manipulation
EM	Earnings Management
FCF	Free Cash Flow
GAAP	Generally Accepted Accounting Principle
GMM	General Method of Moments
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
INV	Inventory
MTB	Market to Book Ratio
NDA	Non-Discretionary Accruals
OLS	Ordinary Least Squares
PPE	Property, Plant and Equipment
PROD	Production Costs Manipulation
R&D	Research and Development
REM	Real Earnings Management
ROA	Return on Assets

SG&A	Selling, General and Administrative
SOX	Sarbanes-Oxley Act
TA	Total Accruals
US	United States
VIF	Variance Inflation Factor

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1. INTRODUCTION

1.1. OVERVIEW

The main purpose of the financial statements is to provide annual financial information about the company to the internal users within the firm for decision making such as profitability and project evaluation and provide annual financial information for the external users to assist stakeholders in decisions concerning their relationship with the firm in a reliable and timely manner, since, users of financial reports have become more skeptical in using financial statements, mainly due to concerns about the quality of these statements following instances of reporting irregularities and the revelation of unacceptable accounting practices even in well-respected companies.

Among regulators, earnings management has consistent concern and has received accounting literature's attention. The practice of earnings management has several techniques, and reasons exist each is based on the objectives of the management. This thesis focuses on understanding if management has an incentive to manipulate earnings through accrual and/or real earnings management in its financial reporting in situations with capital structure levels for Jordanian non-financial firms.

In the past decade, a high number of financial crises highlighted financial report's role and surrounding earnings management issues. The accounting scandals increased the accounting revisions alarming, and restatements have drawn the accounting researcher's attention. This thesis reviews the literature on the topic and then identifies the earnings management field of some significant cases which took a place globally over the previous decade.

Earnings element is a major in the annual reports, which is used as assistance by the users in developing corporate policies and executive compensation and affects a major decision that is shaped by the information provided by the firm's annual financial statements include debt covenants and external investors investment decisions, the users of the financial statements focus

on the reported earnings as a vital account to take their decisions. A series of corporate scandals were witnessed at the beginning of the 21st century, which triggered earnings management concept to be in the center of public attention; these scandals have raised concern about the financial statements' integrity and internal control efficiency (Leventis and Dimitropoulos, 2011). Financial reporting allows the firms' economic performance to be communicated between managers and stakeholders. The full range of a firm's activities and management decisions are affected by the reported earnings. The practices of earnings management threaten the credibility of financial reporting, and managers engage in these practices to report earnings in financial statements that do not reflect the current financial situations (Bedard et al., 2004).

Earnings management gained the attention of academic researchers and was considered among the most important issues to investigate, mainly after the financial crisis and International Financial Reporting Standards (IFRS) adoption. This phenomenon is affecting stakeholders in many countries, as well as Jordan, and this trend has consistently increased the stakeholders' doubts about the credibility and reliability of the financial statements. Increasing interest in earnings management issues arises because of business environment changes. Managers' incentives may use the standard gaps within accounting norms, principles, and flexibility of the accounting procedures' specific choice. Allowed by law to serve private interests, the difficulties that auditors and accountants face is to distinguish between legal and illegal accounting choices; because of accounting standards gaps, by using specific accounting methods, managers attempt to influence financial statements to achieve an interesting goal, so to determine legal or illegal transactions is tricky because there is no clear guidance. The earnings management phenomenon is one of the management practices to comply with the rapid changes in the external and internal environment and the ability to survive, grow and compete; it can cause serious problems in evaluating the economic reality of the companies and identifying the possible adjustments. Earnings management is considered as a management manipulation type that takes improper advantage of the manipulator by manipulating earnings positively or negatively.

Companies are expanding their businesses along with the development of the technology and economy to defend themselves in the industries' competition by diversification. In diversified companies with high level of complexity, managers will be more motivated to use several techniques of earnings management. These techniques are influenced by many factors, such as capital structure which is measured by leverage ratios. In both profit and non-profit organizations, managers have an incentive to increase earnings because of reputation and contractual pressures; there are several incentives to manage earnings.

Prior researches have studied many areas about earnings management, such as earnings management methods, types, incentives, the reasons for which managers prefer specific techniques to manage earnings, and how to choose between many different earnings management techniques. For standard-setters, earnings management offers a great deal of insight, and it's very important for them to assess and have complete knowledge about earnings management frequency, whether it is ordinary activities or arises infrequently. The thesis objects to determine whether the Jordanian non-financial firms exercise the earnings management phenomenon and whether these practices are impacted by the financial leverage as a proxy of capital structure.

1.2. RESEARCH OBJECTIVES

This thesis is impelled primarily by many factors. This thesis aims to explore the perceptions of earnings management to find out how it is impacted by the capital structure in Jordanian non-financial firms, to affect the perceptions of outside capital providers, since firm with high-debt levels is aware of leverage negative pricing, to mitigate the impact of leverage it may engage in earnings manipulation. This thesis assumes that outsiders monitor and assess a firm's risk and evaluate firm investment opportunities by the firm's financial leverage which would influence the exchange between accrual-based and real earnings management as founded by Zang in 2012.

The second objective is to assess various models' appropriateness and econometric power to detect earnings management practice. Managers mainly manage earnings by engaging in real earnings management by altering the level of economic activities (Roychowdhury, 2006)

and/or by engaging in accrual earnings management by selecting accounting policies and estimating accruals (DeFond & Jiambalvo, 1994; Healy, 1985). This thesis empirically examines whether capital structure motivates managements to engage in Accrual-based Earnings Management (AEM); by regulated national and international laws, managers can choose the firm's accounting method for their business position and reputation they demonstrate opportunistic behavior. Managers use Real Earnings Management (REM) by which they can affect the current financial statements, and low regulatory scrutiny motivates Chief Executive Officers to manage risks and diversify firms by giving discounts, overproducing or reducing discretionary expenditures (Roychowdhury, 2006). Consistent with Cohen and Zarowin's (2010) arguments, current researchers have found an increased appreciation of the significance of understanding accruals and real earnings management. As stated by the authors that REM has been less studied compared to accrual earnings management. The importance of the thesis increases since there is a lack of the impact of capital structure on the practices of real earnings management in the Jordanian market and provides a significant contribution to the literature.

The relationship between capital structure and earnings management activities is mixed. Highly leveraged firms could be subject to a different motivation for engaging in Earnings Management (EM) to impact the outside capital providers' perceptions. This thesis highlights the incentives to manage earnings, and these practices can be detected by financial statements users so that they will be more protected. There has been extensive literature around the incentives and motivations of earnings management to explore the reason behind the manipulation. Few types of research were found that directly addressed this relationship. It needs more investigations; This relation investigation will be the third objective to explore this practice in the Jordanian market. Analysts often use the financial leverage ratios to evaluate the firm's risk, so capital structure will motivate to manage earnings. Recently, in accounting, real earnings management has attracted empirical studies attention in the developing markets and few studies addressed it in emerging markets. This affords another incentive to investigate these relationships for the Jordanian market. Comparing the Jordanian market with well-developed markets might influence the

association between capital structure and earnings management; because there are differences with accounting quality, investor protection, stock market liquidity.

The fourth object of this research is to suggest that earnings management understanding could help standards setters and regulations to identify the weak areas and enhance it, and it may help assist auditors in assessing and reporting on earnings quality and training auditors about EM activities, enable managers, investors, and audit committees to focus more on most skeptical financial reports areas, facility managers and audit committees anticipating areas that investors will put under scrutiny, help educators in teaching this subject and encourage earnings management researchers to focus more on understanding the implications and the reasons of this phenomena.

The last objective to study EM is that this thesis selects the period after adopting IFRS by which earnings management practice was affected, as found in prior research. Ho et al. (2015) examine the Chinese firms after the adaption of IFRS impacts accruals and real earnings management and REM becomes easier to conduct. The same logic could be applied to Jordanian firms, which are likely to experience greater difficulty engaging in AEM following IFRS adoption. Cai et al. (2008) find that in the countries that have adopted the IFRS, earnings management has been declining by examining the effect of the standard adoption on AEM practices across 32 countries. Hoque et al. (2012) and Lemma et al. (2013) find a negative relationship between IFRS adoption and earnings management activity.

1.3. RESEARCH QUESTIONS

Based on the previously discussed subsection about the thesis objectives, this subsection clarifies the thesis questions. Since many studies focus primarily on earnings management, this thesis expands the literature of earnings management for the Jordanian market by examining the impact of capital structure on accrual-based and real earnings management. Accordingly, to achieve the research objectives, four questions are formed as follow:

Does the Jordanian non-financial firms' capital structure impact their engagement in AEM activities?

Does the Jordanian non-financial firms' capital structure impact their engagement in REM activities by abnormal cash flow from operations?

Does the Jordanian non-financial firms' capital structure impact their engagement in REM activities by abnormal production costs?

Does the Jordanian non-financial firms' capital structure impact their engagement in REM activities by abnormal discretionary expenses?

1.4. STRUCTURE OF THE THESIS

This thesis contains seven sections. Section one has established a general introduction about earnings management, its concept development, and its intrinsic importance affecting financial statement users. A brief framework has shown the motivations to study earnings management in the setting of the Jordanian market. Research objectives and the objective to study earnings management have been outlined. Research questions have been devised, and lastly, illustrate the structure of this thesis.

Section two provides a general background and provides the literature's various definitions of accrual-based and real earnings management. Evidence on earnings management practices and why managers decide to engage in earnings management is briefly discussed. This section illustrates the difference between the practice of earnings management practices and accounting fraud techniques, comparison between both techniques of earnings management. Finally, present the perspectives of earnings management: efficient and opportunistic earnings management. The last part of this section presents earnings management constraints.

Section three clarifies the concept of capital structure; it aims to provide an overview of the capital structure and its theories and the empirical models employed to measure the capital

structure. Finally, this section presents the relationship between capital structure and earnings management practices and reviews this relationship based on prior research.

Section four reviews prior literature related to the association between capital structure and earnings management based on prior researches.

Section five explains the methodology that will be used to examine the hypotheses. Presents an overview of the used data in the empirical analysis, identifies the sources of the used data, explain the criteria to choose the sample and sample construction. Explain the definition of models' variables, the process of measuring the models' variables. Dependent variables include a discussion of the way earnings management are measured. Independent variables consist of discussing the way the capital structure is measured and a set of control variables. This section formulates, develops, and discusses the hypotheses regarding the financial statement's manipulation through accrual-based and real earnings management. Lastly, presented and explained the econometric models' specifications used to test the thesis hypotheses

Section six presents the discussion of results, starts by presenting the relevant descriptive statistics tables, correlation analysis matrix, multi-collinearity diagnostics tests, moving on to the regression to test the thesis hypotheses, and discusses the accrual-based and real earnings management models' results. Finally, reports and discusses additional and robustness test.

The last section completes the thesis by providing a brief summary of the key findings, regression result and conclusions of the thesis five empirical models analyses outlines the contributions of the study to the accounting literature and specifically earnings management literature, highlights the limitations of this thesis to existing knowledge are discussed, and sets out some future research recommendations in the earnings management field.

2. DEFINITIONS, ACTIVITIES, MEASUREMENT, AND REVIEW OF EARNINGS MANAGEMENT

2.1. DEFINITIONS OF EARNINGS MANAGEMENT

Recent literature witnessed a considerably broad and increasing interest in manipulating earnings reasons, how and on the consequences of this behavior (e.g., McNichols, 2000; Dechow et al., 2012). Earnings management becomes an issue of critical importance in recent capital markets. The company management is keen to manage earnings in a meaningful manner because earnings management concerns the regulator, investment community, financial statement users, all have urged researchers to understand the factors that discourage this practice. Many firms misled investors through financial statements intentional misstatement. The financial statements' users make their decisions based on apparent values reflected in the firm's financial information, they have to have knowledge about several indicators that can predict earnings manipulation. So, the possibility of manipulated financial statements can be noticed. When managers make decisions only to change earnings but not for strategic reasons, it can consider being earnings management; it is the intentional earnings misstatement that affects the financial statements bottom-line numbers that would have been different without manipulation.

The financial statement's role is to communicate the financial data effectively to external users in a credible and timely manner (Financial Accounting Standards Board, 1984). The phenomenon of earnings management is widespread that aims to manipulate reported earnings upward when firms are below or downward to targets to comply with the rapid changes in external and internal environment and to enhance the ability to survive and compete. The significance of earnings management is linked to earnings itself, earnings elements as the product of accrual accounting are used by users in their decision models. It reflects cash inflows, outflows, and accrual items to reveal the financial performance that is not included in cash flows. The earnings management concept plays a very vital role in determining many variables about firm performance. As mentioned by (McNichols and Wilson, 1988; Schipper, 1989), earnings

management occurs via the structuring of certain expense and/or revenue transactions, changes in accounting procedures by accruals management.

Managers they prepare financial statements and have the primary control for the accounting system integrity and financial records that are used to form the financial reports. The philosophy of earnings management takes advantage of the standard method flexibility, accepted accounting principles, and the various interpretations of executive procedures a standard accounting, managers communicate information about firm's performance to the internal and external users by financial reporting represents. Managers have some space and flexibility in the preparation of financial reports to exercise their own judgment based on their "knowledge of the business" to determine the amount of some accounts. Based on a set of policies, managers may choose accounting policies within the accepted accounting principles, it is expected that they will adopt accounting policies that help them to achieve firms' objectives. This flexibility may increase the financial information's usefulness, and this makes earnings management practices through the flexibility which is given to them easier in changing or choosing accounting methods. So, earnings management practices occur because Financial Accounting Standard gaps allows managements to choose various alternative of accounting method to manage profit, this manipulation makes the financial statements irrelevance to the economic decision. This leads that information has been adjusted with the manager's interest. Manipulation of Accounting information can be classified as earnings management through accounting choices and operational activities, and classificatory manipulation of financial reports. Earnings management is treated in the external financial reporting process for obtaining personal gains (Sweeney, 1994). In accordance with the accrual basis of accounting, financial transactions must be recorded and reported to reflect firms' financial position in true fair view, managers have some flexibility while they are preparing financial reports to exercise their own judgment to determine the amount of some figures which affect the financial information's usefulness, this may lead for earnings management such (Holland & Ramsay, 2003).

In this subsection, the earnings management concepts are explained in detail. Numerous theories in the relevant literature provide such explanations. However, as a concept, earnings management encompasses a wide range of accounting techniques employed by managers to attain a particular earnings objective. Thus, no specific definition of earnings management exists that encompasses all the different activities involved in earnings manipulation. That said, commonalities can be identified: for instance, most focus on interventions in financial reporting to attain particular goals, which is implicit of opportunistic practices. The first definition of earnings management to be reviewed is that of Schipper (1989, p. 92):

"Purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to say, merely facilitating the neutral operation of the process)."

Davidson et al. (1987) (cited in Schipper, 1989, p. 92) define earnings management as "a process of taking deliberate steps within the constraints of generally accepted accounting principles to bring about a desired level of reported earnings."

Healy and Wahlen (1999, p. 368) definition for earnings management as follow:

"Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.".

(The National Association of Certified Fraud Examiners, 1993) defines earnings management (i.e., financial fraud) as "the intentional, deliberate, misstatement or omission of material facts, or accounting data, which is misleading and, when considered with all information made available, would cause the reader to change or alter his or her judgment or decision" (as cited in Dechow & Skinner, 2000, p. 238).

Levitt describes earnings management as: "…a gray area where the accounting is being perverted; where managers are cutting corners; and, where earnings reports reflect the desires of management rather than the underlying financial performance of the company" (Levitt, 1998. p. 14).

Many sufficient incentives to exploit an advantage in order to have earnings closer to their favored level and prepare reports have incentives to provide biased reports. (DeGeorge et al., 1999, p. 2) consider earnings management as "a response to implicit and explicit rewards for attaining specific levels of earnings, such as positive earnings, an improvement over last year, or the market's consensus forecast."

Beneish (2001, p. 5) do articulate the beneficial purpose of earnings management and notes that "There are two perspectives on earnings management: the opportunistic perspective holds that managers seek to mislead investors, and the information perspective ... under which managerial discretion is a means for managers to reveal to investors their private expectations about the firm's future cash flows".

Mulford and Comiskey (2002, p. 3) state that earnings management is the "active manipulation of earnings toward a predetermined target, which may be set by management, a forecast made by analysts, or an amount that is consistent with a smoother, more sustainable earnings stream."

Ronen and Yaari (2008) organise earnings management definitions into three clusters as follows:

Earnings management

• "…. is taking advantage of the flexibility in the choice of accounting treatment to signal the manager's private information on future cash flow". (Dubbed "beneficial and white earnings management.")

• "…. is choosing an accounting treatment that is either opportunistic (maximizing the utility of management only) or economically efficient". (Dubbed "neutral and grey earnings management.")

• "…. is the practice of using tricks to misrepresent or reduce transparency of the financial reports". (Dubbed "pernicious and black earnings management.")

The definitions highlight the main motivation to engage in real or accrual-based earnings management, such as a motivation to obtain private gains, to influence contractual outcomes, to mislead stakeholders. The definition highlight earnings management tactics, discussed that external users don't have access to some information, and misleading them is the earnings management aim regarding real companies' financial performance, which affect the earnings management transparency.

Earnings are considered the first and significant item the users of the financial statement care about inside and outside the organization in order to make economic decisions, as one of the most influential items in financial reports and impact business activities, investment and management decisions. For that reason, managers have several incentives that motivate them to engage in earnings management, it may impact the reliability of financial reporting and the accuracy of income. Executives can be involved in earnings management to meet their targets, but excess earnings management may affect the financial reports usefulness. Earnings are the company's profit for a certain period or net income and refer to the outcome of the underlying business operations, manager uses alternative tools to manipulate earnings to meet or beat analyst earnings forecasts, to report earnings above zero to avoid loss, to improve stock market performance and financial position (Healy & Wahlen, 1999).

2.2. EARNINGS MANAGEMENT TECHNIQUES

Managers can choose a variety of different earnings management techniques, methods, and many different models that indirectly measure earnings management since it is not directly observable. To detect earnings management phenomenon many methods and techniques should

be developed. Academics and practitioners have used different methods in detecting earnings management.

Earnings management can be implemented by three main activities; (1) accrual-based earnings management (e.g., Dechow et al., 1995; Fields et al., 2001; Healy & Wahlen, 1999; Schipper, 1989) (2) classification shifting (e.g., Athanasakou et al., 2009; Fan et al., 2010; McVay, 2006; Shirato & Nagata, 2012; Zalata & Roberts, 2016) and (3) real earnings management (e.g., Alhadab, 2015; Bushee, 1998; Cohen and Zarowin, 2010; Cohen et al., 2008; Cohen et al., 2016; Dechow and Sloan, 1991; Graham et al., 2005; Gunny, 2010; Kothari et al., 2016; Roychowdhury, 2006; Zang, 2012).

To manage earnings, managers have two mainly broad techniques. Firstly, accrual-based earnings management techniques by changing accounting policies and estimation, which doesn't have any cash flow consequences when managers are exercising judgment and discretion to change reported earnings (Kothari et al., 2012). Secondly, real earnings management techniques have direct cash flow consequences and may deviate firm from the optimal business strategies (Cohen & Zarowin, 2010; Anagnostopoulou & Tsekrekos, 2016; Graham et al., 2005). Healy and Wahlen (1999) explain that managers manipulate transaction structures and use valuations in financial statements to mislead some stakeholders concerned with company performance. Earnings management techniques don't violate the generally accepted accounting principle (GAAP).

2.2.1. Classification Shifting

Shifting-based earnings management affects core earnings and core expenses will be shifted to special items in the statement of income to increase earnings before extraordinary items (McVay, 2006). Unlike accruals management and real activities management, it does not change the net income bottom-line; it increases the core earnings. This technique is less likely to draw regulatory scrutiny or auditor, it does not change bottom-line earnings for that it is not empirically tested. Therefore, auditors are less likely to expend the identification or compulsory adjust-

ment of the accounts that are affected by classification shifting technique (McVay, 2006). Classification shifting is less costly and less scrutinized by regulators and auditors (Nelson et al., 2002) (as cited in Al-shattarat, 2017, p. 49). Classification shifting does not need to be settled up in the future; it is less costly compared with accrual and real earnings management. Employing this technique, earnings number remains unchanged makes its detection more challenging relative to accruals management for auditors and limits scrutiny of outsiders.

The main differentiation between accounting choice and REM lies in effect on firms' normal operations; accounting choice uses latitude in the application of accounting methods and estimations and affects only the process of reporting activities. Accounting choice does not result in direct cash flow effects, while real earnings management involves structuring or timing of real business activities and directly influences cash flows. The final difference pertains to the timing of manipulation.

2.2.2. Accrual-Based Earnings Management

This technique manipulates income to maximize the manager's wealth, and it will affect and decrease the earnings quality. It is not usually considered offending the accounting principles because managers have the option to choose the accounting procedures and methods to prepare financial reports. Managers have the opportunity to create accounting numbers in financial reports since earnings management is acceptable by many managers (Grasso et al., 2009).

Evaluating earnings management begins from measuring accruals. Under accrual basis accounting, all economic transactions are recorded at the date on which it occurred, not based on actual payments or receipts. International Accounting Standards Board (IASB) presented accrual basis accounting due to evolution in businesses internationally; Accrual basis is related to the assumptions of accounting theory matching principle that results from earnings misstatement and buffs the capital structure and makes it attractable, comparing accrual basis to cash basis, it provides relevant information more than cash basis for external users. While based on cash basis accounting, economic transactions are recorded when paying cash or receiving money, it provides

more reliable but less relevant information for the users of the reports. But Cash basis accounting imposes problems associated with measuring firms' performances and is no longer efficient when firms are in continuous operation. Stolowy and Breton (2004, p. 22) argue that "as profit differs from cash flow by the total of accruals, manipulation of the profit figure implies manipulation of the accruals".

The IASB's Conceptual Framework for Financial Reporting (IASB, 2010) states financial reportings' objectives as: "The objective of general-purpose financial reporting is to provide financial information about the reporting entity that is useful to exist and potential investors, lenders, and other creditors in making decisions about providing resources to the entity. Those decisions involve buying, selling, or holding equity and debt instruments and providing or settling loans and other forms of credit".

To achieve an interesting goal, earnings management influences financial statements by specific accounting methods, which is the major means of communication between the companies and the stakeholders. The quality of the financial statements and disclosure system is essential to make capital markets more efficient. The high-quality system disclosure is defined as "information about the reporting entity that is useful to present and potential equity investors, lenders, and other creditors in making decisions in their capacity as capital providers" (IASB, 2008).

The company's main mission is to provide relevant, fair, and timely financial information about its business activities. Preparing a comprising accounting system is difficult to do; this situation results in the flexibility of principles and accounting standards. These flexibilities are used to report high-quality financial information about the firm activities. Owners and managers may violate regulations and accounting standards for the interest of the business or for their own interest from gaps, and flexibilities in accounting standards. In compliance with accrual accounting, managers are required to prepare financial reports that reflect firms' performance, the international accounting standard gives management opportunities through non-cash transactions to have earnings management to obtain a particular objective since an income statement is recorded under the accrual basis accounting, managers may shift earnings from period to another in

a way that doesn't reflect the firms original economic performance (Degeorge et al., 1999), while the statement of cash flow formed under cash basis accounting so manager cannot adjust transactions, so the difference between these statements is called accrual which can be calculated by profit after tax minus Cash flow from operating activities.

In the same context, (Sun & Rath, 2010) suggest:

"Fundamentally, more management discretions are often made through accruals. More accruals are in place simply because the accounting system creates accruals in order to recognize revenues when they are earned and match expenses to those revenues, irrespective of whether cash has been received or paid. This matching principle makes accounting earnings a better economic measure of firm performance than cash flows" (p. 128).

IASB's Conceptual Framework clarifies how to record financial transactions as follows:

"Accrual accounting depicts the effects of transactions and other events and circumstances on a reporting entity's economic resources and claims in the periods in which those effects occur, even if the resulting cash receipts and payments occur in a different period." (IASB, 2010b, para. OB17, A29).

The concept of accruals is fundamental in financial report preparation and presentation. Accrual accounting allows management to select some accounting techniques that accurately show the firm's performance and financial position. International Accounting Standards 1 has described the accruals concept as follows:

"Under the accruals basis of accounting, transactions and events are being recognized when they occur (and not as cash or its equivalent is received or paid), and they are recorded in the accounting records and reported in the financial statement in the periods to which they related. Expenses are recognized in the income statement on the basis of a direct association between costs incurred and the earnings specific item of income"

Dechow et al. (1998, p. 133) find that:

"Earnings occupy a central position in accounting. It is accounting's summary measure of a firm's performance. Despite theoretical models that value cash flows, accounting earnings are widely used in share valuation and to measure performance in management and debt contracts."

Accrual-based earnings management is about adjusting the timing of expenses and revenues recognition to alter the financial report, it stated earnings through the exploitation of the accounting discretion associated with accounting standards, earning manipulations are legitimate within the GAAP. Beneish (1999, p. 24) describes earnings manipulation as

"An instance where management violates GAAP in order to beneficially represent the firm's financial performance".

Accruals reflect the firm's true performance; it can be used to manage earnings. Accrual base records expenses and revenues at the incurred period rather than presenting cash earned and/or cash paid to demonstrate the performance of the firm. An important instrument for managing earnings is the application of the revenue recognition principle. The general rule is that revenue is recognized when earned or realized, but firms may recognize revenue despite no enough ability exists that the resources will inflow to the firm or may recognize revenue early or delaying this recognition to have a method to practice earnings management or managers may delay the recognition of expenses, which results in accruals.

To eliminate the discretionary element of the accruals, standard and the modified Jones models were created by taking into consideration changes in the economic environment (Beneish, 2001). Ronen and Yaari (2008) conduct a simulation test using Healys' model and fail to demonstrate zero discretionary accruals even the simulation has no earnings management. They conclude that normal accruals associated with abnormal performance are classified as discretionary by Healy's methodology. Discretionary accruals are created when managers are bringing forward

earnings from a future period through the deceleration of expenses or acceleration of revenues to increase current earnings.

Sun and Rath (2010) argue:

"Accruals, relative to other methods, are preferred in detecting earnings management. Nevertheless, the major challenge for researchers using accruals to detect earnings management is the ability of the model correctly separate accruals into discretionary and non-discretionary accruals" (p. 130).

2.2.2.1. The Measurement of Accrual-Based Earnings Management

To evaluate the existence of accrual earnings management, researchers used two approaches. The first approach is the specific accruals approach (e.g., McNichols et al., 1988). The second approach is the aggregate accruals approach (e.g., Dechow et al., 1995; Jones, 1991).

2.2.2.1.1. The Approach of Specific Accrual

An alternative approach to that of aggregate accruals is to estimate the relationship between a single accrual and explanatory factors, the general intuition in this approach is to develop a model of expected value for the specific accrual under investigation and the difference between actual and expected accruals is considered as indicative of earnings management. McNichols et al. (1988) utilize the provision for bad debts as the specific accounting number and distinguish between the discretionary and non-discretionary components, or to focus on accruals in specific sectors such as the claim loss reserve in the insurance industry (Beaver & McNichols, 1998). The advantages and disadvantages of this method are emphasized by (McNichols et al., 1988; McNichols, 2000), she states (p. 333):

"One advantage is that the researcher can develop an intuition for the key factors that influence the behavior of the accrual, exploiting his knowledge of GAAP. A second advantage is

that a specific accrual approach can be applied in industries whose business practices cause the accrual in question to be material and a likely object of judgment and discretion."

It benefits the researcher to focus on the key factors that affect the accrual under question. Also, it will be easier to determine the control variables since the method is usually applied in a specific industry. The drawbacks can be stated as the issue of reliability with which the specific accrual demonstrates managerial discretion, the need for enhanced institutional knowledge and data together with the issues regarding the size of the sample as the specific accrual chosen should exist in all the firms chosen (McNichols, 2000). This approach doesn't control for the assumption that managers can manipulate earnings simultaneously using several accruals. McNichols argues that studying this approach requires a costly investment in institutional knowledge; since studies of this approach tend to be confined to smaller or sector-specific samples, it imposes limits to the generalizability of the findings.

2.2.2.1.2. The Approach of Aggregate Accruals

Most accounting research adopts this approach to examine AEM as this provides a comprehensive discretionary accruals test (e.g., Dechow et al., 1995). Its main characteristic is that it aggregates the net effect of multiple recognition and measurement decisions into one measure. It is, therefore, a more attractive approach as managers are likely to make use of several accruals to manipulate earnings (Jones, 1991).

Typically, measuring accruals is the first step in evaluating earnings management. To measure earnings management levels, several models have been developed in the literature, most based on accruals analysis. Using the aggregate approach, researchers have provided a growing body of evidence demonstrating the existence of AEM. A clear benefit of this approach is that it can reveal ways to increase or decrease profits as AEM receives less scrutiny from outsiders.

Numerous models have been employed over time to estimate discretionary accruals. These follow two distinct streams of research. The first is total accruals, which measures the change in total accruals as a proxy for the change in discretionary accruals (DeAngelo, 1986).

The second stream, discretionary accruals, employs cross-sectional regression to disaggregate total accruals into discretionary and Non-Discretionary Accruals (NDA) (Healy, 1985). The discretionary accruals and NDAs that emerge from normal business transactions are estimated to detect earnings management. The measurement of discretionary and aggregate accruals models is demonstrated and discussed in the following subsection.

Researchers working in the fields of earnings management strive to distinguish managed earnings from accruals arising from normal accruals (McNichols et al., 1988). Given that total accrual (TA) is equal to NDA, calculating total accruals involves subtracting discretionary accruals from NDAs. A company has no discretionary accruals if it does not manipulate earnings.

However, if accruals are used to manipulate earnings, discretionary accruals will not amount to zero. It is essential to calculate NDA as this relates to the normal activities of firms. Discretionary accruals are considered managed, or abnormal accruals and are always connected to manipulate earnings. Its accruals are not regulated in the contract and are the manager's choice policy, this occurs when discretion is exercised by managers with respect to an opportunity set of accrual choices within the standard. Although non-discretionary accruals are considered normal or unmanaged, it reflects non-manipulated accruals items because they are beyond the control management, it determined by the normal economic conditions of the firm. Ronen and Yaari (2008, p. 372) define NDA as "accruals that arise from transactions made in the current period that are normal for the firm given its performance level and business strategy, industry conventions, macroeconomic events, and other economic factors."

Total accrual is defined in two different ways in the literature. The first is the Balance Sheet Approach. This involves subtracting total depreciation expenses from the change in non-cash working capital before payment of income taxes (Jones, 1991, p. 207). Thus, total accruals are defined as the change in networking capital accounts. The Balance Sheet approach has been employed in numerous studies (e.g., Balsam et al., 2002; Gul et al., 2003; Heninger, 2001, as cited in Idris, 2012, p. 124). The equation for the Balance Sheet Approach for calculating total accruals is as follows:

$$TA_t = \Delta CA_t - \Delta Cash - \Delta CL_t + \Delta DCL_t - DEP_t$$

(Eq. 1)

Where;

ΔCA_t : Change in current assets in year t;

$\Delta Cash_t$: Change in cash and cash equivalents in year t;

ΔCL_t : Change in current liabilities in year t;

ΔDCL_t : Change in debt included in current liabilities in year t;

DEP_t : Depreciation and amortization expense in year t.

The second approach to define the total accrual is the Cash Flow approach which is defined as the income before extraordinary items and discontinued operations minus cash from operations (Ronen et al., 2008). The equation for the cash flow approach for calculating total accruals is as follows:

$$TA_{i,t} = EBXI_{i,t} - CFO_{i,t}$$

(Eq. 2)

Where;

$TA_{i,t}$: Total Accruals for firm i in the year t;

$EBXI_{i,t}$: Income before extraordinary items and discontinued operations for firm i in the year t;

$CFO_{i,t}$: Cash Flow from Operating Activities for firm i in the year t.

2.2.2.1.2.1. Measurement of Earnings Management Based on Some Aggregate Accrual Models

1. The Healy Model (1985)

This model uses mean total accruals to measure NDA by dividing the total accruals for a given year over the previous year by the total assets. Healy investigates whether management manipulates accounting procedures and accrual accounting to meet earnings bonus schemes investigates the theory of compensation which is concerned with the effect of earning-based bonus contracts on managers' incentives to manage earnings downwards or upwards. Healy's study begins with focusing on the determination of discretionary accruals. Based on a sample of 94 united states of America over the period 1930-1980, finds that managerial behavior related to the bonus-maximizing hypothesis, bonus contracts are evaluated to examine the link between managerial decisions related to income reporting incentives and the discretion observed in the choice of accrual and accounting procedures.

Healy model estimates NDA for each firm-year observation to get discretionary accruals by subtracting estimated NDA from total accruals and assumes that NDA are a constant portion of assets and Healy's model omits the changes in NDA depend on conditions changing. Earnings management can happen in any period; this makes this model separated from others. The basic assumption was the total amount manipulated in financial reports made by executives during zero work. Healy assumed that NDA follows the regression whose average is zero. The value of the expected NDA is zero. If the value of total accruals is non-zero, it is the result of earnings management.

As main critiques apply to the model of Healy, Ronen & Yaari (2008) conduct a simulation test using the Healy Model and fail to demonstrate zero discretionary accruals even

though the simulation has no earnings management. Thus, they conclude that normal accruals associated with abnormal performance are classified as discretionary by Healy's methodology. In terms of the critique, Young (1999, p. 836) comments, "This model represents the simplest and most naive method of estimating discretionary accruals, effectively assuming that expected non-discretionary accruals for the period are zero."

2. The DeAngelo Model (1986)

This model uses total accruals for the previous year as the measure of NDA scaled by lagged total assets. DeAngelo attempts to overcome Healy's model limitation by developing a non-zero benchmark for NDA, focuses on firms manage earnings downward utilizing accrual accounting, by examining 64 firms from New York and American Stock Exchanges, the existence of large and systematic negative non-discretionary accruals as in the amount of depreciation expense, which inaccurately results in the false impression of earnings understatement by management. Healy and DeAngelo's models measured NDA total accruals, with the major difference stemming from the latter model's utilization of the prior year's observation as the estimation period.

In terms of non-discretionary accruals, among periods if the fluctuation is observed, Healy and DeAngelo Model will provide erroneous results in the measurement of NDA. Since the effect of growth factor on NDA by DeAngelo's model does not incorporate, the critique here also applies to Healy's model. DeAngelo's model points to the TA changes to managerial discretion, whereas this change could be due to the effect on firms' operations growth which causes NDA to fluctuate over time. In this case, the change in NDA result would not equal zero.

3. The Jones (1991) Model

It is an advanced version of the Healy model and DeAngelo mode computing total accruals, then deducting NDA to the estimation of the discretionary accruals. Jones's model hasn't focused on specific accruals. Jones's model takes total accruals to detect earnings management; because of discretionary accruals, DeAngelo states that the change in total accrual occurs and

ignores the volatility of NDAs, the revenue easily affects NDAs. Jones's (1991) model controls for the economic circumstances change that cause the difference of NDA, in contrast with two previously mentioned models (Healy and DeAngelo model) who assumed that the level of NDAs does not change over time. Its estimates as follows:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{\Delta REV_{i,t}}{A_{i,t-1}} + \alpha_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t}$$

(Eq. 3)

Where;

$TA_{i,t}$: Total Accruals for firm i in the year t;

$\Delta REV_{i,t}$: Revenues in year t less revenues in year t -1 for firm i;

$PPE_{i,t}$: Gross property, plant, and equipment for firm i at the end of year t;

$A_{i,t-1}$: Total assets at the end of year t -1 for firm i;

α : Firm-specific parameters;

$\varepsilon_{i,t}$: Error term for firm i in the year t.

Discretionary accruals as a proxy for AEM is measured as the difference between TA and NDA.

Jones uses time-series data and introduces changes in revenues, property, plant, and equipment (PPE) as new variables to control the impact of change in a firm's economic conditions on NDA; Gross PPE is used to control for the portion of total accruals associated with non-discretionary depreciation expense since the total depreciation expense is included in the

total accrual's measurement. Jones's model further explains that changes in working capital accounts are dependent to some extent on changes in revenues. The model drawbacks assume that when the EM has been hypothetically occurred, the revenues are non-discretionary, managers manipulate revenues through earnings management, it is more likely to occur compared to other techniques of manipulation. Sometimes firms are unable to meet expectations and to hold equity.

4. The Modified Jones Model of Dechow, Sloan and Sweeney (1995)

This model assumes that the change in sales on account results from earnings management; the main difference is the inclusion of the change in receivables in adjustment to change in revenues during the event period. Dechow and Sloan altered the Jones model (1991) by introducing the change in accounts receivable. This model is designed to get rid of error which arises due to discretion applied over revenues while calculating discretionary accruals. Dechow et al. (1995) attempt to reduce increases in receivables from variations in sales, they created a model that assumes that there is the possibility of manipulating credit sales. Dechow's model in 1995 measures discretionary accruals with an error when discretion is exercised over revenue recognition. The purpose of this model is to derive the non-discretionary portion of total accruals from deriving discretionary accrual. While calculating discretionary accruals, it is designed to get rid of error which arises due to discretion applied over revenues.

Jones Model assumes that all revenues are non-discretionary both in the estimation and event period. Part of the managed earnings from the discretionary accruals proxy will be detached, if earnings are managed through discretionary revenues. The only difference between this model and the Modified Model is that the change in revenues is adjusted for the change in receivables in the event period. This model is used if earnings are managed by shifting revenues from future periods, then the change in receivable in year t for firm i for would be endogenous to the model. From the change in revenues in the event period based on the assumption that all changes in credit sales in the event period occur due to earnings management, change in receivables is deducted when the modified Jones model is used (Dechow et al., 1995).

This model distinguishes the difference between an artificial and real boost in sales. To control for endogeneity bias, Dechow proposes the modified Jones model that provides the most powerful earnings management test, this model controls for the possibility that revenue recognition is subject to management manipulation (Doukakis, 2014). Compared with other models, most earnings management research employs this model to estimate discretionary accruals. According to Uwuigbe et al. (2014), it is one of the most frequently used models to detect earnings management.

Dechow et al. (1995) mention that this model had misspecification as estimates of discretionary accruals are correlated with firms' performance, because "large discretionary accruals could result not only from earnings management but also from exogenous influences on firms' performance or from the effects of strategic operating decisions that are not motivated by the desire to artificially increase reported earnings" (Beneish, 1997, p. 273). Dechow et al. (1995) estimate the modified version of Jones (1991) model to Modified estimates normal accruals in event period as follows:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{(\Delta REV_{i,t} - \Delta REC_{i,t})}{A_{i,t-1}} + \alpha_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \quad \text{(Eq. 4)}$$

Where;

$\Delta REC_{i,t}$: Change in Receivables for firm i in the year t,

All other variables are defined previously in equation 3.

5. The Performance Matching Model of Kothari, Leone and Wasley (2005)

This model proposes a cross-sectional regression model that extends the modified Jones model by several modifications. It compares the performance-matched discretionary accruals approach with traditional models of discretionary accruals. The first method uses performance-matched discretionary accruals that represent abnormal earnings management other than total

earnings management. This method estimated discretionary accruals of a firm are adjusted by that of a similar firm that is matched on the basis of performance and industry. The second method generates a model that estimates accruals as a function of performance. This approach, which uses a linear performance matching model, differs from the standard Jones and Modified Jones Model in two aspects.

This approach involves either altering discretionary accruals to a matched firm or adding a return on assets (ROA) item as a regressor into the model. To create the matched sample, industry membership and ROA for the past year are utilized as benchmarks. Kothari et al. (2005) assert that using ROA as a proxy for performance aligns with Dechow's (1998) model, where ROA is used to create a matched sample and to control for operating performance

Kothari et al. (2005) estimate the performance-matched discretionary accruals model as follows:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{(\Delta REV_{i,t} - \Delta REC_{i,t})}{A_{i,t-1}} + \alpha_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \alpha_3 \frac{ROA_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \quad \text{(Eq. 5)}$$

Where;

$ROA_{i,t}$: Return on assets for firm i in the year t,

All other variables are defined previously.

2.2.3. Real Activities-Based Earnings Management

Real activities manipulation is manager actions by assuming actions that easily adjust operations or alter the period by deviating from normal business practices, undertaken with the objective to meet certain earnings thresholds. Most of the prior researches have focused on AEM,

the importance of understanding REM is considered as the most utilized technique that manipulates reported earnings without violating GAAP (e.g., Cohen et al., 2008; Chang et al., 2010; Dechow & Sloan, 1991; DuCharme et al., 2001; Gunny, 2010; Kothari et al., 2012; Roychowdhury, 2006; Zang, 2012).

The control over financial reporting reduces earnings management practice through accounting choice, as real activities manipulation concerns non-accounting decisions of management; even with tighter accounting standards, it doesn't restrict the activities manipulation. Prior empirical evidence supported the shift toward real activities manipulation. Real activities manipulation attracts the research's attention following the studies of (Graham et al., 2005; Roychowdhury, 2006), with a particular focus on the effects of real activities manipulation in the long term. Managers who change reported earnings could change real operation decisions, such as sales policy, level of production, and spending discretionary expense; it is not necessary to resort to playing around with estimates and accounting methods. Graham et al. (2005) suggest that many financial executives in the United States (US) would manage earnings via changing real operation decisions, they prefer to engage in REM to manage earnings upward, regardless of whether it determines firm's value in the long-term because it has a low probability of being detected and the former is less scrutinized by regulators and auditors. Real earnings management has advantages that are hardly detected by auditors or regulators, and it is easier to achieve the profit target since it can be covered under the normal business transactions (Anagnostopoulou and Tsekrekos, 2016; Cohen et al., 2008; Cohen et al., 2010; Gao et al., 2017; Zang, 2012).

Roychowdhury's (2006) research revealed that the three earnings management techniques through real activities impact the firm's cash flow. Sales manipulation and overproduction will cause lower cash inflow, while reduction of discretionary expenses will cause higher cash inflow. REM has negative consequences on a firm's operating performance, it is detrimental to stock return performance and the firm's value in the long-term (Cohen et al., 2010; Graham et al., 2005; Kothari et al., 2016). The following prior literature (De Jong et al., 2014; Zhang, 2008) find

that firms face a decline in future performance, which engages in REM to meet or beat the analysts' earnings forecasts.

Roychowdhury (2006, p. 337) defines real earnings management as follow:

"Real activity manipulation is defined as departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations."

In literature to measure real earnings management, four models are identified either by examining the abnormal level of cash flows from operations, abnormal production costs, abnormal discretionary expenses, and the sum of the three REM proxies (Roychowdhury, 2006). Through real business activities manipulating, managers can influence reported earnings to manipulate accounting estimates and choices. Roychowdhury (2006) finds that US firms engage in several activities of real business activities manipulating such as overproduction and sales manipulation to avoid reporting losses. Managers can decrease discretionary expenditures to increase current period earnings. By assuming firms normally paid these expenses in cash, this could lead to higher cash flows currently, and this comes at the risk of lower future cash flows. Managers can temporarily increase sales revenues by offering customers flexible credit terms or price discounts; this increase will disappear when the firm returns to its normal prices.

There are many techniques that can be used to manipulate real activities. In Accordance with Roychowdhury (2006), the extent of REM will vary with managers' flexibility to conduct these activities. He focuses on earnings management through significant operational activities. This model uses regressions developed by (Dechow et al., 1998), where these models are assigned to estimate the normal levels of REM activities. Therefore, the difference between the expected normal and actual levels of each operational activity represents the managed earnings. The real earnings management techniques by Roychowdhury Model (2006) explain below.

2.2.3.1. Cash Flow from Operations (CFO)

When companies take part in activities relating to real earnings management, researchers expect negative abnormal cash flows from operations triggered by unsustainable sales or sales manipulation or through lenient credit terms or increased price. However, any increase in sales is temporary, and any benefits will diminish once companies revert to original prices (Roychowdhury, 2006), resulting in lower cash flows. Managers may choose to offer temporary price discounts to increase sales or generate additional sales from the next year into the current year. However, any rise in sales volumes will vanish when the original prices are reinstated. This calls into question the effectiveness of this approach in managing real earnings.

Sales-based manipulation is defined by Roychowdhury (2006) as the temporary boosting of sales throughout the year by offering customers generous credit facilities and/or discounts. As margins decline, the cash inflow per sale, net of discounts, also falls. If margins are positive, total earnings in the current period will be higher as a result of additional sales; the lower margins caused by price discounts means production costs relative to sales will be unusually high. To estimate normal cash flows from operations, a cross-sectional regression model was run for each year and industry in accordance with the approach adopted by Roychowdhury (2006):

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{S_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta S_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \quad \text{(Eq. 6)}$$

Where;

$CFO_{i,t}$: Cash flows from operations for firm i in the year t;

$A_{i,t-1}$: Total assets for firm i at the end of year t -1;

$S_{i,t}$: Sales revenue for firm i in the year t;

$\Delta S_{i,t}$: Change in sales revenue for firm i from year $t-1$ to t;

α : Firm-specific parameters;

$\varepsilon_{i,t}$: Error term for the firm i in the year t.

Consisting with prior research on how to measures real earnings management, residuals from these estimation models represent a proxy for REM. The higher the manipulation, the more positive the residual; the residual estimated on a firm-year basis represents manipulating the production schedule. (Cohen et al., 2008; Cohen et al., 2010; Gunny, 2010; Roychowdhury, 2006; Zang, 2012).

2.2.3.2. Production Costs Manipulation (PROD)

This technique measures REM activities, is abnormally producing excessive volume of units to reduce the fixed manufacturing overhead costs for each item, and vice versa (Cohen et al., 2008). Companies anticipate that abnormal production costs will be positive when earnings are managed through real activities. To meet the expected demand and manage earnings upward, the production of goods by manufacturing firms can be increased to a greater extent than normal by managers. Because such an increase will impact fixed overhead costs, the latter can be distributed across many units to reduce the fixed costs per unit. The total cost per unit will also fall as this reduction is not compensated for by a rise in marginal cost per unit (Cohen et al., 2008; Roychowdhury, 2006). With the lower reported cost of goods sold, the company thus documents higher operating margins. However, managers will only support overproduction if the cash flows from operations are lower than normal given levels of sales. The reduction in product costs compensates the inventory holding costs acknowledged by the company in the current period. In the production of additional inventories, incremental marginal costs generate higher annual production costs than sales.

Bartov (1993) reported that managers avoid violations of debt covenants, increase reported earnings using asset sales to control reported earnings, and manage the timing of asset

sales to manipulate reported earnings. This is because managers are aware that manipulating asset sales at the end of the financial year by determining the time and volume of sales means earnings will be in line with expectations. However, outsiders scrutinizing financial statements will find it easy to identify cases where earnings have increased through the sales of assets.

Following Roychowdhury (2006), to estimate the normal level of production cost by the following model:

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{S_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta S_{i,t}}{A_{i,t-1}} + \beta_4 \frac{\Delta S_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \quad \text{(Eq. 7)}$$

Where;

$PROD_{i,t}$: Production costs for the firm i in the year t, defined as the cost of goods sold plus change in inventory;

$\Delta Sales_{i,t-1}$: Sales of firm i in year t -1 less sales of firm i in year t -2.

All other variables are previously defined.

2.2.3.3. Discretionary Expenses Manipulation (DISEXP)

Discretionary expenses play a substantial role in earnings management as they constitute a measure of REM activities. They comprise the sum of advertising expenses, selling, general and administrative expenses (SG&A), and research and development (R&D) in the current period. Because investing in R&D does not directly increase earnings, managers are able to manage earnings by reducing R&D expenses as R&D needs to be capitalized during this period. Previous research has employed two distinct strategies to estimate the manipulation of discretionary expenses. The first is to estimate the abnormal level for each discretionary expense activity separately, such as an abnormal reduction in R&D expenses (Bushee, 1998; Gunny, 2010). The second strategy is to estimate the abnormal level for R&D, SG&A, and advertising expenses

combined (e.g., Cohen et al., 2008; Cohen et al., 2010; Roychowdhury, 2006; Zang, 2012). To reduce these expenses, managers usually increase reported earnings.

Previous studies (e.g., Cohen et al., 2008; Roychowdhury, 2006) have reported that to achieve an earnings target, managers control reported earnings by managing the level of discretionary expenses when these are paid for in cash; this will increase both reported earnings and cash flows (Cohen et al., 2010). However, this may negatively affect future cash flow (Roychowdhury, 2006). Deciding to manage earnings by reducing R&D expenses is strongly influenced by whether R&D needs to be capitalized. In an investigation of abnormal discretionary expenses, Roychowdhury (2006) reported that companies reduce discretionary expenditures such as SG&A and R&D to analysts meet earnings forecasts and earnings targets. Shon and Yan (2015) investigated whether 19,944 firm-quarter observations for a US sample from 1989-2011 met or exceeded earnings benchmarks. Their results indicated reported earnings moved upward or downward by reducing or increasing R&D expenditures in the final quarter. They concluded that this was commensurate with the reduction in the relative cost of REM quartering that period. Dinh et al. (2016) identified a negative correlation between capitalized R&D and market values among firms that capitalized on R&D expenditure under IFRS to exceed earnings benchmarks.

In this research, the normal level of discretionary expenses is estimated as a function of lagged sales by employing a cross-sectional regression for each year and industry, it is estimated as follows:

$$\frac{DISEXP_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{S_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad \text{(Eq. 8)}$$

where;

$DISEXP_{i,t}$: The sum of R&D, SG&A, and advertising expenses for the firm i in the year t.

All other variables are defined previously.

2.3. EARNINGS MANAGEMENT AND FRAUD

Managers can choose from real transaction methods, and some are pure accounting decisions to influence accounting income. Earnings management is classified into fraudulent and non-fraudulent activities. Earnings management activities do not have to be illegal. Mostly, managers' activities and decisions are completely legal by using the discretion at their disposal to present financial results in a manner that suits managers interests. Fraud happens when an illegal act is employed in the financial reports. Earnings management's common criticism is that obscuring the actual earnings reduces transparency. Arya, Glover, and Sunder (2003) state:

"That earnings management reduces transparency is a simplistic idea, A fundamental feature of decentralization organizations is the dispersal of information across people. Different people know different things, and nobody knows everything. In such an environment, a managed earnings stream can convey more information than an unmanaged earnings stream.".

Fraud is defined as "one or more intentional acts designed to deceive other persons and cause them financial loss." (National Association of Certified Fraud Examiners (1993, p. 6)).

Dechow and Skinner (2000) outline the key differences between the two practices that EM activities don't violate GAAP and are classified as real cash flow and accounting choices. Both judgmental and structural accounting choices should be made within a set of rules, practices framework of GAAP that describe the acceptable financial reporting for external stakeholders. Still, they may find that accounting choices may be ethical or unethical. The degree to which the choice is carried out will often affect accounting choice, whether it is an ethical and an unethical accounting choice. Creating useful information that helps the users of financial statements to make better accounting judgments, take better decisions, and estimates require critical thinking. There is no clear limit beyond which choice in accounting judgments is considered unethical, this is considered so tricky. This creates opportunities for earnings management because the financial

reporting standards application requires considerable judgment. Earnings management may be accomplished through no cash flow effects (accruals manipulations) and manipulations with cash flow effects (real earnings management). Earnings management in which managers engage in practices within the flexibility afforded by GAAP without violating the standards, so it differs from fraud, thereby making it a legal practice.

Between financial fraud and earnings management many differences, in terms they share the same starting point. Magrath and Weld (2002) disclose that:

"… the accounting irregularities at Lucent, Cendant, and MicroStrategy were primarily abusive earnings management schemes or outright fraud, all three companies began their abusive and fraudulent practices by engaging in earnings management schemes designed primarily to smooth earnings to meet internally or externally imposed earnings forecasts and analysts' expectations". (p. 51).

According to (DeGeorge, 1990, p. 14) ethics can be defined as: "A systematic attempt to make sense of our individual and social moral experience, in such a way as to determine the rules that ought to govern human conduct, the values worth pursuing, and the character traits deserving development in life. Ethics concerns itself with human conduct, taken here to mean human activity that is done knowingly and, to a large extent, willingly".

One of the Online Oxford Dictionary ethics definitions which is "the branch of knowledge that deals with moral principles." Morality, according to DeGeorge (1990), refers to: 66 "…practices and activities that are considered importantly right and wrong; the rules that govern those activities; and the values that are embedded, fostered, pursued by those activities and practices".

Elias (2004) test whether firms accountants will perceive EM practices differently and studied earnings management and corporate ethical values relationship, using a sample of Certified Public Accountants in public accounting. The findings presented a positive relationship between the perceptions of both earnings management and corporate ethical through accountants

employed in low (high) ethical values organizations perceived the practices of EM as ethical (unethical).

The term of earnings management is misunderstood by some people when they believe that this practice is not considered an ethical phenomenon. Contrary to unethical accounting manipulation, it may be considered ethical since firms can select between different methods of recognition and measurement of expenses and revenues. It is a type of exploiting the accounting standards flexibility. The manipulation of earnings value in financial statements is called earnings management. It is used by the manager to show a good performance and to give a positive impression for investors, the manager may record transactions in favor of either their interest or the company's interest. It is easy to detect errors by auditors, but earnings management can involve in a sophisticated fraud. When we talk about earnings management and fraud, we have to care about materiality, which is a method that can be followed in exercising the EM, it affects the decision-maker to change their judgment and decision. There is a thin line separating fraud practice and creative accounting, users of the financial statements have to determine the point at which aggressive accounting practice becomes fraudulent and distinguish between creativity and fraud, choosing from a range of accounting adoptions or in an aggressive manner by stretching the application of accounting choices is called "aggressive accounting". Chen et al. (2011, p. 95) indicate that "financial statement fraud often originates from a slippery slope of increasingly aggressive earnings management".

Griffiths (1992) argues: "All that it [earnings management] can do is to defer and mitigate the bad news until there is a revival in trading fortunes. It cannot make bad news look good in perpetuity without resorting to out-and-our fraud" (p. 5).

According to the National Association of Certified Fraud Examiners (cited in Ortega and Grant, 2003), fraud defined as:

"The intentional misstatement or omission of material fact, or accounting data, which is misleading and, when considered with all the information made available, would cause the reader to change or alter his or her judgment or decision" (p. 52).

Researchers and academicians faced the most important challenge that they are unable to find a study of the component of earnings management accruals, it is difficult to differentiate between the aggressive but acceptable choice of manipulation exercise and fraudulent (Beneish, 2001). The previous studies' findings raise the question of whether EM activities violate GAAP rules or not and if EM activities are actually a form of accounting fraud. If earnings management is within the GAAP bounds, it is considered earnings management. Otherwise, it is considered accounting fraud.

2.4. THE DIFFERENCE BETWEEN ACCRUAL-BASED AND REAL EARNINGS MANAGEMENT

Managers can influence accounting income through a multitude of methods, some of which are based on real transactions, whereas others involve pure accounting decision-making. Taking costs into consideration, managers may prefer one method over another to accomplish EM as well as personal and corporate objectives. In this thesis, two key methods – accrual and real earnings management – are explored. In this subsection, both earnings management approaches are explained and differentiated. Based on existing research, firms can swap between accruals and real earnings management techniques or use them together at the same time. The two approaches are not mutually exclusive, and some researchers have provided evidence of both methods being used simultaneously in companies (Cohen et al., 2010; Roychowdhury, 2006; Zang, 2012; Zhu et al., 2015).

Either earnings management approach does not contravene the GAAP rules, and the motivations for businesses to manage earnings are akin to those driving companies to take part in accrual-based earnings management or through real activities. Investment in a single earnings man-

agement method cannot fully explain the earnings management behaviors engaged in by companies. When reported earnings are managed effectively, taking advantage of the accounting discretion associated with GAAP facilitates accrual earnings management. Conversely, in real earnings management, managers make sub-optimal decisions regarding the scale and timing of business activities to change reported earnings. Ewert and Wagenhofer (2005, p. 1102) assert that REM "changes the timing or structuring of real transactions" whereas AEM "includes the way accounting standards are applied to record given transactions and events".

Activities associated with earnings management, therefore, constitute a choice of AEM or REM accounting policies. These classifications can be employed to control earnings either downward or upward, with existing research highlighting differences such as scrutiny by the regulator and auditors, the point at which any manipulation takes place, and the implications for both current and future cash flows (Roychowdhury, 2006; Cohen et al., 2008). While REM is conducted through the real operational activities of a company, AEM is achieved through the implementation of accounting policies. Because there are numerous negative or positive ways in which earnings management can be applied, it has now become a major topic in accounting research. The type of earnings management activities selected by managers depends on their comparative cost and their advantages (Chi et al., 2011; Graham et al., 2005).

Even though appropriate actions may have been taken to influence earnings, REM is hidden in the shape of everyday transactions and may be identical to standard business operations (Roychowdhury, 2006). By contrast, identifying AEM is easier as it entails altering accounting methods and the effect on accruals and is expected to be easier for outsiders to identify. In this research, REM is used to analyze the current fiscal year, whereas AEM is employed at the end of the fiscal year.

Gunny (2010) asserts that REM is not used opportunistically by managers because having controlled relevant factors, companies that manipulate earnings are likely to exhibit strong future performance. Provided managers first consider the positive and negative effects on operating performance, the manipulation of REM will not have a negative impact on business operations

(Taylor and Xu, 2010). Conversely, because changes are made to accounting methods in AEM, outsiders will find it relatively easier to identify how they can use this to their advantage. AEM is, therefore, the preferred option as it poses a greater risk to managers who will incur substantial costs if they are caught (Roychowdhury, 2006).

Although several works in the literature on earnings management concentrate on accruals, few focus on REM (Zang, 2012). Cohen and Zarowin (2010) assert that AEM is investigated more often than REM. Thus, as well as accruals-based activities, contemporary research has sought to understand earnings management through the lens of real activities. Cohen et al. (2008) assert that it is difficult to identify REM because it can be hidden within normal business transactions, is indistinguishable from normal operations, it is expensive, and is less likely to undergo external scrutiny and monitoring. This research demonstrates that, following the Sarbanes-Oxley Act (SOX), increased monitoring has meant that firms have substituted accruals with real earnings management. Following the development of Roychowdhury's model in 2006, a substantive body of work on REM activity has been published (e.g., Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012).

Although accruals management can be less expensive, managers generally prefer to use real economic decisions to manage earnings. This is because accruals management is usually performed at the end of the year, and managers cannot know for certain which accounting treatments will be permitted by the auditor. To meet an earnings target, managers reported that most survey respondents reduced discretionary expenses along with other economic actions. Zang (2012) suggests that an equivalence exists between the application of REM costs and the economic consequences of adopting sub-optimal business activities that could affect the value of the company. The nature of such costs is determined by the limits placed on the application of AEM and REM. Roychowdhury (2006) asserts that even though REM is associated with substantive costs, firms depend solely on AEM. Furthermore, although the value of a company might be reduced by REM, managers are more inclined to manage earnings via real activities that are not as likely to be subject to regulatory scrutiny or audit. Sun and Rath (2010) indicate:

"Nevertheless, researchers found it is difficult to detect earnings management through real actions because there is no benchmark to determine the right actions that managers have taken" (p. 123).

Young (1999) suggests that:

"From a managerial perspective, accruals are likely to represent a favored instrument for manipulating reported numbers because of their relative low cost and opaque nature" (p. 833).

Cohen et al. (2008), Cohen & Zarowin (2010), Gunny (2010), and Zang (2012) has considered that REM is harder to track and scrutinize for outside parties because accrual earnings management involves easier accounting methods to be assessed and monitored by outsiders, while REM can be screened in a daily business transactions form and can be easily masked in daily business transactions as mentioned by (Roychowdhury, 2006). Zang (2012) finds that firms that are close to violation have the incentive to manage earnings by real earnings management since it occurs during the fiscal period; these firms may lack the economic resources to use only real earnings management and may have to supplement their EM efforts through accrual earnings management. The firm ability may be restricted to manipulate accruals since REM can be managed through the fiscal year it's more flexible (Gunny, 2010; Roychowdhury, 2006). The earnings management research's primary focus has been on accruals-based earnings, as founded by (Xu et al., 2007). The archival literature of REM has not received that attention (Graham et al., 2005).

Manager influences the output of the accounting system by a variety of accounting choices. Studying earnings management both techniques give a broad understanding of EM choice and yields implications on how firms react to different situations in terms of switching between the techniques of earnings management. Accruals do not result in direct cash flow effects in a particular reporting period because cash flows may not occur simultaneously with the business activities. Accrual earnings management takes the advantage of methods or accounting estimates flexibility to reach target earnings without altering underlying economic transactions (El

Diri, 2017). DuCharme et al. (2001) find that accruals reverse in future periods, while real earnings management directly influences cash flow. Also, according to Zhao et al. (2012), "affects the output of the accounting system without no direct cash flow consequence" (p. 110).

The assumption about earnings manipulation timing can affect the choice of firms suspected of engaging in earnings management. When financial reports are prepared at the end of the reporting period, accruals management takes place, while real earnings management has to be exercised while operations are still in progress (Gunny, 2010).

Enomoto et al. (2012b) comparing earnings management for 38 countries and studied the switch between earnings management techniques. They find that the number of firms follows REM increased while declines in countries following accrual earnings management with stronger investor protection. Leuz, Nanda, and Wysocki (2003) examine across countries the systematic differences in EM and document that higher investor protection may decrease AEM because strong protection limits the ability of insiders to acquire private control benefits.

After IFRS adoption, there was a shift from accrual-based to real earnings management because the implementation of these standards improved the accounting quality and reduced the possibility to manipulate financial statements transactions directly (Ferentinou and Anagnostopoulou, 2016). Xu et al. (2007, p. 3) differentiate between accrual and real earnings management by mentioning that "accrual earnings management occurs when management manipulates reported earnings by exploiting the accounting discretion allowed under GAAP. In contrast, real earnings management involves management attempts to alter reported earnings by adjusting the timing and scale of underlying business activities."

Real earnings management alters earnings by suboptimal decisions on the scales and time of business activities. Ewert et al. (2005, p. 1102) mentioned that REM "changes the timing or structuring of real transactions, to distinguish between accrual-based earnings management and real earnings management." while AEM "includes the way accounting standards are applied to record given transactions and events." They argue "that an accounting standard-setter can tighten

standards to restrict the discretion for accounting earnings management, but can do little to restrict real earnings management."

2.5. PERSPECTIVES OF EARNINGS MANAGEMENT EFFICIENT AND OPPORTUNISTIC EARNINGS MANAGEMENT

Earnings management the opportunistic perspective and the information perspective. Opportunistic behavior is the motivation for the choice of accounting methods, policy decisions, and techniques (Watts & Zimmerman, 1978), by which managers opportunistically manipulate earnings to enhance either their benefit or compensation and managers seek to mislead investors. If management behavior is conducted to opportunistically maximizing the utility of managers, mainly to influence their compensation so, it is opportunistic. Healy (1985) has indicated that manager compensations "create incentives for managers to select accounting procedures and accruals to maximize the value of their bonus awards" (Healy, 1985, p. 106).

Embraces signaling with the opportunistic purpose, Fields et al. (2001, p. 260) proposed that "When managers exercise their discretion over the accounting numbers with or without restrictions. Such discretion can be either firm value maximizing or opportunistic".

Earnings management behavior is efficient if it improves the information content of earnings; by this perspective, managers can utilize EM to communicate private information to both the public and shareholders to improve earnings information value (Watts and Zimmerman, 1986). To understand whether EM is opportunistic or efficient, analysts become more aware of whether EM activities are opportunistic by which managers manipulate for private gain or whether they engaged in EM practices to enhances earnings information value. Most EM studies conclude that managers engage in opportunistic earnings management (Chung et al., 2002). Siregar & Utama (2008) examining future profitability to investigate whether EM activities are efficient or opportunistic perspective, if it got a positive coefficient of discretionary accruals, then EM is efficient. Otherwise, then it is opportunistic.

Although earnings management might be used to make information more informative for outsiders, it is still questionable, Aerts et al. (2013) revealed that:

"Management's motives for earnings management are, however, not transparent from reported numbers, both manipulative [opportunistic] and communicative [informative] earnings management are likely to feed ex ante uncertainty of users with regard to earnings management consequences" (p. 94).

Based on agency theory in constraining opportunistic earnings management, debt may have an effective role. Jensen and Meckling (1976) firms will use effectively the cash that can be used to pay debt interest periodically since external monitoring generated by lenders if a debt is increasing, managers should act to maximize firm value; otherwise, they will be penalized. Mangers manage earnings upwards in periods before concurrent with default or improve bargaining position in debt renegotiation events. Firms with a high leverage level are more likely to use opportunistic earnings management to avoid debt covenant default and cover up the financial problem caused by high debt (Beatty & Weber, 2003; DeFond & Jiambalvo, 1994; Dichev & Skinner, 2002).

2.6. EARNINGS MANAGEMENT CONSTRAINTS

Earnings management may cause serious problems since the measurement of company profitability and the interpretation of accounting reports become a combination of evaluating the firm's economic reality and identify the adjustments. Accounting flexibility, auditors' scrutiny, investor protection, and changes in regulatory environment restrict the application of AEM, the accounting choice of accruals is subject to a greater risk of surveillance and monitoring by the auditors and accounting regulators while real earnings management attract less auditor scrutiny public attention, limited flexibility to manipulate accruals, and it is more difficult for outsiders to detect, such as giving sales discounts and overproduction. Chi, Lisic, and Pevzner (2011) find that accrual discretion is constrained by higher quality auditors, so firms will adapt real earnings management. AEM constraints are the use of managers' discretion in financial reporting to

manipulate earnings, discretion constrained and restricted by the auditors' scrutiny (Healy & Wahlen 1999).

Zhu et al. (2015) predict that Chinese firms substitute accrual and real earnings management techniques. This study argues that since operational decisions are more inherently under the expertise of management and discretion, REM is less likely constrained by regulators and auditors. As a result of the constraints of AEM, they argue that firms that utilized higher levels of AEM in previous years may switch to real earnings management activities. The issuance of the SOX in 2002 protect investors from fraudulent financial reporting; it restricts the ability to apply AEM. With the increasing interest in REM, recent research finds evidence that tougher regulation impacts managers' choosing between earnings management techniques.

Regulators became more conscious about earnings management to have a good capital structure and creating a fake impression on the users of the financial statement. Chang and sun (2008) hypothesized the relationship between corporate governance and earnings management before and after SOX, they found significant positive relations between audit committee independence and earnings management in the post-SOX period. Graham et al. (2005) sign a shift to real activities management from accruals management. Managers might increase the use of REM if they run out of accrual discretion (Ewert et al., 2005). Taylor & Xu (2010, p. 129) note that:

"If real earnings management leads to a significant decline in these firms' future operating performances, the negative consequences would at least partially offset benefits of the heightened regulation and potentially defeat the purpose of SOX."

Cohen et al. (2008) examine the extent of earnings management in the period leading to the scandals and before SOX and the changes in activities after the passage of SOX. From the COMPUSTAT annual industrial and research files, they collect the sample for the period 1987-2005 for all non-financial firms. REM were measured as a proxy of Roychowdhurys' model (2006) and Dechows' model (1995) were used as a proxy for AEM. The sample period was

divided into the prior period and after the passage of SOX. They find that in the period directly preceding SOX, the accrual earnings management was particularly high.

Franz, Hassab Elnaby, & Lobo (2009) examined whether firms with the greatest incentive manage earnings if the firms will reduce their levels of total earnings management after the issuance of SOX whether they accomplished this by reducing AEM and increasing REM they found that firms in violation of debt covenants increased EM levels after SOX whereas firms far from violation decreased EM level. Barton and Simko (2002) find that a firm is constrained by the extent to which accruals have been applied in previous periods as they should be reversed in other periods. Therefore, managers cannot continue to overstate earnings without ultimately being detected. Earnings manipulation should be neutralized and reverse in the future because the firm's income over the entire life of the firm must equal the sum of its cash flows.

The shortcomings of accrual-based models are the limited ability to detect earnings management. Using different methods and different data (Dechow et al., 1995; Kothari et al., 2005) to detect earnings management, they neglect some variables that will affect accruals and have econometric flaws. The modified Jones model is the best model since Dechow used the data of the Securities and Exchange Commission. Some analyses indicated that the following are related to its accrual level achievement, debt, size, and growth of a company. Therefore, when discretion is more constrained for the other, managers will use one earnings management. REM involves managers' attempts to alter earnings in reports by adjusting scale and the timing of underlying business activities, it arises when managers' actions easily adjust operations or alter the period by deviating from normal business practices to meet or beat certain earnings thresholds. While AEM occurs when reported earnings are manipulated by the manager through exploiting the accounting discretion allowed under GAAP. It happens when managers achieve the firm's objectives and the desired earnings and by selecting and changing the accounting method in the financial statements.

3. CAPITAL STRUCTURE

3.1. DEFINITION OF CAPITAL STRUCTURE

The central concern of studies has been the determinants of firms' financing decisions in the finance field and capital structure analysis. The capital structure explains how a firm has financed its growth and operations by using various funds sources. The capital structure involves the policy of using the most profitable sources of funds. Capital structure theory began to get attention since Modigliani and Miller (1958) revealed a thesis that funding decisions did not affect company value. They argue that the economic value of company assets is determined entirely by the operating cash flow and not by the financing structure.

To find out the level of debt financing with the company ability described by capital, and to show some parts of assets used to guarantee by using the debt ratio which is found in financial statements Huang et al. (2015, p. 2237). To carry out business activities it needs capital related to the firm's funding decisions, if the firms in its operations use a source of funds that creates debt these decision raises leverage, thereby increasing firm profits for the additional benefits in the form of tax savings if the fixed costs that must be incurred is less. For the firm capital sources having consequences affect its value and shareholders' wealth.

Capital Structure Theories According to Myers (2003, pp. 216-217):

"There is no universal theory of capital structure, and no reason to expect one. There are useful conditional theories, however. The theories differ in their relative emphasis on the factors that could affect the choice between debt and equity...Each factor could be dominant for some firms or in some circumstances, yet unimportant elsewhere…At the end of the day some blend of all of the theories may be needed to explain capital structure."

"Capital structure refers to the sources of financing employed by the firm. These sources include debt, equity, and hybrid securities that a firm uses to finance its assets, operations, and future growth" (Baker and Martin, 2011, p. 1).

Financial leverage as a proxy for capital structure refers to the amount of debt used to finance the structure of firms' capital externally. The main concerns of companies' financial managers are to make appropriate combinations of financial resources and determine the capital structure composition. It is important to maximize the firm overall market value by finding the particular combination of debt and equity. Researchers try to determine the optimal capital structure with the lowest cost of financing, which maximizes the firm value, regarding the fact that capital structure affect firm value directly, it is the appropriate portion of liabilities and equity, after determining the amount of capital needed, managers decide about what method should be used and which sources of funding is appropriate (Nadem et al., 2012).

The Pecking Order theory inspected by (Myers & Majluf, 1984) shows that manager picks leverage ratio in view of financing needs. If retained earnings are not sufficient, firms will finance their new projects with debt financing before equity financing. Because retained earnings almost have no cost, it is favored over debt and equity; if the external resources are utilized for financing like issuance of new shares, it may take high cost. Profitability firms generate cash internally and wind up depending on less debt. Determining optimal capital structure will be affected by controllable, and accounting variables which arose from the main activities in organizations have an important effect on creditors and investors decisions about firm's financing. These factors impact the capital structure, which minimizes the financing cost and maximizes the firm value (Raul, 2009) (as cited in Nadem et al., 2012, p. 82). Positive accounting theory, hypothesized by (Watts & Zimmerman, 1978), suggests three factors that explain earnings management: debt, compensation, and size of the company. Debt holders face the risk of losing their expected profits and their initial investment, based on the current information, they estimate the taken risk and the required returns.

The distinction between financial structure and capital structure, besides long-term debt, includes short-term debt (Serghiescu & Văidean, 2014, p. 1454). Financing decisions attract the attention and explore external and internal factors that influence the firm's financing decisions

and how it affects firm value. Business organizations' capital structure consists of debt and equity, which is the part that borrowed from creditors in funding the assets of the firm, there are many methods that firms can use to raise their required funds, retentions, debt, and shares are the most important financial sources. The capital structure explains diverse sources of funds about how a company finances its overall growth and operations. One of the most important decisions in business organizations is the decision of capital structure formation that is taken by the firm's board or its management. The financing or capital structure decision is an essential decision of the manager. Manager manipulates capital structure to maximize the firm value and reduce the funds cost. Explains how a company diverse sources of funds to financed its growth and operations. A profit account is important for shareholders and creditors because it is used as a reference to evaluate the condition of the company, so managers take certain actions to mislead those who are interested in the firm's performance by manipulating financial reports. The left side of the statement of financial position has liabilities and capital of a company which represents the financial structure. Traditional short-term loans are excluded from the list of types of financing for the company's investments. Capital structure decisions should focus on the attainment of maximizing shareholders' wealth which is the objective of a firm and should be evaluated on the basis of their impact on firm value.

3.2. THEORIES ASSOCIATED WITH EARNINGS MANAGEMENT AND FINANCIAL LEVERAGE

There is no conclusive answer to whether financial leverage level affects earnings management practices positively or negatively. The gearing ratio is the percentage of total fixed liabilities to the total capital, it indicates the extent to which debt financing is used relative to the total capital employed. Companies that use more debt to finance their assets have an aggressive capital structure and a high leverage ratio and may pose a greater risk to investors and external users. Debt induction in capital structure plays an important role in preventing managers to manage earnings. Capital Structure is explained as a company's specific short and long-term debt,

common equity, and preferred equity. EM becomes an important objective for managers who seek to enhance firms' capital structure.

For new loans, creditors desire a low gearing ratio since high leveraged firms may face bankruptcy risk and cannot make their external debt financing payments. So, firms with high leverage want to take out a new loan, lenders will request to keep their debt within reasonable boundaries and put the manager under pressure to manage the earnings (Zagers-mamedova, 2009). Managers are allowed to choose any allowable accounting estimates, and accounting practice manipulation is difficult to measure, so they will use this opportunity to manage earnings (Dechow and Skinner, 2000).

Based on a trade-off between the benefits and costs of debt, the trade-off theory forecasts that optimal capital structure should be chosen to determining leverage is important to understand the role of EM. Leuz et al. (2003) mentioned that "...insiders, in an attempt to protect their private control benefits, use earnings management to conceal firm performance from outsiders" (p. 505). To issue bank loans and charge the corresponding loan prices, debtors generally rely on earnings quality (Bharath, Sunder and Sunder, 2008) (as cited on An, Li, & Yu, 2016).

The importance of earnings information for the users of financial reports requires the earnings information, reflecting the actual condition of the economy, capital structure, and finance. Debt security holders guarantee the principal and debt interest payments on a firm's ability to generate future cash flow. Bankruptcy could result from a lack of cash flows, an important objective of debt because it provides creditors with an early warning of a firm's financial difficulty. Investors use the statement of cash flow data to make investment decisions, management could be involved in real earnings management to influence the real picture of a firm's cash flow from operations and get external debt financing. High leverage limits earnings management; it decreases cash availability with the managers for non-optimal spending. Also, the firm will face greater risks, so the uncertainty of future profitability will increase. This condition creates the need for EM to take place to secure external funding.

As an example of reduced cash flows and spending restrictions, the 2002 10-k for NCI corporation states as cited in Jelinek (2007, p. 25):

"The debt that we carry may have important consequences to us, including the following: we must use a portion of our cash flow to pay the principal and interest on our debt. These payments reduce the funds that would otherwise be available for our operation and future business opportunities…the new senior credit agreement also limits the amount of permitted spending for capital addition, the repurchase of stock, payment of cash dividends, the disposition of assets and the amount of investment and other indebtedness".

Firms that are financially suffering will regularly manage earnings downwards to exploit restructuring debt (Bassiouny, 2016). Park and Shin (2004) highly leveraged firms are considered under their lender's close examination, which therefore decreases earnings management. The higher the leverage ratio means greater the value of corporate debt; companies that have a high leverage ratio to avoid violation of the debt agreement tend to manipulate earnings.

Managers maximize the firm value by choosing the proper combination of different sources of financing since the financial leverage impacts firm value. Increased financial leverage reduces the amount of cash flow and the level of managers' authority in how to use the company cash. Leverage is the amount of debt used by companies to finance business operation and asset; it is an efficient control mechanism to avoid excessive EM practices. Andrade and Kaplan (1998) find that companies would have higher financial risks such as bankruptcy risk, financial distress, and late debt payments, with high leverage. Jensen (1986) highly leverage companies may get impacted by the establishment of new regulations and the economic downturn crisis. If the debt value is more than the optimal debt value, the company might consider having high leverage; therefore, the high interest rate, the risk will increase (Ghazali et al., 2015).

Nwaeze et al. (2005) suggest that debt holders are misled if earnings are managed to provide positively biased information, the relationship between creditors and firms is ensured by contracts. A firm with relatively stable incomes can easily take more debt and incur higher fixed

charges than firms with volatile incomes. Those managers manipulate the stability of the incomes by adjusting discretionary accruals. For that, creditors would add some items for protection, such as a proper standard of debt ratio. In the EM literature, leverage is a common measurement, consistent with the following research (Defond & Jiambalvo, 1994; Kim et al., 2010; Jha, 2013; Sweeney, 1994; Zamri et al., 2013; Zhu et al., 2015).

The more the financial leverage, the less the companies borrowing power, so corporate executives will use discretionary accruals to increase the interest rate and provide the possibility of funding through shareholders, as found by (Gombola et al., 2016). The term of financial leverage refers to the debt amount used to finance the capital structure; the more borrowing, the riskier, but borrowing choice is preferable when the interest rate on borrowing funds is lower than the rate when used in investment, thus indicating the company's risk in repayment, this may cause earnings management to give a positive signal to creditors and investors. According to pecking order theory, firms finance its project by relying on retained earnings. Equity is the least preferred financing channel, so; Debt will be issued when internal finance is depleted.

Jelinek (2007) suggests that leverage levels have a different impact on EM; it concludes a beneficial consequence of debt because the increased debt reduces the manager's discretionary spending and AEM. There is a doubt about this conclusion because companies may reduce accrual-based earnings management practice with growing debt. After all, it could be involved in real earnings management. Leverage creates debt repayment followed by interest payments and principal costs incurred for the use of debt provided by creditors. This lets the company being monitored by creditors, and they will limit managers for funding decisions that are not optimal or low return (Jensen, 1986). Anagnostopoulou and Tsekrekos (2016) found a significant relationship between the firms to manage earnings through AEM and REM and their level of leverage. They found that highly levered firms manipulate earnings through more use of REM than AEM, firms have to use both earnings management tactics to overcome the scrutiny by creditors. Highly leveraged firms have a more severe extent of the relationship between earnings management and leverage. Debt overhang theory of Myers (1977) argues that the current investment benefits are

expected to transfer to creditors through interest payments when firms are indebted highly. Firms would forgo valuable projects in the future, and shareholders are less motivated to proceed with new investments. The under-investment problem leads to a drop in stock price and diminishes the firms' growth opportunities. Many empirical types of research have shown that the increase in leverage ratios results in the deterioration of future earnings and stock returns (Bradshaw, Richardson and Sloan, 2006; Cai and Zhang, 2011; Cohen and Lys, 2006; Penman, Richardson and Tuna, 2007) (as cited in Hoang and Phung, 2019, p. 301).

3.3. THE RELATIONS BETWEEN FINANCIAL LEVERAGE AS A PROXY FOR CAPITAL STRUCTURE AND EARNINGS MANAGEMENT

There are two main positive or negative associations describing the relationship between leverage as a proxy for capital structure and earnings management; leverage is associated with firms' earnings management choices. Prior studies suggested that high leverage firms are more interested in earnings management practice since companies with high leverage face high default risk, and it will not fulfill its obligations, so firms will seek to do earnings management. While others suggest that debt creation reduces managers' earnings management behaviors since firms will be more monitored by creditors. Some researchers find no relation to leverage on earnings management. There is mixed evidence between these two variables in studies of both developing economies, developed economies. These different findings are considered incentives for academics and authors, especially the developing economics for more investigations of the earnings management phenomenon in other countries.

The positive relationship is grounded in the risk of the high-leverage firms, suggesting that firms might increase earnings manipulation, secure debt refinancing, prevent penalties arising from contraventions of debt covenants, and affect outside capital providers' perceptions to show stable earnings. Generally, earnings management motivation is due to the manager's intention to achieve targeted results. It could come from pressures on the manager, external pressures by capital markets, especially in maintaining the shareholders' value. The level of income-decreasing earnings management is lower in years before firms raise additional debt financing.

So, firms that depend on external financing have incentives to report good financial performance. Many prior studies found that capital structure is associated positively and significantly with earnings management (e.g., Beatty & Weber, 2003; Dichev & Skinner, 2002; Gu et al., 2005; Lazzem & Jilani 2018). Beatty and Weber (2003) found that managers increasing income accruals to reduce the debt covenant violations by high financial leverage potentially increases profit management by accruals and other accounting choices that increase the profit. Sweeney (1994) find that the higher debt to equity ratio, the more likely manager is to select income-increasing accounting procedures. In a study of US firms, Chen et al. (2015) argue that high leverage firms are associated with high-risk firms. Therefore, Chief Executive Officers window-dress the performance by exploiting real earnings management activities to find a positive relationship between leverage and REM activities. Consistent results are also found by (Anagnostopoulou & Tsekrekos, 2016; Kim et al., 2010; Lara et al., 2012; Doukakis, 2014). Also, Zagers-mamedova (2009) confirmed that leverage changes on EM are different in highly leveraged and leverage-increasing firms.

In contrast to the findings in prior literature, which provided arguments about the positive association, other empirical evidence finds the opposite view, such as (Chung et al., 2005; DeFond & Park, 1997) observe a negative association. Becker et al. (1998) find a negative relationship between unsigned discretionary accruals and a leverage dummy variable which they attribute to financially distressed firms using income decreasing accruals before contract renegotiation. Wang (2006) reported that the relationship between leverage and unsigned discretionary accruals is negative. Naz et al. (2011) and Zamri et al. (2013) also provide evidence about the negative association because managers in a high level of leverage companies are less motivated to do earnings management because of creditor tighter control. Increasing financial leverage affects the pressure of debt covenant, and strict audits for leveraged firms limit opportunistic behaviors and reduce earnings management. Jensen (1986) suggests that managers' opportunistic behavior is facilitated by debt creation for the reasons that leverage required debt repayment.

When a firm employs debt financing, it undergoes the scrutiny of lenders and is subject to lender-induced spending restrictions. This implies that managers' ability to manipulate income-increasing accruals may be restricted by high leverage. Consequently, this reduces cash available for non-optimal spending. Iturriaga and Hoffmann (2005) argue that lenders will control higher leverage, making it difficult to engage in earnings management practice. This study emphasizes the governance role and monitoring of leverage as they argue the relationship between the use of discretionary power in managers' accounting decisions and debt financing, they suggest that firms with high leverage are less motivated to manage earnings.

Alsharairi et al. (2012) argue that creditors will monitor firm's financial performance, and they play a crucial role in US firms with an emphasis on leverage, they provide a significant negative relationship between discretionary accruals and leverage. Also, Rodríguez-Pérez and van Hemmen (2010) report a negative affiliation between leverage and upward earnings management, since higher leveraged firms increase credit risk which draws the attention of capital providers, making it cost-efficient to the creditors to monitor the quality of debtors. Ke (2001) argues that analysts more closely scrutinize higher leveraged firms; these firms are less likely to show increased earnings through accruals. Also, Wasimullah and Abbas (2010) examined the impact of financial leverage on the practices of earnings management and argue that highly leverage firms have low free cash flows for the payment of interest expenses, and then manage earnings to compensate for opportunistic behavior, and thus leverage increases reduce the extent of earnings management.

4. EMPIRICAL RESEARCH ON THE RELATIONSHIP BETWEEN CAPITAL STRUCTURE AND EARNINGS MANAGEMENT

A broad range of earnings management topics have been explored by scholars, for example the effectiveness of various earnings management techniques, the motivations to employ these techniques, and how managers choose between them. Despite this extensive research, there is still a shortage of studies that evaluate how capital structure impacts earnings management. This section provides support for the development of the hypotheses in this thesis with evidence from previous studies on the topics of accrual and REM. It therefore provides the theoretical foundation of the thesis. There is a substantial body of literature on how firms can manipulate accruals in order to inflate or decrease their earnings in a bid to achieve their earnings targets.

4.1. PRIOR RESEARCH

Research on earnings management in the Jordanian market is a relatively new phenomenon. Most studies focus on the interactions between earnings management and ownership structure and corporate governance; few have explored the practice of REM (e.g., Abbadi et al., 2016; Alzoubi, 2016; Farooq and Jai, 2012, as cited in Elkalla, 2017). Because different environmental factors are present in each country, and accounting practices differ, an analysis of the Jordanian market will illuminate the reporting process and current accounting practices within this country. Adhikari and Tondkar (1992) assert that:

"It is generally agreed that accounting diversity exists because accounting reporting and disclosure standards and practices do not develop in a vacuum but reflect the particular environment in which they are developed. Given that environments differ from country to country, accounting reporting and disclosure standards and practices would necessarily be expected to exhibit diversity" (p. 76).

Zagers-Mamedova (2009) examined the relationship between increases in financial leverage and REM to assess to whether managers are incentivized to manipulate cash flow from

operating activities through REM in scenarios with increasing leverage. Their sample comprised data on 1,287 firms divided into three distinct years: 2002-2004, 2003-2005, and 2004-2006. Firms in each sample were categorized as either a Constantly Highly-Leveraged or Leverage Increase firm. Two models were employed to measure the manipulation of real activities. The first assessed the overall level of REM in each firm. Several researchers (e.g., Chen et al., 2010) have used the abnormal level of cash flow from operating activities as a proxy for REM. Dechow's (1995) model was used to determine this level. The second strategy captured the impact of real actions by assessing the abnormal level of the aggregate of three REM proxies (Roychowdhury, 2006). The level of leverage was assessed according to the book and the market value of debt and equity. The results suggest that by distinguishing between leverage increasing and highly leveraged firms, leverage results in managers manipulating real earnings to impact cash flow from operating activities when the absolute value of long-term debt is used to calculate leverage.

The research by Fields et al. (2012) studied the effect of refinancing pressure on earnings manipulation, in particular the correlation between changes in discretionary accruals and short-term debt. The sample consisted of firms with total positive assets from Compustat from 1996 to 2012, excluding financial firms. Firm-year observations that contained missing data for the variables of interest were also excluded, and the final sample numbered 10,325 firm-year observations. Dechows' (1995) model was employed for the measurement of accruals earnings management. The study used a number of control variables that are known to influence discretionary accruals: investment in internal controls, the characteristics of the auditor, the firm's operational characteristics and business fundamentals, GAAP accounting preferences and the level of conservatism in accounting. The relationship highlighted by this study was a positive correlation between short-term debt and discretionary accruals. The implication of this relationship is that accruals management may be employed in preparation for anticipated debt refinancing. It was reported that new financing, accompanied by strong pressure to refinance, has a strong effect on this relationship.

The relationship between leverage and the accounting discretionary power of management was explored by Alsharairi et al. (2012). The sample consisted of US non-cash acquirers acquired from Thomson One Banker, which amounted to 661 firms. Discretionary accruals were measured by studying non-cash acquirers in the pre-merger period from 1999 to 2008. The authors provided evidence to show that earnings management was increased before any merger and acquisition deals were announced. An industry-adjusted leverage proxy was utilized cross-sectionally to estimate the discretionary accruals using the industry-performance-matched abnormal accruals. There was a significant negative correlation between earnings management and leverage and an OLS regression model was employed to analyze the impact of leverage on premerger earnings management. This finding still held true when the leverage proxy was replaced with a high-low leverage binary variable and when the relative size of the deal and the profitability of the acquirers were corrected for.

Fung and Goodwin (2013) assessed whether AEM is lower in high creditworthy firms with more short-term debt. They identified a negative relationship between short-term debt and earnings management among the most creditworthy firms. Kothari's (2005) model was used to calculate discretionary accruals. The sample comprised all US non-financial firms in Compustat from 2003–2006 with an outstanding debt at the end of the fiscal year. Investment-grade firms rated by S&P as firms most likely to have higher creditworthiness were identified and the difference in the relationship between short-term debt and AEM was established. The results indicated a positive relationship between the absolute value of discretionary accruals and short-term debt. To determine the reported earnings, the discretionary accruals were employed as a proxy for insider discretion. Based on the absolute value of discretionary accruals, tests were performed on the assumption that downward and upward adjustments of reported earnings are a form of earnings management that reduce the quality of reported earnings.

In Zamri et al.'s (2013) study, the relationship between leverage and REM was assessed using three metrics from the model proposed by Roychowdhury (2006): production costs, cash flow from operations, and discretionary expenses. The sample consisted of 3,745 firm-year

observations from firms listed on Bursa Malaysia between 2006 and 2011. Leverage was measured by taking the ratio of total liabilities to total assets. The control variables were net ROA, the cost of interest, the size of the firm, type of auditors used, type of industry, and years. The authors concluded that leverage acts as a control and monitoring system and thus limits REM activities, and that this limitation influences the quality of accounting earnings. There is therefore a negative correlation between financial leverage and earnings management activities, and the findings also indicated a significant and negative association between leverage and one of the proxies for REM residual cash flow from operations.

Ghazali et al. (2015) conducted a study to examine the relationship between the monitoring mechanism proxied by leverage toward earnings management, pressure behaviors proxied by financial distress, and opportunistic behaviors proxied by free cash flow and profitability. The sample comprised data from public companies listed in Bursa Malaysia in the form of yearly observations of 1166 firms from 2010 to 2012. The data were obtained from Thomson DataStream. To assess the relationship between opportunistic behaviors and monitoring mechanisms with earnings management, Kothari's (2005) model was utilized as a proxy to measure the latter. The results indicated that managers participate in earnings management when the firm is financially healthy and profits are high. Although a negative relationship was expected, a significant positive relationship between monitoring mechanisms proxied by (leverage) was found. Managers are therefore less likely to partake in earnings management activities when the monitoring mechanisms are applied more rigidly by external parties. However, the robustness of the findings was limited by the fact that only Kothari's (2005) model was used as a type of accrual model. Other limitations of this research were that the three-year period of the sample was short compared to other studies and there was no focus on a specific industry or firm size, which may have impacted the findings.

In Vakilifard and Mortazavi's (2016) study on REM, the aim was to determine whether leverage motivated a change from AEM to REM. The sample consisted of 118 firms listed on the Tehran Stock Exchange from 2008 to 2013. REM proxies were measured by Roychowdhurys'

model, and AEM were measured by Jones modified model. The control variables included were type of auditor, ROA, size of firm, and net interest expense. Panel data were utilized in the multiple regressions analysis to assess the correlation between leverage and earnings management strategies. The findings showed that REM activities are used more by managers than accrual when leverage increases because REM is less subject to intense auditor monitoring or control, or the pressure of debt covenants, but is monitored externally by media, society, and politicians. Opportunistic behavior is limited by high levels of auditor monitoring and debt covenants.

The research by An, Li and Yu (2016) explored the relationship between leverage and earnings across countries and how institutional environments have played a role in changes in this relationship. The sample was large, comprising 25,798 firms from 37 countries spanning the period 1989–2009. Firm-level accounting data were gathered from World-scope. With this sample from multiple countries, the researchers were able to test how the relationship between capital structure decisions and earnings management can be affected by characteristics at a country level. The first-difference regression model was employed to tackle endogeneity. The contribution of this paper was the finding that earnings management is explicitly used to proxy information asymmetry of free cash flow in a large international sample. In countries with a strong institutional environment, this positive relationship was much less evident. Firm and fixed-year effects were controlled for, in order to capture the unobserved heterogeneity problem across time and firms. In this way, the researchers were able to more effectively control for time-invariant factors that affected leverage ratios and earnings management simultaneously.

Anagnostopoulou and Tsekrekos (2016) carried out a study on how changes in levels of financial leverage and firm leverage impacted AEM and REM by looking at the median values of AEM and REM in various leverage portfolios. They gathered data for all firms except financial firms and regulated industries for the period 1990 – 2009. Five portfolios were constructed for each of these years, based on leverage levels or changes in leverage, and the AEM and REM were recorded for each firm in each portfolio. They show that REM affects upward by leverage levels and increases significantly in positive relation, with no significant effect on income increasing for

AEM. The authors also reported a complementarity effect between unexpected levels of AEM and REM for firms with leverage changes and high leverage. This would tend to indicate that scrutiny from outsiders increases when leverage levels are high, and therefore management utilizes AEM and REM in order to achieve the target earnings. Even when there are no covenant violations, there is a positive correlation between upward AEM and leverage, as this portrays a positive picture of the firm's status. This may in turn influence contractual outcomes such as negotiating contract terms or terms for repaying current or future debt.

Alzoubi (2016) studied the relationship between corporate governance and accruals-based earnings management. The study sample comprised Jordanian listed industrial companies at the end of 2013 and the main finding was a negative relationship between ownership structure and AEM. When firms are family owned, it costs less to carry out monitoring, and this helps to minimize earnings management. The study also reported that large companies experience greater Cash Flow from Operating Activities, and in firms with a high growth rate, AEM is higher. AEM is lower when profitability and leverage are higher. Highly leveraged firms are more likely to be heavily scrutinized by their lenders and this limits earnings management activities. Alzoubi (2016) argues that in larger firms, when aiming to fulfil or exceed the expectations of analysts, managers may be incentivized to increase earnings through earnings management.

The study by Elkalla (2017) focuses on firms in the Middle East and North Africa region, looking into country-level and firm-specific determinants of AEM and REM. The data were gathered from the Thompson Reuters DataStream financial database for 802 firms that were not in the financial sector and were listed from 1996 to 2014. Firms included came from Qatar, Oman, Bahrain, Tunisia, Egypt, Kuwait, Saudi Arabia, Morocco, and Saudi Arabia. Previous research had shown that earnings management can be influenced by firm-specific factors such as the size of the firm, its profitability, growth opportunities, and free cash flow (e.g., Chung et al., 2005; Daniel et al., 2008; Iturriaga and Hoffmann, 2005; Jelinek, 2007; Siregar and Utama, 2008; Sun and Rath, 2009). The study reported positive relationships between discretionary accruals and several variables: profitability, leverage, growth in GDP, Altman's Z-Score, the operating

cycle, country-level index variables, and earnings management flexibility. On the other hand, it found negative relationships between discretionary accruals and growth opportunities, dividend payout ratio, asset tangibility, and firm size. In the MENA region, earnings management is utilized and firms tend to be opportunistic. Both AEM and REM are used, being viewed as complementary rather than as substitutes.

Alhadab's (2017) investigation centered on Jordanian Initial Public Offering firms. The study aimed to determine whether AEM and REM were used during the offering year to manipulate earnings. Their sample contained 41 firms and the period covered was 2000–2011. Dechow's (1995) model was employed for the estimation of normal accruals. Abnormal cash flows from operations and discretionary expenses were used as proxies for REM, following the model by Roychowdhury (2006). Several control variables were included: profitability, size effect, financial leverage, audit firm quality, growth opportunities, controls for industry effects and time, and a loss dummy, which impacts REM and AEM. Cross-sectional OLS regression was employed for the estimation of normal accruals for each industry-year category with a minimum of six observations. The research reported that there is a positive relationship between earnings management and financial leverage, indicating that REM activities are employed more by Initial Public Offering firms that have ahigh debt ratio.

Lazzem and Jilani (2018) examined increasing leverage firms and highly leveraged firms in order to establish whether their use of earnings management differed. For their sample they used French insurance and financial companies, and they conducted a multivariate analysis of panel data to explore how increases in leverage influence earnings management practices. The control variables used were ROA, self-financing ratio, leverage increases and interest expense. The hypothesis being tested was that increases in leverage would serve as an incentive to engage in earnings management. This hypothesis was confirmed as a positive relationship was found between leverage increases and earnings management activities. The robustness of the results was tested with estimated discretionary accruals across using four models that capture different

aspects of earnings manipulation: Kothari et al.'s (2005) model, McNichols' (2002) model, Hribar & Collins' (2002) model and Raman and Shahrur's (2008) model.

Sofia and Murwaningsari (2019) conducted an empirical investigation into the effect of EM and the factors that influence it (i.e., business diversification, ownership structure, capital structure, and information asymmetry). Their objective was to ascertain whether the influence of factors other than diversification on EM, as measured by Stubben (2010), was moderated by information asymmetry. The control variables were ROA, growth opportunity, firm size, leverage, and returns on equity. The data comprised observations of 165 manufacturing companies from 2015-2017. Their results indicated that although there was no relationship between diversification and EM, capital structure, ownership structure, and information asymmetry all have a significant effect on EM. The researchers also assessed whether levels of and increased in leverage affect this trade-off. Their results suggested that increases in leverage along with levels of leverage significantly and positively affect REM in an upward direction, but have no effect on income-increasing AEM. The findings indicate complementarity between unanticipated levels of AEM and REM for firms with changes in leverage and those with high levels of leverage.

Hoang and Phung (2019) explored the effects of levels of earnings management and leverage on a sample comprising 1687 firm-year data from the Vietnam stock market from 2010-2016, excluding banks, insurance, financial companies, and security companies. To handle autocorrelation and heterogeneity, a two-step system, the general method of moments, was employed. Roychowdhury's (2006) model was used to measure the abnormal levels of REM three proxies. Dechow's (1995) and Kothari's (2005) models along with firm growth (Raman and Shahrur, 2008) were utilized to measure AEM. Debt ratio was used to calculate leverage level. To assess whether firm leverage was larger than the median of the sample in year t, high leverage was used as a dummy variable to examine the effect of leverage on different earnings management strategies. The control variables incorporated into the regression models were operating cash flow, firm size, tangible assets, and growth opportunities. The findings highlighted

the substitution taking place between different forms of earnings management and called attention to both management techniques. A positive relationship was identified between earnings management and financial leverage. In firms with high leverage, there was a clear preference for REM over AEM.

Tulcanaza-Prieto et al. (2020) investigated the relationship between leverage and real earnings management for suspicious and non-suspicious firms using a sample of 6207 firm-quarter observations from 2010–2018 for non-financial firms listed on the Korea Composite Stock Price Index. To perform the analysis, they employed panel data regression models with fixed effects. Roychowdhury's (2006) model was employed to measure the manipulation of real earnings activities, the dependent variables comprised abnormal of: REM, CFO, PROD, and SG&A. The independent variables comprised total debt, short-term debt, and long-term debt ratios. The control variables included in the model were asset tangibility, firm liquidity, size, and return on assets. A regression model using quarterly data was employed to assess the seasonality of REM activities. A stronger relationship between leverage and REM in the last quarter was expected as opportunistic behavior is aimed at meeting or exceeding the targeted earnings using complete year-end information. Depending on national financial and accounting regulations, the results can be generalized to firms with characteristics similar to those of their disaggregated sample. Because the comparability of financial statements among Korean and international firms has been enhanced by the adoption of IFRS, all debt ratios were found to be positive and significant for REM metrics in suspicious firms, but not in non-suspicious firms.

Al-Rahma and Juhmani (2020) aimed to assess the effect of capital and equity structure on earnings management practices. The sample comprised all public companies, bar financial sector companies, listed on the Oman and Bahrain stock markets from 2015 to 2019. Financial data were obtained from official company websites and stock markets. The final sample comprised 120 observations of 18 Bahraini listed companies and 10 Omani listed companies. Employing the modified Jones model, the researchers first determined whether managers managed earnings. The independent variables were equity ownership and capital structure. These were

measured by the market leverage ratio cost of debt ratio, and debt to asset ratio. The control variables were liquidity, tangibility, and the return on assets ratio. The results indicated a weak but positive influence of leverage ratio and cost of debt on earnings management. This suggests firms looking for external funding are more likely to manage earnings in order to avoid being penalized for failing to meet debt covenants or earnings targets.

5. METHODOLOGY

5.1. RESEARCH METHOD

The thesis's primary objective is to examine whether capital structure impacts the managers in the Jordanian non-financial firms to utilize earnings management through accrual-based and real earnings management using a sample of Jordanian firms listed in Amman stock exchange for the period 2011-2019. The following subsections describe the sample selection, and data collection sources show the processes of measuring the employed variables to test the research hypotheses. Accrual-based real earnings management, capital structure ratios, and a set of control variables are all presented and discussed. This section also explains the research hypotheses development based on the discussions provided in the following section, followed by the specifications of the models used to test the hypotheses. The regression analysis is done using the Stata 15 program.

To detect earnings management, researchers found many approaches. This thesis estimates accruals measures using the cash flows approach by following (e.g., Cohen & Zarowin; 2010; Fan, 2007; Gramlich & Sorensen, 2004). Also, Kothari et al. (2005) recommend using the cash flow statement approach in estimating total and discretionary accruals.

The validity of the implicit and explicit time-series assumptions was criticized by many researchers, it assumes temporal stationarity of parameter estimates while the cross-sectional models avoid the assumption that the coefficients are stable across years (Larcker & Richardson, 2004), these models generate and use more observations, it overcomes the time-series data problem, and increase the validity of the parameters estimates (Leventis & Dimitropoulos, 2011). Examples of studies employing the cross-sectional models of Dechow (1995) and Kothari (2005) including: (Becker et al., 1998; Cohen & Zarowin, 2010; DeFond & Jiambalvo, 1994; Tucker & Zarowin, 2006). McNichols (2000, p. 324) mentions two disadvantages of the time-series approach of EM "First, one must exclude firms that do not have a sufficient data series in data sources. This leads to potentially smaller samples, and their representativeness remains open to

question. Second, it is not clear that sample firms have no incentive to manage earnings in the estimation period, or that data are stationary over such a long period".

The thesis presents and measures the impact of capital structure on EM using OLS regressions with year fixed-effects with significance levels based on Rogers standard errors adjusted for heteroskedasticity and two-way clustering by firm and fiscal year (Petersen, 2009). Then, it measures the incidence of EM practices in the sample during the study period for non-financial firms. The regression includes INDUSTRY and YEAR within the set of explanatory variables to control industry and time-specific effects. The quantitative approach measures the relationship between one variable and others because the research data are numerical and statistical analysis. Using OLS estimates may lead to inconsistency, and regressions can be inefficient and biased if variables are endogenous. To address any potential existence of endogeneity problems and to robustly test the findings, dynamic panel data techniques, the General Method of Moments (GMM) regression estimator were applied proposed by (Arellano & Bond, 1991).

5.1.1. Panel Data

The thesis study period consists of 9 years 'financial data of 86 non-financial firms. The data include both cross-sectional and time-series analysis; which is panel data analysis. Panel data has several advantages as founded in prior researches. Panel data have more informative data, less collinearity, more degree of freedom, variability which causes more efficient analysis, increased reliability. When we have for each firm time observation, panel regression is more accurate. When we have for each firm time observations, panel regression is more accurate. It includes the repeated observations of individual units over periods and provides better information on change dynamics. Panel data remove the biases generated due to compiling the data in a micro basis. Panel data allow for the control of heterogeneity among cross-section elements, eliminating the causes of biased analysis.

Two reasons have been provided by Arellano (2003, pp. 7) for the increased use of panel data analysis first relates to the desire to control for "…unobserved time-invariant heterogeneity

in cross-sectional models and the second reasons refers to 'the use of panel data as a way of disentangling components of variance and estimating transition probabilities among states, and more generally to study the dynamics of cross-sectional populations".

A pooled cross-sectional regression is employed consistent with various authors in the earnings management literature (e.g., Anagnostopoulou & Tsekrekos, 2016; Cohen & Zarowin, 2010; Doukakis, 2014; Ho et al., 2015; Roychowdhury, 2006; Siregar & Utama, 2008; Sun & Rath, 2009; Zang, 2012; Zhu et al., 2015).

5.2. DATA AND SAMPLE SELECTION

This subsection presents the empirical analysis used data, data sources, and sample construction. Amman Stock Exchange listed firms are categorized into three sectors: financial, industrial, and service sectors. Businesses adapt financial reports based on the company's field; since the service sector could not use the same financial statements template as the industrial sector because of major differences between industries. For that reason, this thesis does not study production cost as proxy for real earnings management for the services sector due to scarcity in data availability on inventory and the cost of goods sold. Comparing to other businesses, industrial companies have higher amounts of revenue. Raw materials manufacturing equipment and the number of workers and employees required to run the operation increase the payments to generate revenue, resulting in a smaller profit in comparison to business income. The industrial sector is chosen because the IFRS offers more flexibility to manufacturing firms to choose among treatment alternatives for the same accounting transaction. Also, it has different accounts compared to other sectors which reduces the comparability between companies.

To test the hypotheses of this thesis which will be described in the following subsection, sample financial data is collected from Amman stock exchange (ASE) database, the model variables are computed from the annual reports and published consolidated accounts by the companies from Jordanian firms' websites: statement of income, statement of financial position, and state-

ment of cash flow items of the sample firms. Data were manually collected to accomplish the objectives of this thesis, which consumed a long time and needed a big effort. Creating a non-existent dataset about capital structure and EM nexus in Jordan is considered one of our contributions to the literature.

The sampling technique uses purposive sampling, with the following criteria: The sample comprises all publicly listed companies on ASE during the nine-year observation period from 2011 until 2019. In terms of increased comparability, the firm published financial statements ending on December 31; and the firm uses Jordanian dinar as a currency in its' financial statements reports. Regarding certain specification issues and data requirements, some companies are eliminated from the total sample for these reasons: (1) Companies that lack consecutive data and have a missing values or without sufficient data for several variables from 2011 to 2019, and during the research period, their stock trading has not stopped: (2) the firms started trading after 2009 on the stock market since the thesis refers to the period of 2011 to 2019, and several variables would require the previous year's data to calculate its value: (3) Companies are not investment firms and/or financial intermediation, since this thesis about the non-financial firms: (4) leverage ratio that represents the capital structure of the sample companies should be positive.

The financial companies exclude, such as; insurance companies, banks, financial intermediaries, and brokerage companies because the Central Bank of Jordan and the Insurance Commission have different regulations and practices for this sector and different disclosure requirements. These firms comparing to other industries have different incentives for financial reporting (Matsumoto, 2002). Furthermore, Burgstahler and Dichev (1997) note that regulated firms have conflicting motivations to lower earnings when it generates economic benefits, and the motivation of financial firms to avoid loss or earnings decrease may be due to regulatory oversight. The financial companies have different incentives for financial reporting, so the firms that belong to the financial sector were removed because these industries are highly regulated by the government, which might heterogeneously affect its financial performance and disclosure practices (Huang et al., 2015). The incentives to manage earnings can be affected by regulatory concerns,

between financial and non-financial firms, there are fundamental differences in terms of their financial accounting, and the results become more comparable. High leverage levels probably have a different meaning for financial and non-financial firms (Tulcanaza-Prieto et al., 2020).

The thesis period started after 2006 because in 2005, the IFRS was adopted and this minimize earnings management since the adoption replaced countries' national accounting standards either on a mandatory or voluntary basis, and the accounting information will be reported within the confines of these standards. The sample started in 2009 because a huge amount of data points were missing before the years 2006, and some variables calculation needs two prior years. The main reason for excluding prior year data is to control any potential distortion that may arise in the computation of selected companies' financials due to applying the international accounting standard in Jordan. The sample period ended in 2019, and the year 2020 was not included in the study period because the final accounts for the year 2020 were not yet published when preparing the data.

Including the industrial and the service sectors in Jordan have been chosen for its importance in the Jordanian economy, which consists of 41 firms for the industrial sector and 45 firms for the service sector; these two types of sectors have a total of 86 firms, which represent the total sample used in the following tables:

Table 5.1 Sectoral Distribution of the Sample Firms

Industrial Sector		**Service Sector**	
Sectors Names	**# of firms**	**Sectors Names**	**# of firms**
Pharmaceutical and Medical, and Chemical Industries	10	Commercial Services	10
Food and Beverages, Tobacco and Cigarettes Industries	9	Health Care Services and Educational Services	9
Mining and Extraction Industries	10	Hotels and Tourism Industries	9
Engineering and Construction Industries	6	Technology and Communications, Utilities and Energy	7
Electrical and Textiles, Leathers and Clothing Industries	6	Transportation	10

TOTAL	41	TOTAL	45

The Jordanian market data impose a limitation that prevents the estimation of residuals on an industry basis. That there are too few companies in some industries. Depending on the reasoning mentioned above and considering the mentioned conditions, small sectors with one or two firms were combined with nearest sectors to create a sector with at least six firms. The final sample is made up of 86 firms resulting in a total of 774 firm-year observations.

5.3. VARIABLES MEASUREMENT

This subsection provides a detailed explanation of the variables included in each model applied in the empirical part of the thesis and illustrates the dependent, independent, and control variables. In the appendix below-utilized variables together with their abbreviations and definitions.

5.3.1 Measurement of Dependent Variables

This thesis follows the prior research (Gounopoulos & Pham 2016; Sletten et al. 2018) and uses cross-sectional OLS regressions to estimate the normal accruals for each industry-year category with at least six observations (Alhadab et al., 2015; Athanasakou et al., 2009; Rosner, 2003). All earnings management measurements variables are standardized by lagged total assets, to reduce the problem of heteroscedasticity. The thesis dependent variables are divided into accrual-based and real earnings management, which are proxied as follows:

5.3.1.1. Measuring Accrual-Based Earnings Management

The mainstream of literature tends to rely on discretionary accruals to measure EM (Becker et al., 1998; Dechow et al., 1995; DeFond and Jiambalvo, 1994; Hribar and Collins, 2002; Kothari et al., 2005; Raman and Shahrur, 2008). Calculating accrual earnings management will be according to the Modified Jones Model. As emphasized in the prior research related to

discretionary accrual models, it proposes two approaches to control the effect of selected companies' performance differences on the discretionary accrual measure. This thesis employed additional measures of AEM as an additional test for the thesis results, which calculate accrual earnings management by Performance Matched Discretionary Accruals Model. These models are mostly selected models in literature and are designed for reducing errors in measuring accruals. "The most common techniques for measuring earnings management attempt to isolate the discretionary portion of the accrual component of earnings" (Dechow et al., 2012, p. 276). Both measures return approximately similar results to those obtained using AEM, which means that the results are robust.

Since this thesis focuses on the impact of leverage as a proxy for capital structure on accrual-based and real earnings management and not necessarily focused on income behavior, the absolute value of discretionary accruals was used to indicate the presence of EM, as consistent with prior studies (e.g., De Angelo, 1986; Frankel, Johnson and Nelson, 2002; Haw, Hu, Hwang and Wu, 2004; Kim and Yi, 2006) (As cited in Choi et al., 2013). Which demonstrates the direction in which accruals are managed as a proxy for EM (Koh, 2007; Hsu and Koh, 2005; Lin and Manowan, 2012; Chung, Firth and Kim, 2002). (As cited in Aybars, 2014, p. 86).

The model predicts NDA and estimates the regression residuals as abnormal or discretionary accruals. Some studies use the absolute value of discretionary accruals to test the magnitude to manage earnings (e.g., Becker et al., 1998; Doyle et al., 2007; Haw et al., 2004; Klein, 2002). The absolute value of discretionary accruals magnitude measures firms' success in managing earnings; it is the best measure of the extent to which firms use accruals to manage earnings in the absence of a particular direction (Reynolds and Francis, 2000).

The Modified Jones Model (Dechow et al., 1995)

This model is designed to eliminate the Jones model conjectured tendency to measure discretionary accruals with an error when discretion is exercised over the recognition of revenue. In this model, the NDAs are estimated during the event year; the following equation calculates it:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{(\Delta REV_{i,t} - \Delta REC_{i,t})}{A_{i,t-1}} + \alpha_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t}$$

(Eq. 9)

Where;

$TA_{i,t}$: Total accruals as net income before extraordinary items minus cash flow from operations of firm i in year t;

$\Delta REV_{i,t}$: The change in revenue over two years of firm i in year t;

$\Delta REC_{i,t}$: The change in receivable over two years of firm i in year t;

$PPE_{i,t}$: Gross property, plant, and equipment at the end of year t for firm i;

$A_{i,t-1}$: Total assets for firm i at the end of year t -1;

α : Firm-specific parameters;

$\varepsilon_{i,t}$: Error term of firm i in year t.

The Performance Matched Discretionary Accruals Model (Kothari et al., 2005)

The standard and the modified Jones models were criticized by Beneish (1997) because they do not include performance indicators. Thus, Kothari developed this model for the determination of discretionary accruals that reflects this limit. It proposes to estimate the discretionary accruals through the model of Kothari's (2005) model, as follows:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_1 \frac{1}{A_{i,t-1}} + \alpha_2 \frac{(\Delta REV_{i,t} - \Delta REC_{i,t})}{A_{i,t-1}} + \alpha_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \alpha_3 \frac{ROA_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t}$$

(Eq. 10)

Where;

$ROA_{i,t-1}$: Return on Asset, which is the ratio between the net income and total assets at the beginning of the period for firm i in the year t.

All other variables are defined previously in equation 9.

5.3.1.2. Measuring Real Earnings Management

REM are estimated based on (Dechow et al., 1998) developed models applied by (Roychowdhury, 2006). Researchers later apply these models to estimate real earnings management, such as (Cohen et al., 2008; Cohen & Zarowin, 2010; and Zang, 2012). REM will be tested for the whole sample: both sectors, but production cost manipulation is a method that can be utilized only by the industrial sector (Roychowdhury, 2006), and this sector makes up 52% of the total sample. This thesis focuses on three activities of real earnings management proxies using Roychowdhurys' (2006) model.

CFO is net cash flows from operation of firm i in year t; The first regression expresses normal CFO as a function of sales and change in sales in the current period. The normal level of CFO is estimated using the following cross-sectional regression for each industry and year, estimating the normal levels of CFO using the following OLS estimation model is shown below:

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{S_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta S_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \quad \text{(Eq. 11)}$$

Where;

CFOi,t: The first regression expresses normal cash flow from operations for firm i in the year t; Si,t: Sales for firm i in the year t; ΔSi,t: Sales for firm i in the year t less sales for firm i in the year t-1; all deflated by lagged assets. All other variables are previously defined. The abnormal level of CFO is calculated as the actual minus normal level of cash flows from operations.

PROD is production cost, calculated as the cost of goods sold plus the change in inventory of firm i in year t; The second regression pertains to estimating normal levels of production costs. This regression is based on that production cost equal the change in inventory (ΔINV) plus the sum of Cost of Goods Sold (COGS). Hence, the regression of normal levels of production costs is as a follow:

$$\frac{\text{COGS}_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_1 \frac{\Delta S_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \quad \text{(Eq. 12)}$$

And,

$$\frac{\Delta INV_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_1 \frac{\Delta S_{i,t}}{A_{i,t-1}} + \beta_2 \frac{\Delta S_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \quad \text{(Eq. 13)}$$

where;

$\text{COGS}_{i,t}$: Costs of goods sold for firm i in the year t;

$\Delta\text{INV}_{i,t}$: Change in inventory for firm i at the end of year t.

Following (Dechow et al., 1998; Gunny, 2010; Roychowdhury, 2006), and the normal level of production costs in period t is estimated as follow in equation 15:

$$PROD_{i,t} = COGS_{i,t} + \Delta INV_{i,t} \quad \text{(Eq. 14)}$$

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{S_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta S_{i,t}}{A_{i,t-1}} + \beta_4 \frac{\Delta S_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t}$$

(Eq. 15)

$PROD_{i,t}$: Is the sum of the COGS for firm i in the year t and the change in inventory for firm i in the year t. All other variables are defined previously. The abnormal production cost is computed using the actual minus the normal level of production costs.

DISEXP is discretionary expenses, calculated as the sum of R&D, advertising, and SG&A expenses, of firm i in year t. The third regression pertains to estimating normal levels of Discretionary expenses. Discretionary expenses are expressed as a function of lagged sales. The level of normal discretionary expenses using the following OLS estimation for each industry-year as follow:

$$\frac{DISEXP_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{S_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t}$$

(Eq.16)

$DISEXP_{i,t}$: Is the discretionary expenses that are defined as the sum of research and development, advertising, and SG&A expenses for firm i in the year t. All other variables are defined previously. The abnormal level of discretionary expenses is calculated as actual minus the normal level of discretionary.

5.3.2. Measurement of Independent Variables

Companies with a high degree of leverage face high default risk, it will not fulfill its obligations, and then it will seek to do earnings management. As leverage increases, leverage has costs. The usual rise in agency costs of debt, including bankruptcy costs. The optimal capital structure is the point at which firm value is maximized, and the marginal debt costs offset the marginal benefits. (Wang and Lin, 2013, p. 860) found that "funding advantages of internal capital markets mask solvency problems resulting from higher leverage for firms, which in turn mitigates incentives for earnings management". Zamri et al. (2013) verified that leverage limits the activities of earnings management, which could influence accounting earnings quality. Fields et

al. (2012) measure firms' debts by the level of maturity: short-term, long-term, and total debt. To measure corporate financial leverage, this thesis used three proxies for capital structure: total debt to total assets ratio (CS1), long-term debt to equity ratio (CS2), total debt to equity ratio (CS3).

According to (Ross et al., 2008) measured leverage by the total debt ratio, which measured the percentage of assets financed by debt and is calculated by total debt dividing by total assets. Financial leverage ratio is measured based on the ratio of total debt to total assets, consistent with (Dichev and Skinner, 2002; Gu et al., 2005; Kim & Yoon, 2008; Rashidah and Fairuzana Haneem, 2006; Sweeney, 1994) (as cited Zamri et al., 2013). Ghazali et al. (2015) used debt ratio to measure monitoring mechanisms (proxied by leverage). Fields et al. (2012) measured leverage as long-term debt divided by total assets. Arsov & Naumoski (2016) measured leverage in the same ratio, and this ratio reflects the division of financing sources between borrowed funds and equity. It includes firms' liabilities, and not all liabilities are necessarily considered as debt because the debt ratio may contain interest-bearing liabilities like short and long-term debt. This measures the total asset value acquisition financed by debts.

In accordance with previous studies (i.e., Jelinek, 2007; Nwaeze et al., 2005; Wasimullah and Abbas, 2010; Lazzem et al., 2018), leverage was measured as long-term debt to the equity total book value of listed companies. This thesis measure leverage by the ratio of long-term debt to total book value of equity since the book value of debt has better explain the company's indebtedness as the market value of debt that may be inflated due to the share prices.

There is no regulation stating how to measure the leverage. To measure leverage level, two generally used methodology to measure. i.e., accounting measurement based on the market or book value of debt and equity and equity, capital structure refers to debt-to-equity ratio; this ratio provides insight into how risky the company is. Given accepted accounting procedures that (Watts & Zimmerman, 1986) argue, the higher the debt-to-equity ratio, the manager will be more likely to select the procedures of income-increasing accounting. Sweeney (1994) measured leverage by debt-to-equity ratio and find evidence that supports a debt hypothesis that the larger this ratio, the more the management will select income-increasing accounting procedures.

5.3.3. Measurement of Control Variables

The primary focus is to examine the impacts of capital structure on earnings management, other variables can also affect this relationship, so that it needs to be included as a control variable in the regression model in addition to the independent variables. This thesis includes many control variables which restrain the influence of independent on the dependent variable, the control variable provides better predictability and analysis, many controlling variables adjust the impact of capital structure on earnings management, this thesis uses the following control variables:

5.3.3.1. Cash Flow from Operating Activities (CFOA)

Measure the firms' operating performance; it is the receipt or expenditure related to its operation. It indicates the firm's operational performance and its ability to generate cash flow. It is negatively related to income-boosting because changes in credit terms, if any, convert accruals into cash income or vice versa, and for the reason that manager's desire to smooth out cash earnings other variations. Hsu and Koh (2005) measure CFOA scaled by total assets divided by sales; they emphasized if a firm's CFOA is high, its accruals would be low, and vice versa. The opportunity of firms to manage accruals will be mitigated with higher levels of CFOA. Its further includes earnings before taxes, scaled by lagged total assets, to control for potential misspecification in EM tests for extreme financial performance firms (Dechow et al., 1995). Many studies disclose that high CFOA is probably associated with earnings management (e.g., Dechow et al., 1995; Graham et al., 2005). Cash Flow from Operating Activities is calculated based on (Alghamdi, 2012; Habbash, 2010; Rohaida, 2011) (as cited in Almasarwah, 2019), as follow: CFOA divided by total assets at year beginning.

5.3.3.2. Free Cash Flow (FCF)

Free cash flow provides at the disposal of investors and shareholders an appropriate criterion to assess the financial health of the managers' performance and commercial unit, so inves-

tors and shareholders should consider free cash flow as a stimulus for earnings management. Increased financial leverage would gradually reduce cash flow amount and the managers' authority in using the company cash, which can reduce the practice of earnings management. The question about how the impact of free cash flows on earnings management, is apart from testing whether firms' level of FCF is a factor that influences the relation between leverage and earnings management. Jensen (1986) states that FCF has an excessive impact on the managers' opportunistic behavior in a situation where a firm has a large amount of FCF, in various opportunities, manager can invest surplus funds. Bukit & Iskandar (2009) argue that companies of high surplus FCF use discretion to increase earnings, so not investing choices in wealth maximizing projects can be concealed and find a positive relationship between EM and FCF. Chung et al. (2005) find that managers of low growth firms with high FCF may use income-increasing discretionary accruals to compensate for the negative or low earnings that accompany investments with negative net present value projects.

Studies of earnings management in emerging economies document consistent evidence. Alzoubi (2016) finds a positive relationship between AEM and FCF for the Jordanian market. Jaggi and Gul (2006) find that the relationship between FCF and EM is positive, they state that companies with high FCF indulge managers in manipulating earnings upward to post performances and safeguard job security. Higher FCF could provide firms with an increased capacity to invest in non-value maximizing investments and engage in EM practice to compensate for the negative effects. Following Howton et al. (1998); Howe et al. (1992); Lehn & Poulsen (1989); Lang et al. (1991) (As cited in Chang et al., 2006, p. 126), they define the FCF as operating income before depreciation minus interest expense, taxes, preferred dividends, and common dividends for the fiscal year, divided by the book value of total assets.

5.3.3.3. Returns on Assets (ROA)

Variable is employed to measure the financial performance. As consistent with (Sun & Rath, 2009; Ho et al., 2015; Jha, 2013; Zhu et al., 2015) ROA is used to measure profitability.

ROA in EM literature is a common measure of profitability, as mentioned in (Elkalla, 2017). Velnampy and Niresh (2012) indicated the extent of the impact of firm performance on both capital structure and EM and vice versa. Kothari et al. (2005), Jiraporn et al. (2007), and Zamri et al. (2013) found a negative association between ROA and EM. The result indicates that the lower the firms' performance, the higher the incentive to engage in earnings management.

Firms with poor performers motivate managers to engage in EM activities. Kim et al. (2010) defined returns on assets as a control variable for firm performance, as a ratio of earnings before extraordinary items deflated by prior period assets; this variable is important when the firm performance decline the firm can engage in restructuring activities which manifest themselves similar to real earnings management. It is calculated as income before extraordinary items divided by lagged total assets.

5.3.3.4. Firm Size (SIZE)

Firm size was frequently used in earnings management prior research, it is one of the determinants that influence economic decisions of the financial statement users, this variable plays a significant role in motivating management to accomplish targeted earnings in big firms since the preparation of the financial statements may be affected by the separation between management and ownership and this will be used for the management benefit rather than for the financial statement users benefit. Big firms are monitored more by investors, so these firms can use earnings management for their welfares. The size is related to an internal control system, so the larger the companies, the more sophisticated the internal control system. Also, large-size firms are audited by big audit Certified Public Accounting firms and these firms have auditors with good experience, so the chances of EM are less and they concern more about their reputation that would mitigate earnings management. Kohlbeck and Mayhew (2017); Meek et al. (2007) (as cited in Alhadab, 2017) indicated that large firms expected less ability to manipulate earnings because they are monitored by governance mechanisms and have a good accounting system.

There are mixed arguments on the firm size association direction. Gu et al. (2005) argued that the association between firm size and discretionary accruals is negative. Kim and Liu (2003) classified firms into three sizes: small size, medium size, and large size firms and examine the effect of firms' size on EM; they find that small and large-sized firms manipulate earnings more to avoid reporting small reduction or to avoid negative earnings. Regarding the theoretical grounding, trade-off theory declares that firms size has a positive capitalization effect and postulates that large firms have less volatile earnings and are more diversified. As consistent with (Lemma et al., 2013; Moses, 1987; Rajan & Zingales, 1995), firm size is positively related to EM. Using several indicators, firm size can be estimated, and this thesis used the nature log of total assets as a proxy of firm size followed by many prior studies (i.e., (Stubben, 2010b)).

5.3.3.5. Market to Book Value (MTB)

Matsumoto (2002); McNichols (2000) find that growing rapidly firms are more associated with EM. Many previous studies have considered growth opportunities measured by the market to book value (Kwon & Yin, 2006; Hackbarth & Mauer, 2012). Managers have incentives to engage more in aggressive earnings management with a high growth rate to avoid negative earnings.

Roychowdhury (2006), Doukakis (2014) and Alzoubi (2016) all find that market to book value affects REM positively. Prior research measured the firms' growth opportunities as the market value of common equity divided by the book value of equity (e.g., Gunny, 2010; Chen et al., 2010; Zhao et al., 2012). This variable is one of the common measures in the literature of earnings management, as consistent with (Cohen et al., 2008; Hessayri & Saihi, 2015; Koh, 2007; Park & Shin, 2004; and Swai, 2016) (As cited in Elkalla, 2017). Collins & Kothari (1989) explain that the MTB ratio measures the extent to which a firm's ROA, and expected future investment, exceeds its required returns on equity. As suggested by prior research, firms with a larger MTB ratio, with financial health and returns, have better future performance, so the coefficients are expected to be positive. Roychowdhury (2006) provided evidence that the association between growth opportunities and real earnings manipulation is positive.

This research used (Fama & French, 1992) to detect that market to book value is a direct signal of the relative future prospects of firms and measured as the market value of common equity divided by the book value of equity of firm i at the beginning of year t. Market value is calculated by multiplying the number of outstanding shares by the closing price at fiscal year-end.

5.3.3.6. Big Audit (BIG4)

A dummy variable is generated in this thesis to control the impact of audit firms on EM practice, and the big audit firms have an incentive to provide a high-quality audit due to that they have a large number of clients, better-employed resources like experience, training programs, high technology, and these audit firms having a reputation that might be affected if they didn't find and report earnings manipulation or a misstatement (Chung et al. 2005). A number of big international audit firms have entered the Jordanian market either as an affiliation to local audit firms or on their own. High-quality audit firms detect and report errors and irregularities. External auditors show the credibility of financial reports and have a legal responsibility towards stakeholders regarding fairness and quality of reported information. Big four auditing firms are usually audited large firms, which prevents earnings management due to an effective and efficient audit performed. Studies confirm the importance of these auditors' existence to reduce EM (Becker et al., 1998; Francis & Krishnan, 1999).

Finally, because real activities earnings management occurs in the daily course of business, it is beyond the control of external auditors. US-based scholarly evidence suggests that managers resorted to REM when big auditors provided audit quality by mitigating their use of AEM. For that, managers switch to use REM more (Alhadab, 2017; Chi et al., 2011; Cohen & Zarowin, 2010). Alzoubi (2017) investigate the association between audit quality and EM for the Jordanian public firms and find that audit quality firms are associated negatively with the use of AEM, suggesting that firms audited by high-quality audit firms report a lower discretionary accruals level. This control variable was included to examine whether the EM of firms audited by

the large audit firms was different from other samples. The models include a control for big audit that is a dummy variable equals one if the firm were audited by big four audit firms and otherwise equals zero.

5.3.3.7. Loss (LOSS)

A dummy variable is generated to control the impact of losses on earnings management practice; it is assumed that the managers incline to manipulate earnings to avoid any decreases in the reported earnings or avoid reporting negative earnings. Companies have a more aggressive earnings effect on EM. Prior research such as Burgstahler & Dichev (1997) provides evidence that managers increase earnings to avoid losses or earnings decreases. Using all available observations on the research Compustat database and the annual industrial for the period 1976-1994, cross-sectional distributions of scaled annual earnings changes and earnings are bell-shaped and fairly smooth except in the regions near zero. This variable is denoted by LOSS and is a dummy variable that takes the value of one if the firm's net income is below zero for the year and otherwise zero.

5.4. HYPOTHESES DEVELOPMENT

This subsection discusses the thesis hypotheses that test important issues related to EM based on the prior accounting literature findings. To attend to the research objectives, hypotheses are raised about the relation between the capital structure and accrual-based and real earnings management, this subsection is dedicated to the formation of hypotheses based on the theoretical framework provided above together with the research evidence regarding financial capital structure and earnings management. All models included a frequent control variable from previous studies: cash flow from operating activities, free cash flow, return on assets, firm size, market to book value, and these two variables as dummy variables: big audit and loss. The impact of capital structure on earnings management is an empirical controversy; two different main streams describe this relationship. Earnings management topic is studied extensively in developed countries, and few studies have been conducted directly to investigate it in developing countries.

This thesis studied both accrual-based and real earnings management to give more sufficiency to explain firms' earnings management behaviors effects. Most of the prior research focused only on AEM and has been examined already in various international accounting studies (DeFond and Jiambalvo, 1994; Jelinek, 2007; Jha, 2013; Lazzem and Jilani, 2018; Sweeney, 1994). Since managers may use both accrual and real earnings management as substitutes (Zang, 2012), this thesis should consider a comprehensive view rather than in isolation, by investigating both techniques of earnings management to fill the literatures' gap.

5.4.1. Accrual-Based Earnings Management Hypotheses

The capital structure involves the policy of using the most profitable sources of funds. Companies can use their capital and foreign capital or debt (Chowdhury et al., 2010). The capital structure measured by leverage ratios is found in financial statements that can determine the level of debt financing with the firm's ability described by capital structure or show some parts of assets used to guarantee debt (Huang et al., 2015).

In some prior literature has been stated that capital structure has a relationship with the practice of EM such as (DeAngelo et al., 1994; DeFond & Jiambalvo, 1994; Jaggi & Lee, 2002), predicts a positive relationship between debt and the incentive to manipulate earnings by accruals because of a firm's closeness to restrictive debt covenants. Beatty and Weber (2003); Dichev and Skinner (2002) indicate that high leverage potentially leads to increase accrual earnings management and other earnings increasing accounting choices. Ghosh et al. (2010) find that total debt and accruals-based earnings management are associated negatively, but that very high debt levels are associated with more discretionary accruals. Becker et al. (1998) find that firms with high leverage report discretionary accruals to increase earnings to avoid debt covenant violation. Consistent with a positive association, Lanouar et al. (2013) used three models to estimate discretionary accruals, namely, Dechow (1995), Kothari (2005), and Raman & Shahrur (2008), this research finds a positive relationship between financial leverage and AEM for Tunisian firms. Gu et al. (2005) reported that variability of accruals and leverage is positively associated. Fields et al. (2012) segregated firms' debts into short-term debt, long-term debt, and total debt,

and documented their effect on EM and find a result that highly leveraged firms force firms to manipulate earnings to affect the creditors' confidence.

On the other side, Jensen (1986) suggests that opportunistic behavior is reduced by debt creation. This implies that highly leveraged firms may restrict management's ability to manipulate income-increasing accruals since management opportunism and EM are associated (Christie and Zimmerman, 1994). Dechow et al. (2000) find that firms with high accruals are characterized by low financial leverage. Ke (2001) finds that highly leveraged firms will be less likely to show increases in AEM. Wasimullah and Abbas (2010) concluded that firms with increasing leverage create less discretionary accruals to manipulate earnings. Jelinek (2007) has found that the firm's high level of monitoring creditors affects the earnings management practice negatively. Iturriaga and Hoffmann (2005) argue that there is a negative relationship between debt financing and discretionary power in accounting decisions. Rodríguez-Pérez & van Hemmen (2010) investigate that marginal debt increase gives an opportunity for earnings manipulation; study results showed that debt individually impacts negatively on EM but when debts are connected with diversification. Also (e.g., Becker et al., 1998; Chung et al., 2005; DeFond & Park, 1997) observes that financial leverage and signed AEM are negatively associated.

With respect to findings from the previous studies based on which leverage as a proxy for capital structure impact on AEM, it is expected that the relationship is significant with different directions. Thus, based on these findings from accounting literature, we proposed hypothesis one (H1) related to the first model (AEM1) which measured accrual-based earnings management by (Dechow et al., 1995), and hypothesis two (H2) related to the second model (AEM2) which measured accrual-based earnings management by (Kothari et al., 2005) model. The hypotheses were subdivided into three sub-hypotheses, since Capital structure ratios measured by three ratios as total debt to total assets, long-term debt to equity, and total debt to equity, all ratios for firm *i* and period t. Based on these findings from accounting literature, the following hypotheses are stated to present the assumed impact of capital structure on the practices of accrual earnings management phenomenon:

H_1: There is a significant relationship between firms' capital structure and AEM practices (measured by Dechow et al. (1995)) in listed non-financial Jordanian firms.

H_{O1}: There is no significant relationship between firms' capital structure and AEM practices (measured by Dechow et al. (1995)) in listed non-financial Jordanian firms.

H_2: There is a significant relationship between firms' capital structure and AEM practices (measured by Kothari et al. (2005)) in listed non-financial Jordanian firms.

H_{O2}: There is no significant relationship between firms' capital structure and AEM practices (measured by Kothari et al. (2005)) in listed non-financial Jordanian firms.

5.4.2. Real Earnings Management Hypotheses

After 2002 a significant trend of decreasing on the practices of accruals earnings management. This interesting result in tandem with the new useful metrics of real earnings management introduced by Roychowdhury (2006), has led to an increase in the number of studies examining real earnings management. Due to the survey of (Graham et al., 2005), signals shift from accruals management to real activities management, this is in line with the results reported by Cohen et al. (2008) that provides empirical evidence in support of a shift from accruals to real earnings management. For those reasons, this thesis measured earnings management by both techniques.

Roychowdhury (2006) finds that executives manage real earnings management to avoid losses in the annual reports and improve reported margins by providing price discounts to increase sales volume. The findings suggest that firms with high leverage levels increase real earnings management to demonstrate good results to creditors to secure debt refinancing and reduce debt covenant violations (Lemma et al., 2013; Othman and Zeghal, 2006; Sweeney, 1994). Chen et al. (2015) declare that high-leverage firms are associated with high default risk. Ho et al., 2015, document a positive relationship between REM and leverage for the Chinese firms. Anagnostopoulou and Tsekrekos (2016) performed a leverage portfolio analysis and revealed that

high debt levels coincide with high positive REM caused by the lower probability of getting detected as these actions are easily hidden in daily transactions that market participants seem to underreact to real earnings management. Lemma et al. (2013) find a positive relationship between leverage and both accruals and real earnings management and argue that levered firms engage in earnings management to avoid debt covenant violations. Doukakis (2014) and Lara et al. (2012) found a positive relationship between leverage and REM for US firms. Zagers-mamedova (2009) showed that in leverage-increasing firms, REM is higher more than in highly leveraged firms.

Alternatively, firms can be influenced negatively by their leverage, which motivates them to mitigate the effect of leverage using earnings management (Anagnostopoulou & Tsekrekos, 2016; Cohen et al., 2008; Graham et al., 2005; Roychowdhury, 2006). Furthermore, Iturriaga & Hoffmann (2005) and Zamri et al. (2013) find that highly leveraged firms are under lenders' control and scrutiny, which can mitigate REM practices.

Given the findings from the previous studies based on which financial leverage as a proxy for capital structure impact on REM, it is expected that the relationship is significant. The thesis models include three proxies for REM to determine whether one or more of these proxies are individually impacted by capital structure and provide a comprehensive view of real earnings management for the Jordanian market. Thus, based on prior accounting literature, we proposed three hypotheses: hypothesis three (H3) related to the third model (REM1) which measured real earnings management by cash flow from operations, hypothesis four (H4) related to the fourth model (REM2) which measured real earnings management by production cost and hypothesis (H5) related for the fifth model (REM3) which measured real earnings management by discretionary expenses, each of these hypotheses was subdivided into three sub-hypotheses since capital structure ratios measured by three ratios as total debt to total assets, long-term debt to equity and total debt to equity each ratio were measured for firm i and period t. This thesis estimates three distinct models to separately test the three main hypotheses, the following hypotheses are stated to present the assumed impact of capital structure on the practices of real earnings management:

H_3: There is a significant relationship between firms' capital structure and cash flow from operations on the REM practices of listed non-financial Jordanian firms.

H_{O3}: There is no significant relationship between firms' capital structure and cash flow from operations on the REM practices of listed non-financial Jordanian firms.

H_4: There is a significant relationship between firms' capital structure and production costs on the REM practices of listed non-financial Jordanian firms.

H_{O4}: There is no significant relationship between firms' capital structure and production costs on the REM practices of listed non-financial Jordanian firms.

H_5: There is a significant relationship between firms' capital structure and discretionary expenses on the REM practices of listed non-financial Jordanian firms.

H_{O5}: There is no significant relationship between firms' capital structure and discretionary expenses on the REM practices of listed non-financial Jordanian firms.

5.5. EMPIRICAL MODELS

As Ewert and Wagenhofer (2005) state, most accruals management models employ variables that may be influenced by real earnings management. To fully understand earnings management, both types of EM should be examined. So, five models are applied to test the thesis hypotheses.

5.5.1. Empirical Models of Accrual-Based Earnings Management

The first model measures the impact of capital structure on the absolute value of AEM using Dechow's (1995) model; the second model measures the absolute value of AEM using Kothari's (2005) model. The panel regression models are estimated as follows:

$$AEM1_{i,t} = \alpha 0 + \beta 1\ (CS1_{i,t}) + \beta 2\ (CS2_{i,t}) + \beta 3\ (CS3_{i,t}) + \beta 4\ (CFOA_{i,t}) + \beta 5\ (FCF_{i,t}) + \beta 6\ (ROA_{i,t}) + \beta 7\ (SIZE_{i,t}) + \beta 8\ (MTB_{i,t}) + \beta 9\ (BIG4_{i,t}) + \beta 10\ (LOSS_{i,t}) + (INDUSTRY\ DUMMY) + (YEAR\ DUMMY) + \varepsilon_{i,t}$$

$$AEM2_{i,t} = \alpha 0 + \beta 1\ (CS1_{i,t}) + \beta 2\ (CS2_{i,t}) + \beta 3\ (CS3_{i,t}) + \beta 4\ (CFOA_{i,t}) + \beta 5\ (FCF_{i,t}) + \beta 6\ (ROA_{i,t}) + \beta 7\ (SIZE_{i,t}) + \beta 8\ (MTB_{i,t}) + \beta 9\ (BIG4_{i,t}) + \beta 10\ (LOSS_{i,t}) + (INDUSTRY\ DUMMY) + (YEAR\ DUMMY) + \varepsilon_{i,t}$$

$AEM1_{i,t}$: The absolute value of abnormal discretionary accruals which measured using the modified Jones model (Dechow et al., 1995) for firm i in the year t, which acts as a dependent variable. $AEM2_{i,t}$: The absolute value of abnormal discretionary accruals which measured using the performance-matched discretionary accruals model (Kothari et al., 2005) for firm i in the year t, which acts as a dependent variable. $CS1_{i,t}$: Capital structure measured by the total debt to total assets ratio for firm i in the year t. $CS2_{i,t}$: Capital structure measured by the total long-term debt to equity ratio for firm i in the year t. $CS3_{i,t}$: Capital structure measured by the total debt to equity ratio for firm i in the year t. $CFOA_{i,t}$: Cash flow from operating activities calculated by CFO divided by the total assets for firm i in the year t. $FCF_{i,t}$: Free cash flow calculated by the FCF scale divided by the total assets for firm i in the year t. $ROA_{i,t}$: Return on assets measured by the net income to total assets ratio for firm i in the year t. $SIZE_{i,t}$: Firm size, calculated by the natural log of total assets for firm i in the year t. $MTB_{i,t}$: The market to book value measured as the market value of equity at the end of the fiscal year divided by the book value of equity on that date for firm i in the year t. $BIG4_{i,t}$: A dummy variable that equals 1 if firm i in the year t audited by big four audit firms, otherwise, it is zero. $LOSS_{i,t}$: A dummy variable that equals 1 if the firm i in the year t reports losses, otherwise, it is zero. INDUSTRY: A dummy for the industry of firm i in year t (1 if the observation is in the industry of the sample, otherwise, 0). YEAR: A dummy for the year of firm i in year t (1 if the observation is in the year of the sample, otherwise, 0). $\varepsilon_{i,t}$: Represents an error term.

5.5.2. Empirical Models of Real Earnings Management

The following models examine the impact of capital structure on REM and involve the use of three separate regressions: CFO, PROD and DISEXP to test the REM hypotheses. The panel regression models are estimated as follows:

$$\mathbf{REM1}_{i,t} = \alpha 0 + \beta 1\,(\mathbf{CS1}_{i,t}) + \beta 2\,(\mathbf{CS2}_{i,t}) + \beta 3\,(\mathbf{CS3}_{i,t}) + \beta 4\,(\mathbf{CFOA}_{i,t}) + \beta 5\,(\mathbf{FCF}_{i,t}) + \beta 5\,(\mathbf{ROA}_{i,t}) + \beta 6\,(\mathbf{SIZE}_{i,t}) + \beta 8\,(\mathbf{MTB}_{i,t}) + \beta 9\,(\mathbf{BIG4}_{i,t}) + \beta 10\,(\mathbf{LOSS}_{i,t}) + (\mathbf{INDUSTRY\ DUMMY}) + (\mathbf{YEAR\ DUMMY}) + \varepsilon_{i,t}$$

$$\mathbf{REM2}_{i,t} = \alpha 0 + \beta 1\,(\mathbf{CS1}_{i,t}) + \beta 2\,(\mathbf{CS2}_{i,t}) + \beta 3\,(\mathbf{CS3}_{i,t}) + \beta 4\,(\mathbf{CFOA}_{i,t}) + \beta 5\,(\mathbf{FCF}_{i,t}) + \beta 5\,(\mathbf{ROA}_{i,t}) + \beta 6\,(\mathbf{SIZE}_{i,t}) + \beta 8\,(\mathbf{MTB}_{i,t}) + \beta 9\,(\mathbf{BIG4}_{i,t}) + \beta 10\,(\mathbf{LOSS}_{i,t}) + (\mathbf{INDUSTRY\ DUMMY}) + (\mathbf{YEAR\ DUMMY}) + \varepsilon_{i,t}$$

$$\mathbf{REM3}_{i,t} = \alpha 0 + \beta 1\,(\mathbf{CS1}_{i,t}) + \beta 2\,(\mathbf{CS2}_{i,t}) + \beta 3\,(\mathbf{CS3}_{i,t}) + \beta 4\,(\mathbf{CFOA}_{i,t}) + \beta 5\,(\mathbf{FCF}_{i,t}) + \beta 5\,(\mathbf{ROA}_{i,t}) + \beta 6\,(\mathbf{SIZE}_{i,t}) + \beta 8\,(\mathbf{MTB}_{i,t}) + \beta 9\,(\mathbf{BIG4}_{i,t}) + \beta 10\,(\mathbf{LOSS}_{i,t}) + (\mathbf{INDUSTRY\ DUMMY}) + (\mathbf{YEAR\ DUMMY}) + \varepsilon_{i,t}$$

$\mathrm{REM1}_{i,t}$: Absolute value of abnormal cash flow from operating activities for firm i in the year t. $\mathrm{REM2}_{i,t}$: Absolute value of abnormal production costs for firm i in the year t. $\mathrm{REM3}_{i,t}$: Absolute value of abnormal discretionary expenses for firm i in the year t. All of the regressions were estimated using Roychowdhury's (2006) model. All of the other variables are defined and denoted as before.

6. EMPIRICAL FINDINGS AND DISCUSSION

6.1. DESCRIPTIVE STATISTICS OF THE SAMPLE

This subsection presents the descriptive statistics for thesis variables in terms of dispersion and central tendency, based on annual financial reports issued by the non-financial Jordanian companies, for the period 2011–2019, as shown in Table 6.1 and 6.2, before testing the hypotheses to judge the validity of data the following tests should be presented. This subsection explores means, median, minimum, maximum, and standard deviation for dependent variables (earnings management proxies), independent variables (capital structure proxies), and a set of control variables.

Tables 6.1 shows Panel A which reports a descriptive statistic for the dependent variables used in the analysis; it presents the (AEM1, AEM2, REM1, REM2, and REM3). As consistent with previous studies, such as Kang & Kim (2012), Zang (2012), the means of EM proxies in this thesis are near zero, implying that the models fit the data fairly well. The mean of AEM1 as measured using the model devised by (Dechow et al., 1995) scoring is 0.048. Regarding AEM2, as measured using the model devised by (Kothari et al., 2005), the mean is at 0.041. This suggests that the average amount of discretionary accruals used by a firm is roughly 0.044. The reported mean values for REM1, REM2 and REM3 are approximately 0.051, 0.06, and 0.048, respectively.

Tables 6.2 shows Panel B which reports the descriptive statistics for the independent and control variables used in the analysis. The data given in panel B shows the maximum value of three capital structure ratios (CS1, CS2, and CS3) indicates that some companies have capital structure ratios of greater than 1, which indicates firms have debt more than assets, long-term debt than assets and more debt than equity. The reported value for the first ratio CS1, the minimum value for total debt to total assets ratio is 0.001, and the maximum value 1.562. The reported mean value for CS1 of approximately 0.359 with a standard deviation of approximately 0.236 indicate that Jordanian firms, in general, are not highly levered and firms risk levels are not

as high as in developed countries as founded by Chen et al. (2005), also the result is consistent with (Rajan & Zingales, 1995). It seems that they did not depend heavily on debt to finance their assets. The reported value for the second ratio CS2, the ranges for total long-term debt to total equity ratio is from the minimum value of 0.001 to the maximum value of 1.804 with a mean value of 0.155, which means that the average of the firms doesn't depend on long-term debt to finance itself and standard deviation value of 0.331. For the third ratio CS3, the reported value for CS3 ranges from the minimum value of 0.004 to the maximum value of 17.966 with a reported mean value of 1.205 and standard deviation of 2.561, which indicate that, on average, the debt in non-financial Jordanian firms is more than equity, this result does not consist of with prior studies (i, e, Rajan & Zingales, 1995).

Lastly, Table 6.2 also presented the descriptive statistics of the control variables, namely, CFOA, FCF, ROA, SIZE, MTB, BIG4, and LOSS. The cash flow from operations has a mean of 0.412 and a standard deviation of 1.687. The minimum and maximum values of this variable are -2.447 and 11.038, respectively. Free cash flow ranges are from the minimum value of -0.258 to the maximum value of 0.149 with an average of 0.007, a median of 0.014, and a standard deviation of 0.067. Return on assets ranges from -1.031 to 0.387 with an average of 0.017 and a median of 0.024. The firm size result shows that the average firm size is about 17.302 with a minimum of 13.029, a maximum of 21.31, and a standard deviation of 1.393. The market to book results ranges from zero to 5.373 with an average of 1.235 and a median of 0.97 suggests the average sample firms have a good market to book value. The big audit is proxied by a dummy variable, the mean BIG4 in Jordan is approximately 0.45, which means that about half of the sample were audited by BIG 4 audit firms, which is less than found in other countries such as the US (Francis, 2004) and Singapore (Ming Chia et al., 2007). LOSS is proxied by a dummy variable, the mean LOSS in Jordan is 0.283, which means approximately 29 percent of the firm's sample report losses.

Table 6. 1 Descriptive Statistics of the Dependent Variables (Panel A)

	Mean	Median	Min	Max	Std. Dev.
AEM1	.048	.034	0	.33	.048
AEM2	.041	.029	0	.331	.04
REM1	.051	.038	0	.327	.047
REM2	.06	.036	0	.47	.067
REM3	.048	.028	0	.366	.054

Table 6. 2 Descriptive Statistics of the Independent and Control Variables (Panel B)

	Mean	Median	Min	Max	Std. Dev.
CS1	.359	.311	.001	1.562	.236
CS2	.155	.008	.001	1.804	.331
CS3	1.205	.447	.004	17.966	2.561
CFOA	.412	.027	-2.447	11.038	1.687

FCF	.007	.014	-.258	.149	.067
ROA	.017	.024	-1.031	.387	.101
SIZE	17.302	17.243	13.029	21.31	1.393
MTB	1.235	.97	0	5.373	.983
BIG4	.44	0	0	1	.497
LOSS	. 283	1	0	1	.451

6.2. CORRELATION MATRIX

To examine the correlations between the model variables, Pearson's correlations matrix is presented. This will indicate the relationship between the variable's strength and direction. Table 6.3 presents the correlation matrix for all the variables employed in the models. In addition, it checks the relationship between the independent variables among each other and checks for the multi-collinearity problem in the case of high correlation between these variables may distort the results. A high correlation means a correlation more than 0.5, and most of the variables are correlated less than 0.5. As observed that the correlation between AEM1 and AEM2 is 0.775, and REM1, REM2, and REM3 is less than 0.303, suggesting that the two composite measures of EM indeed capture different aspects of the EM construct. This thesis develops slightly different specifications of the models to avoid multicollinearity problems by excluding highly correlated variables.

In constant with prior literature (Cohen et al., 2008; Cohen & Zarowin, 2010; Roychowdhury, 2006), the correlation matrix finds that the correlation between discretionary accruals and CFOA is significantly positive. The results show that AEM1 and AEM2 are positively and significantly associated with both REM1 and REM2, this correlation shows that Jordanian firms are engaging in both accrual-based and real earnings management at the same time. Generally, the reported results show that both CS1 and CS3 are positively and significantly associated with accrual earnings management, at the conventional level at 1% level, this suggests that firms that have higher CS1 and CS3 have high levels of AEM, this result is consistent with Rangan (1998)

and Wardani & Hermuningsih (2013). Whereas CS2 ratios are not significantly correlated with AEM. The correlations between AEM1 and these control variables: FCF and ROA variables are statistically negative and significant at the 1% level, while MTB is statistically positive and significant at the 1% level. AEM2 is positively significant with SIZE only. A negative correlation between ROA and AEM1 and AEM2 indicates that more profitable firms are less likely to witness accrual earnings management. CFOA, BIG4, and LOSS are not correlated with accrual earnings management.

REM1, REM2, and REM3 are negatively correlated with most capital structure measurements suggesting that Jordanian firms with a higher leverage ratio engage in a lower level of REM. But the correlation between capital structure variables and real earnings management proxies are not significantly correlated except REM1 with CS1 and REM3 with CS3. In contrast to the correlation between AEM and ROA, it has a positive correlation with all REM proxies, indicates that profitable firms are more likely to witness REM. The correlation between REM1 and ROA, SIZE, MTB, and BIG4 is significant and positively correlated; this indicates that the higher these variables, the higher the REM1. Correlation between REM2 and FCF, ROA, and LOSS are significant and positively correlated. Correlation between REM3 and ROA, MTB, and LOSS are significant and positively correlated.

To test the multicollinearity problem, the correlation between variables is examined. All the correlation between variables is less than 0.8, the limit to have multicollinearity problem as suggested by (Gujarati & Porter, 2003). All the correlation metrics between dependent, independent, and control variables are less than the limit which indicates a low probability of multicollinearity.

Table 6. 3 Pearson Correlation Matrix

Variables	AEM1	AEM2	REM1	REM2	REM3	CS1	CS2	CS3	CFOA	FCF	ROA	SIZE	MTB	BIG4	LOSS
AEM1	1.000														
AEM2	0.775*	1.000													
REM1	0.304*	0.289*	1.000												
REM2	0.217*	0.228*	0.223*	1.000											
REM3	0.028	0.056	0.029	0.302*	1.000										
CS1	0.224*	0.182*	0.104*	0.014	-0.054	1.000									
CS2	0.069	0.036	-0.012	-0.012	-0.030	0.351*	1.000								
CS3	0.205*	0.144*	-0.003	-0.033	0.106*	0.169*	0.163*	1.000							
CFOA	-0.028	0.018	-0.001	-0.076	-0.028	0.033	0.026	0.023	1.000						
FCF	-0.166*	-0.027	-0.028	0.210*	0.062	-0.322*	-0.139*	-0.191*	0.110*	1.000					
ROA	-0.111*	-0.005	0.099*	0.245*	0.140*	-0.322*	-0.143*	-0.174*	0.095*	0.811*	1.000				
SIZE	0.046	0.102*	0.171*	0.026	-0.053	0.345*	0.054	0.014	0.317*	0.105*	0.214*	1.000			
MTB	0.128*	0.063	0.122*	0.079	0.183*	0.079	0.403*	0.459*	0.094*	0.044	0.184*	0.098*	1.000		
BIG4	0.088	0.089	0.124*	-0.030	-0.066	0.212*	0.022	0.051	0.186*	-0.013	0.062	0.473*	0.090*	1.000	
LOSS	-0.058	0.036	0.075	0.192*	0.114*	-0.220*	-0.141*	-0.058	0.098*	0.525*	0.612*	0.208*	0.094*	0.014	1.000

**** p<0.01, ** p<0.05, * p<0.1*

6.3. MULTIPLE REGRESSION ANALYSIS

To test the thesis hypotheses and to estimate the empirical models OLS method is used. The analysis started with a descriptive statistic for all variables which was conducted first, followed by the relationships among the thesis variables depicted in the model were tested using correlation matrix analysis, and then the regression analysis results are shown and discussed in the following subsection. However, to make valid statistical inferences and to support the validity of the regression results, certain assumptions must be met: (i.e., Outlier, no autocorrelation, homoscedasticity, and no multicollinearity) (Gujarati, 2003). All the regression analysis is done using the Stata 15 program.

6.3.1. Outlier

Before conducting a diagnosis for the empirical models and identifying outliers, initial multiple regressions are carried out. According to Gujarati (2003, p. 390), an outlier "is an observation that is much different (either very small or very large) in relation to the observations in the sample." in comparison with other residuals outlier has a large residual because it affects the values of the estimated regression coefficients it can bias the model. Many variables contain outlying observations, as evidenced by the minimum and maximum values before winsorization. When accounting data are pooled across firms and over time, this is expected. To address and control the concerns of outliers that affect regression results, the extreme accounting observations were winsorized rather than delete extreme observation at 2nd percentile and 98th percentile. Winsorising does not eliminate outliers, but it limits their effects.

6.3.2. Autocorrelation

The correlation between a series of observations over time, as the case for time series data or in space for cross-sectional data (Gujarati, 2004). As Gujarati (2004) notes, the model will no longer be efficient in the autocorrelation presence. Therefore, autocorrelation must be checked while using OLS. Ignoring the probability of autocorrelation can expand confidence intervals and

make statistically significant coefficients erroneously declared insignificant (Gujarati, 2004). Autocorrelation checks the presence of correlation between error terms in panel data. The Wooldridge (2002) test for autocorrelation in panel data checks that the sum of the squares of correlation coefficients between errors is approximately zero. Ignoring serial correlation when presented, the results will be inconsistent and inefficient estimates of the regression coefficients and biased standard errors (Baltagi, 2001, pp. 81). Violated autocorrelation is one of the standard assumptions of the regression model. The Wooldridge statistic test was applied to determine the presence and absence of autocorrelation in the regression model. This thesis conducted the Wooldridge test for autocorrelation in panel data, where the null hypothesis implies the non-existence of the first-order autocorrelation. It accepts the null hypothesis for all models, which indicates that all the models are free from serial correlation.

6.3.3. Homoscedasticity

Homoscedasticity means that the error terms are of the same variance, and variables are not correlated. Heteroscedasticity or lack of homoscedasticity does not affect the unbiasedness property of OLS, but due to its impact on significance level, it may affect the inferences from data analysis. Gujarati and Porter (2010, p. 281) state, “In the presence of heteroscedasticity, the usual hypothesis-testing routine is not reliable, raising the possibility of drawing misleading conclusions”. Breush-Pagan test is employed to test the homoscedasticity null hypothesis that all regression coefficients of squared residuals are equal to zero. The variance of each error is constant. The test shows that Prob > chi2 < 0.01. Therefore, the null hypotheses were rejected because of heteroscedasticity since the obtained values in all models are less than 5%.

Firm and year fixed effects were controlled in the regression to control for time-invariant factors that simultaneously influence the model variables. Robust regression was run by correcting potential bias and inconsistency issues in the estimates and overcoming the lack of homoscedasticity. The thesis models are estimated using OLS with year fixed-effects and significance levels based on Rogers standard errors adjusted for heteroskedasticity and two-way clustering by firm and fiscal year (Petersen, 2009).

6.3.4. Multicollinearity Problem

The regression coefficient represents the total contribution of a given dependent variables to the response when independent variables are independent of each other. Graham argues that when independent variables are correlated, it's difficult to analyze since their impact on the response may be due to synergistic relationships or spurious correlations and the multicollinearity problem will rise (Graham, 2003). To identify whether there is a multicollinearity problem, a Pearson Correlation Matrix was computed in the previous subsection and got a result that none of the correlations is above the limit and the Variance Inflation Factor (VIF) is calculated. The limit to have a multicollinearity problem suggested by prior research is considered low when the VIFs are below the value of 10 (Chatterjee and Hadi, 2015; Myers, 1990). The VIF checks for multicollinearity indicate no multicollinearity issue in the prediction models (Gujarati and Porter, 2003).

Table 6. 4 Variance Inflation Factor for Accrual Earnings Management Variables

AEM1 and AEM2		
	VIF	**1/VIF**
ROA	4.5	.222
FCF	3.447	.29
MTB	1.801	.555
SIZE	1.769	.565
LOSS	1.657	.603
CS1	1.593	.628
CS2	1.434	.697
CS3	1.428	.7
BIG4	1.319	.758
CFOA	1.145	.873
Mean VIF	2.009	.

Table 6. 5 Variance Inflation Factor for Real Earnings Management Variables

	REM1		REM2		REM3	
	VIF	**1/VIF**	**VIF**	**1/VIF**	**VIF**	**1/VIF**
ROA	4.5	.222	6.837	.146	4.5	.222
FCF	3.447	.29	4.719	.212	3.447	.29
MTB	1.801	.555	2.865	.349	1.801	.555
SIZE	1.769	.565	1.979	.505	1.769	.565
LOSS	1.657	.603	1.864	.537	1.657	.603
CS1	1.593	.628	1.847	.542	1.593	.628
CS2	1.434	.697	1.538	.65	1.434	.697
CS3	1.428	.7	1.536	.651	1.428	.7
BIG4	1.319	.758	1.423	.703	1.319	.758
CFOA	1.145	.873	1.183	.846	1.145	.873
Mean VIF	2.009	.	2.579	.	2.009	.

6.4. EMPIRICAL RESULTS

This subsection presents and discusses the results of the tests for the five main hypotheses on the directional impact of capital structure on AEM1 and AEM2 related to Hypotheses H1 and H2, respectively. And the impact of capital structure on REM1, REM2 and REM3 related to hypotheses H3, H4, and H5, respectively.

6.4.1. Empirical Results of Capital Structure and Accrual Earnings Management

Accrual earnings management was studied by Dechow (1995) and Kothari (2005) models. Both models return approximately similar results, which indicates that the results are robust to the measure of accrual earnings management selected. The results are presented in Table 6.6,

the model for each dependent variable will be separately run with a similar set of independent and control variables. The following table represents the first two models to test the impact of each capital structure measurement on accrual earnings management measured by (Dechow et al., 1995; Kothari et al., 2005). The regression is controlled by a number of variables, such as CFOA, FCF, ROA, SIZE, MTB, BIG4, and LOSS.

Table 6.6 presents and reports the first model regression analysis results for absolute values of accruals model were measured by the Modified Jones model. Represents the results of the first model with AEM1 as a dependent variable. The coefficient for both CS1 and CS3 are positive and statistically significant at the (p-value <0.01) level with AEM1, confirming H1A and H1C, similar to the findings of (Weber, 2006), which mean that CS1 and CS3 do not have a role in reducing AEM1; rather, AEM1 increases with the increase of CS1 and CS3 ratios. The coefficient of CS2 demonstrates a negative and significant relationship with AEM1 at the (p-value <0.1) level, firms with higher levels of CS2 have less degree of AEM1. Therefore, confirming H1B. CS2 which is measured by long-term debt shows negative signs for both AEM1 and AEM2 practices. Iturriaga and Hoffmann (2005) suggest that a high leverage ratio restricts managers' flexibility to manage earnings because the firm will be more monitoring.

Concerning the control variables, theoretical predictions find mixed relations regarding the relationship between firm size and EM. The coefficient of AEM1 demonstrates a significant positive relationship with size at the (p-value <0.1) level. Therefore, this result implies that large firms in Jordan are more likely to report AEM. MTB shows positive relationship with accrual earnings management practices, which are as expected, implying that firms with high growth rates are pressured to meet desired earnings targets. Therefore, it may conduct higher levels of EM as found in (Roychowdhury, 2006). MTB has a positive and significant coefficient at the (p-value <0.05) level as consistent with Kothari et al. (2005) and Fields et al. (2012). The coefficient of AEM1 demonstrates a negative association with ROA as compatible with (Kothari et al., 2005; Zamri et al., 2013), but it has an insignificant relationship in this regression, which indicates that

ROA does not have a role in impacting AEM1. In addition, the other control variables do not influence AEM1.

Table 6.6 presents the second model and reports results of regression analysis for absolute values of accruals model were measured by Kothari et al.'s model (2005), represents the results from the second model with AEM2 as a dependent variable. Consistent with Model 1, the coefficient of CS1 and CS3 demonstrates a positive and significant relationship with AEM2 at the (p-value <0.01) level. This indicates that firms with higher levels of CS1 and CS3 also have a greater degree of AEM2. Therefore, there is evidence that a firm's engagement in AEM2 reflects CS1 and CS3 ratios increasing, confirming H2A and H2C. This positive coefficient shows robust evidence that higher leveraged firms engage more in accrual earnings management to prevent the Violation of Debt Covenants and present a favorable picture to creditors (DeAngelo et al., 1994; Sweeney, 1994; Sun & Rath, 2009). The coefficient of CS2 reveals a negative and insignificant relationship with AEM2. Therefore, H2B is not supported. Therefore, there is no evidence that AEM2 is a reflection of a long-term debt ratio.

Concerning the control variables, in contrast, MTB has insignificant influence, as shown earlier in Model 1. The finding for AEM2 is similar to the results generated from AEM1, that SIZE is positively influencing the AEM2 significantly at the (p-value<0.05) level. BIG4 has an insignificant positive association with AEM1 and AEM2, consistent with the results (Doukakis, 2014; Zang, 2012), having BIG4 audit firms don't mitigate earnings management activities. The coefficient of LOSS demonstrates a positive and significant relationship with AEM when measured by Kothari's model at the (p-value <0.1) level, the finding for LOSS variable look consistent with (Alhadab, 2017) who find that Jordanian firms may engage in earnings manipulations to avoid reporting losses. The result shows that the FCF has an insignificant relationship with accruals earnings management models, this result contrasts with the research findings of (Alzoubi, 2016) in the Jordanian market.

Table 6. 6 Regression Results. The link Between Capital Structure and Accrual Earnings Management

VARIABLES	Model (1) AEM1	Model (2) AEM2
CS1	.039***	.027***
	(.01)	(.009)
CS2	-.006*	-.003
	(.004)	(.003)
CS3	0***	0***
	(0)	(0)
CFOA	0	0
	(.001)	(.001)
FCF	-.075	-.014
	(.046)	(.039)
ROA	-.021	-.018
	(.034)	(.033)
SIZE	.003*	.003**
	(.002)	(.001)
MTB	.004**	.001
	(.002)	(.001)
BIG4	.002	0
	(.004)	(.003)

LOSS	.006	.008*
	(.005)	(.004)
_cons	-.048	-.059*
	(.049)	(.033)
Observations	815	815
R-squared	.186	.147
Industry Dummy	Yes	Yes
Year Dummy	Yes	Yes

Standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1*

6.4.2. Empirical Results of Capital Structure and Real Earnings Management

This subsection presents the REM models and reports testing of the hypotheses developed in subsection 5.4.2 and separately regressed the real earnings management variables using each estimation model as presented in subsection 5.5.2, where each model represents a different proxy for REM (cash flow from operation, Production costs, and discretionary expenses). The results are presented in Table 6.7 below. The models for each dependent variable will be separately run with similar independent and controls variables.

Table 6.7 reports model 3 regression analysis results for absolute values of abnormal CFO, measured by Roychowdhury's model (2006). The result for model 3 shows that the coefficient of CS1 reveals a positive but insignificant relationship with REM1. Managers in firms engage in REM1 regarding this capital structure ratio since there is positive but insignificant relation. In other meaning CS1 variable demonstrate no influence in REM1. Therefore, H3A is not

supported. CS2 shows a significant association at the (p-value<0.1) level and negative to REM1, Therefore, H3B is supported. This result implies that the higher the leverage, the lower the REM1 activities. CS2 is measured by long-term debt, shows negative signs for all REM practices, as suggested by (Iturriaga & Hoffmann, 2005) that a high leverage ratio restricts the earnings management practice flexibility because the firm will be more monitored. The coefficient of CS3 reveals a positive and significant relationship with REM1 at the (p-value<0.01) level. Therefore, H3C is supported. Therefore, this result implies that the total debt to equity ratio increases the incentive to engage in REM1 activities.

In this model, concerning the control variables, FCF displays a significant negative association with REM1 at the (p-value<0.05) level as consistent with (Ghazali et al., 2015), this result implies that the higher the FCF, the lower will be the REM1 practice. ROA displays a high positive and significant association with REM1 at the (p-value<0.05) level as consistent with (Zamri et al., 2013; Gunny, 2010). SIZE displays a positive and significant relationship with REM1 at the (p-value<0.01) level against with (alhadab, 2017) study that found negative and insignificant relation. MTB is positive and significantly associated with REM1 at the (p-value<0.05) level, which is expected for all real earnings management activities, implying that high growth rates are pressured to meet the target. Finally, the other control variables don't have a significant influence on REM1 activity.

Table 6.7 reports the regression analysis results for absolute values of abnormal PROD, measured by Roychowdhury's model (2006). Model 4 measures the production cost as a proxy for real earnings management for the industrial sector but not for the service sector due to scarcity in data availability in the services sector. The coefficient of CS1 shows a positive and statistically significant at the (p-value<0.05) level relationship with REM2. Therefore, H4A is supported; this finding confirms the results obtained from Zamri et al. (2013), the findings also support Sweeney's (1994) debt hypothesis. The coefficient of CS2 in model 4 demonstrates a negative and insignificant relationship with REM2; therefore, H4B is not supported. The coefficient of

CS3 in model 4 in table 6.7 reveals a positive coefficient with REM2; however, it is not significant; therefore, H4C is not supported.

Concerning the control variables, CFOA variables in Model 4 display a negative and significant relationship with REM2 activity at (p-value<0.01) level. ROA identified a positive and significant relationship with REM2 activity at the (p-value<0.5) level, this result implies that a higher firm's performance might increase the incentive to engage in REM2 to signal the firm future value. REM2 is significantly and positively associated with firm size at (p-value<0.1) level, indicated that large firms expected more ability to practice real earnings management. Finally, the other control variables don't have a significant influence on REM2 activity.

Table 6.7 reports the regression analysis results for the absolute values of the abnormal DISEXP, measured by Roychowdhury's model (2006). The coefficient of CS1 and CS3 in model 5 reveals an insignificant positive relationship for CS1 and significant for CS3 at (p-value<0.01) level with REM3. Therefore, H5A is not supported, and H5C is supported. The result of model 5 shows that the coefficient of CS2 has a negative and significant coefficient with REM3 activity at (p-value<0.05) level as found in (Tulcanaza-Prieto et al., 2020). Therefore, H5B is confirmed.

Concerning the control variables, FCF has a negative and significant coefficient with REM3 activity, at a low level of significance (p-value<0.1). ROA impact on REM3 activity positively and significantly at level of significance (p-value<0.05), this result is consistent with (Gunny, 2010). MTB impact REM3 activity positively and significantly at level of significance (p-value<0.05). The coefficient of firms' size is significant and negative at level of significance (p-value<0.05) with REM3 activity, as consistent (Gu et al., 2005; Saleh et al., 2005), they indicate the larger the firm, the lower levels of abnormal discretionary expenses. Finally, the other control variables don't have a significant influence on REM3 activity.

Table 6. 7 Regression Results. The link Between Real Earnings Management and Capital Structure

VARIABLES	(Model 3)	(Model 4)	(Model 5)
	REM1	REM2	REM3
CS1	.009	.041**	.004
	(.01)	(.02)	(.008)
CS2	-.004*	-.004	-.006**
	(.002)	(.005)	(.003)
CS3	0***	0	0***
	(0)	(0)	(0)
CFOA	0	-.009***	0
	(.001)	(.003)	(0)
FCF	-.091**	.016	-.09*
	(.039)	(.077)	(.054)
ROA	.088**	.158**	.101**
	(.039)	(.077)	(.049)
SIZE	.005***	.006*	-.003**
	(.002)	(.003)	(.001)
MTB	.004**	.003	.004**
	(.002)	(.003)	(.002)
BIG4	.004	-.005	.006
	(.004)	(.008)	(.004)

LOSS	.001	.001	.004
	(.005)	(.011)	(.004)
_cons	.167**	-.088*	.068**
	(.067)	(.053)	(.03)
Observations	815	397	815
R-squared	.209	.271	.225
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes

Standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1*

6.5. ENDOGENEITY AND ROBUSTNESS TESTS

All models are examined using GMM regression estimation to robustly test the findings and test the problem of endogeneity. In social science studies, the endogeneity problem is difficult to address. The regression models include a set of significant control variables, including CFOA, FCF, ROA, SIZE, MTB, BIG4, and LOSS. This does not have a natural experimental setting, there may exist other extraneous variables that significantly impact the associations tested in the hypotheses. The one-step system, GMM regression is employed to deal with the heterogeneity problem, autocorrelation in such cases addresses any potential existence of endogeneity problems (Arellano and Bond, 1991). GMM estimators as robustness analysis to test whether the main regression findings have been severely influenced by the potential presence of the problems of endogeneity or not (Blundell and Bond, 1998).

The former arises when both capital structure and earnings management may be influenced by unobservable omitted variable(s). If the variables or the models suffer from endogeneity, using robust OLS estimates may lead to inefficient and biased results. Therefore, we employ a dynamic panel, Arellano and Bond (1991) proposed the GMM regression estimator were used to examine the impact of capital structure on earnings management. The results of applying a GMM regression as a robustness analysis are supportive of the earlier inferences obtained from estimating a robust OLS regression. However, a degree of sensitivity was found when applying a GMM model. The results of estimating a GMM model still indicate the same results which we got from the main regression, the overall evidence from the below analysis shows that endogeneity is not a serious problem to reject the main models' results, also, using robust regression by GMM does not change the direction of association for capital structure and earnings management. Both measures report similar results to those obtained using the primary earnings management measure, which indicates that the thesis results are robust. This mean that to analyze the data, OLS regression was an appropriate technique.

Table 6. 8 GMM Regression Results. The link Between Accrual-Based Earnings Management and Capital Structure

AEM1	Coef.	p-value	AEM2	Coef.	p-value
CS1	.042	0	**CS1**	.032	0
CS2	-.01	.001	**CS2**	-.005	.054
CS3	0	.094	**CS3**	0	.076
CFOA	0	.773	**CFOA**	0	.639
FCF	-.1	.007	**FCF**	-.021	.517
ROA	.023	.501	**ROA**	.009	.762
SIZE	-.001	.331	**SIZE**	0	.881
MTB	.005	.004	**MTB**	0	.791

BIG4	.005	.165	**BIG4**	.003	.317
LOSS	-.002	.647	**LOSS**	.004	.327
year	0	.456	**year**	0	.409
Constant	.917	.429	**Constant**	.878	.397

Table 6. 9 GMM Regression Results. The link Between Real Earnings Management and Capital Structure

REM1	**Coef.**	**p-value**	**REM2**	**Coef.**	**p-value**	**REM3**	**Coef.**	**p-value**
CS1	.017	.044	**CS1**	.065	0	**CS1**	.008	.019
CS2	-.005	.137	**CS2**	-.003	.589	**CS2**	-.009	0
CS3	0	.116	**CS3**	0	.563	**CS3**	0	.02
CFOA	-.001	.424	**CFOA**	-.008	.015	**CFOA**	0	.081
FCF	-.174	0	**FCF**	.015	.846	**FCF**	-.038	.007
ROA	.121	0	**ROA**	.231	.005	**ROA**	.096	0
SIZE	.003	.017	**SIZE**	.002	.448	**SIZE**	-.003	0
MTB	.003	.102	**MTB**	.002	.44	**MTB**	.006	0
BIG4	.004	.25	**BIG4**	-.008	.209	**BIG4**	-.007	0
LOSS	.003	.524	**LOSS**	-.002	.83	**LOSS**	.003	.152
year	-.002	.002	**year**	-.002	.047	**year**	.001	0
Con-stant	3.624	.002	**Constant**	4.447	.046	**Constant**	-2.045	0

7. SUMMARY AND CONCLUSION

7.1. SUMMARY OF RESEARCH QUESTIONS, HYPOTHESES, AND MAJOR FINDINGS OF ACCRUAL EARNINGS MANAGEMENT

The thesis aims to contribute and explain the ongoing debate about the impact of capital structure ratios on accrual-based and real earnings management. Specifically, this thesis examines how leverage as a proxy of capital structure may impact these practices directly, unlike prior researches in this particular area, we employ an experimental setting that ensures we examine firms with many leverage ratios to manage earnings.

This subsection presents the key findings and answers the thesis questions about accrual-based earnings management. These are derived from the formulated conclusions in the empirical findings subsection. The results for model 1 provide support for all three sub-hypotheses. The main research question was: *Does the Jordanian non-financial firms' capital structure impact their engagement in AEM activities?* However, the results in Table 6.6 for model 1 support H1A that suggests a significant relationship between capital structure measured by total debt to total assets ratio and AEM practices measured by the Modified Jones Model of listed firms in non-financial Jordanian market. The results for model 1 support H1B which measured a capital structure by long-term debt to equity ratio. The results for model 1 support H1C which measured a firm's capital structure by total debt to equity ratio.

The results for model 2 provide support for two sub-hypotheses. The main research question was: *Does the Jordanian non-financial firms' capital structure impact their engagement in AEM activities?* However, the results in table 6.6 for model 2 support H2A that suggests that there is a significant relationship between capital structure which is measured by total debt to total assets ratio, and AEM practices which are measured by the performance matched discretionary accruals model of listed firms in non-financial Jordanian market. The results for model 2 don't support H2B that measured capital structure by long-term debt to equity ratio. The results for model 1 support H2C that measured capital structure by total debt to equity ratio.

7.2. SUMMARY OF RESEARCH QUESTIONS, HYPOTHESES, AND MAJOR FINDINGS OF REAL EARNINGS MANAGEMENT

This subsection presents the second essay's key findings of real earnings management. These are derived from the formulated conclusions in the empirical results section. The results for model 3 provide support for two sub-hypotheses. The main research question was: *Does the Jordanian non-financial firms' capital structure impact their engagement in REM activities by abnormal cash flow from operations?* However, the results in table 6.7 for model 3 don't support H3A that suggests that: There is a significant relationship between capital structure which is measured by total debt to total assets ratio, and cash flow from operations as a proxy for real earnings management practices of listed firms in non-financial Jordanian market. The results for model 3 support H3B that measured capital structure by long-term debt to equity ratio. The results for model 3 support H3C that measured capital structure by total debt to equity ratio.

The results for model 4 provide support for one sub-hypothesis. The main research question was: *Does the Jordanian non-financial firms' capital structure impact their engagement in REM activities by abnormal production costs?* However, the results in Table 6.7 for model 4 support H4A that suggests a significant relationship between capital structure measured by total debt to total assets ratio and real earnings management practices measured by production cost of listed firms in non-financial Jordanian market. The results for model 4 don't support H4B which measured capital structure by long-term debt to equity ratio. The results for model 4 don't support H4C which measured capital structure by total debt to equity ratio.

The results for model 5 provide support for two sub-hypotheses. The main research question was*: Does the Jordanian non-financial firms' capital structure impact their engagement in REM activities by abnormal discretionary expenses?* However, the results in Table 6.7 for model 5 don't support H5A, suggesting a significant relationship between capital structure measured by total debt to total assets ratio and discretionary expenses as a proxy for real earnings management practices listed firms in non-financial Jordanian market. The results for model 5

support H5B that measured capital structure by long-term debt to equity ratio. The results for model 5 support H5C that measured capital structure by total debt to equity ratio.

7.3. CONTRIBUTIONS

The findings of this thesis contribute to the accrual-based and real earnings management literature by testing a large sample of the Jordanian data because they reflect an institutional setting similar to many emerging countries since limited research is done in developing nations. The findings will extend and fill the prior literature gap and contribute to the prior literature by testing the real earnings management behaviors. This thesis comprehensively examines the impact of capital structure on both types of earnings management in the Jordanian market in particular and emerging markets in general to provide reliable conclusions. Understanding the earnings management characteristics within the industrial and service sector are vital to enhance reported earnings reliability and improve the ability of financial statements users to determine the fair value; to the regulators in setting standards; to the government in drafting legislation; to make investment decisions, and to auditors in Jordanian auditing companies.

The scarcity of studies that deal with the variables of the current study Jordanian environment, in particular, requires testing and studying the impact of capital structure on earnings management. This thesis involves testing a large sample of data compared to the Jordanian market size by including all the non-financial firms listed in ASE. The thesis sample covers a long period from 2011 to 2019, during which a prominent economic movement and series of economic fluctuations had taken place. This may lead to maximizing the interests of management and received in recent times great attention globally and domestically, and its impact on the financial reports' quality, development and confidence of financial market data, and the ability of the country to attract foreign investments.

This research will be one of the researches that empirically examine the direct impact of capital structure on both accrual and real earnings management for non-financial Jordanian firms listed in ASE. The findings are different and there are mixed opinions on whether leverage ratios

as proxies of capital structure may influence the managers' potential to manage earnings, as mentioned in the previous subsection. This thesis will find the impact for the Jordanian market as a new contribution, which can also be explained by legal system country differences, as mentioned in (Othman & Zhegal, 2006) we can't depend on prior research results for the Jordanian market.

The results of this thesis answer the questions that may concern the investors' interest about the accounting information credibility in investment decisions. It can help creditors and other stakeholders' decisions by enabling them to establish an accurate firm evaluation and assess the managers' capacity to manage earnings.

7.4. LIMITATIONS

Like all research, this thesis has several limitations that need to be addressed. Care should therefore be taken when interpreting the findings.

An inevitable limitation of earnings management studies is that of estimation measurement error. Indeed, no model has estimated normal levels of earnings without attracting criticism. Thus, the abnormal level of earnings is not always accurate in identifying firms that manage their earnings. There may be occasions when the design of a study does not sufficiently distinguish normal managerial decision-making from REM behavior. For instance, Roychowdhury (2006) asserted that REM activities may simply reflect the rational responses managers make to economic conditions. In the literature on earnings management, this frequently relates to the effectiveness with which the earnings management behaviors of firms are measured. Therefore, it is essential to examine the consequences of REM. Furthermore, unobservable variables result in normal errors when measuring discretionary accruals in the estimation models. Thus, it is hard to differentiate authentic business decisions from REM.

Another potential limitation concerns the limited number of listed firms in the industrial and services sectors. With as little as two or three firms in more than half of the industries in Jordan, the regression estimation requirement of at least 10 observations could not be met. To ad-

dress this, small sectors with one or two firms were combined with nearest sectors to create a sector with at least six firms. Like the original models, a cross-sectional estimation of normal levels of earnings was then performed on a year-industry basis. However, although this was an acceptable solution, the measurement errors may have been greater.

Finally, the explanatory power of the proposed empirical models indicates that several other independent variables may account for the extent of earnings management; for example, those affecting the characteristics and compositions of boards of directors. In addition, the findings may have been affected by different variable specifications and the omission of other potentially important variables.

7.5. RECOMMENDATIONS FOR FUTURE RESEARCH

Based on the discussed above subsection about the findings and limitations, this thesis asks for some future research to numerous areas that may not have been covered by prior research but deserve further consideration in future studies. Many recommendations can be made for future research in the earnings management field and what this thesis has examined.

A very few studies in Jordan have been conducted regarding real earnings management behavior in general and on both the industrial and services sector in specific since there is a significant trend of decreasing on the practices of accruals earnings management because of the signals a shift to real activities management. Although the current research aimed to shed light on such an issue, more research is needed, especially for developing markets such as Jordan. Such an important topical issue is well known among the financial community. Several topics need more investigation and have not been covered yet by research which in future studies it deserves further consideration.

This thesis has demonstrated that Modified Jones models and the Performance Matched Discretionary Accruals Model, which are models used by prior research, are not well-specified and may not be very effective in identifying EM in Jordanian market. The Peasnell, Pope and

Young accruals model and Ball and Shivakumar's model may appear to be a better model in this context. We recommend that more studies be undertaken in the developing country economies.

This thesis used a set of control variables such as CFOA, FCF, ROA, SIZE, MTB, big audit and loss, and some other control variables impacting earnings management may not be included in experimental models, which means that there could be other variables that this thesis models did not investigate.

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APPENDICES

APPENDIX 1

This section explains the variables included in the models applied. Table 1 below depicts the list of the dependent, independent, and control variables utilized together with their abbreviations, measures and explains how each variable has been operationally defined.

Appendix 1: Variable Abbreviations and Definitions

Variable name	Abbreviation	Definition
Dependent variables		
Accruals earnings management 1	AEM1	The Absolute value of discretionary accruals estimated by the modified Jones model (Dechow et al., 1995) of firm i in year t.
Accruals earnings management 2	AEM2	The Absolute value of discretionary accruals estimated by (Kothari et al., 2005) model of firm i in year t.
Absolute value of abnormal cash flow from operating activities	REM1	The absolute value of abnormal cash flow from operating activities of firm i in year t, calculated based on model developed by (Roychowdhury, 2006).
Absolute value of abnormal production costs	REM2	The absolute value of abnormal production costs of firm i in year t, calculated based on model developed by (Roychowdhury, 2006).
Absolute value of abnormal discretionary expenses	REM3	The absolute value of abnormal discretionary expenses of firm i in year t, calculated based on model developed by (Roychowdhury, 2006).
Independent Variable		

Capital structure 1	CS1	This variable measures the capital structure of a firm and is computed as the ratio of "total liabilities" to "total assets" of firm i in year t.
Capital structure 2	CS2	This variable measures the capital structure of a firm and is computed as the ratio of "total long-term debt" to "total equity" of firm i in year t.
Capital structure 3	CS3	This variable measures the capital structure of a firm and is computed as the ratio of "total liabilities" to "total equity" of firm i in year t.
Control variables		
Cash Flow from Operating Activities	CFOA	Cash Flow from Operating Activities calculated by Cash Flow from Operating divided by total assets of firm i in year t.
Free Cash Flow	FCF	Operating profit before depreciation - total tax paid - interest expense - dividend) / total assets of firm i in year t.
Return on Assets	ROA	Income before extraordinary items divided by lagged total assets of firm i in year t.
Firm size	SIZE	This variable measure the relative size of a firm within a country. Computed by the natural logarithm of total assets of firm i in year t.
Market to book value	MTB	Measured as the market value of equity at the end of the fiscal year divided by the book value of equity at that date of firm i in year t.
Big Audit	BIG4	A dummy variable equal to unity if firm i is audited by one of the Big Four Auditors at year t, otherwise equal to zero.

Loss	LOSS	A dummy variable equal to one if a firm i 's reports net income is below zero for year t, and otherwise equal to zero.