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The Relationship between CSR Disclosure Quality and Accrual and Real Earnings Management: Large-Scale Evidence from India

By

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Dedication

I dedicate this work to the memory of my father who passed away during my studies, and to my beloved mother, my wife, my children, my brothers and sisters, my uncles and everyone who has shared this dream with me.

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Abstract

The aim of the current research is to examine the association between the quality of corporate social responsibility disclosure (QCSRD) and both real earnings management (REM) and accruals earnings management (AEM) in Indian listed companies from 2007 to 2015. Prior research in this area has substantiated that corporate social responsibility (CSR) disclosure is related to earnings management (EM) (Yip et al., 2011; Muttakin et al., 2015). However, the empirical findings remain inconclusive with regard to whether commitment to CSR reporting has a positive or a negative impact on EM and vice versa. These puzzling results may be due to differences in their measurement of CSR disclosure and EM. The methods of measuring CSR disclosure that have been employed when examining the relationship with EM do not consider the QCSRD, which is important for distinguishing the information provided to users. Therefore, this study examined the relationship between QCSRD and EM in India. QCSRD is measured through a framework, which has been developed by this study, to capture three dimensions: the quantity of CSR information disclosed; the spread of CSR information disclosed and the usefulness of CSR information (characteristics of CSR information). It is also the first research to provide a broad examination of the influence of CSR reporting on both real and accrual earnings management. AEM is measured through the modified Jones model (1995), REM is estimated by employing Dechow et al.'s (1998) model. The study results indicate that the QCSRD is negatively and significantly associated with both AEM and REM. This is consistent with the moral perspective and assumes that companies with low levels of QCSRD engage more in real or accruals-based earnings management compared to those companies with a higher level of QCSRD. The study findings are also in line with signalling and agency theory suggesting that, by providing QCSRD, companies may mitigate information asymmetry and the problem of conflicting interests.

Contents

Abbreviations

ΔREC	The Change in the net Receivables
ΔREV	Change in Revenues
ΔSales	Change in The Company's Sales in the Current Year
2SLS	Two-Stage Least Square regression
A	Total Assets
ACCU	Accuracy of Analyst's Earnings Forecast
ACEF	Audit Committee Effectiveness
AC-FL	Accounting Flexibility
ACFO	Abnormal Operations Cash Flows
ADISX	Abnormal Discretionary Expenses
AEM	Accruals Earnings Management
APROD	Abnormal Production Cost
ASales	Income from Selling Long-Lived Investment
ASI	Assets Sales Income
BEF	Board Effectiveness
Block	Blockholder Ownership
BSE	Bombay Stock Exchange
CAP	Capital Expenses
CFO	Total Operations Cash Flows
CGS	Cost of Goods Sold
CH-INV	Change in Inventory
Comp	Comparability
COV	Disclosure Coverage
CSR	Corporate Social Responsibility
DA	Discretionary Accruals
DIS	Disclosure Dispersion
DISE	Dispersion of Analyst's Earnings forecast
DISX	Total Discretionary Expenses
EPS	Actual Earnings per Share in Period
ε	The residual of the regressions

Faith	Faithfully
FI-HE	Financial Health
Funds	Income From Operations + Depreciation + R&D
GAAP	Generally Accepted Accounting Principles
GNP	Actual Total National Product
GROWTH	Companies Growth Ratio
IFRS	International Financial Reporting Standards
INF	Disclosed Information
INSOW	Institutional Ownership
INT	Internal Funds
IPO	Initial Public Offering
IR&D	R&D Expenses for All Companies in The Same Sector
Lev	Financial Leverage
MA-SH	Market Share
Med	Median value
MV	Natural Log of Market Value
NDA	Normal Accruals
P	Proportion of Disclosure
PPE	Gross Property, Plant and Equipment
PROD	Total Production Cost
Q	Tobin's Q defined as Firms' Market Value Divided by Replacement Cost of Its Assets
QCSRD	The Quality of Corporate Social Responsibility Disclosure
R&D	Research and Development
REL	Relevance
REM	Real Activities Earnings Management
ROA	Return on Assets
SG	Selling General and Administrative Expenditures
SIZE	Size of Companies
SOX	Sarbanes-Oxley Act
SP	Share Price
SPR	The Spread of CSR Disclosure
STRQ	Standardized The Relative Quantity
TA	Total Accruals
Type	Industry type
UND	Understandability
USFUL	The Usefulness of CSR disclosure
α , β	Estimated Parameters

CHAPTER ONE: INTRODUCTION

The current chapter provides a rationale for the present thesis, which begins by clarifying its overview and justifications in section 1.1. Section 1.2 discusses the research motivations. Section 1.3 discusses the research question and objectives of this study. The importance of the research is discussed in section 1.4 and the methodology of study is explained in section 1.5. The contribution of study is presented in Section 1.6, and Section 1.7 shows the structure of this thesis.

1.1 Research Overview

Corporate social responsibility (CSR) reporting is an issue of growing interest for academics, businesses and stakeholders. CSR is commonly viewed as the type and scope of social obligations which should be considered by companies in the course of their routine business activities (Shamir, 2005). In practice, those companies who implement and report CSR activities are bound to provide reliable and transparent financial information (Kim et al., 2012; Bozzolan et al., 2015) and demonstrate a commitment to ethical and accountable behaviour to stakeholders (Jones & Wood, 1995; Yip et al., 2011; Wang et al., 2016). Nevertheless, there is an argument that CSR reporting can be used as an entrenchment mechanism to achieve managers' self-interest aims through distorting earnings information (McWilliams et al., 2006; Choi et al., 2013). Managers, when they want to disguise the true state of a company's financial performance, may adopt earnings management (EM) to report and estimate the information by means of flexible accounting. EM is broadly interpreted as a way to "mislead some information users about the underlying economic performance of the company or to impact contractual outcomes that depend on reported accounting numbers" (Healy and Wahlen, 1999). In this context, due to managers look after their own interests through providing financial statements that do not reflect an accurate economic picture of the firm, EM is

considered a type of agency cost (Sun et al., 2010). Although CSR reporting and earnings management (EM) have established themselves separately as well-researched areas, relatively less attention has been paid to setting up a link between two. Since EM is influenced by the choices and incentives of those who are involved in formulating and making decisions in the organisations, consideration of CSR reporting could be important determinants (Choi et al., 2013; Wang et al., 2016).

 In order to explain the link between CSR reporting and EM, previous studies have suggested two perspectives, which are the legitimacy perspective and the moral perspective (Patten & Trompeter, 2003; Kim et al., 2012; Grougiou et al., 2014). According to the legitimacy approach, firms voluntarily issue CSR reporting to promote an impression of CSR values, which may or may not be substantiated (Prior et al., 2008; Sun et al., 2010; Mahoney at el, 2013). Following this argument, the relationship between EM and CSR reporting could be substitutive in the sense that companies with low quality financial reporting might disclose CSR information as a mechanism of legitimacy to substitute for the low quality financial information (Martínez-Ferrero, et al, 2015). CSR reporting, in this sense, is used as window-dressing to divert attention from questionable financial reporting processes. Consistent with the political cost hypothesis, firms are more likely to use disclosures to reduce political costs. These companies may disclose CSR information, for example, in order to reduce the likelihood that they will be targeted by adverse political actions.

On the other hand, the moral perspective assumes that companies, which are socially responsible and disclose quality information of their CSR, are less likely to manipulate earnings (e.g. Chih et al., 2008; Yip et al., 2011; Choi et al., 2013). According to this perspective, a company with a strong commitment to CSR is more prone to act in a responsible way when reporting its financial statements (Choi et al., 2013). In the same vein, Kim et al. (2012) argue that firms which expend their efforts and resources on designing CSR programmes and

implementing these programmes to address the ethical interests of stakeholders follow more transparent and reliable financial reporting and, thus, are less likely to manage earnings. Given that managers are more likely to manipulate earnings when there is high information asymmetry, CSR reporting is assumed by signalling theory to be a means for mitigating the information asymmetry between management personnel and stakeholders.

Prior research in this area has substantiated that CSR reporting is associated with EM. Empirical findings, however, remain inconclusive with regard to whether commitment to CSR reporting has a positive or negative impact on EM and vice versa (for example, Sun et al, 2010; Yip et al., 2011; Wang et al., 2015; Muttakin & Azim, 2015; Belgacem & Omri 2015; Rezaee et al., 2017). These empirical studies have produced contradictory results as to the relationship between CSR disclosure and EM. For instance, while Wang et al. (2015) and Rezaee et al. (2017) found a negative relationship between CSR disclosure and EM, Muttakin & Azim (2015) and Belgacem & Omri (2015) report a positive relationship between them. Furthermore, Yip et al. (2011) investigate whether CSR reporting is associated with EM in a sample of US publicly listed oil and gas and food companies. They found a positive relationship in the food industry and a negative relationship in the oil and gas industry between CSR disclosures and EM. Conversely, Sun et al (2010), examined the relationship between environmental disclosure and discretionary accruals (DAs) in the UK. Their result suggests no significant statistical association between various measures of DA and environmental disclosure.

One important gap in the previous studies is related to the measurement of CSR reporting. So far, two methods of measuring CSR disclosure have been employed when examining the relationship with EM. The first method uses subjective analyst disclosure quality rankings. Such indices rankings are not available in many countries and, therefore, cannot be applied widely. The second method measures CSR reporting based on the theme and amount of information disclosed. However, this method does not consider other important dimensions

that distinguish the information provided to users (e.g. Muttakin & Azim, 2015; Belgacem & Omri 2015; Rezaee et al., 2017).

Prior studies also provide inconsistent results. One possible reason for this could be due to the biased measurement of CSR disclosure. Given the contradiction of prior studies' findings, and the importance of this association for market participants and academics, more research is needed. It is not possible to conclude the possible effects of CSR reporting on EM without knowing whether CSR disclosure conveys true (as in the ethical perspective) or false information (as in the managerial opportunism or legitimacy perspective).

The above discussion poses an important research question. However, the current study argues that it is more likely to reconcile these contradictions through evaluating the quality of CSR disclosure (QCSRD). Therefore, this study developed a multidimensional framework to measure the QCSRD. Then, the study empirically examines whether firms which exhibit QCSRD behave appropriately to constrain EM, thereby delivering more transparent and reliable financial information. Chih et al., (2008) argue that managers are less likely to engage in EM in companies that provide high quality disclosure of their social activities, which targets all stakeholders. This is because, when the transparency of information is increased, the expectation of the information asymmetry among the management and stakeholders will be reduced. Since the reduction in information asymmetry tends to constrain EM (Wang et al, 2015), this study expects a negative association between QCSRD and EM.

1.2 Research Motivations

The motivation for the current research arises from several considerations. **Firstly**, due to the existence of agency conflict with the problem of information asymmetry, managers are more likely to engage in EM opportunistically in their own interests rather than optimising the company's value. Consequently, this misleads stakeholders about the company's financial

4

position and its market value. Therefore, due to the existence of agency costs, accountable and transparent systems should be introduced to mitigate this problem (Leftwich, 1980; Watts & Zimmerman, 1990). Agency theory proposes that companies might use different strategies to minimise the conflict of interests between managers and shareholders, such as CSR disclosure. In addition, the opportunistic perspective and the moral perspective (Kim et al., 2012) also pose an important research question. However, a closer look at the arguments behind these two perspectives reveals that they can be reconciled if one can evaluate the informational content (i.e. quality) of CSR. Therefore, the current study has a strong incentive to examine the relationship between QCSRD and EM.

Secondly, previous empirical studies have produced contradictory results on the relationship between CSR disclosure and EM. These puzzling results may be due to differences in their measurement of CSR disclosure and EM. Previous studies (e.g. Kansal et al., 2014; Oikonomou et al., 2015) have measured CSR disclosure by using quantity as a proxy for quality. However, Botosan (2004) argued that although quantity and quality are inseparable and difficult to measure, information quantity disclosed does not necessarily imply quality. Furthermore, since it is difficult to measure disclosure quality due to issues of objectivity, the measurement of CSR disclosure quantity needs to be paralleled by quality measurement in order to clearly understand the level of CSR disclosure.

Thirdly, another important gap observed from previous literature is on the relationship between CSR disclosure and EM. While many previous studies (e.g. Yip et al., 2011; Muttakin & Azim 2015) have used accruals bases in their measurement, no research has used real earnings management to examine the relationship between QCSRD and EM. This limitation in measurement, caused by the absence of a broader framework and omission of certain important variables, make the findings of these empirical studies inappropriate in establishing the relationship between CSR disclosure and EM.

Fourthly, since the majority of research is conducted in developed countries (e.g. Sun et al., 2010; Yip et al., 2011), not much is known about the relationship between CSR disclosure and EM in developing countries. Only a few empirical studies in developing countries, Belgacem & Omri (2015) in Tunisia and Khan and Azim (2015) in Bangladesh, have investigated their relationship. Based on the above evidence, this study is motivated to examine the relationship between QCSRD and EM in India using a broader measurement framework of EM and a multidimensional proxy of QCSRD.

Studying the link between QCSRD and EM in the Indian context is important for several reasons. Firstly, this study suggests that there are additional factors to be analysed, which are not included in developed countries' paradigms. Prior research has argued that several factors such as culture, religion and other societal norms may influence CSR disclosure and EM (e.g. Hastings, 2000; Gautam and Singh, 2010). The focus on the quality of CSR disclosure and EM in the Indian context, and the practices of its leading companies, could provide practitioners and scholars with a new model (Cappelli et al., 2010). Secondly, the focus on one of the fastest growing economies can inform general managers and CSR managers about the characteristics of the Indian approach to QCSRD and EM. Thirdly, the Indian context makes an interesting example, being an environment that has one of the highest levels of CSR practices among other developing countries (Reserve Bank of India, 2009; Unido, 2002). India passed Section 135 of the Companies Act, in 2013, recommending a mandatory "CSR spend of 2% of average net income during the ending financial year" for all companies meeting specified financial thresholds by this Act. Thus, it has gone further than any other country. Finally, Indian listed companies exhibit a strong presence of family and promoter groups' ownership (Chauhan et al. 2016). It is also a fact that Indian institutional laws, mechanisms and governance are weak compared to western countries (Reddy, 2016). Therefore, research findings for western countries may not be applicable in the Indian context.

1.3 Research Question and Objectives

Recently, investors have increased their attention on CSR disclosures (Diouf and Boiral, 2017). The report of the Investors Responsibility Research Centre Institute in 2016 indicates that investors are integrating environmental social information into their investment decisions. Furthermore, several recent empirical studies investigate the importance of CSR reporting to business organisations, its relevance as it pertains to corporate culture, and raised concerns about the CSR reporting as a determinant of EM. Rezaee (2017) suggests that organisations should take their CSR reporting to the top of the agenda for their directors and executives to integrate into their corporate culture and business models, due to their potential role in mitigating information asymmetry and the problem of agency conflict. This thesis responds to these calls and the limitations within prior studies, which is explained in section 1.1, related to the measurement of CSR reporting and EM plus the contradictory results of prior studies. Thus, the main focus of this study is to answer its main question:

"Is there a positive or negative relationship between the QCSRD and the level of AEM and REM among Indian listed companies?".

This will be addressed through three empirical stages. The first stage is to measure both AEM and REM among Indian listed companies, while the second stage is to investigate the firms' QCSRD among Indian listed companies. The final stage is to examine the relationship between QCSRD and both AEM and REM. To address the research's primary question, the main aim of this study and key objectives are explained as follows:

The aim of this study is to understand the relationship between the QCSRD and EM among the top 500 Indian listed companies. The key objectives are:

1. To measure the level of EM among Indian listed companies;

      1.1 To measure the level of AEM among Indian listed companies.

1.2 To measure the level of REM among Indian listed companies.

2. To measure QCSRD among Indian listed companies.

3. To examine the relationship between QCSRD and EM among Indian listed companies.

1.4 The importance of the Research

This study is important from both academic and practical aspects. There is a gap in the previous studies on the impact of the CSR disclosure of the companies on the practices of EM, especially in the developing countries' context. Furthermore, this is the first study to examine the effect of QCSRD on both AEM and REM. Companies now need to take care of moral aspects and social responsibility, which may help to improve the welfare of society and reduce economic problems such as unemployment, poverty and environmental pollution. Furthermore, clarifying the impact of QCSRD provides information on environmental and social activities alongside financial information. This helps to meet the requirements of all stakeholders and reduces conflict of interest through providing quality information and thus the transparency of financial reports. Therefore, such research can provide good guidance for activating the role of corporate social responsibility disclosure in reducing EM practices in the Indian context. This study also helps standard setters and regulators to continue improving the guidance and frameworks to assist firms to provide high quality financial reporting and CSR disclosure.

1.5 The Research Methodology

A summary of the methodology used in the current research is presented in this section. The methodology in detail, comprising justification of the research measurements and methods, is presented in Chapter 4 (methodology chapter). In order to achieve objective one of this research, EM practices are addressed in chapter five. AEM is measured through the modified Jones model (1995), as the main proxy, and Kothari et al.'s (2005) model, as a robustness

check, using different years and different industries. REM is estimated employing Dechow et al.'s (1998) model which is adopted by Roychowdhury (2006) using different years and different industries. The second objective of the present study is to measure QCSRD among Indian listed companies. This objective is achieved by measuring QCSRD through developing a multidimensional framework in chapter six. In order to address the main purpose of the current study, the relationship between EM and QCSRD is examined in chapter seven. Quantitative data for measuring EM is collected from the OSIRIS database, which contains reliable information on listed companies. Qualitative data, which was used to measure QCSRD, is collected from the annual reports of these companies, which make up the final sample of this study.

Overall, three main steps are used by this study in data analysis. These consist of the preliminary analysis, the multivariate analysis and finally the robustness checks. In the initial analysis, the current study discusses the descriptive statistics and checks for a multicollinearity problem using a correlation matrix. The description of data with regards to the central tendency test on a single variable is achieved through descriptive statistics. The correlation between independent variables of the study sample is tested through a pairwise correlation matrix.

In the present study, regression analysis is employed to test the study hypotheses. In order to test whether the panel or pooled model is more suitable, the Chow test and Breusch-Pagan Lagrange multiplier (LM) are conducted for the study regression models, which are used in examining the study hypotheses. In order to determine the suitability of the fixed effect or random effect for the current study, the Hausman test is conducted.

Furthermore, the current study conducted several (alternative) additional analyses to ensure the robustness of the main study results. To increase the power of the primary test and ensure the accuracy of the main results, the following analysis was used. Firstly, the current study uses suspect firms that may manipulate earnings based on four sub-samples of companies with

strong EM incentives. Secondly, the present study also examines whether EM differs between the high QCSRD and low QCSRD companies. Finally, using an alternative measurement of the explanatory variables AEM and REM, the current study tests whether the primary findings are robust to various measures or not. Two-stage least square regression (2SLS) is also included in order to check whether the results related to the relationship between EM and QCSRD and the finding related to the relationship between AEM and REM are impacted by an endogeneity problem or not.

1.6 The Research Contribution

Several contributions are made to the knowledge through this study, which are theoretical contributions and methodological contributions.

1.6.1 Theoretical contribution

This research contributes to the literature in several ways. **Firstly,** it contributes to the literature in term of determinants of EM. It sheds light on the impact of the QCSRD on earnings management. The previous studies on the relationship between CSR disclosure and earnings management evaluate CSR reporting using the incidence and the amount of CSR disclosure without paying significant attention to the quality of the information disclosed, therefore, their findings are inconsistent. This study provides evidence that Indian firms disclosing QCSRD are, in fact, delivering more transparent and reliable financial information, which is consistent with the ethical perspective. **Secondly,** this is the first research to provide a broad examination of the influence of CSR reporting on both real and accrual earnings management. Prior studies (e.g. Belgacem & Omri, 2015; Wang et al., 2015; Yip et al., 2011) examine the impacts of CSR reporting on EM but do not specifically examine for REM. Therefore, they can provide only a partial picture of the relationship. The present study, thus, allows for a more comprehensive understanding of the effect of CSR reporting on EM. **Finally,** this study provides evidence that

Indian firms with QCSRD are, in fact, delivering more transparent and reliable financial information. Thus, the current study also extends the EM literature by providing empirical evidence of determinants of EM in an emerging economy context.

1.6.2 Methodological contribution

CSR reports have been criticised for their lack of relevance and credibility (Husillos et al., 2011). This study seeks to contribute to this critique by offering new insights concerning the complexity of QCSRD and its relationship with EM, and develop a new multidimensional model to measure QCSRD. This framework provides evidence on the nature of a company's CSR disclosures based on three dimensions, which allows capturing the quantitative and qualitative features concerning a specific kind of CSR information. The first dimension is the actual amount of disclosure, relative to the amount adjusted by two factors, size and complexity; prior studies show these two variables to have a strong impact on disclosure (e.g. Beattie et al., 2004; Beretta and Bozzolan, 2008). This is more likely to help in evaluating CSR disclosure, taking into account the differences in the companies' size and industry. The second dimension measures the spread of CSR information. Using spread dimension in this framework helps to evaluate whether the CSR information disclosed meets the need of different stakeholders or focuses on specific groups. The usefulness dimension helps information users to evaluate CSR disclosure by capturing the four type characteristics: the relevance, faithful representation, understandability and comparability (based upon the qualitative characteristics of information suggested in the conceptual frameworks of IFRS (2010A). These procedures used allow a rich description of the nature and patterns of disclosure to emerge, and permit these dimensions to be analysed both in combination and individually.

1.7 Structure of the research

The current study comprises eight chapters, including this chapter, which presents the overview of the current research and its objectives. This chapter summarises the motivation of the study and its methodology. Finally, this chapter presents the results, contribution of study and the structure of the present research.

Chapter two discusses two main points. Firstly the literature related to CSR disclosure is discussed, followed by the link between QCSRD and EM. It explains the argument about the definitions and concept of CSR disclosure and discusses its importance. It then presents the relationship between CSR disclosure and EM through prior literature and different theories to clarify why companies engage in CSR disclosure, and also to explain how QCSRD can be linked to AEM and REM.

Chapter three presents an overview of EM, its activities and the models, which are used to estimate these activities. Starting with EM definitions, the previous literature is discussed to explain the common definitions of EM. Moreover, chapter three also clarifies the differences between AEM and REM, the techniques of EM and their measurements. It also discusses the most commonly-used models to measure accrual and real EM. Finally, the empirical studies which relate to the AEM and REM are discussed in chapter three.

Chapter four explains in detail the methodology of this thesis. It explains the study hypotheses, clarifies the study sample and data collection, discusses and justifies the methods used for measuring EM (AEM and REM) as dependent variables and QCSRD as an independent variable, as well as the control variables. It also explains the empirical models used to examine the relationship between QCSRD and EM. The analytical processes are also explained in this chapter.

Chapter five addresses and analyses the empirical results related to earnings management across the sample studied. The key purpose of chapter five is to achieve objective one. The

results of AEM and REM practice and their trade-off are presented in this chapter, which begins with descriptive statistics then addresses the correlation matrix and the regression analysis. The robustness of the results was also reported in this chapter.

Chapter six presents the empirical results of the QCSRD based on a multidimensional framework in order to achieve the second objective. It discusses the descriptive statistics and provides empirical findings based on the relationship between QCSRD and the accuracy of analysts' forecasts.

Chapter seven aims to achieve the main purpose of this study, which is related to the relationship between QCSRD and EM. This chapter provides the results from several analyses involving descriptive statistics, correlation matrixs using pairwise correlation and then regression analysis tests. This is done in order to examine the hypotheses related to the main question of this study. Additional analysis of the robustness was also conducted in this chapter to check whether the main findings changed using different measurements or not.

Finally, the conclusions of this thesis and an overall summery is provided in Chapter eight, this final chapter discusses the summary of the key study results, limitations and the recommendations for future research.

CHAPTER TWO: THE LITERATURE REVIEW ON CSR DISCLOSURE AND ITS IMPACT ON EM

2.1 Introduction

Since the second objective of this study is to measure the QCSRD practices, and the main aim is to examine the relationship between QCSRD and EM, chapter two is organised as follows: The concept of CSR and CSR disclosure is presented in section 2.2 and section 2.3 respectively. The importance and motivations of CSR disclosure are discussed in section 2.4 and 2.5. Section 2.6 shows the determinants of CSRD and section 2.7 present the quality of CSR disclosure. Then the relationship between QCSRD and EM and theories related to EM and CSR disclosure are clarified in sections 2.8 and 2.9. Finally, the summary of this chapter is provided in section 2.10.

2.2 The Concept of CSR

CSR is commonly viewed as the type and scope of social obligations, which should be considered by companies in the course of their routine business activities (Shamir, 2005). The importance of the CSR issue has been increased for several stakeholders. (Shamir, 2005; Morsing, M., & Schultz, 2006). Daub (2007) suggested that managers are currently forced to justify their activities to wider stakeholders. To this end, management no longer limit their focus on the economic activities, therefore managers should pay more attention to other issues that may affect their activities. Govekar & Hoffman (2007) argue that the concept of social responsibility appeared for the first time in 1923, when Sheldon pointed out that companies are expected to be socially responsible. They explained that the existence of companies and their continuity requires them to commit to, and fulfil, their social responsibility when performing their different activities. They identified two key areas of social responsibility: their responsibility to their employees and also to the community. Epstein & Buhovac (2014) indicate that social responsibility is closely linked with the concept of sustainable development.

This term describes companies' activities to meet their current needs without impacting future generations' ability to meet their own needs. This concept is based on three main elements, which are environmental protection, economic growth and social development. Thus, social responsibility is the key tool that can help to achieve the concept of sustainable development (Moon, 2007; Hassan et al., 2010; Pirnea et al., 2011). Although social responsibility has become an issue of growing interest for academics, businesses and stakeholders, there is no comprehensive concept of a commonly-agreed definition of social responsibility yet (Dahlsrud, 2008; Mihalache, 2013). This section, therefore, will offer a set of concepts that have been introduced by academic studies and a number of international organisations, which are assumed to contribute to the identification of social responsibility and its various dimensions.

A number of academic studies have provided various social responsibility definitions. Thus, CSR can appear under different terms, such as business ethics, corporate citizenship, corporate accountability and corporate social performance (e.g. Carroll, 1999; Valor, 2005; Dahlsrud, 2008). For example, social responsibility has been defined as dealing with stakeholders ethically or in a responsible manner that is consistent with the principles of civil societies and contributes to the enhancement of a high quality of stakeholder interest (Hopkins, 2004). Branco et al. (2006) also indicated that social responsibility is a set of standards which controls the decision-making process within the company, which include controlling the negative impact on the community and stakeholders. Galbreath, (2010) has also indicated that CSR is the activities and processes that aim to improve managers' relationships with stakeholders and society at large. Others indicated that CSR is mostly a voluntary activity that directs the company's resources towards improving social welfare, which would protect the interest of stakeholders (Falck & Heblich, 2007; Arevalo & Aravind, 2011).

Similarly, international organisations made a series of attempts to provide a comprehensive concept of social responsibility. For instance, the World Business Council for Sustainable

Development (2000) pointed out that social responsibility is a commitment by companies to contribute to sustainable development through cooperating with workers and their families, the local community, and society at large. High quality companies engage in these activities in order to improve the standard of living in a manner that serves the trade and leads to development at the same time (Cetindamar, 2007; Mijatovic et al., 2015). The International Business Leaders Forum (2005) also indicated that social responsibility is a commitment to the practices of commercial firms in light of a set of ethical principles that help to respect workers, community and environment, thus contributing to the creation of sustainable values for shareholders and society in general (Nelson, 2006). The European Commission (2001) also stated that firms should consider social and environmental concerns when conducting their business operations and their interaction with stakeholders.

It is noted that, in the previous concepts, whether provided by academic studies or international institutions, four key dimensions of social responsibility are included. Carroll, (1991) and Matten and Moon (2008) indicated that these four dimensions of responsibility can be explained as a pyramid, presented in **Figure 2.1**, **Firstly,** economic dimension is the base upon which all the other dimensions are enhanced. The economic dimension perceives companies as economic units which provide sustainable earnings for shareholders, producing high quality goods demanded by the public at fair prices and providing new jobs with fair payment for the workforce. **Secondly**, the legal dimension requires companies within society to comply with social regulations and carry out the responsibility for their activities in accordance with local and international legal requirements. **Thirdly**, the ethical dimension requires companies to behave morally. Thus, it should meet the expectations of society, such as paying attention to environmental and sustainable development, human rights and avoiding misleading advertising**. Fourthly**, the voluntary dimension focuses on donations to the community and goes further than the shareholders' perspectives, including the activities that are considered

desirable by the community. Examples of this might be supporting social and cultural projects, training and human resource development and creating employment opportunities for the public.

Figure 2.1 (Carroll Model):
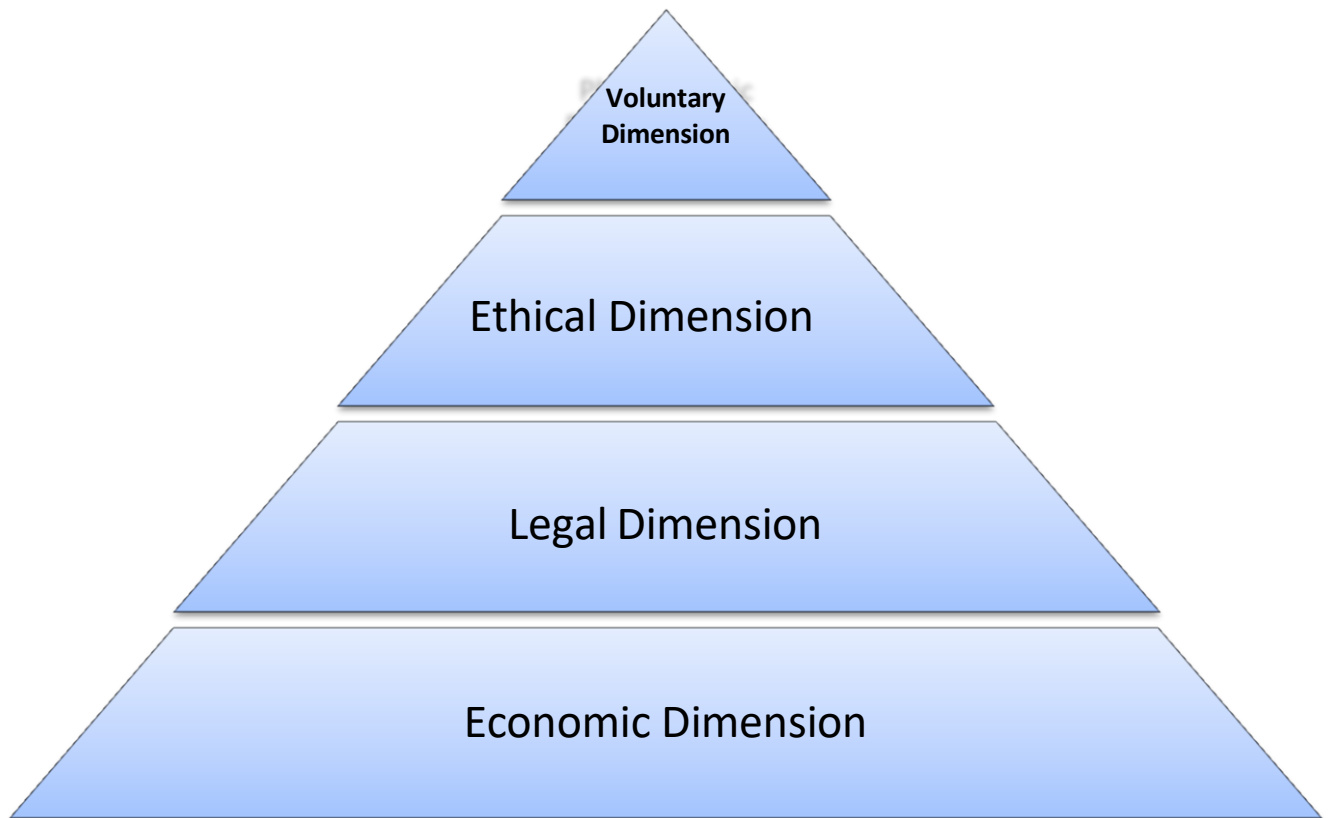
Source: Carroll (1991, p.42)

2.3 The Concept of CSR Disclosure

There are two main categories of disclosure: voluntary and mandatory disclosure (Owusu-nsah, 1998). Verrecchia (2001) argues that Mandatory disclosure forces managers to provide information on both bad and good news of their operations. Voluntary disclosure is defined as information in excess of requirements, which represents the willingness by managers to provide information that is deemed essential to users of their annual reports (Chau and Gray, 2002). Voluntary disclosure is a decision made by companies to disclose information for achieving

their different targets. Beyer et al. (2010) suggest that a substantial part of information used by decision makers in the markets is provided through voluntary disclosures. One of the most significant pieces of voluntary disclosure obtained from annual reports is CSR disclosure (Marston and Shrives, 1991; Epstein and Palepu, 1999; Hope, 2003). Since voluntary CSR disclosure is the flexible part of disclosure that can be affected by managers' decisions, the current study focuses on this aspect of disclosure (voluntary CSR disclosure). CSR disclosure is a primary tool for managers to communicate with stakeholders about the social activities of the company. Therefore, it is a key tool in building strong relationships with stakeholders and creating mutual understanding to manage the potential conflicts (Balmer et al., 2006; Hess, 2008). Moreover, CSR disclosure is used by managers as the main mechanism to inform wider stakeholders about the company's CSR practices (Bella and Cooper, 2011). CSR disclosure, which is the focus of this chapter, includes financial and non-financial information relating to the company's interaction with the social environment. This is presented in their annual reports, or other reports prepared for this purpose.

One of the earliest CSR disclosure definitions, which is provided by Elias and Epstein (1975), focuses on some aspects related to a company's social practices or its influence. Since then, various definitions of CSR disclosure have been proposed by prior studies (Glautier et al., 2001; Hess, 2008; Bella and Cooper, 2011; Rezaee and Tuo, 2017). For many years the growing concern in CSR disclosure has focused on issues related to society and the environment (Yusri & Amran, 2012). Gray et al. (1987) defined CSR disclosure as the procedures of communicating the impacts of social and environmental practices of the companies' economic activities to interested stakeholders within the community. Mathews and Perera (1995) suggested that CSR disclosure is an extension of disclosure about community service, employees, products, and reduction or prevention of pollution. In their CSR disclosure, firms provide financial and non-financial information relating to the company's interaction with

social and environmental issues, in annual reports or other reports prepared for this purpose. Glautier et al. (2001) stated that CSR disclosure is a concept of reporting information relating to the new dimensions for business, such as fair business practices, environment, energy, community, human resources, safety, involvement, trust, products and innovation. Moreover, CSR disclosure is a primary tool for communicating with stakeholders about the social activities of the company. Therefore, it is a key element in building strong relationships and creating mutual understanding to manage the potential conflicts (Hess, 2008). Burchell and Cook (2006) suggest that disclosure of corporate social responsibility is a report on the social and environmental effect of the companies' operation on stakeholders within the community at large. Smith et al. (2005) explain that CSR disclosure is information provided by a company about social performance, whether positive or negative. In addition, companies are required to report both good and bad CSR information to enhance investors' decision-making and provide fair information for wider stakeholders. Furthermore, social disclosure is voluntary in most cases, aimed at enhancing the firm's respect for natural environment and contributing to achievement of social justice as an extension of good business practices (Hassan et al., 2010).

Based on the above definitions, CSR disclosure can be defined as a broad term that includes different issues, such as environment and energy-related disclosure, human resources-related information, society involvement-related disclosure and product and customer relations information (e.g. Gray et al., 1995; Deegan, 2002; Gao et al., 2005). Fundamentally, CSR disclosure is perceived to be a picture of firms' CSR practices as represented in their annual reports.

2.4 The Importance of CSR Disclosure

Communities' needs for CSR information disclosed by listed companies have increased, and CSR disclosure has become an important requirement for stakeholders. For instance, Tian & Chen (2009) pointed out that voluntary disclosure gives depth and credibility to mandatory

disclosure, since it enhances and expands the information provided in mandatory disclosure. Investors are increasingly aware of the importance of social responsibility disclosure. Passetti et al. (2009) argue that CSR disclosure is one of the factors that influence investment decisions, which is used as a reference to the value of investment in intangible assets and managing risks. Therefore, it is considered a good indicator of a firm's value. Many studies have found that social responsibility information is useful for making investment decisions, thus there are increasing requests from investors for such information (e.g. Dhaliwal et al., 2012; Casey and Grenier, 2014; Lee, 2017). Sun et al. (2010) argue that non-financial information which is disclosed voluntarily, such as CSR disclosure, may reduce asymmetric information, mitigate the uncertainty risk, and thus improve the financial decisions in the capital markets.

Lungu et al. (2011) also argue that CSR disclosure improves the quality of financial reporting. Traditional reports are characterised by their deficiency in providing useful information; this is required to identify and report on the economic activities in the context of sustainable development. Thus, traditional reports are required to be re-structured in a wider context. This should include not only the traditional categories, which are provided in disclosure, but should be improved to meet the needs of the various stakeholders.

In the same context, Luo et al. (2015) suggest that CSR disclosure may contribute to maximising the value of companies. Many previous studies have found a positive impact of CSR disclosure on the company's value, due to the ability of this disclosure to reduce the cost of capital and improve the performance of the stock market. Moreover, CSR disclosure is deepening the social role of companies in order to improve their financial performance (Hassan and Ibrahim, 2012; Carnevale et al., 2012; Maignan, 2001).

2.5 The Motives of CSR Disclosure

Rikanovic (2005) indicates that the motivation behind the expansion of the disclosure is to expand the knowledge and awareness of investors regarding activities related to social responsibility. Explanation of the motivations of CSR disclosure has been debated from various perspectives, such as legitimacy theory, stakeholder theory and social contract theory.

In the absence of mandatory disclosure requirements, managers may adopt voluntary disclosure of social responsibility in order to legitimise the activities of the company (Branco & Rodrigues, 2008). Thus, disclosure of social performance could be used to build a positive image to legitimise the company's activities from the community's point of view; unless companies are seen as legitimate, they face the risk of going out of business. Therefore, legitimacy theory arguably contributes to explaining the inclusion of CSR disclosure in the annual reports (Suchman, 1995; Guthrie and Parker, 1989; Maali et al., 2006).

Several studies have demonstrated that other motivations besides legislation are driving companies to provide CSR information to stakeholders (e.g. Campbell, 2000; Moerman et al., 2006; Mahoney et al., 2013; Chauvey et al., 2015). Stakeholder theory is an extension of the theory of legitimacy, since it takes into consideration specific groups of stakeholders (Brown and Forster, 2013; Sen and Cowley, 2013). CSR information is a key element which can be employed by the management to deal with stakeholders in order to obtain their support or to distract the attention of a company's competitors (Moerman et al., 2006). Reinig & Tilt (2012) argue that the CSR disclosure in annual reports is affected by the strength of stakeholders, as the manager is trying to focus on the environmental aspects and reformulate the challenges that are posed by the stronger parties among the stakeholders. However, the manager must run a business in an ethical manner to achieve a balance between the conflicting goals of stakeholders, regardless of their strength, bearing in mind that each group has a right to information.

Lanis and Richardson (2012) assume a set of social contracts between various groups within society, and between those groups and the society itself. Although those engagements are implicit, they are an essential guide for managers' behaviour with various stakeholders. Therefore, disclosure of social responsibility is used for indicating the extent to which those contracts are fulfilled. Because the company is granted the authority to work in the community, creating wealth for shareholders must be within the boundary of social standards. Controversy still revolves around the importance of appropriate disclosure of information to a large number of stakeholders, which represents the rest of the parties to the social contract (Bondy et al., 2012; Reinig & Tilt, 2012).

2.6 The determinants of CSR disclosure

Prior research has used firms' characteristics as determinants of CSR disclosure (e.g. Ahmed and Courtis, 1999; Beattie et al., 2004; Hussainey and Walker; 2009; Aras et al., 2010). Since company size is used as a proxy for political visibility, prior studies have found evidence that size has a strong impact on disclosure (e.g. Beattie et al., 2004; Beretta and Bozzolan, 2008). Chih et al., (2008) suggest that CSR disclosure could be proposed to reduce asymmetric information and mitigate agency costs. CSR disclosure is likely to allow information users to evaluate reputational damage to detect potential risks. Gamerschlag et al. (2006) indicated that there is a positive relationship between company visibility and its CSR disclosure. Industry type is also indicated by prior research as a determinant variable of CSR disclosure (e.g. Beretta & Bozzolan, 2008; Beattie et al., 2004). Annual reports disclosure may not be similar in all sectors (Camfferman & Cooke, 2002), therefore, an assumption has been made for the similarity of disclosure practices among firms that belong to the same sector. This is due to the existence of regulated industries, adherence to international capital markets' needs and industry sensitivity (e.g. Boutin and Sacaris, 2004; Ghazali & Weetman, 2006; Jennifer & Taylor, 2007). Ahmed and Courtis (1999) report evidence that there is a significant

relationship between industry type and disclosure for Swedish and Canadian companies. Salama et al. (2012) reveal that industry type among the UK companies has a significant influence on CSR disclosures. Profitability is another variable represented as determinants of CSR disclosure. Prior research (e.g. Bushee and Noe, 2000; Aras et al., 2010) in this area has substantiated that CSR reporting is associated with profitability. Kiattikulwattana (2014) indicates that the likelihood of CSR disclosure is higher among profitable companies than those companies with lower profits. Finally, agency theory suggests that agency costs increase with a high leverage ratio (Elzahar and Hussainey, 2012). Hussainey and Walker (2009) provided evidence that financial leverage ratio is related to CSR disclosure. They argue that leveraged companies may provide more information requested by other stakeholders and are likely to offer more details of disclosure to meet those needs. Previous literature also indicates that financial leverage is statistically related to CSR disclosure (e.g. Fauzi, 2009; Cheng et al., 2014).

2.7 The Quality of CSR Disclosure

The quality of disclosure is a complex concept which can be defined in different ways. For example, it is defined as the ease that enables investors to evaluate and interpret the information and how it can be used (e.g., Hopkins, 1996). Other studies define quality based on security value after receiving the disclosure (e.g., Diamond & Verrecchia, 1991). Botosan (2004) argued that the quality of information disclosed is high if it is positively associated with analysts' earnings forecast accuracy. Thus, disclosure quality is useful to the users in making their decisions (Beretta and Bozzolan, 2008), which suggests that disclosure quality is value relevant information to market participants (Baek et al., 2004; Healy and Wahlen., 1999). The quality of disclosure is influenced by the managers' intentions which impacts whether they will represent performance transparently or not (Bagnoli and Watts, 2005). IFRS suggests that the

characteristics of information, such as relevance, faithfulness, understandability and comparability help to support companies to be more transparent in revealing their performance (Höring & Gründl, 2011, Alotaibi and Hussainey, 2016).

The current study argues that quality of CSR disclosure can be identified through measuring three dimensions: the quantity of information, spread of information and the usefulness of the information disclosed. Firstly, the quantity of CSR information disclosed reveals the level of disclosure. Secondly, the spread of CSR information helps to evaluate whether the CSR disclosure meets different stakeholders' needs or focuses on specific groups. Finally, the usefulness of CSR information helps to evaluate disclosure in terms of information characteristics based on IFRS (2010), which are relevance, faithfulness, understandability and comparability of information. Thus, the current study suggests a new framework for the value of both composite summary measures and measures of individual quality dimensions of CSR disclosure. Composite summary measures are useful in relating CSR disclosure quality to other variables of interest. However, to obtain a rich understanding of CSR disclosure quality it is necessary to focus on the individual dimensions, their inter-relationships and the way in which they combine.

Recently, stakeholders' concern about corporate social responsibility disclosure has increased dramatically (Aribi, 2009). In contrast, there is a small amount of empirical academic evidence on the value of CSR disclosure to the information's users in general (Dhaliwal et al., 2012). Botosan (2004) debates whether high quality disclosure is useful to the information's users in making financial decisions. Sun et al. (2010) argue that the CSR disclosure which is disclosed voluntarily reduces asymmetric information, which may also mitigate the uncertainty risk, improve the financial decisions in the capital markets and enhances financial analysts' decisions. However, mere disclosure (low quality information) may have a negative impact on the market confidence in CSR companies which will, thus, have an influence on the investor's

interest in CSR activities (Botosan et al., 2004). If low quality information is reported by the manager, it will not enhance the judgments of financial decision makers and other stakeholders (Dhaliwal et al., 2012). Transparency needs to be increased by managers, and rhetoric statements about CSR activities also should be improved through higher QCSRD (Delmas and Burbano, 2011). Recently, internal managerial practice has been changed due to increased concern about firms' CSR practices, which has changed information users' understanding (Ioannou and Serafeim, 2010). Managerial disclosures about CSR, which are quantifiable, specific, comparable, relevant and represent CSR activities faithfully, is more likely to reflect the company's social and environmental behaviour with different stakeholders (Peattie, 2004; Alotaibi and Hussainey, 2016). Companies which provide CSR activities for various stakeholders might attract universal investors (Stout, 2012) who are interested not only in owning shares in the company, but also value shares in the community and the entire economic environment (Luo et al., 2015). Information users tend to focus on various types of CSR disclosure in their reports in order to enhance the investment decision of different investors. The QCSRD is related to disclosures that reflect companies' real commitment to CSR strategies and thus increases the accuracy of decision makers (Dhaliwal et al., 2011). Empirical prior research has investigated how companies issue CSR reports on a voluntary basis and its impact on the performance of companies, asymmetric information, the accuracy of analysts' forecasts and companies' reputation (Maignan, 2001; Carnevale et al., 2012; Dhaliwal et al., 2012; Hassan and Ibrahim, 2012; Cheng et al., 2014). Other research has also focused on the impact of CSR information on EM (e.g. Sun et al., 2010; Yip et al., 2011; Belgacem & Omri, 2015; Muttakin et al., 2015; Martínez et al., 2015; Wang et al., 2016). Since singling and agency theory suggest that the QCSRD could be used to mitigate information asymmetries (Watts and Zimmerman 1990; Miller 2002), it can be expected that the QCSRD is useful for various

stakeholders and therefore comprises a positive phenomenon for stock markets (Garrido et al., 2014).

2.8 Measurement of QCSRD

Previous literature has indicated that there is controversy regarding the measurement of CSR disclosure (HASSAN, 2010). CSR reporting has been criticised for its lack of relevance and credibility (Husillos et al., 2011). Prior research has used subjective analyst disclosure quality rankings (e.g. Becchetti et al., 2013; Ioannou and Serafeim; 2015), which are not available in many countries and, therefore, cannot be applied widely. Other studies evaluate CSR reporting based on issuance of a stand-alone CSR report without analysing the content of CSR reports in order to evaluate the information provided to users (e.g. Yip et al., 2011; Thorne et al., 2014). The issuance of standalone CSR reports may be an attempt by management to convince powerful stakeholders that the firm is acting in the right way and is socially and environmentally responsible, regardless of whether actual performance follows (Thorne et al., 2014). Prior studies also have evaluated CSR reporting based on the theme and amount of information disclosed, which have used quantity disclosure as proxy for quality (e.g. Dhaliwal et al., 2012; Casey and Grenier, 2014; Belgacem & Omri, 2015; Muttakin & Azim, 2015). However, this method does not consider other important dimensions that distinguish the information provided to users. Botosan (2004) argued that, although quantity and quality are inseparable and difficult to measure, the quantity of information disclosed does not necessarily imply quality. Beretta & Bozzolan (2008) indicated that quality of disclosure is considered by not only the magnitude of disclosure, but also what is disclosed and the diversity of topics disclosed. To determine a better measurement model for quality of disclosure, the reported information by CSR disclosure must meet the key requirements of users. Users' key needs from disclosure must be relevant and understandable information (Al-Tuwaijri et al., 2004). Furthermore, IFRS suggests that the characteristics of information such as relevance,

faithfulness, understandability and comparability are useful for information users and have to be considered when QCSRD is evaluated (Alotaibi and Hussainey, 2016). Consequently, this study seeks to contribute to the above debate by offering new insights concerning the complexity of QCSRD, and develop a new multidimensional model to measure QCSRD. This framework provides evidence on the nature of a company's CSR disclosures based on three-dimensions, which allows capturing the quantitative and qualitative features concerning a specific kind of CSR information. The first dimension is the actual amount of disclosure, relative to the amount adjusted by two factors, size and complexity, prior studies shows these two variables to have a strong impact on disclosure (e.g. Beattie et al., 2004; Beretta and Bozzolan, 2008). This is more likely to help for evaluating CSR disclosure taking into account the differences in the companies' size and industry. The second dimension measures the spread of CSR information. Using spread dimension in this framework helps to evaluate whether the CSR information disclosed meets the need of different stakeholders or focus on specific groups. The usefulness dimension helps information users to evaluate CSR disclosure by capturing the four type characteristics: the relevance, faithful representation, understandability and comparability (based upon the qualitative characteristics of information suggested in the conceptual frameworks of IFRS (2010A). These procedures used allow a rich description of the nature and patterns of disclosure to emerge, and permits these dimensions to be analysed both in combination and individually.

2.9 The Relationship between QCSRD and EM

The literature review indicates that EM is an accounting technique used by managers to manipulate earnings through the flexibility in the accounting options or real transactions decisions (Md. Musfiqur, et al., 2013). EM is broadly interpreted as a strategy used by managers to mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers

(Healy and Wahlen, 1999). In this context, EM is considered a type of agency cost; managers look after their own interests by providing financial reports that do not reflect an accurate economic picture of the company. On the other hand, CSR is commonly defined as the type and scope of social obligations, which should be considered by companies in the course of their routine business activities (Shamir, 2005). QCSRD, which is the focus of this research, includes financial and non-financial information relating to the company's interaction with the social environment, which is presented in their annual reports. Moreover, QCSRD disclosure is a primary tool for communicating with stakeholders about the social activities of the company. Therefore, it is a key tool in building strong relationships and creating mutual understanding as well as for managing the potential conflicts (Hess, 2008). Although CSR reporting and EM have established themselves separately as well-researched areas, comparatively less attention has been paid to establishing a link between CSR disclosure and EM. EM is affected through the incentives and choices of the manager, who is involved in formulating and making decisions in the organisation. Thus, consideration of CSR reporting could be an important determinant (Choi et al., 2013; Wang et al., 2015). Much research has been conducted on the link between CSR and EM (e.g. Prior et al, 2008; Chih et al., 2008; Kim et al., 2012; Choi et al., 2013; Scholtens et al., 2013; Bozzolan et al., 2015; Gao & Zhang, 2015; Hung et al., 2015; Shafer, 2015; Cho and Chun, 2016; Gras-Gil et al., 2016). However, only a few empirical studies have examined the association between corporate social responsibility disclosure and EM (Sun et al., 2010; Yip et al., 2011; Belgacem & Omri, 2015; Muttakin et al., 2015; Martínez et al., 2015; Wang et al., 2016). Furthermore, the empirical evidence that was provided by those prior studies pointed out mixed results with respect to the relationship between CSR disclosure and EM. For instance, Sun et al. (2010), analysed the relationship between corporate environmental disclosure and discretionary accruals as proxy of EM using a sample of 245 non-financial companies. They found that the discretionary accruals have an insignificant

impact on environmental disclosures among the UK companies for the fiscal year between the first of April 2006 and the end of March 2007. Yip et al (2011) investigated the relationship between CSRD and EM, employing discretionary accruals as proxy of EM. They used companies' websites and annual reports to measure CSRD through a sample of 120 US listed companies for the period 2005-2006. They found a positive association in the food industry and a negative relationship in the oil and gas industry between CSRD and EM. They suggested that the relationship between CSRD and EM is context-specific and is likely to be affected by the political environment of a company more than by moral considerations. Wang et al. (2016) examined the impact of mandatory CSRD on EM using a subset of companies that, starting in 2008, have to report their corporate social responsibility activities. They found that mandatory CSRD companies were less likely to engage in EM after 2008. This result suggested that mandatory CSRD mitigates information asymmetry through improving the quality of financial reporting. Similarly, Martínez et al. (2015) examined the link between the quality of financial reporting and the QCSRD. To do so, they examine a sample of 747 international non-financial firms from 2002 to 2010. Their findings show that conservative companies, with a low level of earnings management practices, report high QCSRD.

By contrast, Muttakin & Azim (2015) investigated the relationship between CSRD and accruals quality as proxy of EM, using a sample of 135 companies listed on the Dhaka Stock Exchange from 2005 to 2009. A checklist of 20 items was constructed in order to measure CSR disclosures in annual reports. Their findings indicate that managers in emerging markets provide more CSRD when they engage in EM. Belgacem & Omri (2015) investigate whether voluntary CSRD is related to earnings quality (EQ). Their study is conducted on a sample of Tunisian listed companies from 2002 to 2011. Content analysis was used to determine the level of CSRD, whereas, four earning attributes (discretionary accruals, conservatism, value-relevance of earnings and accruals quality) were used to measure EQ. They provide evidence

that CSR disclosure is positively related to the degree of discretionary accruals and negatively related to the degree of conservatism.

Prior studies provide inconsistent results. One possible reason for this could be due to the biased measurement of CSR disclosure. Given the contradiction of prior studies' findings and the importance of this association for market participants and academics, more research is needed. It is not possible to conclude the possible effects of CSR reporting on EM without knowing whether CSR disclosure conveys true (as in the ethical perspective) or false information (as in the managerial opportunism or legitimacy perspective).

So far, two methods of measuring CSR disclosure have been employed when examining the relationship with EM. The first method uses subjective analyst disclosure quality rankings. Such indices rankings are not available in many countries and therefore cannot be applied widely. The second method evaluates CSR reporting based on the theme and amount of information disclosed. However, this method does not consider other important dimensions which distinguish the information provided to users. Another important gap observed from previous literature is on the relationship between CSR disclosure and EM. While many previous studies (e.g Yip et al., 2011; Muttakin & Azim 2015) have used an accruals base in their measurement, no research has used real earnings management to examine the relationship between QCSRD and EM. This limitation in measurement, caused by the absence of a broader framework and omission of certain important variables, make the findings of these empirical studies inappropriate in establishing the relationship between CSR disclosure and EM. Furthermore, since the majority of research is conducted in western countries (e.g. Sun et al., 2010; Yip et al., 2011), not much is known about the relationship between CSR disclosure and EM in developing countries.

Couched within this debate, the current study empirically examines whether Indian listed companies exhibiting QCSRD behave appropriately to constrain EM, thereby delivering more

transparent and reliable financial information. This study uses two different proxies for EM: (1) discretionary accruals, (2) real activities manipulation.

2.10 Critical Evaluation of the Relationship between CSR and EM Literature

Prior research in this area (as explained above in section 2.9) has substantiated that CSR reporting is associated with EM. Empirical findings, however, remain inconclusive with regard to whether commitment to CSR reporting has a positive or negative impact on EM and vice versa. For instance, while Wang et al. (2015) and Rezaee et al. (2017) found a negative relationship between CSR disclosure and EM, Muttakin & Azim (2015) and Belgacem & Omri (2015) reported a positive relationship between them. Moreover, Yip et al. (2011) examined the relationship between CSR reporting and EM in a sample of US publicly listed oil and gas and food companies. They found a negative relationship in the oil and gas industry between CSR disclosures and EM and a positive relationship in the food industry. Conversely, Sun et al (2010), investigated the association between environmental disclosure and DA in the UK. Their findings suggest no significant statistical relationship between DA and environmental disclosure.

One important gap in the previous studies is related to the measurement of CSR reporting. So far, three methods of measuring CSR disclosure have been employed when examining the relationship with EM. Firstly, Muttakin & Azim (2015) measured the amount of CSR disclosure based on a checklist of 20 items, and Belgacem & Omri (2015) measured CSR disclosure based on the total number of sentences provided, under the method of content analysis. These methods measure CSR reporting based on the theme and amount of information disclosed. However, this method does not consider other important dimensions which distinguish the information provided to users. Secondly, Wang et al. (2016) measured Mandatory CSR disclosure based on whether companies are mandated to provide CSR reports or not, and Yip et al (2011) measured CSR disclosure based on the existence of CSR disclosure

or not. The issuance of CSR reports may be an attempt by management to convince powerful stakeholders that the firm is acting in the right way and is socially and environmentally responsible, regardless of whether actual performance follows (Thorne et al., 2014). Thirdly, Sun et al. (2010) measured environmental disclosure based on the UK Government's Environmental Key Performance Indicators (KPI) and Martínez et al. (2015) measured sustainability information based on the GRI. Although these methods were considered by previous studies to be useful methods of evaluating QCSRD, they have ignored important dimensions of QCSRD. For instance, they do not take into account the spread of CSR information. Using the spread dimension helps to evaluate whether the CSR information disclosed meets the needs of different stakeholders or focuses on specific groups. They also ignore the usefulness dimension that helps information users to evaluate the relevance, faithful representation, understandability and comparability of CSR disclosure. Thus, this study seeks to contribute to this critique by offering new insights concerning the complexity of QCSRD and their relationship with EM, and develop a new multidimensional model to measure QCSRD. This framework provides evidence on the nature of a company's CSR disclosures based on three dimensions, which allows capturing the quantitative and qualitative features concerning a specific kind of CSR information.

Furthermore, another important gap observed from previous literature is on the relationship between CSR disclosure and EM. Previous studies (e.g Yip et al., 2011; Muttakin & Azim 2015) have used an accruals base in their measurements; however, no research has used real earnings management to examine the relationship between QCSRD and EM. This limitation in measurement, caused by the absence of a broader framework and omission of certain important variables, makes the findings of these empirical studies inappropriate in establishing the relationship between CSR disclosure and EM. Thus, to bridge this gap, the current study uses two different proxies for EM: (1) discretionary accruals, (2) real activities manipulation.

Finally, since the majority of research is conducted in developed countries (e.g. Sun et al., 2010; Yip et al., 2011), not much is known about the relationship between CSR disclosure and EM in developing countries. In addition, prior research has also argued that several factors such as culture, religion and other societal norms may influence CSR disclosure and EM (e.g. Hastings, 2000; Gautam & Singh, 2010).

Based on the above evidence, this study aims to examine the relationship between QCSRD and EM in India using a broader measurement framework of EM and a multidimensional proxy of QCSRD among Indian listed companies.

2.11 Theories Related To EM and CSR disclosure

Prior literature has suggested different theories to explain the link between CSR disclosure and EM, such as signaling theory, agency theory, legitimacy theory, stakeholder theory and political cost theory (e.g. Patten, 1992; Gray et al. 1995; Healy and Palepu, 2001; Prior et al., 2008; Sun et al., 2010). The following sections discuss these theories in order to explain the relationship between EM and CSR disclosure.

2.11.1 Signalling Theory

In general, the efficient market assumes that investors are rational and their decision will be affected by all the available information in the stock market (Sun et al., 2010). It is also well known that information users in a capital market, compared to the management personnel, have problems gaining access to complete and sufficient information (Arnold & Lange, 2004; Watts & Zimmerman, 1990). When a company's management has more access to information than the other users, the asymmetric problem of information could exist (Watts and Zimmerman (1990).

Due to asymmetric information between stakeholders and managers, management chooses estimates and accounting methods in their own favour and, in turn, may conceal the company's

true economic value (Sun et al., 2010). According to Prior et al. (2008), managements may use certain discretionary actions in order to signal favourable or unfavourable information to the capital market about the future prospects of the firm. Signaling theory suggests that companies may provide more disclosure to mitigate asymmetric information and signal to the information users that its performance is good (Miller 2002; Sun et al., 2010). Nevertheless, Hughes (1986) argued that the reliability of disclosure provided by a company is a fundamental factor for mitigating the asymmetric information. He also indicates that a company can distinguish itself from other competitors by sending a credible signal to capital markets about its quality. In the same vein, Gray (2005) suggests that when a company uses CSR disclosure, the predominant concern is to signal its management quality. Good quality companies may use CSR disclosure with traditional financial reporting, whereas low quality companies concentrate only on constrained accounting information. Moreover, the author argues that CSR disclosure signals to shareholders and other stakeholders that the company is socially responsible. High QCSRD helps companies and their management to obtain a reputation for reliability from shareholders and other stakeholders.

Given that managers might engage in EM when there is high information asymmetry, the QCSRD is assumed by signaling theory to be a means of mitigating the information asymmetry between management personnel and stakeholders (Chih et al., 2008). Thus, in line with previous studies, EM would be reduced through CSR disclosure (Laksmana and Yang, 2009; Wang, 2015). Since managers' decisions are influenced by the marginal benefits to be achieved through mitigating asymmetric information in the capital market, Abhayawansa et al., (2009) argue that there is no guarantee that firms will issue reliable reporting. Thus, evaluating the informational content (i.e. quality) of CSR is an important determinant for EM.

2.11.2 Agency Theory

Due to the existence of agency conflict, managers engage in EM opportunistically for their own interests rather than optimising the company's value, and consequently mislead investors about the company's financial position and market value. Belgacem & Omri (2015) showed that managers (agents) might exploit the flexibility of accounting principles in estimating their reward. Thus, EM is a kind of agency cost (Sun et al., 2010; Xie et al., 2003; Zahra et al., 2005). Managers are more concerned about their ability to remain in power, and to increase their own wealth, which in turn is likely to impact negatively on both the firms' value and reputation (Prior et al. 2008). Companies could face serious problems because of the ease with which the manager can access the company's information compared to the shareholders. Therefore, due to the existence of agency cost, accountability and transparent systems should be introduced to mitigate this problem (Leftwich, 1980; Watts & Zimmerman, 1990). Agency theory proposes that companies might use different strategies to minimise the conflict of interests between managers and shareholders. Morris (1987) argues that, without proper monitoring, companies may face serious problems. Healy and Palepu (2001) propose several solutions to mitigate the agency problem, such as the effective control of the manager by the board, the audit committee effectiveness to control the flexibility in the accounting system and financial analysts' ability to use financial and non-financial information disclosed by managers to reduce the information asymmetry. These resolutions suggest that corporate governance mechanisms and contractual agreements play a vital role in mitigating the agency problem.

The QCSRD provided by managers should be used to mitigate the conflict of interest (Healy and Palepu, 2001). It is expected that well-informed shareholders are more likely to scrutinise companies based on the information provided about those companies, and thus mitigate the agency conflict (Eng and Mak, 2003). CSR disclosure also is considered as a signal that can be directed to multiple levels of stakeholders to mitigate the agency problem (Sun et al., 2010).

Chih et al. (2008) also suggest that managers are less likely to engage in EM in companies that provide high quality disclosure of their social activities which targets all stakeholders, because when the transparency of information is increased, the expectation of the information asymmetry among the management and stakeholders will be reduced. In contrast, managers are more likely to engage in EM in those companies with limited QCSRD (Jo and Kim 2007).

2.11.3 Legitimacy Theory

Different rationales have been provided to clarify the phenomenon of CSR disclosure. Legitimacy theory is one of the tools employed by prior studies to explain CSR disclosure (Nazli et al., 2004; Castelo and Lima, 2006). Guthrie and Parker (1989) suggested that companies' reporting is introduced as a response to the companies' practices and their environmental factors, and to legitimise companies' activities. Suchman (1995) defined legitimacy perspective as a general understanding or supposition that the companies' actions should be desirable and appropriate within a social system, values and beliefs. Gaining legitimacy is important for firms, since the community might cancel its contract with a company and stop it from engaging in its business activities if it loses its legitimacy (Deegan and Rankin, 1996). In line with this theory, companies are requested to provide CSRD voluntarily to meet the wider expectations of various stakeholders relating to environment, community and employee welfare (Maali et al., 2006). In the same context, Brown and Deegan (1998) indicate that social expectancy is likely to change over time, meaning that managers should improve their social practice to constantly protect their legitimacy. There are different methods that companies may use to protect their legitimacy. Methods, which can be used, involve social disclosure as an instrumentation to show that companies are corresponding to the community's expectations. Lindblom (1994) has classified these methods into four strategies. Firstly, the companies may attempt to disclose information for their stakeholders about real changes in their activities. Secondly, the companies might attempt to change the

views of the related stakeholders without improving their real behaviour. Thirdly, the companies might attempt to impact the stakeholders' perception by distracting their attention from relevant issues or by attracting stakeholders through emotive messages. Fourthly, companies may attempt to change the expectations of stakeholders. Patten (1992) indicated that companies tend to disclose social information in annual reports to protect or increase the legitimacy perceptions and respond to the changes in stakeholders' policy.

CSR disclosure can be used as an early reaction for the potential legislative pressure from other interest groups. CSR disclosure is also likely to be used to distract the attention of stakeholders from some undesirable behaviour by managers. Sun et al. (2010) argue that companies which engage in EM tend to use CSR disclosure to protect the company's legitimacy.

2.11.4 Stakeholder Theory

Stakeholders are defined as "any group or individual who can affect or is affected by the achievement of the organisation's objectives" (Freeman et al. 2010). This theory has been addressed in the prior literature from different views: the instrumental and the normative perspectives (Harrison and Freeman, 1999). Whereas the first perspective assumes that managers should manage stakeholder's power through identifying them with the self-interest of their companies, the normative perspective assumes that management should address all different stakeholder groups from the accountability perspective (Freeman et al., 2010).

Based on the instrumental perspective, CSR disclosure is considered as a tool to manage only the perspective of powerful stakeholders' groups (Donaldson and Preston, 1995). Thus, CSR information is disclosed for the purpose of gaining approval and support for the companies to continue in their activities, rather than the purposes of accountability (Deegan 2002). Consistent with this view, CSR information is provided to manage the powerful stakeholder groups.

In contrast, the perspective of a normative stakeholder suggests that companies have an obligation to different stakeholders, and CSR disclosure is obligatory for companies as it provides CSR information to relevant stakeholders (Guay et al. 1996). This perspective explains how companies can apply strategies to manage their different stakeholders. However, it does not directly explain the expectation of management behaviour decisions (Deegan 2002).

Based on the stakeholder theory, a company is perceived not as a twofold relationship between managers and shareholders, but as multilateral relationships between managers and different stakeholders. In respect to EM, it also not only affects a company's shareholders but also influences different stakeholders. Therefore, when EM is suspected by stakeholders, the stakeholders immediately expect the company to lose value.

Stakeholder theory is useful as it explains the influencing and influenced groups and what accountability managers are willing to recognise (Gray et al. 1997) However, it is criticised due to this theory relying on the particular power of stakeholders and, thereby, may ignore the other stakeholders who are likely to be regarded as less important (Deegan 2002).

2.11.5 Political Economy Theory

This theory focuses on the exchanges that occur in multi-relations between a company and different institutions participating in such exchanges (Gray et al., 1995). CSR disclosure is seen as a tool to manage the impact of economic and political environment surrounding the company. Guthrie and Parker (1989) argue that managers seemingly respond to public or government pressure to disclose information on their companies' social impact. Prior research has attempted to explain the use of CSR disclosure through political economy theory to understand companies' motivations to provide CSR information through their annual reports (Guthrie and Parker 1989; Adams and Harte 1998). This theory is categorised into two approaches: classical political economy theory and bourgeois political economy theory (Gray et al., 1996).

The first approach suggests that disclosures are used as a tool to manage the preferable position of those who own scarce resources. Deegan (2006) argues that the classical political economy theory focuses on the structural conflicts within community, which is inherent within society. Thus, within this perspective, it may be interesting to try maintain legitimation of the whole system (Arnold, 1990) and, particularly, to try renegotiate elements of the hegemony. Lindblom's (1994) careful use of the term (relevant publics) rather than any more widely employed term (such as users or stakeholders) suggests a recognition of the classical political economy possibilities of its analysis.

On the other hand, Cowen et al. (1987) argue that bourgeois political economy theory tends to concentrate on the interaction of competing within community. It focuses on the actors' interaction within a pluralistic society (Williams and Ho Wern, 1999). This may indicate that different stakeholders seek to preserve their own self-interests. Although this perspective emphasises that stakeholders believe in their right to pursue their own goals, managers are likely to use CSR disclosure to moderate this issue (Clark, 1991; Gray et al. 1995).

With regard to EM, managers may engage less in EM as result of regulatory threats; managers who have incentives to manipulate earnings may prefer to use CSR disclosure, due to the regulatory threats, as an effective means of reducing the likelihood of regulatory actions (Patten and Trompeter, 2003; Yip et al., 2011).

Although all the above theories have been used by prior studies to explain the link between CSR disclosure and EM, the current research has used only agency and signalling theories to explain the relationship between QCSRD and EM for several reasons.

Firstly, stakeholders' theory has been criticised due to it not being adequate to explain the dynamics which link companies and stakeholders (Key, 1997). It is also not practicable and justifiable to determine all stakeholders, as that may negatively impact the company's interest

(Etzioni, 1998; Sternberg, 1997). Secondly, legitimacy theory has been criticised by some authors as not identifying stakeholders of companies clearly, as well as prioritising financial stakeholders (Meek et al., 1995; Parker, 2005). Thirdly, although political economy theory clarifies the incentives for providing CSR disclosure (Guthrie and Parker 1989), it fails to consider the internal factors present in companies, such as the corporate characteristics that may have an important effect on social disclosure (O'Donovan 2002; Patten 1991). Finally, it can be argued that stakeholders' theory, legitimacy theory, and political economy theory focus on disclosure decisions by managers to manage their relationships with different stakeholders and to enhance their own reputation. This may explain the quantity of CSR disclosure that is used by managers. However, they are less likely to explain the use of CSR disclosure quality. On the other hand, agency and signalling theories focus on the problem of conflicts of interest between managers and shareholders, and the problem of asymmetry information between managers and other stakeholders. The current research focuses on the quality of CSR disclosure, and tries to explain how the QCSRD reduces the agency conflict between managers and shareholders and how it mitigates expectation of the asymmetry information, which may lead to reduced EM. Thus, to achieve the main aim of this study, only signaling and agency theories are used, since these theories are sufficient for developing the hypotheses of this study.

2.12 Conclusions

The present chapter provides a literature review of CSR disclosure, its definitions and motivations, and concentrates on the relationship between QCSRD and EM. Since EM is impacted by the incentives and choices of managers who participate in making and formulating decisions within the organisations, consideration of CSR reporting could be important determinants (Choi et al., 2013; Wang et al., 2016). The literature review indicates that the agency and legitimacy theories are more appropriate frameworks in which to explain

the link between CSR disclosure and EM. It is also indicated that signalling theory is associated with the information asymmetry problem and the quality information provided by companies. Given that the current research is concerned with the impact of QCSRD and EM, the signalling and agency theories are used as a theoretical framework to interpret and explain the study findings. The prior research in this area has substantiated that CSR reporting is related to EM. Empirical results, however, remain inconclusive as to whether CSR reporting has a negative or positive impact on EM and vice versa (for example, Chih et al., 2008; Muttakin & Azim, 2015).

CHAPTER Three: THE LITERATURE REVIEW ON EM PRACTICES

3.1 Introduction

As clarified in the previous chapter, the first objective of this study is to measure the level of REM and AEM practices. Thus, chapter three is organised as follows: definition, types and classifications of EM are provided in Section 3.2. Sections 3.3 and 3.4 clarify the motives of EM and mitigating factors for EM respectively. Section 3.5 provides the difference between the two EM strategies (AEM and REM), and section 3.6 explains the empirical evidence on EM. Sections 3.7 and 3.8 shed light on the measurement of EM practices (AEM and REM, respectively) and, finally, the summary of this chapter is provided in section 3.8.

3.2 The Definition of EM

Recently, the concept of EM has received wide interest in many scientific studies and from professional organisations, due to its impact on financial reporting and its influence on predicting the future financial performance of companies (Zang, 2011; Chiu et al., 2012; Enomoto et al., 2015; Black et al., 2017). Many information users, whether they are inside or outside the company, rely on earnings reports for making many financial, operational and investment decisions. The manager makes decisions regarding earnings distribution, board members' remuneration, earnings retention, capital expansions implementation and other important matters. On the other hand, external parties such as financial analysts, investors, existing shareholders and potential shareholders rely on earnings reports to assess the current performance of the company and to predict its future performance. Although the importance of earnings has been previously emphasised (Schipper and Vincent, 2003), there are deliberate managerial interventions which use EM techniques to conceal their true financial performance in order to achieve various ambitions and interests (Barghathi, 2014).

Owing to the disagreement over the definition of EM, it is defined by researchers in different ways and relies on various incentives behind EM and individual perspectives. For instance, some definitions have focused on managers' behaviour when they clarify EM. Rosner (2003) suggests that EM is the methods deliberately used by managers to get a certain level of desirable earnings. Bayley & Taylor (2007) also define EM as a deliberate intervention in the preparation procedures of financial reports in order to obtain some gains. Other definitions have focused on clarifying the impact of EM on the economic performance of companies. For example, Shen & Chih (2007) defined earnings management as the deliberate modification of the economic performance by managers in order to mislead the beneficiaries of the reports or to influence the outcomes. McVay (2006) also identified EM as concealing or not displaying the real economic performance. Furthermore, other researchers have focused on the legal use of alternatives and choices in accounting principles to obtain certain values of earnings. For instance, Piot & Janin (2007) define EM as manipulating earnings by using personal judgment and existent flexibility in generally accepted accounting principles (GAAP) in order to influence the published accounting figures. Chung & Kallapur (2003) also define EM as deliberately using of permitted alternatives in the accounting standards for the purpose of manipulating earnings. In contrast, Parfet (2000) suggests that EM is not a totally undesirable behaviour when more explanations and proper methods are employed in a rationally managed way and when it provides value to stakeholders. Similarly, Ronen et al. (2008) claim that managing earnings might occur at different levels:

Firstly, the white level, which occurs when the company exploits the flexibility in choosing the accounting treatment to clarify information about the company performance. In this level the expansion of explanations about the future cash flow will be done within financial reports. Secondly, the grey level, which occurs when selecting the accounting treatment either to maximise the benefits of management or because they lead to an increase in reported economic

efficiency. This level is the manipulation of financial reports within the limits of accounting standards, which may be offered through the flexibility in GAAP. Thirdly, the black level, in which the manipulation of earnings and reduction in the disclosure in the financial reports occurs. This may represent a type of fraud. Dechow and Skinner (2000) clarify the differences between EM and fraud through providing Figure 2.1, which explains that while EM practices occur without exploiting or violating GAAP, accounting fraud occurs through violating GAAP. They classify them under two categories; accruals-based and real activities choices. While accruals-based EM choices occur at the end of the period, the real activities EM takes place throughout the fiscal year, which has a direct effect on the cash flows (Zang, 2011).

In the light of the above-mentioned definitions, it can be argued that EM is the accounting techniques used by managers to manipulate earnings through violating or exploiting the flexibility in the accounting options or real transactions decisions. The accounting-based EM is typically affected by accounting manipulations, whereby managers violate or exploit the flexibility in the GAAP to manage earnings. If the manipulation of earnings is based on the selection of particular choices of accounting methods and policies, this will cause a contradiction between the timing of the accounting recognition of income and the timing of cash flows (Ronen and Yaari, 2008; Shafer, 2015). The real transactions EM are typically affected by management manipulation of real activities (Kim et al., 2012; Shafer, 2015). Manipulations of real activities include influencing earnings through decisions in the firm's daily operations in order to obtain desirable results. Healy and Wahlen (1999) and Roychowdhury (2006) argue that delaying maintenance expenditure, research and development expenses, the sales acceleration, and adjustment in shipment schedules are examples of REM methods available to managers. They also indicate that real earnings management have a higher risk than accruals-based earnings management, since they have a direct effect on the companies' performance and cash flows.

Table 3.1: The Differences between EM and accounting fraud.

	Accruals-based EM	**Real activities EM**
	with GAAP	
Conservative Accounting	Overly aggressive recognition of provisions or reserves.	Delaying sales.
	Overvaluation of acquired in-process R&D in purchase acquisitions.	Accelerating R&D or advertising expenditures.
	Overstatement of restructuring charges and assets write-offs.	
Neutral Earnings	Earnings that result from a neutral operation of the process.	
Aggressive Accounting	Understatement of the provision for bad debts.	Postponing R&D or advertising expenditures.
	Drawing down provisions or reserves in an overly aggressive manner.	Accelerating sales.
	Violates GAAP	
Fraudulent Accounting	Sales are recorded in advance. Recording false sales. Overstating inventory through recording false inventory.	

Source: Dechow and Skinner (2000, p. 239)

3.3 Earnings management techniques

Prior literature reports that different techniques can be used in manipulating earnings, for

instance, income-smoothing, income-increasing, income-decrease, and big bath technique (e.g.

Scott and Lochhead, 1997; Levitt, 1998; Markarian et al., 2008; Sun and Rath 2010; Kighir et al., 2014).

3.3.1 Income-Smoothing Technique

Income-smoothing is produced when the managers reduce the deviation between the published earnings and analysts' forecasts, through the use of available accounting flexibility to increase or reduce the profits when there is a sudden increase or drop in earnings (Sun and Rath 2010). Healy and Wahlen, (1999) argue that income-smoothing is taking steps to reduce or conserve earnings during good years in order to use it in years with low earnings. The company may have incentives to produce earnings below analysts' expectations through earnings-smoothing, since analysts will increase their earnings forecasts of the following years, if their earnings are greater than the expectations. Companies usually employ this kind of earnings smoothing to avoid a fall in their share price as a result of their inability to achieve analysts' expectation. On the other hand, when the profits in the current year are lower than the previous year, earnings are likely to be managed in order to increase the income in the present year. Both the flexibility in GAAP and real activities can be used for earnings-smoothing. For instance, Nelson et al. (2002) indicate that managers are more likely to apply first-in first-out to estimate the cost of inventory if managers' purpose is to increase earnings. However, they are more likely to use last-in first-out in order to decrease earnings. Prior studies suggest that managers change between the choice of inventory valuations to achieve their target (Sweeney, 1994; Aljifri, 2007). For instance, when prices increase managers prefer to use first-in first-out to increase earnings and vice versa. Markarian et al. (2008) indicate that Italian listed companies manipulate earnings using the cost of research and development expenses, explaining that companies with lower earnings tend to capitalise the research and development costs, while those companies with higher earnings are more likely to expense the research and development costs, which is used in reducing earnings.

Kighir et al. (2014) argue that there are two views of earnings-smoothing. The first view suggests that earnings-smoothing results in less information about future earnings and cash flows. Based on this argument, earnings-smoothing may be harmful to the financial reporting. In the second view, it is assumed that EM is used by managers to disclose information expected about the future of the company. In this case, earnings smoothing results in more information on the future earnings for the company and its cash flows (Chaney and Lewis, 1995; Kothari et al., 2015).

3.3.2 Earnings-increasing technique

Using the earning-increase technique, managers carry out certain practices that increase earnings, which happens in three cases (Scott and Lochhead, 1997; Levitt, 1998). In the first case, earnings are increased if the current actual earnings are low and the manager expects them to increase in the following period. In this case, manager deal with these expectations to achieve their short term targets. For example, managers reduce the accruals or use other strategies in order to make higher earnings during the current year to mitigate the capital cost or to increase the share price (Segovia, 2003). Secondly, earnings are increased if the current actual earnings are low and the management expects it to decrease in the following period. EM, in this case, is employed to meet certain contractual terms since it does not reflect the expected future performance of the company and may have a negative impact (Levitt, 1998). For example, management may announce unplanned discounts in the selling price and credit facilities before the end of the year, which increases the revenue at the expense of the following years to avoid debt covenant violations. In the third case, earnings are increased if the current actual earnings are high and the management expects them to decrease in the following period (Scott and Lochhead, 1997). Therefore, EM is used to mislead the investors by giving them false expectations about the future of the company. It will present a false picture about the company's real performance (Nelson et al., 2002; Segovia, 2003).

3.3.3 Earnings-decreasing technique

In this situation, the managers may decrease earnings in three ways (Scott and Lochhead, 1997). Firstly, earnings are reduced if the current actual earnings are high and the management expects earnings to be lower in the following period. In this case, management gives information to investors about the company's expected performance in the future and their earnings expectations. For instance, Managers may increase the estimated accruals at the end of the current year and adjusted in the following year (Levitt, 1998). Secondly, earnings are reduced if the current actual earnings are high and the management expects them to remain the same in the following period. There are several motivations for managers to transfer earnings from the current period to the next period (Kighir et al., 2014). For example, the managers do not deliver the goods sold at the end of the current year; these will be moved to the beginning of next year, in order to manage analysts' earnings forecast. Thirdly, earnings are reduced if the current real profits are low and the management expects to increase them in the following period. Management aims, in this case, are to mislead stakeholders by giving them wrong information about the company's future performance. Therefore, this action is considered to be fraud, which may be used to avoid some political cost (. Scott and Lochhead, 1997; Levitt, 1998; Kighir et al., 2014).

3.3.4 Big Bath Accounting

Managers usually prefer to work to increase the company's share price by increasing earnings. However, in some instances they prefer to reduce earnings, which could be achieved by the big bath technique. Although the main purpose of EM is to achieve higher earnings, big bath practice achieves the opposite. When the company is working poorly, and incurs losses, they may overstate the losses as much as possible. The main idea of big bath accounting is to increase the losses and add the related bad news to the current financial year which will allow an increase in profits in future periods (Sun et al., 2012). It is clear that big bath accounting is

a non-recurring practice, which is used to minimise expenditures in future periods. It is also quite common to note that when a new manager is appointed, the new manager may use this method, big bath, in order to attribute the current bad performance to previous managers (Pourciau, 1993).

3.4 The Differences between Accruals and Real Earnings Management

Although managers may use AEM and REM without violating GAAP, these two methods have several differences such as timing of manipulation, the consequences on cash flows and the scrutiny (Roychowdhury, 2006; Zang, 2012). AEM uses accounting flexibility after the fiscal year is ended (Dechow et al., 2010). Specifically, when the fiscal year formally ends, management is more likely to know if the reported earnings will meet the target or not. Thus, managers use accrual-based EM for adjusting reported earnings to meet the target of the desired threshold (Gunny, 2010). Furthermore, accrual-based EM will cause a contradiction between the timing of the accounting recognition of income and the timing of cash flows, but does not directly affect operating cash flows (Ronen and Yaari, 2008; Shafer, 2015). Thus, in these two cases, accrual-based EM is more likely to be used to manage earnings. Firstly, if reported earnings do not meet the desired threshold, managers may increase earnings to meet the desired threshold using AEM. Secondly, when the reported earnings are greater than the expected earnings, in this case due to adjustment through REM, managers are more likely to decrease income using accrual-based EM to meet targeted earnings (Scott and Lochhead, 1997; Zang, 2012). In contrast, real activities EM provides flexibility for managers as it can be done during the fiscal year (Gunny, 2010). Manipulations of real activities include influencing earnings through decisions in the firm's daily operations in order to obtain desirable results (Healy and Wahlen, 1999; Dechow and Skinner, 2000). Managers may decide the amount and the timing of REM with less scrutiny from auditors and other regulators compared to AEM (Roychowdhury 2006; Cohen and Zarowin, 2010). Furthermore, Graham et al. (2005) argue

that managers might tend to use REM more than AEM if the regulations are used to reduce accrual-based manipulation. Cohen et al. (2008) indicate that managers shifted from using AEM to REM after the Act of Sarbanes and Oxley in 2002. This is due to the restriction on accruals-based manipulation. For instance, Moreover, Zang (2012) indicates that managers are more likely to use REM over AEM to avoid auditors' monitoring. He finds evidence that companies which are monitored by the big 4 accounting firms engage intensively in REM to avoid the scrutiny of AEM. Abernathy et al. (2014) provides similar evidence that US companies are more likely to shift from AEM to REM when less accounting flexibility is found. Although managers tend to use REM more than AEM, prior literature indicates that REM has a negative impact on subsequent operating periods and cash flows, which are greater than the influence of AEM (Roychowdhury, 2006).

3.5 The Motivations of EM

Prior research provides evidence that there are many factors motivating managers to engage in EM. Thus, this section covers different motivations for managing earnings, which are classified as follows: management compensation, earnings benchmarks, debt contracts, political cost and other motivations.

3.5.1 Management Compensation

Agency theory suggests that the main purpose of management compensations is to reduce the conflict of interest between shareholders and management (Jensen and Meckling, 1976). However, executives could adopt certain transactions which maximise their own interest and obtain the largest amount of compensations instead of maximising shareholders' wealth (Oberholzer-Gee & Wulf, 2012). Previous literature indicates that compensations based on the performance may motivate managers to manipulate earnings using real activities EM (Dechow and Sloan, 1991; Cao and Laksmana, 2010; Cornett, et al., 2008; McAnally et al., 2008), or

accruals-based EM (e.g. Healy 1985; McAnally et al., 2008), which negatively affects shareholders' wealth. Dechow and Sloan (1991), for instance, examine the link between managers' performance-based bonus and the R&D expenses. Their findings indicate that managers who are approaching retirement are likely to engage in REM through reducing R&D expenses. Healy (1985) suggests that increasing the compensations plan is more likely to be an incentive for managers to engage in EM. He found that discretionary accruals are strongly associated with bonus plans. In the same vein, Guidry et al. (1999) examined whether managers engage in EM to maximise their compensations by studying US companies. Their findings indicate that managers' compensations are used as a strong incentive to manipulate earnings in order to maximise their compensations. Managers might also try to increase the share price in order to obtain personal interests, especially when the managers' reward may be related to the performance of the company in the long-term. Thus, managers could engage in EM to achieve the maximum possible value in their own interests (McAnally et al., 2008).

3.5.2 Earnings Benchmarks

Earnings are considered as a key indicator which has been used to assess companies' performance and their financial health. Managers try to meet desired earnings through regular business activities. Nevertheless, when predicted earnings do not achieve the desired earnings, managers are more likely to resort to EM. Previous research indicates that managers may manipulate earnings to meet analysts' forecasts, to avoid reporting losses or to meet the previous year's earnings (e.g. Kim, 2012; Zang, 2011).

These benchmarks are considered to be the key incentives for managing earnings (Das et al., 2011). The widespread use of accounting information, by investors and financial analysts in the stock market, may create incentives for managers to manipulate accounting profits in an attempt to influence the performance of stocks in the short term. Thus, manipulation of earnings is used as a powerful tool for companies to inflate their stock price (Athanasakou et al., 2011).

For instance, if profits are not consistent with the financial analysts' earnings forecast, managers could face negative consequences. The impact will be greater if the reported earnings are less than those predicted by the financial analysts' forecasts. Therefore, managers change accounting earnings in accordance with the financial predictions in order to change share prices in the short term (Das et al., 2011). Focusing on the other two of the above benchmarks, evidence is provided by Burgstahler and Dichev (1997) which indicates that companies manipulate earnings upwards using both real activities and accrual-based to avoid losses or to meet the previous year's earnings. Specifically, their results show that few companies report losses or small earnings decreases and a large number of companies report small positive earnings or slight increases in earnings. Similar evidence is presented by Roychowdhury (2006) on real activities EM to meet these three benchmarks. Using a sample of 17,300 company-year observations between 1987 and 2001, he finds evidence that companies manipulate earnings using real activities to meet analysts' forecasts and to avoid reporting losses.

3.5.3 Debt Contracts

Many companies deliberately engage in an artificial change in profits to meet the conditions required by their debt agreements, because debt contracts often include conditions restricting management (Jha, 2013). For example, these terms are more likely to undermine the ability of management to pay dividends to shareholders or constrain it to get new debt if it is not achieving at least the minimum accounting earnings, based on the debt agreement. Therefore, companies may deliberately make fundamental changes in their accounting policies to influence the accounting income (Kim et al., 2011).

Previous studies have indicated that companies tend to use accrual-based EM to avoid debt covenant violations (e.g. Kim et al., 2012; Doukakis, 2014). Sweeney (1994) investigated the debt covenant violations among a sample of 130 US listed companies using a 10-year period, from 1980 to 1989 and found that companies used accruals-based manipulation for

increasing earnings in order to mitigate the cost imposed by lenders. Rodriguez-Perez and Hemmen (2010) examined the link between the debt level and EM using 1,853 company-year observations in Spain from 1992 to 2002. Their results show a negative relationship between the debt level and discretionary accruals. Although there is widespread research on accruals-based EM, only a limited number of studies have examined whether real activities-based EM is used to avoid debt covenant violations. For instance, Bartov (1993) indicated that companies use sales timing of fixed assets to avoid debt covenant violations. Kim et al. (2011) also indicate that companies use REM to avoid debt covenant violations.

3.5.4 Political Cost

Previous research indicated that companies engage in EM to avoid political cost. Political costs are considered by managers when they report earnings, which may lead them to resort to income-decrease EM in order to mitigate political risk (Habbash and Alghamdi 2015). Aljifri (2007) argues that companies might use earnings manipulation in financial statements to mitigate government interference. Key (1997) examines the relationship between EM and new regulations during the period from 1989 to 1999. His results indicate that US companies tend to use income-decrease EM to reduce the impact of new regulations during this period. Han and Wang (1998) also investigate the link between EM and unusual increases in oil prices during the Gulf crisis in 1990. They examined a sample of 76 US oil companies in 1990; their findings indicate that these companies used accruals-based EM to decrease the reported income for the fiscal year. They explain that these companies decrease reported earnings to avoid the expected political cost.

Meilani Purwanti (2013) indicated that political pressure may also motivate companies to manage earnings to avoid public attention. In companies with a high level of political cost, managers tend to delay reporting earnings from the current period until future periods to decrease earnings in the current fiscal year. This may be due to the increase in earnings as a

result of political costs, which may attract the attention of the media and the general public

3.5.5 Tax Avoidance

Another reason why managers tend to engage in EM is changes in tax policy. Adhikari et al. (2005) examined the link between EM and the effective tax rate in Malaysia using data from the top 177 companies during the period from 1994 to 1997. They found that tax policy changes are related to manipulation of reported earnings. Lemke and Page (1992) also investigated the accounting policy choices in 1983 among UK companies. Their results indicate that UK companies tend to engage in income-decreasing EM to affect tax liability. Their results suggest that managers are willing to decrease reported earnings to reduce tax costs. In the same context, Othman and Zeghal (2006) conducted a comparative study through a sample of 1,470 French firm-year observations and 1,674 Canadian firm-year observations during the period from 1996 to 2000. They found that manipulation of earnings in French firms is mostly associated with contractual debt reasons and effective tax rates. Consequently, tax is another incentive to engage in EM.

3.5.6 Other Motivations

Earnings manipulation before events such as mergers and new listings in stock markets is a widespread phenomenon. Some companies may seek, in certain circumstances, to expand their ownership through an initial public offering (IPO). Due to the lack of sufficient (previous) information about the company in the stock market, investors will rely on information provided in the financial statements. It then becomes a favourable opportunity to adapt the profits so as to improve the company's image when issuing new shares (Kamal, 2012). Louis (2004) studied a sample of 373 companies, which merged during the period from 1992 to 2000, and investigated if these companies engaged in REM and whether REM was related to mergers. Specifically, this indicates that companies are more likely to manage earnings before a merger.

He also finds evidence that companies which engage in accrual-based EM pre-merger, may return to their underperformance after the merger. Companies may also engage in EM before they move between stock markets. For instance, Chou and Lin (2003) focus on companies that moved from the AMEX stock exchange to the NYSE market during the period from 1990 to 1997. The findings show that companies engage in upward accruals-based EM before listing on the new stock market.

3.6 Constraints for EM

Previous literature has identified the relative constraints and costs of AEM and REM (e.g. Zang, 2011; Abernathy et al., 2014). It is documented in prior studies that constraints and costs (e.g. Cai et al., 2008; Chen et al. 2010; Sun et al., 2011; Zang, 2011; Abernathy, 2014) have led to lower EM. This section focuses on the common mitigating factors that are mentioned in prior literature, such as audit committees, boards of directors, institutional ownership, auditors' quality, accounting regulations, regulatory environments and other Costs constraining EM (e.g. Chi et al., 2011; Abernathy, 2014; Chung et al., 2002).

3.6.1 The Role of the Board and Audit Committee

Prior studies have focused on investigating whether board and audit committee constrain EM (Klein, 2002; Peasnell et al., 2005; Vafeas, 2005; Karamanou & Vafeas, 2005). The board is considered to be a fundamental part of the company's monitoring mechanism on AEM (Fama & Jensen, 1983). Boards monitor the company by ensuring that executive officers achieve their duties in a manner that serves the interests of shareholders (Terjesen, et al., 2009). Thus, board effectiveness is predicted to lead to a lower level of AEM (McElveen, 2002; Turley & Zaman, 2004). According to DeZoort et al. (2002), the purpose of the board of directors is to protect shareholders' interests, which is achieved by choosing qualified members who have adequate authority and the necessary resources to diligently offer oversight. According to agency theory,

independent directors can play an important role in monitoring executive managers' performance. A higher ratio of independent directors among the board would lead to better governance and better monitoring activities by the board. This would also limit managerial opportunism (Terjesen et al., 2009) because those directors may be concerned with protecting their own reputation and avoiding potential financial loss which may result in litigation (Young, 2000). Furthermore, the financial expertise of board members is a significant element influencing the quality of financial reporting. Hermalin & Weisbach (1991) provide evidence that experience and accumulated knowledge enables directors to be more effective. Similarly, the audit committee is also intended to play a major part in enhancing the financial report's integrity (Allegrini and Greco, 2013). The audit committee also aims to protect shareholders' interests, which is achieved through qualified members and adequate authority (DeZoort et al. 2002). Parker (2000) shows that the degree of independent audit committees is negatively related to income-increasing accruals-based EM. Klein (2002) found that audit committee effectiveness is more likely to mitigate the accruals-based AEM. Klein (2002) examines the impact of the board and audit committee on AEM. Through examining a sample of 692 companies in the USA, the author indicates that the characteristics of board directors and independent audit committee members are negatively related to AEM. Generally, Klein (2002) also argues that an independent and qualified board and audit committee have a significant impact on AEM, since they have a powerful monitoring role over the companies' accounting processes. In line with Klein (2002), Peasnell et al (2005) provide additional evidence on the role of the board and audit committee in mitigating AEM. By investigating a sample of UK firms over the period 1989-2002, Peasnell et al. (2005) indicated that outsider members of the board and audit committee decrease AEM. Prior studies also found evidence that managers who are constrained for AEM are more likely to engage in other alternative strategies to achieve

their own interest (e.g. Zang 2011; Abernathy et al., 2014). This implies that the financial reporting will not provide reliable information when EM continues under different strategies.

3.6.2 The Role of Institutional Ownership

Unlike AEM, REM has a direct impact on the long-term value of companies. Managers may find difficulties engaging in REM when institutional investors are closely monitoring their activities. Prior studies suggest that institutional investors are used as a monitoring mechanism, since they have a better understanding of the impact of companies' operating decisions, thus helping to mitigate the likelihood of real activities manipulation (Abernathy, 2014). Recent reforms in the corporate governance field have resulted in increasing interest in testing whether institutional ownership mitigates EM (e.g. Zang, 2011; Abernathy, 2014). Bushee and Noe (2000), for instance, examine the relationship between unexpected REM and institutional ownership to meet short-term earnings targets. The study sample of US companies during the period from 1983 to 1994. The findings indicate that the developed institutional investors mitigate REM using R&D expenses to meet the former fiscal year's earnings. Bushee and Noe (2000) also provide evidence that, with a higher ratio of institutional ownership, companies engage less in REM through cutting research and development expenditures in order to increase earnings. Similarly, Roychowdhury (2006) indicates that institutional ownership is negatively related to REM.

3.6.3 Auditors' Quality

Much evidence in EM literature indicates that audit quality constitutes a constraint on AEM (Becker et al., 1998; Krishnan, 2003; Chi et al., 2011). Managers are also more likely to face more difficulties in convincing higher quality auditing firms of their aggressive accruals estimates compared to a lower quality auditing firm. The impact of several proxies of auditor quality on AEM, such as the biggest auditing firms, audit and non-audit fees have been

examined by prior literature (Srinidhi & Gul, 2006; Zang, 2011). Prior research suggests that large audit firms provide higher quality audits than small firms (e.g., see Geiger and Rama, 2006; Khurana and Raman, 2004). It is also argued that companies reviewed by larger auditing firms are more likely to estimate less abnormal accruals (Francis et al., 1999). DeAngelo (1981), for instance, found that the auditing firms' size is used as a good proxy of the auditors' quality. Similarly, Becker et al. (1998) investigated the relationship between AEM and auditors' quality using the big 6 audit firms as proxy of auditors' quality. They found that companies audited by higher quality auditing firms report a lower level of AEM than companies audited by lower quality auditing firms. In the same context, Zang (2011) provided evidence that managers are more likely to change their strategies of EM as a result of constraining AEM by auditing firms. Besides scrutiny from corporate governance mechanism and auditing firms, the accounting system's flexibility within the companies also constrains AEM. Managers who engaged intensively in accruals manipulation in previous fiscal years, which led to limited flexibility in the accounting system to continue using accruals for EM, are more likely to face a higher risk of being detected. Thus, they are more likely to focus on other strategies to achieve their aims.

3.6.4 The Role of Accounting Regulation

Doukakis (2014) argued that countries that adopt IFRS might do so because they have higher incentives to enhance financial reporting quality. In this case, reform regulations such as IFRS serve as a proxy for a credible commitment to higher quality accounting (Soderstrom, 2007). Supporters of IFRS adoption also argued that the adoption of IFRS would improve the quality of accounting information (Jean and Stolowy 2008; Li 2010). Prior studies have addressed the question of whether the adoption of IFRS is associated with lower earnings management and provide evidence that accrual-based EM seems to be decreasing after IFRS adoption (e.g. Cai et al., 2008; Chen et al. 2010). For example, Cai et al., (2008) investigated the impact of IFRS

and its enforcement on AEM in 32 countries and found a decrease in EM after IFRS adoption by those countries. Chen et al. (2010) examined the financial reporting quality of listed companies in 15 developed countries before and after the adoption of IFRS. Their results show a higher accrual quality and lower absolute discretionary accruals after IFRS adoption. In the same vein, Sun et al. (2011) studied the impact of IFRS adoption on the earnings quality of foreign firms cross-listed in the U.S. from countries that have already adopted IFRS on a mandatory basis. Their results indicated that IFRS adoption led to an improvement in earnings quality for cross-listed firms relative to the matched firms. Adibah et al. (2013) study the differences in EM of Malaysian firms after the adoption of accounting standards, namely FRS. Their results show that FRS adoption is related to a higher quality of reported earnings. Managers may have more incentives to manipulate earnings by real operations, since changes in the legal framework and accounting standards have ensured more confidence and transparency of financial reports (Kumari & Pattanayak, 2014). In this context, Wagenhofer (2005) argues that the existence of stricter accounting standards might have a direct effect on AEM, since it reduces the chance of exploiting the flexibility of accounting policies. Wagenhofer further concludes that the adoption of stricter accounting regulations may drive managers to replace AEM with REM. These imply that managers substitute one form of EM with another and highlight unintentional results of IFRS adoption (when the practices of manipulating earnings continue under different forms, the information quality will not be improved).

3.6.5 The Role of Regulatory Environment

Evidence from prior literature indicated that there is a relationship between managers' EM tendencies and the regulatory environments (Graham et al., 2005; Gerakos et al., 2011). Graham et al. (2005) conducted a study on the EM practices of financial managers and found evidence that financial managers tend to manipulate earnings using REM over AEM to avoid

the scrutiny of regulators. In particular, eighty per cent of managers surveyed disclosed their use of REM, such as manipulating advertising expenses and R&D, to meet short-term targets. Cohen et al. (2008) examined whether the Sarbanes and Oxley (SOX) Act in 2002 is related to a lower incidence of EM. They found that companies in the USA switched from using AEM pre-SOX to REM post-SOX. These findings are consistent with the results reported by Graham et al. (2005), indicating that management in a highly regulated environment are likely to use REM over AEM. Similarly, Ewert et al., (2005) also argued that good accounting regulation constrains AEM, but suggested that managers are more likely to engage in REM instead. Furthermore, Gerakos et al. (2011) investigated whether the regulatory environments are related to the characteristics of IPO companies. In particular, they listed companies on the lightly regulated AIM stock market vs. companies on the Main market of the London Stock Exchange and the developed markets in the USA. They found evidence that the levels of asymmetric information, failure rates and liquidity problems are higher in the lightly regulated AIM stock market than in the other companies. These findings indicate that the level of EM practices in the lightly regulated AIM stock market is higher than EM in the other companies.

3.6.6 Other constraints for EM

This section focuses on how other costs can constrain EM. REM may be considered by managers as a costly decision when they face high competition in the same industry. Thus, with a lower percentage of the industry market share, companies are less likely to engage in REM. Using REM is also perceived as relatively costly when companies are facing a poor financial position. Companies which are facing insolvency problems may have a greater marginal cost if they change their optimal business strategy. A company which is close to bankruptcy is more likely to be working on saving itself than working on its financial reporting (Kostas, 2015). Graham et al. (2005) conducted a survey of 400 executives and noted that they were aiming to produce smooth, attainable earnings every year unless they were in a poor financial position.

Zang (2011) also documents evidence that firms' poor financial health constrains REM. Roychowdhury (2006) indicates that REM has a negative impact on the subsequent operating period and its cash flows, which are greater than the influence of AEM.

3.7 Measurements of Accruals-Based Earnings Management

AEM is also known by prior research as accrual-based earnings management, in which certain accruals are managed which cause a contradiction between the timing of the accounting recognition of income and the timing of cash flows (Ronen and Yaari, 2008; Shafer, 2015). Moreover, prior research on AEM suggests that management are more likely to engage in earnings manipulation through accruals-based EM, since AEM is less costly to use. Generally, three essential approaches have been used by researchers to examine the EM practices, which are specific accruals, (McNichols and Wilson 1988; Beatty et al. 2002); frequency distribution of earnings (Beatty et al., 1999; Degeorge et al. 1999) and aggregate accruals (e.g. Kothari et al. 2005; Dechow et al. 1995). These three approaches are discussed in the following sections.

3.7.1 Specific Accruals Approach

Based on this approach, previous studies have investigated different specific accruals, for instance, bad debt expenses (McNichols and Wilson, 1988), postponed tax assets (Miller et al., 1998) and loss allowances of insurance claims (Beaver et al., 2001). McNichols and Wilson (1988), assume that bad debt expenses are comprised of normal and abnormal accruals and provide evidence that companies engage in EM using accruals with unusually low or high earnings. Cecchini et al. (2012) find also that IPO companies engage in EM to decrease earnings by employing more allowances. Nevertheless, this approach cannot control the hypothesis that management may employ different accruals simultaneously to manage earnings. For instance, if no evidence is found that a company manipulates bad debt expenses, it may not be enough to suggest that there is no evidence of using accrual-based EM, since the

company can manipulate other kinds of specific accruals. Thus, by investigating specific accruals, direct evidence can be provided by researchers for standard setters. Furthermore, the use of reported loan loss provisions, which is used by researchers in the banks' valuation, was examined by Elnahass et al. (2014). They differentiated the loan loss provisions into normal and abnormal accruals and provided evidence that loan loss provision is significantly related to investors' decisions.

Phillips et al. (2003) used postponed tax expense for measuring AEM, along with the discretionary accruals. They provided evidence about the usefulness of postponed tax expense through either total accrual or discretionary accrual, which aims to reduce revenue or to avoid small losses. Beneish (2001) used the approach of multiple specific accruals through a new model for measuring AEM in a sub-sample of firms with high profit level. This model comprises variables such as capital structure, time listed, ownership structure, growth of sales, previous market performance and other incentives for violating GAAP by managers. The study results indicated that there is a relationship between the violating of GAAP flexibility and previous market performance, growth of sales and capital structure.

While the specific accruals approach provides several advantages to estimate abnormal accruals in specific circumstances, in most circumstances it has failed to do so (McNichols et al., 1988). Furthermore, Beneish (2001) argues that the specific accruals approach is insufficiently flexible for examining other factors related to EM. Therefore, the approach of specific accruals is meaningless when exploring the relationship between other hypothesised variables and EM, since it needs a different model for each kind of specific accrual. This approach is more appropriate and is frequently used by financial institutions (such as the banking and insurance industries).

3.7.2 Frequency Distribution of Earnings

The frequency distribution approach is based on the supposition that the manager is encouraged to meet an earnings target. This approach attempts to detect EM through earnings distribution. Prior research has investigated EM by testing the distribution of reported earnings, which found evidence that this approach can be used to focus on suspect areas of earnings management (e.g. Beatty et al., 1999; Degeorge et al. 1999). Burgstahler and Dichev (1997) employed earnings distribution to test whether management engaged in EM to avoid a decrease in earnings and losses. Their results suggest that earnings manipulation to avoid losses is conducted by abnormally high frequencies of small earnings and abnormally low frequencies of small losses. They also indicate that managers with slightly pre-managed earnings are involved in EM to increase profit. Degeorge et al. (1999) examined the earnings distribution per share to discover whether avoiding losses is a motivation for EM. They found that the management tend to manage earnings to avoid loss. Similarly, Beatty et al. (2002) used the distribution approach to examine whether managers manipulating earnings to meet the previous year's earnings is the main reason for management in banks to engage in EM practice. Their results indicated that fewer small decreases in earnings are conducted by private banks rather than public banks. Zhou et al., (2006) suggests that the approach of distribution earnings is more effective in detecting EM than other methods. However, Durtschi and Easton (2005) argue that the frequency distributions shapes, which researchers use as proof of the existence of EM, may not provide sufficient evidence for the existence of EM. As a result, researchers should consider these factors before employing earnings distributions shape as evidence for the existence of EM.

3.7.3 Aggregate Accruals Approach

There are various approaches to estimate AEM. However, the approach of aggregate accruals is the most commonly used approach in EM research (Dechow et al. 2010). Aggregate accruals

consist of two components, which are normal accruals and abnormal accruals (Sun et al., 2010). Normal accruals are also known as non-discretionary accruals. They are affected by external factors, thus, it is outside the control of the management. Normal accrual results from the real processes within the company, when there is no availability of accounting choice for registering transactions. Therefore, it is recorded without deliberate intervention or personal judgment from the management. Abnormal accruals, however, are known also as discretionary accruals, which are adjustments selected and managed by the management. Discretionary Accruals are used as proxy for AEM (Peasnell et al., 2005; Kothari et al., 2015; Perotti and Windisch, 2017). Discretionary Accruals result from the accounting operations through the available flexibility in accounting standards. Discretionary accruals are a powerful tool for managing earnings since it is difficult to observe or follow them directly in the financial statements (Bergstresser & Philippon, 2006; Barghathi, 2014). Prior research introduces several models to measure AEM. The AEM models have difficulty with separating and identifying total accruals into normal and abnormal accruals. Thus, prior literature follows two streams of studies, which are discretionary accruals and total accruals. Total accrual models are used to measure discretionary accruals as proxy for AEM through the change in total accruals (DeAnglo, 1986). The second approach is based on the separation of total accruals into normal and abnormal accruals and uses abnormal accruals as proxy for AEM (Jones, 1991). The most common models used to measure discretionary accruals in the recent research are the modified Jones (1995) model and Kothari et al. (2005). The following sections present the most important models based on the aggregate approach.

3.7.3.1 The Healy (1985) model

Healy (1985) created one of the first quantitative models developed in the accounting literature for detecting earnings management practices, whereby the discretionary accrual was estimated as the difference between the total accruals and the average of total accruals; this is used as

proxy for the normal accruals. Total accruals can be measured of the difference between the net income from operations and cash flows. The Healy model, by using accrual, assumed that earnings management occurs in all periods. When the change in the value of the normal accrual is equal to zero, this suggests that any change in the size of the total accruals as increase or decrease is due to the abnormal accrual. Consequently, there is the possibility of manipulation by the management to affect reported earnings. The Healy model is the simplest model presented to measure earnings management practices (Banseh and Khansalar, 2016). However, the assumption of this model, that the level of the change in the value of the normal accrual is equal to zero, has been criticised by prior research (Holthausen et al., 1995; Dechow 2010; Chen et al., 2015). Since the fluctuation of the normal accruals depends on the company's economic circumstances, the change in the level of normal accruals is not likely to be equal to zero at any period (Breton et al, 2009; Dechow 2010).

3.7.3.2 De Angelo (1986) model

This model is based on testing earnings management practices through the difference between the total accruals in the current period and the previous period. De Angelo (1986) assumed that the change is equal to zero in the absence of earnings management practices. The author used the total accruals of the previous year as a standard of the expected accruals (Aljifri, 2007). This model is relatively easier in terms of application compared to Healy's (1985) model, which does not require estimated periods. While the Healy model requires at least five estimated periods, the De Angelo model summarises the estimation to the previous period only. However, there are similarities between the two models in terms of the stability of assumption of normal accruals. Criticism has been directed at this model because the previous period is used as a measure for the manipulation in current earnings, since it cannot determine the periods that are free of earnings management practices (Garcia and Sanchez, 2009). This may make the measurement inaccurate and biased. DeAngelo (1986) used this model based on the assumption

that any changes in normal accruals are constant over time. Thus, it is approximately equal to zero in the estimated period. Nevertheless, several EM studies have criticised this since normal accruals are affected by the changes in the companies' circumstances, which do not remain constant over time (Aljifri 2007; Dechow et al., 2010).

3.7.3.3 The industry model

Due to the criticisms directed at the Healy (1985) model, which supposes the persistence of the normal accruals over time, the industry model was created by Dechow and Sloan (1991) to capture AEM. They suggest that the differences in normal accruals should be similar in the same industry, thus, they estimate abnormal accruals as the median of aggregate accruals over a given period divided by the total assets at the beginning of the given period for all companies in the same sector. This model tries to avoid the criticisms that are directed at the Healy (1985) model. However, the industry model was also criticised for some weaknesses. For instance, the normal accruals could be different in the same sector. Thus, if the change in the normal accruals does not reveal instability in a company's economic circumstances, then abnormal accruals might be missclassified as normal accruals (Dechow et al. 1995).

3.7.3.4 The Jones (1991) Model

The Jones (1991) model is the most common model used in prior EM research, since this model can differentiate between normal and abnormal accruals. Jones (1991) assumes that the total accruals are arising from changes in a company's economic conditions and managers' interventions in the process of financial reporting (Chen, 2012). The variation in normal accruals, stemming from changes in business activities and arising from depreciation of the company assets (property, plant, equipment) and revenue, are used to measure the normal accruals. Jones suggests a regression model to estimate abnormal accruals. Two stages are used to divide total accruals into normal and abnormal accruals (Yang and Krishnan, 2005; Sun et al., 2010). This model can be applied in two ways (the time series, cross-section). However, it

has been found that using the Jones model with a cross-section provides more control than using it with a time series (Dechow et al, 2010). A large number of studies have been attracted by the Jones model (e.g. Guay et al., 1996; Cohen and Zarowin, 2010; Cornett et al., 2008; Jiraporn, et al., 2008). For instance, Guay et al. (1996) suggest that this model is a more effective model than the Healy (1985), Dechow and Sloan (1991) and DeAngelo (1986) models. Furthermore, Dechow et al (1995) and Aljifri (2007) also indicate that the Jones (1991) model is considered the most powerful for detecting EM. However, it is noted that the Jones model implicitly assumes revenues represent normal accrual, which means it is not used in EM. Nevertheless, company can manipulate earnings using revenue through accruals misclassification.

3.7.3.5 The modified Jones (1995) Model

Due to the criticism directed at the Jones (1991) model, Dechow et al. (1995) created a modified model to improve the measurement of discretionary accruals. Their model deducts the differences in the receivables from the differences in revenues to exclude the change in future revenue, which is expected to be considered discretionary by managers. Accordingly, Sun et al. (2010) argue that it is easier to manage earnings through the flexibility available in the revenue from futures sales, rather than earnings management practices through the revenue from cash sales. Therefore, the modified Jones (1995) model uses only variations in cash revenue to estimate normal accruals, since some credit is more likely to be discretionary in a given period (Dechow et al., 2010). Considerable research has explored the performance of abnormal accruals models and suggests that the modified Jones model is the most powerful model to detect EM (Habbash, 2010). Although this model was presented as time series, several studies (e.g. Subramanyam, 1996; Bartov et al., 2001) have compared these models as time series and cross-section. They suggest that, when detecting EM, the modified Jones (1995)

model is more effective as a cross-sectional model than a time-series model (Peasnell et al. 2000).

3.7.3.6 Kothari et al.'s (2005) model (performance matched discretionary accruals)

The importance of companies' operating performance is indicated in several EM studies (e.g. Dechow et al., 1995; Kasznik, 1999). These studies indicate that abnormal accruals are significantly related to the return on the total assets when the Jones model is used to estimate EM. To resolve this issue, Kothari et al. (2005) argue that abnormal accruals, as measured by the modified Jones (1995) model, may also include measurement error in abnormal accruals since this model neglects the company's performance. Prior research (Dechow et al.,1998; Barber and Lyon, 1996) provides evidence that ROA is an effective variable to control the performance of companies. Consistent with these studies, Kothari et al. (2005) indicate that using ROA as a proxy for the performance is more likely to increase the effectiveness of the modified Jones (1995) model. Thus, the abnormal accruals are estimated by the residuals of the regression model.

3.8 Measurement of Real Earnings Management Activities

In order to measure REM, previous studies have employed several models, such as discretionary expenses (DISX), abnormal cash flows (CFO) and production cost (PROD) (e.g. Cheng, 2004; Chi et al., 2011).

3.8.1 Discretionary Expenses Manipulation

DISX represents the sum of advertising expenses, selling, general and administrative expenses and R&D. Previous research follows two methods to measure DISX manipulation. The first method measures the abnormal level through each activity of DISX separately (e.g. Bushee and Noe, 2000; Gunny, 2010).The second method measures the DISX manipulation for the sum of advertising expenses, selling, general and administrative expenses and R&D (e.g. Cohen et al.,

2008; Zang, 2012). In order to increase reported earnings, management typically attempts to use all or one of these expenses.

Perry and Grinaker (1994) investigated the relationship between the expenses of R&D and earnings forecast. They used one of the first models for estimating the manipulation of R&D using a sample of 99 companies. They created their model for measuring abnormal R&D expenses based on Berger's (1993) model. In line with this method, which used a single activity of DISX, another model, created by Gunny (2010) to estimate the manipulation of R&D expenses, is based on the prior model (Berger's (1993) model). Furthermore, another model developed by Gunny (2010) estimates non-discretionary sales expenses, general and administrative.

Roychowdhury (2006) has used a slightly different approach. He measured the discretionary expenses as the sum of advertising expenses, R&D and selling, general and administrative expenditures. Specifically, Roychowdhury (2006) built this model based on a Dechow et al. (1998) model, when he measured the sum of DISX as a linear function on sales. Nevertheless, Cohen et al. (2008) indicate that measuring the DISX as specified by Roychowdhury (2006) will cause a problem if a company manipulates earnings upwards using sales for increasing reported earnings. To overcome this issue, DISX is measured as a function of sales at the end of the previous year. Therefore, DISX is measured through a regression for each sector and year.

3.8.2 Operation Cash Flows Manipulation

Previous studies found evidence that companies manipulate sales through increasing the discounted price and/or giving more lenient credit terms (e.g. Cohen et al. 2008; Kim et al., 2012). If managers manipulate earnings through discounts of sales price or giving more lenient credit terms to increase the current year's profit, these decisions will lead to a lower level of cash flows from operations in the current year (Kim et al., 2012). Roychowdhury (2006)

estimates the normal operations cash flows as a linear function of change of sales and sales at the current year.

3.8.3 Production Cost Manipulation

The purpose of PROD manipulation is to increase the earnings margin in the present period through increasing production units and reducing the cost of goods sold. Furthermore, companies try to reduce the fixed cost per unit through increasing the number of units produced, as this will not increase the marginal unit cost (Dechow et al., 1998). Roychowdhury (2006) estimates PROD, and defines it as the cost of goods sold (CGS) and inventory change (Ch-INV) during the year. He measures CGS as a linear function of current sales. Roychowdhury (2006) defined PROD as GSC + CH-INV.

3.8.4 Asset Sales Timing

Asset sales timing is a flexible technique used by managers to manipulate earnings for meeting the desired threshold. The model developed by Gunny (2010) to estimate the asset sales manipulation is based on Herrmann et al.'s (2003) model. The following cross-sectional regression suggests the residue from the regression can be used as proxy for manipulating asset sales.

3.9 Empirical evidence on accruals-based and real earnings management

It has been documented that earnings management (EM) exists not only using accounting policies, but also when management manipulates real transactions in order to disclose a level of earnings in accordance with their own interest (Dechow and Skinner 2000; Callao and Jarne 2010). There is a significant difference when EM occurs in real transactions as opposed to accounting-based ones, as this has a direct impact on the cash flow. It is defined as management actions that deviate from normal business practices, undertaken with the primary objective of meeting specific earnings thresholds (Roychowdhury, 2006). It is documented in prior studies

that the increased scrutiny on accrual-based accounting has led to lower AEM (e.g. Cai et al., 2008; Chen et al. 2010; Sun et al., 2011). Managers presumably realise that the costs and risks of detecting EM are higher than its benefits in a stronger regulatory environment. Cohen et al. (2010) noted that REM is more difficult to detect than AEM. Although REM has not been studied on as large a scale as AEM, it has been argued that managers may prefer to use REM than AEM (Ewert and Wagenhofer, 2005). Managers have more incentives to manipulate earnings by real operations, since changes in the legal framework and accounting standards have ensured more confidence and transparency of financial reports (Kumari & Pattanayak, 2014). Similarly, Graham et al. (2005) document strong evidence that managers may prefer to use REM instead of AEM. In particular, they interviewed 400 executives and emailed the survey to 3174 financial executives in the USA. Their findings indicate that eighty percent of survey participants are inclined to use REM through decreasing advertising expenses, maintenance and R&D rather than applying the accruals options in order to meet specific aims. Roychowdhury (2006) investigates EM through real activities manipulation using a large US sample over the period 1987–2001. The study finds higher levels of REM across different earnings thresholds and, more specifically, provides evidence that US companies engage more in REM to avoid reporting losses. Cohen et al. (2008) empirically investigate the interrelation between real and accrual EM post SOX among US companies. Their findings indicate that firms switched from AEM to REM following the stricter legislation. Cohen and Zarowin (2010) document that companies engage in both EM strategies in the period of a seasoned equity offering. Ipino and Parbonetti (2017) and Ferentinou et al. (2016) investigate the relationship between REM and AEM before and after the IFRS adoption and show evidence of a significant switch from AEM to REM after the IFRS adoption. The limitation found in the methods that were used in the above research is they propose that the costs of managing AEM are constant among all companies. They also do not provide empirical evidence for both costs

together for both strategies, AEM and REM. Therefore, these empirical studies did not consider the trade-off based on their relative costs.

There are only a few studies which have examined the trade-off between AEM and REM based on their relative costs. Zang (2012), for example, investigates the trade-off decision between AEM and REM using a large sample of companies during the period from 1987 to 2008 in the USA. She analyses the managers' trade-off decisions based on different costs of both AEM and REM. Her results provide evidence which suggests that the substitution between AEM and REM is based on the relative costs or constraints of each strategy. Abernathy et al. (2014) also examine how previously identified EM constraints are associated with the use of trade-off strategies to manage earnings. They indicate that the use of trade-off increases when one of the EM methods is more costly and constrained. Their findings suggest that the trade-off from REM to AEM is more likely to increase when REM is constrained by lower financial health, high institutional ownership levels and high industry market competition. Moreover, managers may also use the trade-off from AEM to REM more when AEM is constrained by lower accounting flexibility.

Based on the above discussion, since the majority of studies on the relationship between AEM and REM are conducted in western countries (e.g. Cohen et al. 2008; Abernathy, 2014), not much is known about the relationship between AEM and REM in developing countries. Only a few empirical studies in developing countries have investigated this relationship (e.g. Matsuura, 2008; Kuo et al., 2014), and have focused only on some constraints for AEM. Moreover, evidence found by previous literature in the developed countries may not be helpful in understanding the relationship in developing countries due to the differences in environment and standards between these countries (Anglin et al., 2013). Prior research has also argued that several factors, such as culture, religion and other societal norms, may influence accruals-based and real activities earnings management (e.g. Gautam & Singh, 2010; Hastings, 2000). Most

notably, previous studies which examine the relationship between AEM and REM have identified several factors that impact either AEM or REM, such as the Sarbanes and Oxley Act of 2002 (Cohen et al., 2008), IFRS (e.g. Ipino and Parbonetti, 2017; Ferentinou et al., 2016) and relative costliness related to REM or AEM (Zang, 2012; Abernathy, 2014). However, no study examines the impact of the effectiveness of the board and audit committee on this relationship. We argue that any choice of EM is not without costs for the companies. Every decision to manipulate earnings should take into account their relative cost. Prior research (Zang, 2012; Abernathy, 2014) suggests that REM is constrained by institutional ownership, lower financial health and higher industry competition, while AEM is constrained by the existence of lower accounting flexibility, corporate governance, and high quality auditing.

3.10 Conclusions

The current chapter discusses the literature review related to EM definitions, activities, and measurement. EM literature presented in this chapter also indicated that REM and AEM are the most commonly used methods in manipulating earnings (Ronen and Yaari, 2008; Kim et al., 2012; Shafer, 2015). Previous research found evidence which suggests that the substitution between AEM and REM is based on the relative costs or constraints of each strategy (Zang, 2012; Abernathy et al., 2014). In addition, while the empirical research that measures REM is comparatively new and needs more attention and development (e.g., Gunny, 2010, Kim et al., 2012), measuring AEM has been developed and given more attention by previous EM literature (e.g. Dechow et al., 1995, Kothari et al., 2005). Other interesting conclusions might be drawn based on the prior EM literature. Although it seems there is no agreement about a particular model that can measure AEM with great accuracy, the majority of previous researchers have employed the modified Jones (1995) model and Kothari et al.'s (2005) model (the performance matched method) to measure AEM (Dechow et al., 1995; Kothari et al., 2005). In respect of

measurement of REM, the majority of prior researchers have used Dechow et al.'s (1995) model, which is applied by Roychowdhury (2006) to estimate REM (Kim et al., 2012).

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 Introduction

The main purpose of this chapter is to justify the research methodology in accordance with the study objectives. Thus, the current chapter presents the study methods and approaches, which are structured as follows. Section 4.2 presents the hypotheses development and section 4.3 clarifies the research method. Section 4.4 shows the process of process of data collection and constructing the sample. Sections 4.5 presents the processes of measuring REM and AEM, and section 4.6 explains the processes of measuring QCSRD. Control variables and the main empirical research model are then presented in Section 4.7. In section 4.8 the analytical procedures are presented and, finally, section 4.9 presents the summary of the entire chapter.

4.2 Hypotheses Development

The main purpose of this study is to understand the relationship between EM and QCSRD among the top 500 Indian listed companies. To achieve the aim of this thesis, the study hypotheses are built as follows.

In order to explain the association between QCSRD and EM, previous studies have suggested two perspectives, namely, the moral perspective and the opportunistic perspective (Kim et al., 2012). The opportunistic perspective suggests that managers who engage in EM are more likely to use CSR disclosure to mask their opportunistic behaviour (Khan and Azim, 2015). According to this perspective, CSR disclosure has become an important incentive for managers to achieve financial gain and personal rewards at the same time. Sun et al. (2010) argued that when agency conflicts exist, managers might manipulate earnings opportunistically in their favour. Managers who use EM may attempt to distract stakeholders about their opportunistic behaviour. Those managers voluntarily issue CSR reporting to promote an impression of their

CSR values, which may or may not be substantiated (Mahoney et al, 2013). Following this argument, the relationship between EM and CSR reporting could be substitutive, since CSR disclosure is used by companies with poor financial reporting quality as a mechanism to gain legitimacy for substitution of their low quality financial reporting (Martínez-Ferrero, et al, 2015). CSR disclosure, in this sense, is used as window-dressing to distract the attention of the firms' stakeholders from their questionable and poor financial reporting practice. Owing to this, many empirical studies have shown evidence of a positive association between CSR disclosure and EM. Nevertheless, according to the moral perspective, it is assumed that companies which are socially responsible and disclose quality information of their CSR are less likely to manipulate earnings (Yip et al., 2011). Kim et al. (2012), argue that firms which spend their resources in the activities of CSR and conduct programs in moral perspective for the interest of stakeholders are expected to engage less in EM and prepare more reliable and transparent financial reporting. Choi et al. (2013) point out that since EM is inconsistent with CSR principles, companies with a higher commitment to CSR are seemingly acting in a responsible way when they prepare their financial statements. Given that managers are more likely to engage in EM when there is high information asymmetry, CSR reporting is assumed by signalling theory to be a means of mitigating the information asymmetry between management personnel and stakeholders. Owing to this, many empirical studies have shown evidence of a negative relationship between CSR reporting and EM (e.g. Laksmana & Yang, 2009; Kim et al., 2012).

The above two theoretical perspectives pose an important research question *"Is there a positive or negative relationship between the QCSRD and the level of AEM and REM among Indian listed companies?"*. A closer look at the arguments behind these two perspectives, however, reveals that they can be reconciled if one can evaluate the informational content (i.e. quality) of CSR.

Furthermore, QCSRD is suggested by signalling and agency theories to be a means of mitigating EM (Chih et al., 2008). Agency problems arise, and conflicts occur, between shareholders and managers when the agents act in their own interests rather than optimising companies' value (Watts and Zimmerman 1990). Asymmetric information arises when managers have more access to information than the owners (Fields et al. 2001). This is due to the fact that managers work within the company every day and are informed about all the companies' transactions. On the other hand, stakeholders rely on periodic information, such as annual reports, in order to enable them evaluating companies' value. Therefore, asymmetric information will be higher when the information quality is low.

Signalling and agency theories assume that companies, by providing QCSRD, are more likely to reduce the asymmetric information and mitigate the problem of conflicting interests (Prado-Lorenzo et al. 2008; Miller 2002). Agency theory suggests that the problem of conflicting interests increases when both the managers and shareholders attempt to maximise their wealth. The key factor that leads to this problem of conflicting interests is asymmetry information. According to the agency perspective, a company is more likely to use several methods, such as QCSRD, to mitigate the agency problem between agents and shareholders, and then it reduces EM (Li et al., 2008). Given that managers are more likely to manipulate earnings with high information asymmetry, QCSRD is also suggested by signalling theory as a tool for reducing the asymmetric information between management personnel and stakeholders. Laksmana and Yang (2009) and Chih et al., (2008) argue that when the transparency of information is increased the expectation of the asymmetric information between the management and stakeholders will be reduced and, therefore, EM would be reduced.

The prior research in this area has substantiated that CSR reporting is associated with EM. Empirical findings, however, remain inconclusive with regard to whether commitment to CSR reporting has a positive or negative impact on EM and vice versa (e.g. Sun et al., 2010; Yip et

al., 2011; Muttakin & Azim, 2015; Wang et al., 2015; Belgacem & Omri, 2015). One possible reason for this could be due to the biased measurement of CSR disclosure. The methods of measuring CSR disclosure that have been employed when examining the relationship with EM do not consider the QCSRD, which is important for distinguishing the information provided to users. It is not possible to draw a conclusion on the possible effects of CSR reporting on EM without knowing whether CSR disclosure conveys true (as in the stakeholder and ethical perspective) or false information (as in the managerial opportunism or legitimacy perspective). Since singling and agency theories suggest that the QCSRD could be used to mitigate information asymmetries (Watts and Zimmerman 1990; Miller 2002), it can be expected that the QCSRD is useful for various stakeholders and, therefore, comprises a positive phenomenon for stockmarkets (Garrido et al., 2014).

Chih et al., (2008) argue that it will be unlikely that managers will engage in EM in companies that provide high quality disclosure of their social activities which targets all stakeholders because, when the transparency of information is increased, the expectation of the information asymmetry among management and stakeholders will be reduced. Since the reduction in information asymmetry tends to constrain EM (Wang et al, 2015), the current study expects a negative relationship between QCSRD and EM and, thus, supports the first and second hypotheses:

H1: there is a negative relationship between AEM and QCSRD.

H2: there is a negative relationship between REM and QCSRD.

4.3 Research Method

To examine the current study hypotheses, this section discusses the research paradigm and its influence on the study's methodology and methods. The choice of research philosophy and strategy is based on the objectives of the current study.

The research philosophy points to the methods that can be used in gathering data, analysing it and then using this data (Collis and Hussey, 2003). Prior research suggests two main approaches: interpretivism and positivism. Interpretivism prefers humanistic qualitative methods, while positivism employs scientific quantitative methods (e.g. Berg et al., 2004; Bryman, 2004). Annells (1996) also indicated that the interpretivism philosophy concentrates on the differences between conducting research and the reality, which should be understood. The positivists' philosophy, on the other hand, edges towards a steady reality observed and explained using an objective perspective. In the current study, positivism was followed, since it is investigating the actuality of a phenomenon which already exists between EM and QCSRD in Indian listed companies. This study also requires the use of existing theories in developing hypotheses, which can be rejected or confirmed according to the study results (Saunders et al., 2009).

Furthermore, these seemingly conflicting philosophies could result in two fundamental research strategies, namely qualitative and quantitative (Hassanein and Hussainey, 2015). Basically, the qualitative research approach proposes a descriptive and non-numeric method for collecting data that helps to comprehend the phenomenon (Berg et al., 2004). Babbie (2015) argues that the qualitative research approach is an active and flexible method for investigating slight nuances in the attitudes, behaviour and in examining the changes in social procedures during the research process. On the other hand, the quantitative research strategy hinges on numbers and measurements, which seeks to test the link between specified variables. Quantitative research concentrates on the quantification of gathered data; generating figures or results that could be converted to numerical data. It is also important to recognise that this method allows the researchers to remain distant and independent (Howell, 2013). Collis and Hussey (2013) indicated that quantitative analysis includes various forms of statistical analyses; providing a more reliable and accurate measurement of the identified variables in

order to generalise the study results. The research method used in the present study is consistent with the quantitative strategy, based on the positivism philosophy. This strategy uses theories that help the researcher to find a link between study variables and achieves the research aims (Crotty, 1998).

In addition, Babbie (2010) argues that there are two main research approaches, which are inductive and deductive approaches. Inductive reasoning is used through moving from specific observations to wider generalisations, hence forming theories. The deductive approach, on the other hand, hinges on theories in order to develop an appropriate hypothesis, meaning that the study hypothesis is built based on the theories. Thus, the research strategy is planned to examine the hypothesis through the collected data. The current study applied the deductive approach, since the study's hypotheses were built according to the existing literature and theories. Furthermore, in line with the positivists' approach, statistical analysis techniques were used to examine these hypotheses. This method is in line with the main aim of this research, which is to examine the association between EM and QCSRD.

4.4 Sample Selection and Data Collection

Table 4.1 shows that the initial sample for this study is the top 500 Indian listed companies in the Bombay Stock Exchange (BSE-500) during the period from 2007 to 2015. The current study chooses this sample to examine the link between QCSRD and EM due to several reasons. **Firstly,** the Indian context makes an interesting example as an environment that has one of the highest level of CSR practices among other developing countries (Reserve Bank of India, 2009; UNIDO, 2002). India passed Section 135 of the Companies Act, in 2013, recommending a mandatory "CSR spend of 2% of average net income during the ending financial year" for all companies meeting specified financial thresholds by this Act. Thus, it has gone further than any other country. **Secondly,** the focus on one of the fastest growing economies can inform general managers and CSR managers about the characteristics of the Indian approach to

QCSRD and EM. **Thirdly,** this study believes that there are additional factors to be analysed, which are not included in developed countries' paradigms. Prior research has argued that several factors, such as culture, religion and other societal norms, may influence CSR disclosure and EM. The focus on the quality of CSR disclosure and EM in the Indian context, and the practices of its leading companies, could provide practitioners and scholars with a new model (Cappelli et al., 2010). **Fourthly,** Indian listed companies exhibit a strong presence of family and promoter groups' ownership (Chauhan et al. 2016). It is also a fact that Indian institutional laws, mechanisms and governance are weak compared to Western countries (Reddy, 2016). Since the majority of prior studies in this area have been conducted in developed countries, research findings for western countries may not be applicable for the Indian context in terms of determinant of EM. **Finally,** the Indian stock market is comprised of 23 stock exchanges. The main stock market in India is the Bombay Stock Exchange (BSE). The BSE was established in 1878, and is the oldest stock exchange in Asia. This study chooses the top 500 companies in the BSE due to The BSE-500 index, which represents approximately 93 percent of the total market capitalisation of the BSE, which itself represents about 90 percent of all Indian market capitalisation. The current study focuses on the period from 2007 to 2015 to ensure an adequate and consistent observation which strengthens the results of this study. Following prior studies (e.g., DeFond & Jiambalvo, 1994; Klein, 2002; Sun et al., 2010; Arun et al. 2015), financial and utilities companies are excluded because of the unique characteristics of their financial statements. Due to the characteristics of their financial statements, prior studies have used specific methods to measure EM, for instance EM via loan loss provision. Since methods for measuring EM in non-financial companies are different compared to financial and utilities companies, these companies are excluded to ensure the consistent results of this study (Sun et al., 2010; Athanasakou & Hussainey, 2014; Alqatamin et al., 2017). Further to this, foreign cross-listed firms and companies controlled by the government are

excluded, since they are influenced by different regulations and social obligations (Haldar & Rao, 2011). Firms with missing data were also excluded from the sample to ensure an adequate and consistent observation which strengthens the study findings (Habbash et al., 2014). The final sample consists of 1908 firm-year observations during the study period.

Qualitative and quantitative data are required in order to achieve the empirical aims for this study. Qualitative data were used to measure QCSRD and quantitative data were used for measuring EM. Annual reports are the main public source of corporate information (Botosan, 1997). They are produced regularly and are easily accessible by researchers (Chan et al., 2014). Spence (2009) suggests that annual reports are considered the main source of information for investors; therefore, any details related to companies' social and environmental issues will be taken from firms' annual reports. In addition, the annual financial reports are more easy to use when comparing between companies than other channels; for example press releases or standalone reports, which are irregularly issued (Orens and Lybaert, 2007; Marquis and Toffel, 2012). Most of the Indian listed companies publish their annual reports regularly and they are available on the companies' websites. Most of their annual reports were released within the first quarter of the following fiscal year. Thus, the main study data were collected and reviewed manually from each annual report published during the period from 2007 to 2015. The OSIRIS database was also used for collecting Quantitative data to measure EM, which contains reliable information on listed companies. To cover some unavailable financial information in the annual reports and OSIRIS database, additional resources such as Bloomberg and companies' websites were used.

Table 4.1 Sample selection

Type of sector:	Excluded companies						Total final sample	
	Population of study	Financial companies	Foreign Companies	Government Controlled Companies	Established after 2006	Missing data	Companies	Observations
Financial companies	94	94	-	-	-	-	0	0
Oil & Gas companies	48	-	11	8	2	6	21	189
Services companies	79	-	13	7	6	11	42	378
Agriculture & Fishing	24	-	4	1	2	3	14	126
Clothes companies	22	-	0	0	3	5	14	126
Automobile companies	17	-	5	0	0	0	12	108
Construction companies	48	-	13	2	4	7	22	198
Trading companies	20	-	0	0	1	4	15	135
Pharmaceutical and healthcare companies	42	-	2	0	1	8	31	279
Metals & Mining	27	-	0	12	2	4	9	81
Food and Drinks	29	-	3	3	3	6	14	126
Equipment companies	18	-	14	10	1	7	18	162
Total	500	94	65	43	25	61	212	1908

4.5. Measuring Earnings Management (EM).

Prior literature argues that investigating each EM strategy (accruals-based earnings management (AEM) and real activities earnings management (REM)) individually is inadequate to capture the influence of EM (e.g. Fields et al. 2001; Ipino and Parbonetti, 2017; Ho, L. et al., 2015; Ferentinou et al., 2016). The prior research also indicates that managers can use a combination of EM methods (i.e. AEM and REM) to meet their target (e.g. Zang, 2011; Sellami, 2016). Thus, this measures EM using both AEM and REM.

4.5.1 Measuring Accruals-Based Earnings Management.

Previous literature has suggested various models which have been utilised to estimate discretionary accruals, which are used as an AEM proxy (Dechow et al., 1995; Kothari et al., 2005; Patro & Pattanayak, 2014; Alhadab et al., 2015; Gao & Zhang, 2015;Persakis & Iatridis, 2015). A large amount of prior research has suggested that the modified Jones (1995) and Kothari et al. (2005) models are more accurate than the alternative models for detecting discretionary accruals as proxy for AEM (e.g. Teoh et al., 1998; Sun et al. 2010; Dechow et

al., 2010; Islam et al., 2011; Khan & Azim, 2015; Katmon & Al Farooque, 2017). To estimate discretionary accruals, a cross-sectional regression is utilised to control the samples for each industry-year group. This approach controls the variations in the effect of economic conditions on the accruals among various industry groups (Cohen et al., 2010). Dechow et al. (2010) argue that the modified Jones model with cross-sectional regression is more powerful for detecting AEM than other models based on times series measurement. Thus, in the current study, the cross-sectional modified Jones (1995) model is used as the main proxy to measure AEM practices, and the Kothari et al. (2005) model is used as an alternative test.

4.5.1.1 Modified Jones (1995) Model

Based on the Modified Jones (1995) model, the existence of AEM was estimated through discretionary accruals by differentiating them from non-discretionary accruals. Following previous literature (e.g. Islam, 2011; Dechow et al., 2010; Khan & Azim, 2015; Collins, 2016;Katmon & Al Farooque, 2017; Hong, 2017), this study employed the modified Jones model (Dechow et al., 1995), as the main measure, to estimate current discretionary accruals (DA). In the amended Jones (1991) model, the assumption is that all credit policies and future sales changes will lead to changes in revenue, which is one of the EM practices. Accordingly, it is easier to manage earnings through flexibility, which is available in the recognition of revenue from futures sales, than by EM practices through the recognition of revenue from cash sales (Sun et al., 2010). Thus, the following cross-sectional regression equation is used to estimate current accruals:

$$TAC_{it} / A_{it-1} = \alpha (1 / TA_{it-1}) + \beta 1 (\Delta REV_{it} - \Delta REC_{it}) / A_{it-1}) + \beta 2 (PPE_{it} / A_{it-1}) + \varepsilon it \quad (1)$$

Where:

TAC_{it} = total accruals

TA_{it-1}= the book value of total assets of company i at the end of year $_{t-1}$

ΔREV_{it} = revenues of company i in year t deducted from revenues in year $_{t-1}$

ΔREC = change in accounts receivable scaled by TA $_{it-1}$

PPE $_{it}$ / TA $_{it-1}$= gross property, plant and equipment of company i at the end of year t scaled by

TA $_{it-1}$

α, β1, β2 = estimated parameters

ε $_{it}$ = the residual.

It then employed the coefficient estimated from equation (1) to calculate normal accruals

(NAit) for all observation in the sample:

$$NA_{it-1} = \alpha (1 / TA_{it-1}) + \beta1 (\Delta REV_{it} - \Delta REC_{it}) / A_{it-1}) + \beta2 (PPE_{it} / A_{it-1})$$

DA measured by the difference between TAC and the fitted NA.

4.5.1.2 Kothari et al.'s (2005) Model

Kothari et al. (2005) argue for the possibility of error in the DA measurement without

controlling for company performance. Thus, they suggested a specific model to control for

company performance by using ROA in the current year to enhance the power of the modified

Jones model. The following equations express the Kothari et al. model (Dechow et al., 2010;

Sun et al., 2010).

$$TAC_{it} / A_{it-1} = \alpha (1 / TA_{it-1}) + \beta1 (\Delta REV_{it} - \Delta REC_{it}) / A_{it-1}) + \beta2 (PPE_{it} / A_{it-1}) + \beta3$$

$$(ROA/A_{i,t-1} + \varepsilon_{it} \qquad (2)$$

Where:

TAC $_{it}$ = total accruals

TA $_{it-1}$= the book value of total assets of company i at the end of year $_{t-1}$

ΔREV $_{it}$ = revenues of company i in year t deducted from revenues in year $_{t-1}$

ΔREC $_{it}$ = change in accounts receivable scaled by TA $_{it-1}$

PPE $_{it}$ / TA $_{it-1}$= gross property, plant and equipment of company i at the end of year t scaled by

TA $_{it-1}$

ROA $_{it}$ = Return on assets

α, β1, β2 = estimated parameters

ε $_{it}$ = the residual.

It then employed the coefficient estimates from equation (2) to calculate normal accruals (NAit) for all observations in the sample:

NA $_{it-1}$ = α (1 / TA $_{it-1}$) + β1 (Δ REV $_{it}$ - ΔREC$_{it}$) / A $_{it-1}$) + β2 (PPE $_{it}$ / A $_{it-1}$)

The current study uses Kothari et al.'s (2005) model as alternative measurement to enhance its validity and explanatory power with regards to the study's results, because it is believed that controlling for company performance makes the EM more accurate (Sun et al., 2010).

4.5.2 Measuring Real Activities-Based Earnings Management

Following Roychowdhury (2006) and Dechow et al. (1998), the current study considers three metrics to develop the study proxies for real earnings management activities: the abnormal levels of cash flows from operations (ACFO), abnormal production costs (APROD) and discretionary expenses (ADISX). Previous literature (Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2011) offers evidence of the validity of these three proxies. Consistent with Roychowdhury (2006) and Dechow et al. (1998), the current study uses the following models to measure REM.

CFO $_{it}$ / A $_{it-1}$ =α + α (1 / TA $_{it-1}$) + β1 (Sales $_{i,t}$) / A $_{i,t-1}$) + β2 (ΔSales $_{it}$ / A $_{i,t-1}$) + ε $_{it}$ (3)

PROD$_{i,t}$ / Assets$_{i,t-1}$ = α + α (1/Assets$_{i,t-1}$)+ β1 (Sales$_{i,t}$ /Assets$_{i,t-1}$) + β2 (ΔSales $_{i,t}$ /Assets$_{i,t-1}$) + β3 (ΔSales$_{i,t-1}$/Assets$_{i,t-1}$) + ε$_{i,t}$ (4)

DISX$_{i,t}$ /Assets$_{i,t-1}$ = α + α (1/Assets$_{i,t-1}$) + β1 (Sales$_{i,t}$ /Assets$_{i,t-1}$) + ε$_{i,t}$ (5)

Where CFO$_{i,t}$ = cash flow from operations for the company i in the current year;

PROD$_{it}$ = total production costs, defined as the cost of goods sold and the change in inventories for the company i in the current year;

DISX$_{i,t}$ = expenses such as advertisements, administration, R&D and sales expenses;

$A_{i,t-1}$ = the total assets in the previous year;

$Sales_{i,t}$ = the company's sales in the current year,

 $\Delta Sales_{i,t}$ = changes in the company's sales in the current year.

ACFO, APROD and ADISX are expected to capture REM. The residuals computed by equations (3), (4), and (5), which are used by previous studies (e.g. Prior et al, 2008; Choi et al., 2013; Gras-Gil et al., 2016) as proxies of ACFO, APROD and ADISX, are calculated as the difference between the actual values (CFO, PROD, DISX) and the normal levels predicted by equations (3), (4) and (5). Roychowdhury (2006) explains that, while the higher ACFO and ADISX indicate lower REM, the higher APROD indicates higher REM. Thus, following Roychowdhury (2006) and Dechow et al. (1998), this study multiplies the ACFO and ADISX by −1 then adds them to the APROD using the following equation:

REM = - ACFO - ADISX + APROD (6)

 The lower level of REM indicates a lower level of earnings manipulations in real activities.

4.6 Measurement of QCSRD

Previous literature has indicated that there is controversy regarding the measurement of CSR disclosure (HASSAN, 2010). CSR reporting has been criticised for its lack of relevance and credibility (Husillos, Larrinaga, & Álvarez, 2011). Prior research has used subjective analyst disclosure quality rankings (e.g. Becchetti et al., 2013; Ioannou and Serafeim; 2015), which are not available in many countries and therefore cannot be applied widely. Prior studies also have evaluated CSR reporting based on the theme and amount of information disclosed, which have used quantity disclosure as proxy for quality (e.g. Raar, 2002; Cormier et al., 2005; Dhaliwal et al., 2012; Casey and Grenier, 2014). However, this method does not consider other important dimensions that distinguish the information provided to users. Botosan (2004) argued that, although quantity and quality are inseparable and difficult to measure, the quantity of information disclosed does not necessarily imply quality. Beretta & Bozzolan (2008)

indicated that quality of disclosure is considered by not only the magnitude of disclosure, but also what is disclosed and the diversity of topics disclosed. Beattie et al. (2004) created a new model to measure two dimensions of disclosure, namely quantity and spread information. However, they do not include an important dimension which distinguishes the information provided in terms of information depth and its characteristics. The key needs from disclosure for users must consist of relevant and understandable information (Al-Tuwaijri et al., 2004). Furthermore, IFRS suggest that the characteristics of information such as relevance, faithfulness, understandability and comparability are useful for information users and have to be considered when QCSRD is evaluated (Alotaibi and Hussainey, 2016). Alotaibi and Hussainey (2016) created a new model to measure the quality of CSR disclosure. Although their model is based on the information characteristics that are suggested by IFRS, it does not consider important dimensions such as the spread of information, which allows evaluation of whether the CSR information disclosed meets the need of different stakeholders or focuses on specific groups.

To determine a better measurement model for quality of disclosure, the reported information by CSR disclosure must meet the key requirements of different users. Consequently, this study seeks to contribute to the above debate by offering new insights concerning the complexity of QCSRD, and develop a new multidimensional model to measure QCSRD which considers the quantity of information, its spread and usefulness for users. Specifically, the current study has taken into account both of the frameworks proposed by Beattie et al. (2004) and Alotaibi and Hussainey (2016). In line with their work, this study develops a framework to capture three dimensions: (i) the quantity of CSR information disclosed (what and how much is disclosed) (ii) the spread of CSR information disclosed (coverage and concentration of CSR disclosure) and (iii) the usefulness of CSR information (the qualitative characteristics of information). This framework provides evidence on the nature of a company's CSR disclosures based on three

dimensions, which allows the capture of quantitative and qualitative features concerning a specific kind of CSR information. Figure 1 explains these three dimensions.

Figure 1: The proposed framework and the quality-related dimensions
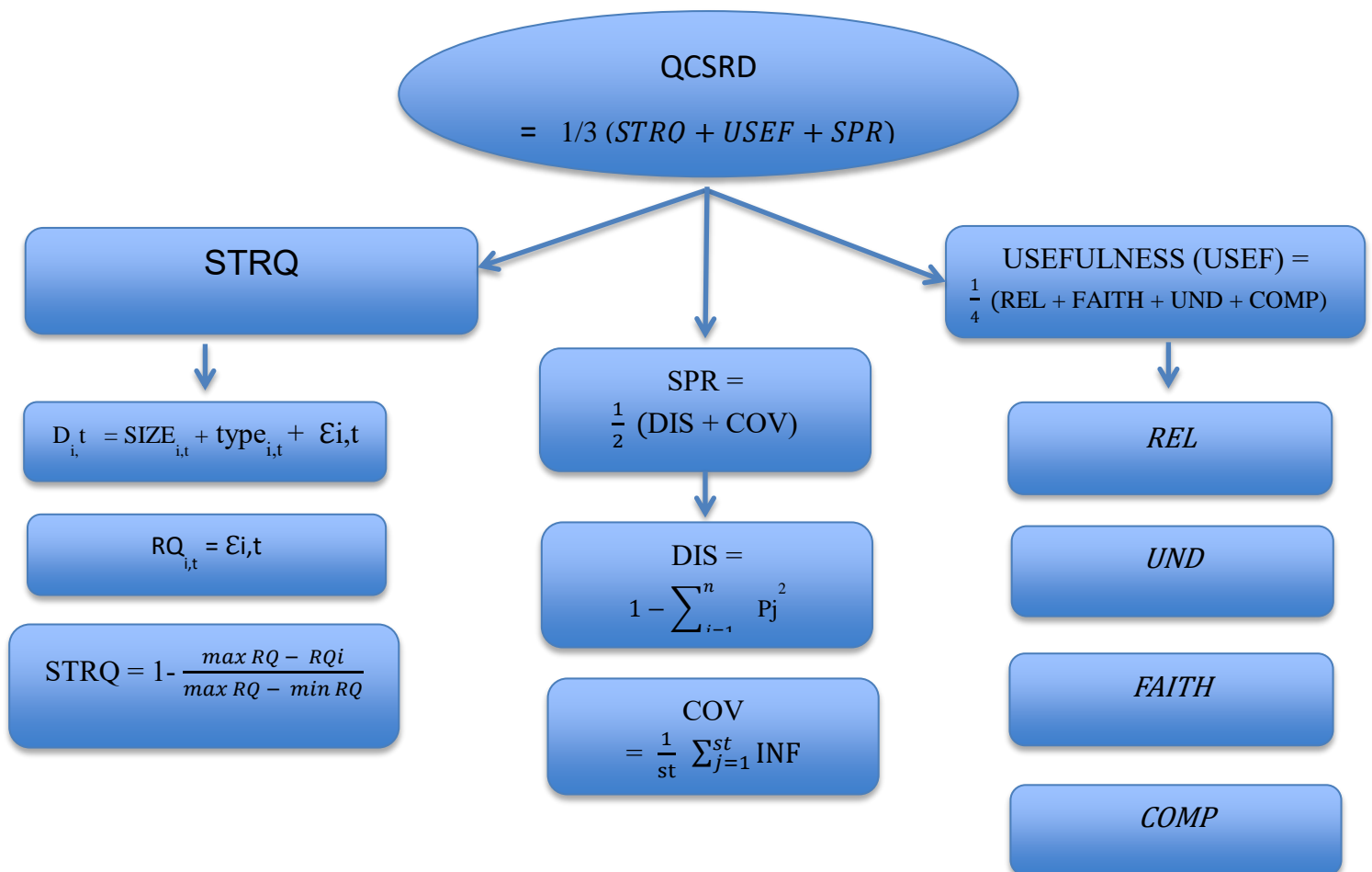
STRQ = Standardised Relative quantity, which is used as proxy of quantity dimension. $D_{i,t}$ = the disclosure for company i in year t measured by the content analysis as frequency of items that are disclosed in the annual reports, SIZE = size of companies, the natural logarithm of firms' total assets is used to measure the size of the company. Type = the industry type based on the Bombay Stock Exchange. RQ = the relative quantity index, $\varepsilon_{i,t}$ = estimated disclosure by the residual for each company in each year are used as the relative quantity index. SPR = the spread of CSR information, DIS = CSR disclosure dispersion, COV = the CSR disclosure coverage. REL= Relevance, UND = Understandability, FAITH = Faithfulness, COMP = Comparability

This figure explains the new multidimensional framework developed by this study to measure the quality of CSR disclosure. The following sections discuss the three dimensions of CSR disclosure as they are indicated by figure 1.

4.6.1 The Quantity Dimension (STRQ):

The first dimension of QCSRD is the actual amount of disclosure, relative to the amount adjusted by two factors, size and complexity. Prior studies show these two variables to have a strong impact on disclosure (e.g. Beattie et al., 2004; Beretta and Bozzolan, 2008). This is more likely to help in evaluating CSR disclosure, taking into account the differences in the companies' size and industry.

To measure the quantity of CSR disclosure in annual reports[1], this study uses the content analysis technique method as the essential measurement. Several steps are required when content analysis is used to measure the level of CSR disclosure, starting by determining the documents which are used as a source of the CSR disclosure, and ending with testing the reliability and validity (Wolfe, 1991). Content analysis involves at least four steps (Krippendorff, 1980). These steps are: determining the document required for measuring disclosure; determining the themes and items of the CSR disclosure; determining the recoding unit; testing the viability of reliability. The current study uses 1908 annual reports as a sample of the top 500 Indian companies as the main source for measuring the essential amount of CSR disclosure. The first process is conducted to measure the essential quantity of CSR disclosure is identifying themes and sub-themes of CSR disclosure, which are expected to be found in the annual reports.

The choice of the themes and sub-themes of CSR disclosure is based on a literature review, and reading a chosen sample of the annual reports. In order to construct a comprehensive

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[1] The researcher has found less than 10% of the study sample issued stand-alone CSR reports. These companies have not issued their CSR reports regularly, which is not sufficient to be compared across companies and time. Thus, the current study uses the annual reports as the main resource for data collection. Most of the Indian listed companies publish their annual reports regularly and they are available on the companies' websites. Most of their annual reports were released within the first quarter of the following fiscal year.

categories of required disclosure, and to reduce the potential bias if some elements are excluded from the list, some steps to create a disclosure categories were followed.

1- Prior studies have been reviewed on CSR disclosure (see e.g. Haniffa and Cooke 2002; Haniffa and Cooke, 2005; Ghazali, 2007; Aribi & Gao, 2010; Gautam & Singh, 2010; Khan et al., 2013; Kansal et al., 2014; Oikonomou et al.,2015; Alotaibi and Hussainey, 2016). On the basis of reviewing previous studies, an initial list for the disclosure of social responsibility items has been built. The primary list of CSR disclosure items consists of 45 items, classified into 6 key categories 1- Community development (8 items), 2- Human resources (16 items), 3- Product/customer (5 items), 4- Environment (8 items), 5- Energy (4 items) and 6- Emission of carbon and harmful gases (4 items).

2- A 25 annual reports were selected randomly from study' sample across various industries in order to achieve stability in the results and to avoid potential problems. The pilot test helped to determine the existence or the absence of CSR disclosure items.

3- To reduce the bias element on a particular item, the potential items were sent by emails to some of the key scholars in this area; the scholars were chosen from the important papers on the CSR disclosure whose their emails were available on the internet. The list of CSR disclosure items was also discussed with some members of academia, who were asked to give their perspective about this list.

To improve the list of CSR disclosure items, the responses of scholars by email were taken. These were added to the comments of members of academia as well as the results of the pilot study. This test was done on a sample of 25 annual reports. All these procedures help this study to effectively improve the checklist of CSR disclosure. The final checklist that was used by this study is 27 items and classified into 6 themes: Community development (5 items), Human resources (5 items), Products and services (5 items), customer (3 items), Environment (8 items) and other CSR information (one item) (see appendix1), as primary measurement. This process

is in line with prior studies (e.g. Ghazali, 2007; Gautam & Singh, 2010; Khan et al., 2013; Alotaibi and Hussainey, 2016).

The techniques used, in previous studies, in content analysis units of disclosure are words, text, sentences, paragraphs or pages of CSR disclosure. Each technique has its own advantages and drawbacks (Campbell, 2004). Coding by sentences, paragraphs and words have been criticised on the basis that different information may be included in the same paragraphs or sentences related to the CSR disclosure. Individual words are also meaningless. As a result, a text unit was employed to measure CSR disclosure in this study, which was identified by Beattie and Thomson (2007) as "part of sentence that captures a piece of information''. To calculate the essential amount of CSR disclosure, this study employed a manual counting method of the frequency of each sub-theme from the final checklist to verify whether this item is found in specific annual reports for each company in each year of the study sample.

Following Beattie et al. (2004) the dimension of disclosure quantity is measured by using the relative number of text units, which is adjusted by two factors: size and industry type. These have consistently been found to influence the level of disclosure. The standardised residuals from an Ordinary Least Squares (OLS) regression of the number of text units on industry and size are used as proxy of the quantity dimension.

1- $D_{i,t} = \beta 0 + \beta 1\ SIZE_{i,t} + \beta 2\ Type_{i,t} + \varepsilon_{i,t}$

Where,

$D_{i,t}$ = the disclosure for company i in year t measured by the content analysis as frequency of items that are disclosed in the annual reports,

$SIZE_{i,t}$ = size of companies, the natural logarithm of firms' total assets is used to measure the size of company.

Type = industry type, identified based on the Bombay market.

Ɛi,t   = the estimate of disclosure by the residual for each company in each year is used as the relative quantity index (RQ), Standardised RQ (STRQ) is used as proxy of quantity dimension as follows:

$$\text{STRQ} = 1 - \frac{max\ RQ - RQi}{max\ RQ - min\ RQ}$$

4.6.2 The Spread Dimension (SPR)

The second dimension measures the spread of CSR information. Using spread dimension in this framework allows evaluation of whether the CSR information disclosed meets the needs of different stakeholders or focuses on specific groups.

Following Beattie et al. (2004), we determine the spread as a function of the CSR disclosure coverage (COV), and CSR disclosure dispersion (DIS). The coverage is measured by the percentage of items (sub items) filled in by at least one piece of information out of the total number of items (sub items) in the checklist. The coverage ranges from 0 (non-disclosed) to 1 and assumes its maximum value when a company makes disclosure over each of the topics (subtopics) in the checklist. COV is measured as per the following equation:

$$\text{COV} = \frac{1}{st}\sum_{j=1}^{s}\text{INF}$$

Where, INF = 1 if company i discloses information about the item j in the annual report, otherwise = 0, and s = number of subcategories.

Furthermore, disclosure dispersion (DIS) indicates how concentrated disclosed items are among checklist items. DIS is defined as follows:

$$\text{DIS} = 1 - \sum_{j=1}^{n} Pj^2$$

Where, Pj = proportion of disclosure of item i measured by the frequency of text units disclosed in category j to total frequency of text units in company i. The minimum value of DIS is 0 when all CSR disclosure text units fall into one category and the value is larger when CSR disclosure

text units are spread between categories. The higher the value of the DIS index, the higher the quality of disclosure.

COV and DIS indices help in estimating how information in annual reports is distributed across themes in the disclosure checklist. Larger DIS and COV indices reveal the higher spread of information (SPR). Thus, the current study calculates the spread as the average of COV and DIS as follows:

$$SPR = \frac{1}{2} (DIS + COV)$$

4.6.3 The Usefulness Dimension (USEF)

The usefulness dimension helps information users to evaluate QCSRD by capturing the four type characteristics: the relevance, faithful representation, understandability and comparability (based upon the qualitative characteristics of information suggested in the conceptual frameworks of IFRS (2010A). Following Alotaibi and Hussainey (2016), to measure the usefulness of CSR disclosure the present study develops a disclosure index based on the qualitative characteristics of accounting information suggested in the conceptual frameworks of the International Financial Reporting Standards (IFRS) (2010A). These are "relevance" "faithful representation," "understandability" and "comparability". This allows for measuring the QCSRD by the weighted method as provided in earlier studies (Alotaibi and Hussainey, 2016; Braam and van Beest, 2013) (see Appendix 2).Thus, we define the Usefulness as:

$$USEF = \frac{1}{4} (Relevance + Faithfulness + Understandability + Comparability)$$

The overall index of quality is the average of USEF, SPR and STRQ as follows:

$$\text{The Quality Index of CSR Disclosure (QCSRD)} = \frac{1}{3} (USEF + SPR + STRQ)$$

Finally, process used is expected to provide a rich description of the nature and patterns of disclosure, and permits these dimensions to be analysed, both in combination and individually.

4.6.4 Checking the Validity and Reliability

Reliability and validity suggest that, if a measuring procedure can be repeated through the same data, it will produce the same results (Milne & Adler, 1999). Krippendorff (1980) suggested three types of reliability: (i) Stability refers to the ability of measuring disclosure in annual reports by one coder which is then repeated again after a period. If the results are unchanged each time, the stability will be perfect. (ii) Reproducibility refers to the level of proportion of agreement achieved when different coders are involved. If a higher proportion of agreement is achieved between two different coders through measuring disclosure in annual reports, the reproducibility will be better. (iii) Accuracy refers to evaluation of coding through predetermined standards or from previous research.

Special considerations were given to reliability and validity of the study measurements of QCSRD. Firstly, in order to ensure the reliability and validity of the CSR disclosure checklist and the characteristics of the information index, several procedures have been adopted. In the first procedure, the initial CSR disclosure checklist was tested by using 20 Indian companies as a pilot study in order to compare each of the themes in the CSR disclosure checklist and annual reports. This also provides a valuable practical experience related to the process of content analysis. The items' validity in the initial CSR disclosure checklist were reviewed independently by three expert scholars, who discussed the ambiguities raised in the review; the final checklist is mentioned in Appendix 1. One way of improving reliability is to use multiple coders (Holsti, 1969; Aribi and Gao 2011) and, in this study, another two coders scored the research instrument. Any problems and discrepancies that arose were discussed and resolved accordingly via a set of basic coding rules. In addition, the disclosure coding scores were checked by comparing between the scores produced by the first author with those produced by the other two coders for a sample of annual reports. In particular, following Newson & Deegan (2002), this study uses the proportion of coding agreement to assess the performance between

coders. To check the reliability of CSR disclosure checklist (Appendix 1) this study uses the following steps:

1- The coding instrument is checked through two coders using a sample of 6 annual reports (for 2010).

2- The ratio of coding agreement is used to compare between the two coders.

3- A discussion is carried out between the coders to identify the reasons for the differences between their results.

4- Another sample of 6 annual reports (for 2011) is evaluated by the same coders.

5- The coding instrument is estimated after obtaining the results using the ratio of coding agreement. In this regard, table 4.2 shows that, on average, the reliability measurement presents a high degree of agreement between the coders (0.875), suggesting that the reproducibility of the study measures is good. The result also indicates that there are only slight differences between 2010 and 2011, which suggests that the stability of the study measures is also good.

Table 4.2: Reliability of the CSR disclosure checklist measurement

	Percent agreement 2010	Percent error	Percent agreement 2011	Percent error
COMD	75%	25%	84%	16%
HUMR	79%	21%	89%	11%
PRODS	71%	29%	88%	12%
CUST	73%	27%	87%	13%
ENV	75%	25%	91%	9%
OTH	77%	23%	86%	14%
Overall	75%	23%	87.5%	12.5%

COMD = Community development; HUMR = Human resources; PRODS = Products and services; CUST = customer; ENV = Environment; OTH = other CSR information.

This study uses the same steps which were used to estimate the reliability of the checklist of CSR disclosure, and to estimate the reliability of the usefulness dimension checklist (appendix 2). The annual reports for both 2010 and 2011 were used by the two coders to estimate the reliability of the Usefulness dimension checklist.

Based on the discussion between coders, the coding instrument was improved, which leads to reduce the differences between coders. Table 4.3 shows that, on average, the reliability

measurement of the usefulness dimension index presents a high degree of agreement between the coders (0.89), which suggests that the reproducibility is good. The result also indicated that there are only slight differences between 2010 and 2011, suggesting the stability across time is also good.

Table 4.3: *Reliability of the Usefulness Measurement*

	Percent agreement 2010	Percent error	Percent agreement 2011	Percent error
Relevance	78%	22%	88%	12%
Faithful	76%	24%	85%	15%
Understandability	80%	20%	90%	10%
comparability	86%	14%	93%	7%
Overall	80%	20 %	89%	11%

Finally, this section examines whether QCSRD is related to the accuracy of analysts' earnings forecasts to check the validity of the QCSRD framework. Botosan (2004) suggests that high quality disclosure is useful to the information's users in making financial decisions. Prior empirical studies have documented a significant relationship between the accuracy of analysts' earnings forecasts and disclosure (e.g. Beretta and Bozzolan, 2008; Lee, 2017). They conclude that the quality of disclosure is useful to improve the ability of analysts to evaluate cash flows in future through considering better earnings forecasts. Since the key task of financial analysts is to forecast future earnings (Beretta and Bozzolan, 2008), the study's definition of QCSRD is associated with the accuracy of their estimates. The current study contends that CSR disclosure is of a high quality if it is positively associated with the accuracy of the analysts' forecast (ACCU). Following Lang and Lundholm (1996) and Beretta and Bozzolan (2008) we measure the accuracy as follows:

$ACCU = -1 (EPS_t – AF_t) /SP_t)$

Where,

EPS = actual earnings per share in period t,

AF = the median analysts' forecast of earnings per share in period t,

SP = share price at the end of period t

The current study controls for variables such as industry type, leverage, profitability, company size, and variation in accounting earnings, to check the link between QCSRD and ACCU. The results of the validity of QCSRD is presented in section 6.3, p 135.

4.7 The Relationship between EM and QCSRD

Since the main aim of this study is to examine the relationship between EM and QCSRD, this section shows the main regression to test the relationship between EM (which is used as the dependent variable) and QCSRD (which used as an independent variable) during the period from 2007 to 2015. The current study includes control variables for other factors in this regression due to their impact on both EM and QCSRD (Becker et al., 1998; Bowen et al., 2008; Cohen et al., 2008; Sun et al., 2011; Zaman et al., 2011; Ferentinou et al., 2016).

4.7.1 Control Variables

The current study used a number of control variables (in addition to the dependent and independent variables) to control for the possible influence on the dependent and independent variables, which were pointed out by previous studies (Klein, 2002; Sun et al., 2010; Zang, 2011; Zaman et al., 2011;Abernathy, 2014). In particular, this study used the internal mechanisms of corporate governance (effectiveness of the audit committee, board and the ownership structure) as a control variable since they may have an influence on EM and QCSRD (Peasnell et al., 2005; Sun et al., 2010). This study also employs the firm's characteristics (Size, Growth, Leverage, Industry and Profitability) as control variables because previous literature has indicated their impact on QCSRD and EM (e.g. Beretta and Bozzolan, 2008;Wang et al., 2015; Ferentinou et al., 2016).

4.7.1.1 Audit Committee Effectiveness (ACEF)

ACEF is intended to play a major part in enhancing the financial reports' integrity (Allegrini and Greco, 2013). According to DeZoort et al. (2002), the audit committee has the purpose of

protecting shareholders' interests, which is achieved by choosing qualified members who have adequate authority and the necessary resources to diligently offer oversight. Prior studies document evidence that audit committee characteristics have a negative relationship with AEM and are positively associated with CSR disclosure (e.g. Klein, 2002; Sun et al., 2010). Smith (2003) listed four characteristics (independence, expertise, number of meetings and size of meetings) which are the minimum which need to be exhibited by an effective audit committee. Zaman et al. (2011) argue that a composite measurement of more than one proxy is likely to have the most impact on ACEF. Combining the impact of all ACEF characteristics together, as an empirical proxy for ACEF, will improve its suitability as a construct when examining ACEF (Zaman et al., 2011). Thus the current study utilises a composite measure for ACEF by using a dummy variable that is equal to 1 if the presence of all four audit committee characteristics comply with the Indian code of corporate governance (code 49)[2] and 0 otherwise. Specifically, when all the following proxies score one, the board effectiveness will award one and otherwise zero:

• If two-thirds of the audit committee members are independent directors,

• If there is financial literacy among all audit committee members and at least one of them is a financial expert.

• If an audit committee meeting is held at least four times every year,

• If the audit committee comprises of at least three members,

This indicates that the audit committee for the company i and year t is effective .If it complies with all the above conditions, 1 will be awarded, otherwise zero. Based on the above, audit committee effectiveness is used as the cost of AEM for the relationship between AEM and

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[2] New norms of CG for Indian listed companies through the amendments to CG code 49 of the Equity Listing Agreement that a circular dated April 17th 2014. The revised code 49 updates and aligns the Listing Agreement with CG changes brought out in the Companies Act (2013). There are also certain changes in the new Companies Act, 2013.

REM in Chapter five and is also used as a control variable when the link between QCSRD and

EM is examined in Chapter seven. Figure 2 explains the measurement of ACEF.

Figure 2: The composite measure for ACEF
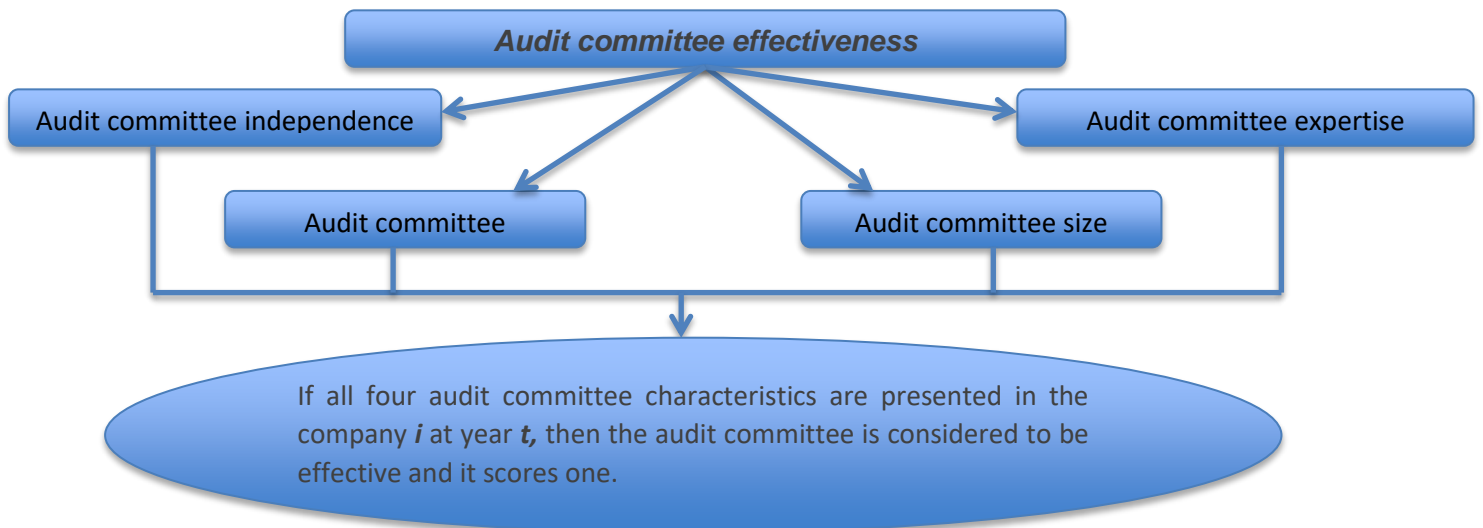
4.7.1.2 Board Effectiveness (BEF)

The board is considered a fundamental part of the company's monitoring mechanism (Fama &

Jensen, 1983). Thus, BEF is predicted to lead to a higher level of reliability and transparency

of financial reporting (e.g. McElveen, 2002; Turley & Zaman, 2004). Klein (2002) found

negative correlation between board characteristics and AEM. On the other hand, Khan et al.

(2013) found evidence indicating that board characteristics are positively related to CSR

disclosure. Board effectiveness is particularly seen in previous literature as a function of CEO

duality, board meetings and independence and board size (Terjesen et al., 2009; Zaman et al.,

2011; Kamardin et al., 2011). The proportions of independent directors, board meetings, duality

of CEO and board size are likely to have the most impact on the effectiveness of the board

(Zaman et al., 2011). Combining the impact of all board effectiveness characteristics together

as an empirical proxy for board effectiveness will improve its suitability as a construct when examining board effectiveness (Zaman et al., 2011). Therefore, the current study uses the four most likely dimensions, board independence, board meetings, CEO duality and board size, that have an influence on the board of directors. The current study utilises a composite measure for BEF and uses a dummy variable that is equal to 1 if the presence of all four board committee characteristics comply with the Indian code of corporate governance (code 49) and 0 otherwise. Specifically, when all the following proxies score 1, the board effectiveness will be awarded 1 and otherwise 0 :

- If the independent directors account for at least fifty percent of the board committee,

- If the chairman does not also act as an executive director,

- If the board committee meets at least four times a year,

- If at least 8 members make up the board committee.

These will indicate the effectiveness of the board for the company i and year t. If it complies with all the above conditions, 1 will be awarded, otherwise zero. Based on the above, board effectiveness is used as cost of AEM for the trade-off between AEM and REM in Chapter five, and is also used as a control variable for the link between QCSRD and EM in Chapter seven. Figure 3 explains the measurement of BEF.

Figure 3: The composite measure for BEF
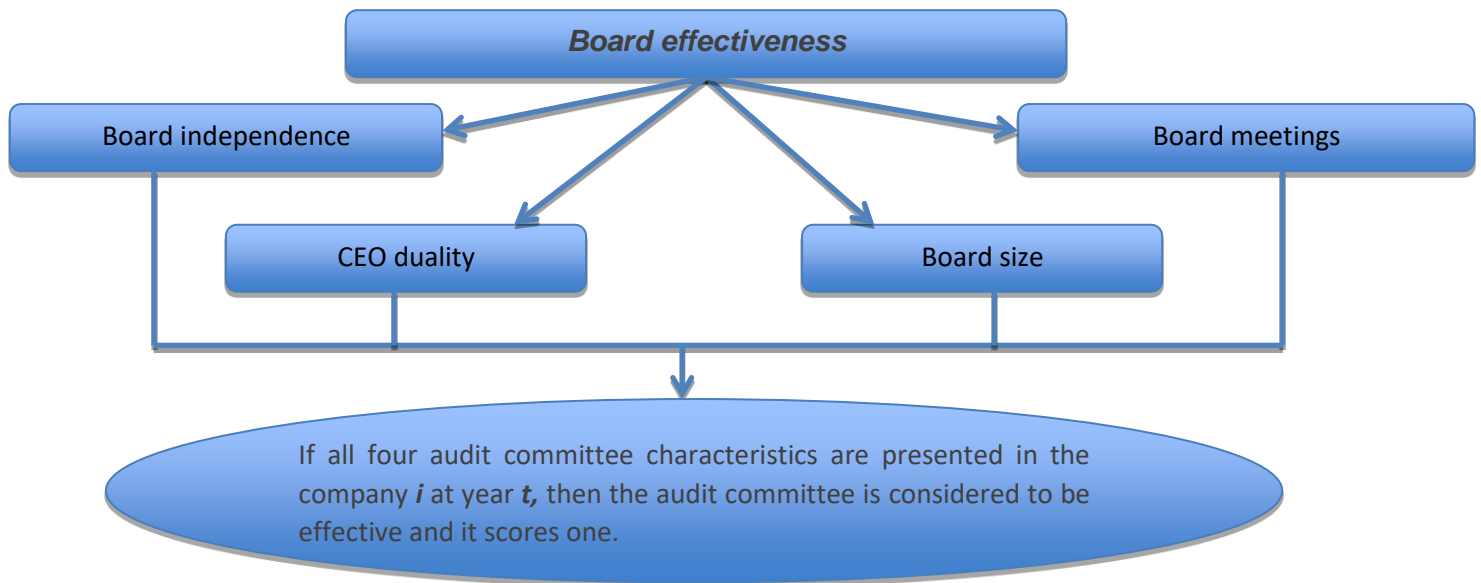
4.7.1.3 Institutional Ownership

Prior research indicates that institutional ownership mitigates the likelihood of REM by improving the overall monitoring procedure and assumes that, through the institutional ownership, the level of QCSRD is more likely to be improved (e.g. Cho et al., 2013; Abernathy, 2014). Furthermore, to ensure the financial disclosure quality, institutional ownership can play a role in determining the companies' voluntary disclosure policy. Due to their fiduciary duty toward institutional investors, outside directors are more likely to protect the interest of investors by ensuring transparency (Osterland, 2004). Prior studies have shown that companies with a higher proportion of institutional ownership have more incentive to disclose CSR information (e.g. Zeghal and Ahmed, 1990 Saleh et al., 2010; Cho et al., 2013). In addition, empirical studies found that institutional ownership has a positive relationship with voluntary disclosure (e.g. Ho and Wong, 2001; Barako, 2007). Thus, institutional ownership is used as a control variable for the link between QCSRD and EM. Following prior studies, institutional ownership was measured through the institutional ownership percentage at the beginning of the same year (e.g. Zang, 2011; Abernathy, 2014).

4.7.1.4 Blockholder Ownership

The second proxy of ownership is blockholder ownership, which consists of different types of investors, such as individuals, mutual and pension funds, corporations and banks. (Cronqvist and Fahlenbrach, 2009). Prior literature indicates that blockholder ownership has a significant impact on controlling managers' behaviour (e.g.Lasfer, 2006; Habbash, 2013), and suggests two such possible impacts. Firstly, it is argued that a higher concentration of ownership could achieve effective corporate governance mechanisms through reducing opportunistic activities; this is more likely to be found in environments that have strict regulations and investors' protection (Habbash, 2013). Secondly, it is argued that the major shareholders may influence managerial action against minority investors to maximise their wealth. This might be found in a market which has weak investor protection, weak rules and regulation and poor accounting disclosure (Shleifer and Vishny 1997). Prior studies also indicate that blockholder ownership plays a significant role in the increase or decrease of CSR disclosure (e.g. Ching et al., 2006; Prior et al., 2007; Barnea and Rubin, 2010; Barnea and Rubin, 2005). Thus, blockholder ownership is used as a control variable for the relationship between QCSRD and EM. Following prior studies, the current study measures the blockholder ownership through the proportion of ownership more than or equal to 0.05 (e.g. Habbash, 2013; Edmans, 2014).

4.7.1.5 Big 4 Auditors

The auditors' role is to ensure proper application of principles and polices of accounting. Francis (2008) argued that good quality auditing is more likely to prevent companies misreporting and show a positive impact on the reputation of firms. Using Big 4 auditors may ensure higher reliability of the reported accounting information (e.g. Krishnan, 2003; Cohene et al., 2008). Prior studies provide evidence that earnings reported by companies which are audited by Big 4 auditing firms are of a higher quality compared to earnings of companies that use non-expert auditors (Krishnan 2003; Francis, 2008). According to Simunic and Stein

(1987), the Big 4 accounting firms develop and ensure uniformity across the globe through standardised staff training practices, and international application of uniform auditing methods, which improves their reputation. Based on this perspective, the distinctive behaviour of Big 4 firms when dealing with their global clients is to enforce higher earnings quality. A number of studies have found a negative relationship between Big 4 and AEM, indicating that these auditing companies use their expertise to constrain AEM (e.g. Cohen et al., 2008; Francis, 2008;Jordan and Clark, 2011). Thus Big 4 is used as a control variable for examining the link between QCSRD and EM. It is measured by assigning the value of 1 if a company is audited through Big4 and 0 if otherwise.

4.7.1.6 Profitability of Company

Previous studies indicate that Profitability is related to EM (Hassan and Ahmed, 2012). It is argued that more profitable firms might choose accounting policies that lead to a reduction in earnings to mitigate political pressure (Piot and Janin, 2007). Yang et al. (2013) found a significant and positive relationship between profitability and EM. Similarly, Jo and Kim (2007) provide evidence that high profitability is statistically significant and positively related to EM. Prior research has also documented that profitability is related to CSR disclosure (Bushee and Noe, 2000; Aras et al., 2010). Kiattikulwattana (2014) indicates that the likelihood of CSR disclosure is higher among profitable companies than those companies with lower profits. Thus, the current study uses the companies' profitability as a control variable, due to its impact on both EM and QCSRD (Ahmed and Courtis, 1999; Sonnier, 2007; Alkhatib and Marji, 2012; Lu and Abeysekera,2014) In line with Ioannou and Serafeim (2015), the current study measures the companies' profitability as a ratio of income from operations to total assets (ROA).

4.7.1.7 Firm Size

Company size as a determinant of disclosure has received greater attention in prior literature, and several empirical studies have found that size has an impact on companies' disclosure (Chih et al. 2008;Beretta & Bozzolan, 2008; Urquiza et al., 2009; Sun et al., 2010; Kim et al. 2012),. Jennifer& Taylor, (2007) generally argue that larger companies are likely to disclose more CSR information since these companies have higher agency costs. Richardson (2000) also argued that larger companies have more incentive to engage in EM since these companies may be exposed to more market pressure than smaller ones. A number of empirical studies have reported that company size is significantly associated with EM (Kim et al. 2012; Martínez et al.,2015). Thus, company size was used as a control variable for regression models that are used to examine the relationship between EM and QCSRD in the current study. Consistent with previous literature (Urquiza et al., 2009; Kim et al. 2012; Martínez et al.,2015), the current study used the natural logarithm of lagged total assets to measure the company size.

4.7.1.8 Financial Leverage

Previous literature has used financial leverage as a proxy for evaluating a company's debt structure. (e.g. Prior et al., 2008;Yip et al., 2011). Companies with a higher gearing ratio have more incentive to decrease discretionary accruals (Chih et al., 2008; Sun et al., 2010; Yip et al., 2011). According to Watts and Zimmerman (1990), companies with difficulties related to financial leverage tend to avoid violation of debt covenant by managing earnings upwards to increase income. Thus, financial leverage is expected to be positively related to EM. Hussainey and Walker (2009) provided evidence that the financial leverage ratio is related to CSR disclosure. They argue that leveraged companies may provide more information requested by other stakeholders and are likely to offer more details of disclosure to meet those needs. Previous literature indicates that financial leverage is statistically related to CSR disclosure (Fauzi, 2009;Cheng et al., 2014). Therefore, this study used financial leverage as a control

variable for regression models that are employed to measure the relationship between EM and QCSRD in this study. Following Jo and Kim (2007), leverage was measured by long-term debt to total assets ratio.

4.7.1.9 Industry Type

Industry type is indicated by prior research as a determinant variable of CSR disclosure (e.g. Beretta & Bozzolan, 2008; Beattie et al., 2004). Annual reports disclosure may not be similar in all sectors (Camfferman & Cooke, 2002), therefore an assumption has been made for the similarity of disclosure practices among firms that belong to the same sector. This is due to the existence of regulated industries, adherence to international capital markets' needs and industry sensitivity (Boutin and Sacaris, 2004; Ghazali & Weetman, 2006; Jennifer & Taylor, 2007). Ahmed and Courtis (1999) report evidence that there is a significant relationship between industry type and disclosure for Swedish and Canadian companies. Salama et al. (2012) reveal that industry type among the UK companies has a significant influence on CSR disclosures. As a result, the current study uses industry type as a control variable for the regression models to examine the link between EM and QCSRD in the present study. To identify the industry type, the present study used the classification of the Bombay Market for the top 500 Indian listed companies.

4.7.2 The Main Empirical research model

The relationship between EM and QCSRD is examined in Chapter seven to achieve the main aim of this study. To capture the relationship between EM and QCSRD, this study employs the following model:

$EM_{it} = \alpha + \beta 1\ QCSRD_{it} + \beta 2\ REM_{it}\ /AEM_{it} + \beta 3\ Size_{it} + \beta 4\ Growth_{it} + \beta 5\ Leverage_{it} + \beta 6\ Industry + \beta 7\ ROA_{it} + \beta 8\ BEFS_{it} + \beta 9\ ACEF_{it} + \beta 10\ Big4_{it} + \beta 11\ INSOW_{it} + \beta 12\ Block_{it} + \varepsilon_{it}$

Where,

EM = AEM, REM, CFO, PROD or DISX.

AEM = absolute value or discretionary accruals for company i and period t; discretionary accruals are used as a dependent variable in the first equation.

REM = combined proxy, which is calculated by aggregating CFO, PROD and DISX of company i and period t; REM is used as a dependent variable in the second equation.

CFO = abnormal cash flows from operations, which is used as a dependent variable in the third equation.

PROD = abnormal production costs, which is used as a dependent variable in the fourth equation.

DISX = abnormal discretionary expenses, which is used as a dependent variable in the fifth equation.

Managers are likely to use a mix of AEM and REM as tools to manage earnings. The trade-off between REM and AEM is a function of their relative costs (Zang, 2012). Therefore, following Kim (2012), we include REM as a control variable in the first equation and AEM as a control variable in second, third, fourth and fifth equations.

QCSRD = the quality of corporate social responsibility disclosure index

$SIZE_{it}$ = size of companies, the natural logarithm of firms' assets. Total assets is used to measure the size of the company.

GROWTH = Growth ratio measured through the change of sale.

LEV = financial leverage measured by total liabilities to total assets ratio.

ROA = the profitability of the company, the income from operations divided by the total assets.

ACEF = audit committee effectiveness. We award 1 if the company complies with Indian code number 49 for corporate governance, otherwise zero

BEF = board effectiveness. We award 1 if the company complies with Indian code number 49 for corporate governance, otherwise zero.

Big4 = largest four auditing firms. We award 1 if the company was audited by one of the largest company, otherwise zero.

BLOCK= block holder ownership measured through the proportion of ownership more than or equal 0.05.

INSOW = institutional ownership measured through proportion of shares held by institutions.

ε = residual error.

4.8 Empirical Procedures of Data Analysis

Overall, three main steps were used by this study in data analysis. These steps consist of the preliminary analysis of the study's results, the regression analysis and finally the robustness checks.

4.8.1 Preliminary Analysis

In this initial analysis, the current study discussed the descriptive statistics and checked for any multicollinearity problem using a correlation matrix and VIF Test. The description of data with regards to the central tendency test on a single variable is achieved through descriptive statistics; this includes the description of mean, standard deviation, minimum, median and maximum for all study variables. Multicollinearity is a common problem when estimating linear models. Due to multicollinearity, it is difficult to distinguish the individual effects of the independent variables on the dependent variable. High multicollinearity is a problem because it is likely to increase the variance of the coefficients and make them very sensitive to smaller changes in the model (Farrar et al., 1967). It occurs when there are high correlations among at least two independent variables that lead to unstable and unreliable estimates in coefficients of

the regression. There are, however, different opinions as to how to determine multicollinearity. The common method for checking the extent of the multicollinearity problem between independent variables are the correlation coefficients matrix and VIF methods (e.g.Anderson et al., 1996; Grewal et al., 2004; Hair et al. 2006; Li, et al., 2010; ALghamdi and Ali 2012; Choi et al., 2013; Shafer, 2015; Muttakin et al., 2015; Banseh & Khansalar, 2016). The correlation between independent variables of a study sample is tested through a pairwise correlation matrix in order to explain whether the study analysis is affected by the linear relationship between independent variables. Grewal et al. (2004) argue that a multicollinearity problem above 80% might harm the findings of the regression analysis. In addition to the use of pairwise pearson correlation matrix and to examining the multicollinearity problem, VIF methods were applied and are discussed in chapters five, six and seven.

4.8.2 Regression Analysis

In the present research, regression analysis is employed to test the study hypotheses. In order to test whether the more suitable model is the panel or the pooled model, the Chow test and the Breusch-Pagan LaGrange Multiplier (LM) are conducted for the study regression models (Twumasi et al., 2015), which are used in examining the study hypotheses. Panel regression models were chosen as more suitable models than pooled models in the current study. Panel data could be categorised by random effect or fixed effect, which helps to mitigate the influences of various companies and time series (Kim et al., 2012; Clark and Linzer, 2015). In order to determine the suitability of the fixed effect or random effect for the current study, the Hausman test is conducted. Based on the results of the Hausman test, the fixed effect model was used in all study regressions. Furthermore, Gujarati (2003) suggests that normality, linearity and heteroscedasticity problems should be checked for a fitted regression model. The normality was checked by using the histogram test, the Quantile-Quantile test was used to examine the linearity and the heterogeneity plot test is used to check for heteroscedasticity.

4.8.3 Additional Analyses and Robustness Checks

The present study conducted several additional analyses to ensure the robustness of the main study results. To increase the power of the primary test, and ensure the accuracy of the main results and their ability to represent the trend in EM practice, the following analysis was used. Firstly, the current study uses suspect firms that may manipulate earnings based on four sub-samples of companies with strong EM incentives. Secondly, the present study also examines whether EM differs between the high QCSRD and low QCSRD companies. Thirdly, using an alternative measurement of the explanatory variables, AEM and REM, the current study tests whether the primary findings are robust to various measures or not. Finally, the main results, in the current study, are robust to control for endogeneity.

4.9 Summary

The current chapter clarifies and justifies the study's methodology in accordance with its objectives. To achieve the aim of this thesis, a negative relationship between QCSRD and EM is expected by this study, based on agency theory and signalling theory together with the ethical perspective. In order to examine and provide evidence on the relationship between EM and QCSRD, the panel data regression models were used to test the study hypotheses. Overall, the main steps which were used in data analysis were explained by this chapter. These steps consist of measuring the study's variables, the preliminary analysis of the study's results, the regression analysis and finally the robustness checks. This study uses 1908 company-year observations during the period from 2007 to 2015 as a sample among the top 500 Indian listed companies.

CHAPTER FIVE: EARNINGS MANAGEMENT PRACTICES IN INDIAN LISTED COMPANIES

5.1 Introduction

The first objective of this study is to measure AEM and REM and their relationship. Thus, this chapter measures and discusses real and accruals EM, and addresses their behaviour by examining the interaction between AEM and REM based on their relative costs. This chapter starts by measuring and discussing AEM and REM in section 5.2. Then, the trade-off between AEM and REM, based on their relative costs and constraints, is presented in section 5.3. Finally, section 5.4 presents the conclusion of this chapter.

5.2 Measuring and Discussing AEM and REM

As mention in Chapter four, this study uses two proxies of EM (AEM and REM) that allow for a wider perspective on EM. This section measures and discusses AEM and REM based on full sample, industry type and year's trend.

5.2.1 AEM and REM Based on the Full Sample

Table 5.1 describes the mean, median, standard deviation and minimum and maximum values for all earnings management measures used in this study. AEM is the absolute discretionary accruals value measured by the modified Jones (1995) model. The descriptive statistics indicate that the mean value of AEM is 4.5 per cent. This result is consistent with findings reported by Rao & Dandale (2008) and Rudra & Bhattacharjee (2012), who found that the mean value of AEM among Indian companies is around 5 per cent and 4.8 per cent respectively. Nevertheless, these findings imply that the levels of AEM in India are likely to be higher than those reported for developed countries. For instance, Piot & Janin (2007) Cohen & Zarowin, (2010) and Chahine et al. (2012) found that French, US and UK companies have mean absolute values of AEM of 1.9 per cent, 1.4 per cent and 3 per cent respectively. With reference to real earnings

management, table 5.1 shows the mean value of real activity earnings management is 0.1 per cent. Table 5.1 also shows that the mean values for the three individual proxies of real earnings management (ACFO, APROD and ADISX) are 0.23 per cent, 0.27 per cent and 0.29 per cent respectively. These results are similar to the findings of Ferentinou (2016), who found that the mean values of ACFO, APROD and ADISX are 0.5 per cent, 0.2 per cent and 0.3 per cent respectively. However, these results imply that the level of REM in Indian listed companies are likely to be lower than those reported by Doukakis (2014) and Kuo et al. (2014), who found that European companies and Chinese companies have mean values of REM of 0.7 per cent and 0.5 per cent respectively.

Table 5.1: *Descriptive statistics*

variable	Mean	sd	p25	p50	p75
AEM	.045	.106	.007	.021	.049
REM	-.001	.128	-.037	.002	.048
CFO	-.0023	.107	-.037	-.002	.029
PROD	-.0027	.102	-.032	-.001	.025
DISX	-.0029	.113	-.043	-.003	.034

Table 5.1 presents descriptive statistics for all variables used in this section. AEM = discretionary accruals measured through employing modified Jones model. REM = combined proxy of real activities earnings management measured through employing Roychowdhury model (2006). *ACFO = abnormal operation cash flows, ADISX = abnormal discretionary expenses, APROD = abnormal production cost. This information is provided through industry type.*

5.2.2 AEM and REM Based on Different Industries

Table 5.2 describes the mean, median, standard deviation and minimum and maximum values of the AEM and REM based on different industries during the period from 2007 to 2015. The findings in table 5.2 show that Food and Drinks companies report the highest mean values of AEM (10.42 per cent). These results suggest that Food and Drinks companies are more likely to engage in AEM practices than other sectors. In contrast, the results indicate that the lowest mean values of AEM are reported by Oil and Gas companies, which is 1.2 per cent, followed by Metals and Mining (1.5 per cent). In respect of real activities measures, REM models indicate that Food and Drinks companies report the highest mean value of REM as a combined

measure (0.5 per cent). These results suggest that Food and Drinks companies may also manipulate earnings using real activities more than other companies do. It can also be seen that the lowest mean value of REM was among Construction companies (approximately zero), and then Oil & Gas companies. It is also interesting to note that the above results suggest that these two sectors are less like to engage in REM compared to other sectors. Furthermore, table 5.2 shows that the highest mean value of ACFO was among Food and Drinks companies (1.15 per cent) and the lowest mean value of ACFO (approximately zero) was among Oil & Gas companies. The mean value of APROD (approximately zero), reported by Metals and Mining companies, was the lowest among Indian listed companies while Food and Drinks companies reported the highest mean value of APROD. Finally, the highest mean value of ADISX was reported among service companies, whereas the lowest mean value of DISX is approximately zero among Oil & Gas companies.

Based on the above discussion, it is interesting to note that Oil & Gas companies are less likely to engage in both EM strategies in comparison with other sectors. In contrast, Food and Drinks companies are more likely to manipulate earnings using both AEM and REM than other companies.

Table 5.2: Descriptive Statistics by Industry for AEM and REM

Measures		Full Sample	1	2	3	4	5	6	7	8	9	10	11
AEM	mean	.045	.012	.058	.0261	.0240	.0230	.0958	.1042	.0272	.0254	.0680	.0155
	sd	.106	.015	.170	.0171	.0209	.0209	.1401	.1459	.0392	.0258	.0932	.0306
	min	.000	.000	.000	.0001	.0008	.0008	.0016	.0005	.00005	.0004	.0005	.0001
	p50	.021	.006	.032	.0173	.0170	.0170	.0594	.0571	.0174	.0142	.0349	.0072
	max	2.126	.109	2.12	.0815	.1048	.1048	.9846	.8514	.5213	.1129	.6010	.2222
REM	mean	-.001	.00001	-.001	.00001	.0004	-.0004	.0002	.0050	-.0002	.0006	.0002	-0008
	sd	.128	.063	.2213	.0850	.06555	.06555	.0889	.1523	.0979	.0768	.0836	.1058
	min	-2.252	-.304	-2.25	-.1987	.2339	-.233	-.4216	-.7795	-.5770	-.2538	-.2638	-.6500
	p50	.002	-.001	.0194	.000002	.001890	-.00189	.0098	-.0061	.0045	.0070	.0080	.0034
	max	1.24	.213	.8213	.3652	.2802	.2802	.4263	1.240	.3131	.1712	.2367	.3268
ACFO	mean	-.0023	.000005	-.0016	.0001	.0002	.0002	-.0002	.0115	.0001	.0002	-.0004	-.0002
	sd	.107	.039	.195	.0554	.04208	.04208	.0786	.1100	.0910	.0435	.0663	.0631
	min	-2.163	-.151	-2.163	-.2528	-.1854	-.1854	-.2624	-.3319	-.2872	-.1124	-.1378	-.2049
	p50	.002	.00001	-.0187	-.0035	-.00190	-.00190	-.0091	.0008	-.0068	-.0029	-.0055	-.0035
	max	.881	.145	.594	.1270	.13705	.13705	.3902	.8813	.4547	.1711	.2268	.3710
APROD	mean	-.0027	.00005	-.0017	.0002	-.0002	-.0002	-.0005	.0080	-.0001	.0002	.0001	-.00004
	sd	.102	.031	.1900	.0465	.03414	.03414	.0770	.0957	.0897	.0341	.0628	.0426
	min	-2.092	-.104	-2.092	-.1978	-.09135	-.09135	-.2615	-.4841	-.2747	-.1234	-.1059	-.3139
	p50	.001	.00001	-.0181	-.0037	-.00373	-.00373	-.0102	-.0016	-.0033	.0016	-.0062	.0001
	max	.615	.114	.4124	.1157	.09461	.09461	.3847	.6153	.4543	.0866	.2172	.1713
ADISX	mean	-.0029	.00001	.0201	.0001	.0001	.0001	.003	.0127	.0001	.0002	.0003	.0003
	sd	.113	.046	.2022	.0673	.0498	.0498	.0847	.1182	.0942	.0608	.0751	.0686
	min	-2.18	-.156	-2.18	-.3103	-.1827	-.1827	-.4099	-.1659	-.287	-.1243	-.1653	-.2048
	p50	.003	-.0001	-.0229	.0052	-.0017	-.0017	-.0121	-.0020	-.0056	-.0010	-.0069	-.0057
	max	.974	.1799	.6013	.1290	.1683	.1683	.4161	.9744	.5766	.2005	.2437	.3707

Table 5.1 provide descriptive statistics describe real and accruals-based earnings management REM = real activities earnings, AEM = accruals-based earnings management. ACFO = abnormal operation cash flows, ADISX = abnormal discretionary expenses, APROD = abnormal production cost. This information is provided through industry type. Where, 1= Oil and Gas companies, 2= Service Companies, 3=Construction companies, 4=Trade companies, 5= Pharmaceutical and health Care companies, 6= Clothes companies, 7= Food and Drinks Companies,8= Automobile manufactures, 9= Equipment companies, 10 = Agriculture and Fishing, 11= Metals and Mini

5.2.3 AEM and REM Based on Years' Trend

Table 5.3 describes the mean, median, standard deviation and minimum and maximum values of the AEM and REM during the period from 2007 to 2015. As can be seen in Table 5.3, the mean of AEM decreases from .046 cent in 2007 to 0.036 per cent in 2015. Similarly, the median value of AEM decreases from 0.028 per cent in 2007 to 0.014 per cent in 2015. These decreases in earning management show that companies engaged in EM using accruals based to a lesser extent in 2015. It can also be seen that the lowest value of AEM is zero in 2015 and the highest value is 2.12 in 2009. With respect to REM, the mean of REM increases from approximately zero in 2007 to 0.001 in 2015. The results in table 5.3 also show that the mean values of APROD increase from approximately zero in 2007 and 2008 to 0.0195, 0.0012 and 0.0011 in 2013, 2014 and 2015, respectively. This explains that Indian listed companies engaged in REM using slightly larger APROD recently (in the period from 2013 to 2015). In the same line, the results show that Indian listed companies engaged in REM using ACFO in the years 2014 and 2015 (0.0115, 0.0017, respectively) more than in years 2007, 2008, 2009 (0.00001, 0.0002, 0.00064, respectively). Similarly, table 5.3 shows that the mean value of DISX increases from -0.00001 in 2007 to 0.01993 and 0.00189 in 2013 and 2014 respectively. The findings also indicate that there is higher engagement in real earnings management using abnormal cash flow from operations in the years 2013 and 2014 compared to the year 2007.

A noteworthy conclusion may be drawn from the above discussion. In general, there are differences in the trends of REM and AEM. For instance, while AEM shows an overall decrease during the period of study, REM increased in the same period. To obtain more understanding of EM practices in Indian companies, it will be useful to investigate the reasons behind EM behaviour. Previous studies argue that examining each EM strategy (AEM and REM) individually is inadequate to capture the impact of EM, (e.g. Fields et al. 2001; Ipino and Parbonetti, 2017; Ho, L. et al., 2015; Ferentinou et al., 2016). Managers' decision to engage

in any EM strategy will be influenced by how constrained and costly this strategy is. Managers will face different levels of constraints for each strategy, which will influence their decision. When the constraints of using one EM method are high, managers are more likely to substitute to the less costly alternative to manipulate earnings. The relative degree of AEM vis-a-vis REM relies on the relative costs of each strategy. Thus, the next sections discuss and analyse the trade-off between AEM and REM based on their costs and constraints.

Table 5.3: Descriptive Statistics by years for AEM and REM

Measures		Full Sample	2007	2008	2009	2010	2011	2012	2013	2014	2015
AEM	mean	.045	.046	.048	.058	.048	.047	.033	.048	.037	.036
	sd	.106	.101	.091	.164	.127	.072	.063	.145	.063	.077
	min	.00001	.00001	.00001	.00001	.00001	.00001	.00001	.00001	.00001	.000
	med	.021	.028	.024	.025	.023	.024	.016	.020	.020	.0144
	max	2.126	..98	.843	2.12	1.57	.52	.639	1.91	.533	.601
REM	mean	-.001	.00001	.00001	.00041	.0048	-.0051	.0001	-.0029	.0012	.0016
	sd	.128	.113	.133	.2343	.0765	.1133	.0841	.1620	.0856	.0693
	min	-2.252	-.411	-.650	-2.252	-2251	-1.216	-.5770	-2.111	-.3651	-.4889
	p50	.002	.0052	.0084	.0099	.0043	-.00379	.0010	-.006098	.0011	.006
	max	1.24	.471	.3652	1.240	.2820	.1689	.2802	.2955	.3210	.2555
ACFO	mean	-.0023	.00001	-.0002	.00064	.00052	.0002	-.0002	.0001	.0115	.0017
	sd	.107	.096	.103	.1922	.06859	.06870	.06637	.1551	.0707	.06388
	min	-2.163	-.490	-.252	-2.1633	-.2890	-.1693	-.1854	-.2072	-.2872	-.2553
	p50	.002	.0034	-.00293	-.0047	.0012	-.00543	.00001	-.00529	-.0028	-.0014
	max	.881	.3814	.5294	.88135	.2271	.42516	.4547	.1899	.3452	.3971
APROD	mean	-.0027	.00001	-.00001	-.01040	-.00506	.00506	-.0001	-.01956	.00122	.0011
	sd	.102	.0926	.09322	.17841	.06595	.06712	.06176	.15432	.06825	.06244
	min	-2.092	-.4924	-.3139	-2.0923	-.02890	-.17603	-.17460	-2.0741	-.2649	-.2747
	p50	.001	.00057	-.0037	-.0012	-.00001	.00451	-.00001	-.00252	-.00014	.00054
	max	.615	.37997	.4124	.6153	.2273	.42072	.45435	.18681	.3337	.30583
ADISX	mean	-.0029	.00001	-.00001	.01169	.00495	.0001	.0001	-.01993	.00189	.0001
	sd	.113	.10328	.10713	.20779	.0693	.07263	.07282	.15827	.07922	.06529
	min	-2.18	-.47332	-.31038	-2.1819	-.2820	-.17032	-.1827	-2.1128	-.3046	-.2702
	p50	.003	-.0020	-.0077	-.006624	-.002991	-.00773	-.00185	-.00604	-.0031	-.0018
	max	.974	.4101	.5332	.97440	.22528	.43448	.57660	.20602	.3536	.3975

Table 5.1 provide descriptive statistics describe real and accruals-based earnings management REM = real activities earnings, AEM = accruals-based earnings management, AEM-K = accruals-based earnings management measured through Kothari model (2005), ACFO = abnormal operation cash flows, ADISX = abnormal discretionary expenses, APROD = abnormal production cost. .

5.3 The trade-off between AEM and REM

To understand the behaviour of AEM and REM, this section examines the trade-off between AEM and REM based on their costs and constraints. Thus, the current section presents the costs and constraints related to both AEM and REM and their impact on the trade-off between them.

5.3.1 Relative cost related to EM.

Four types of costs related to AEM were identified, based on prior research (e.g. Zang, 2012; Abrnathy, 2014). The first cost is related to the scrutiny of auditors. Big4 is used as a relative cost related to AEM, as the Big4 are more experienced, and can invest more resources in auditing (Zhang, 2012). Previous studies show that Big 4 audit companies constrain AEM (e.g., Krishnan, 2003; Francis & Wang, 2008). Therefore, the current study considers Big 4 as a proxy for auditor scrutiny and measure it as an indicator variable that equals 1 if the firm auditor is one of the Big 4, and zero otherwise. Secondly, audit committee effectiveness is also used as a relative cost constraining AEM. Prior research (Smith, 2003; Zaman et al., 2011) listed four characteristics that must at least be exhibited by an effective audit committee. In 2015 Indian code number 49 also suggested the same characteristics for the audit committee effectiveness, as follows: two-thirds of the members of the audit committee should be independent directors; all audit committee members should be financially literate and at least one of the audit committee member should have financial expertise; the audit committee should meet at least four times a year and the audit committee should be composed of at least three members. There are consistent with both previous studies (Smith, 2003; Zaman et al., 2011) and Indian code number 49. We consider the audit committee for the company i and year t is effective if it complies with all above conditions, and it will be awarded 1, otherwise zero. Thirdly, this study employs board effectiveness as a relative cost related to AEM. Zaman et al. (2011) suggest four characteristics that must at least be exhibited by the board for it to show

effectiveness. In 2015 Indian code number 49 also suggested the same characteristics for the board effectiveness, as follows: independent directors account for at least fifty percent of the all board members; the chairman is a non-executive director; the meeting of the board committee is at least four times a year and at least 8 members make up the board committee. There are consistent with both Zaman et al. (2011) and Indian code number 49. The present study considers the board effectiveness for the company i and year t if it comply with all above conditions; 1 will be awarded if this is the case, otherwise zero. Fourthly, following prior studies (Zang, 2012; Abrnathy, 2014), the length of operating cycles is employed as proxy of accounting flexibility. This study argues that longer operating cycles lead to greater flexibility for AEM, since they have a longer period for accruals to be reversed. The operating cycle is measured as defined by Dechow (1994), and is the addition of days' inventory outstanding, days' sales outstanding and days' payable outstanding.

This study also identifies three types of cost related to REM. First, Following Zhang (2012) and Abernathy (2014) this study uses a company's market-share in the industry as a relative cost related REM. The company's market share is measured as the company's sales divided by the industry's total sales. The second type of cost recognises the company's financial health. Following previous studies (e.g. Wang et al., 2007; Gorg & Spaliara, 2009), the current study employed solvency[3] as proxy of financial health. The third relative cost is the influence of institutional ownership (Zang, 2012; Abernathy, 2014), This was measured through the institutional ownership percentage at the beginning of the same year.

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[3]Solvency is the ability of a company to meet its long-term financial obligations. Solvency is essential to staying in business as it asserts a company's ability to continue operations into the foreseeable future.

5.3.2 The Impact of Costs Related to AEM and REM on Their Trade-off

The current section examines the impact of the relative cost related to either AEM or REM on the trade-off between the two EM strategies. It tests the impact of these costs on AEM and REM by employing panel regression analysis, which allows control for other variables that have a possible impact on AEM and REM. Two regressions[4] with firm-year observations are estimated to test the impact of relative costs on both earnings management methods individually, and the probability of switch strategy between real and accruals-based EM, during the period from 2007 to 2015. We include control variables for other factors in the following two regressions, such as firm size, leverage, profitability and growth, due to their impact on both AEM and REM (Becker et al., 1998; Bowen et al., 2008; Cohen et al., 2008; Sun et al., 2011; Zaman et al., 2011; Ferentinou et al., 2016).

5.3.3 Descriptive Statistics

Table 5.4 shows the descriptive statistics for AEM, REM and the three individual proxies of REM (ACFO, APROD and ADISX), which are also explained in detail above in sections 5.2, 5.3 and 5.4. Table 5.4 also shows that the mean for BEF is 0.367, which indicates that 36.7 per cent of Indian companies have efficient boards. This result is consistent with results reported

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[4] $AEM_{it} = \beta_0 + \beta_1\ REM_{it} + \beta_2\ Big4_{it} + \beta_3\ BEF + \beta_4\ ACEF + \beta_5\ Block + \beta_6\ INSOW + \beta_7\ FI\_HE + \beta_8\ AC\_FL + \beta_9\ SH\_MA + \beta_{10}\ SIZE + \beta_{11}\ LEV + \beta_{12}\ ROA + \beta_{13}\ GROWTH + e_{it}$ (1)

$REM_{it} = \beta_0 + \beta_1\ AEM_{it} + \beta_2\ Big4_{it} + \beta_3\ BEF + \beta_4\ ACEF + \beta_5\ Block + \beta_6\ INSOW + \beta_7\ FI\_HE + \beta_8\ AC\_FL + \beta_9\ SH\_MA + \beta_{10}\ SIZE + \beta_{11}\ LEV + \beta_{12}\ ROA + \beta_{13}\ GROWTH + e_{it}$ (2)

AEM = accruals based earning management of company i and period t, AEM is used as dependent variable in equation (1). REM = earning management using real activities of company i and period t, REM is used as dependent variable in equation (2). β_0 = the constant Big4 = the firm's auditor is one of the Big 4 BEF = board effectiveness. ACEF = audit committee effectiveness. INSOW = institutional ownership measured through the proportion of shares held by institutions. AC_FL = accounting flexibility. FI_HE = financial health of company. SH_MA = share market. $SIZE_{it}$ = size of companies, the natural logarithm of firms' assets. Company size is measured using its total assetsLEV = financial leverage is measured as the ratio of total liabilities to total assets. ROA = a proxy for a firm's profitability and it is measured as the ratio of the income from operation to total asset. GROWTH = Growth ratio measured through the change of sale.

by Garcia (2010), who shows that the ratio of board effectiveness is 33.65 per cent in Spain. It can be also seen that the mean for ACEF is 0.621, which indicates that 62.1 per cent of Indian companies have efficient audit committees. These findings indicate that the ratio of audit committee effectiveness in Indian companies is higher than the findings reported by Rochmah and Mohd (2012), who indicate that the ratio of audit committee effectiveness among Indonesian companies is 40.3 per cent. On average, 28 per cent of the study sample is audited by the Big4 international accounting firms, and the average value of accounting flexibility, measured as the number of operation cycle days, is 49.8. The mean value of the market-share is 1.3 per cent and the mean value of financial health is 43.1 per cent, which are consistent with results reported by Zang (2011). It is also noted that the mean value of institutional ownership is 0.264. This finding is less than the results documented by Abernathy (2014), who documents that the ratio of institutional ownership is 53.3 per cent among US companies. Table 5.2 also reports descriptive statistics for various firm-specific variables and shows that the mean company log total assets (company size) is 7.48. Finally, the mean value of ROA, financial leverage and growth are around 11 per cent, 64 per cent and 25.5 per cent respectively.

Table 5.4: Descriptive statistics

variable	Mean	sd	p25	p50	p75
AEM	.045	.106	.007	.021	.049
REM	-.001	.128	-.037	.002	.048
CFO	-.0023	.107	-.037	-.002	.029
PROD	-.0027	.102	-.032	-.001	.025
DISX	-.0029	.113	-.043	-.003	.034
ROA	.112	.124	.041	.090	.15
SIZE	7.48	.663	7.00	7.39	7.8
GROWTH	.255	.325	.088	.189	.32
LEV	.546	.224	.392	.583	.71
BEF	.367	.482	0	0	1
ACEF	.621	.485	0	1	1
INSOW	.264	.155	.15	.24	.35
AC-FL	49.8	.602	9.6	28.6	67.8
MA-SH	.013	.040	.0008	.003	0.09
FI-HE	.431	.185	.311	.403	.566

Table 5.2 presents descriptive statistics for all variables used in this study. AEM = Discretionary accruals measured through employing modified Jones model. REM = combined proxy of real activities earnings management. Big4 = the highest 4 repetition of audit committee firms. ROA= profitability, measured through net income from operations divided by total assets. FSIZE= company size measured through the natural log of company's total assets. GROWTH= Growth ratio measured through the change of sale. LEV= leverage ratio measured through long-term debt scaled by total assets. BLOCK= block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions, BEF = board effectiveness explained in chapter four. ACEF= audit committee effectiveness, more explanation in chapter four, AC-FL= accounting flexibility, MA-SH = market share, FI-HE = financial health. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

5.3.4 Multicollinearity Test

The common method for checking the extent of the multicollinearity problem between independent variables are the correlation coefficients matrix and VIF methods (e.g. Anderson et al., 1996; Grewal et al., 2004; Hair et al. 2006; Li, et al., 2010; ALghamdi and Ali 2012; Choi et al., 2013; Shafer, 2015; Muttakin et al., 2015; Banseh & Khansalar, 2016). Grewal et al. (2004) argue that a multicollinearity problem above 80% might harm the findings of the regression analysis. It is also argued that multicollinearity problems exist among independent variables when the average value of VIF is more than 10 (Gujarati, 2003). The current study uses the correlation matrix to examine whether there is high correlation between the independent variables. Tables 5.5 A and 5.5 B report the correlation coefficients between

independent variables. They show that the highest correlation coefficient is between the market share and INSOW, which is 0.237. Thus, the correlation coefficients of all other study variables are less than the conventional thresholds. Furthermore, to confirm the the results of correlation matrix, the VIF was also conducted by this study. Table 5.6 A and 5.6 B show the highest value of VIF is very low (1.11) and the mean value is 1.05, which confirms that there is no multicollinearity problem between the study's independent variables.

Table 5.5 Correlation Matrix Analysis

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Panel A: Correlation Matrix for Equation 1 (AEM is dependent variable).

	REM	Big4	Type	ROA	Size	Growth	Lev	Block	INSOW	BEF	ACEF	Solvency	Cycle	Status
REM	1.000													
Big4	-.015	1.000												
Type	.0093	-.141***	1.000											
ROA	-.09***	.0256	.045*	1.000										
SIZE	.009	-0.61***	-.074***	-.113***	1.000									
GROWTH	-.016	-0.002	-.035	.0127	.0091	1.000								
Lev	-.005	-.070***	.006	.071***	0.059***	-.0117	1.0000							
Block	-.036	.006	.017	.004	.120***	.0135	-0321	1.0000						
INSOW	-.071**	.0248	-.025	-.025	-.060***	.0076	-0.0225	.360***	1.0000					
BEF	.020	-.018	-.042*	.045**	-.078***	-.032***	-.0089	.0320	-0.0185	1.0000				
ACEF	-.051**	-.014	.001	-.0106	.0183	-.0108	-0.006	.042*	-.087***	.098***	1.0000			
FI-HE	-.031	.12***	-.009	.110***	.087***	-.0194	-.0101	.0077	-.078***	.038*	.0187	1.0000		
AC-FL	-.08***	0.0315	-.170***	-107***	.099***	-.004	.059**	-.0115	.0129	-.0133	-.006	0.0023	1.0000	
MA-SH	.037*	0.237***	.058***	-.0163	.121***	-.022	.0129	.0109	.0516**	.009	-0.041*	0.0133	-.071***	1.0000

Table 5.5 reports the correlation coefficients between the independent variables REM *= combined proxy of real activities earnings management. ROA = profitability, measured through net income from operations divided by total assets. SIZE = company size measured through the natural log of company's total assets. GROWTH = Growth ratio measured through the change of sale. LEV = leverage ratio measured through long-term debt scaled by total assets.. BLOCK = block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions. BEF = board effectiveness explained in chapter four. ACEF = audit committee effectiveness, more explanation in chapter four. AC-FL= accounting flexibility, MA-SH = market share, FI-HE = financial health, more explanation in chapter four. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.*

Panel B: Correlation Matrix for Equation 2 (REM is dependent variable).

	AEM	Big4	Type	ROA	Size	Growth	Lev	Block	INSOW	BEF	ACEF	Solvency	Cycle	Status
AEM	1.000													
Big4	-.066***	1.000												
Type	.0182	-.141***	1.000											
ROA	-.0487**	.0256	.045*	1.000										
SIZE	-.0480**	-0.61***	-.074***	-.113***	1.000									
GROWTH	-.052**	-0.002	-.035	.0127	.0091	1.000								
Lev	-.0114	-.070***	.006	.071***	0.059***	-.0117	1.0000							
Block	-.007	.006	.017	.004	.120***	.0135	-0321	1.0000						
INSOW	-.0359	.0248	-.117***	-.025	-.060***	.0076	-0.0225	.360***	1.0000					
BEF	-.121***	-.018	-.042*	.045**	-.078***	-.032***	-.0089	.0320	-0.0185	1.0000				
ACEF	-.066***	-.014	.001	-.0106	.0183	-.0108	-0.006	.042*	-.087***	.098***	1.0000			
FI-HE	-.053**	.12***	-.009	.110***	.087***	-.0194	-.0101	.0077	-.078***	.038*	.0187	1.0000		
AC-FL	.097***	0.0315	-.170***	-107***	.099***	-.004	.059**	-.0115	.0129	-.0133	-.006	0.0023	1.0000	
MA-SH	-.056**	0.237***	.058***	-.0163	.121***	-.022	.0129	.0109	.0516**	.009	-.041*	0.0133	-.071***	1.0000

Table 5.5 reports the correlation coefficients between the independent variables AEM *= Discretionary accruals measured through employing modified Jones model as a mean proxy of accruals-based EM. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level*

Table 5.6 VIF Test Analysis.

Panel A: VIF Test Analysis Equation 1 (AEM is dependent variable).		
Variable	VIF	1/VIF
REM	1.03	0.973065
Big4	1.11	0.904119
MA-SH	1.09	0.919840
type	1.07	0.930388
AC-FL	1.07	0.932425
size	1.06	0.940368
ROA	1.06	0.946618
FI-HE	1.04	0.958628
INSOW	1.04	0.962056
BEF	1.03	0.974965
ACEF	1.02	0.978155
Lev	1.02	0.978587
Growth	1.00	0.995714
Mean VIF	1.05	

Table 5.6 panel A reports results of multicollinearity problem analysis, by using VIF test, between the independent variables. AEM = Discretionary accruals measured through employing modified Jones model as a mean proxy of accruals-based EM. ROA = profitability, measured through net income from operations divided by total assets. SIZE = company size measured through the natural log of company's total assets. GROWTH = Growth ratio measured through the change of sale. LEV = leverage ratio measured through long-term debt scaled by total assets.. BLOCK = block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions. BEF = board effectiveness explained in chapter four. ACEF = audit committee effectiveness, more explanation in chapter four. AC-FL= accounting flexibility, MA-SH = market share, FI-HE = financial health, more explanation in chapter four.

Panel B: VIF Test analysis Equation 2 (REM is dependent variable).		
Variable	VIF	1/VIF
AEM	1.04	0.958770
Big4	1.11	0.902369
MA-SH	1.09	0.920204
type	1.08	0.929941
AC-FL	1.07	0.931206
size	1.07	0.938221
ROA	1.04	0.954888
FI-HE	1.04	0.957559
INSOW	1.04	0.966120
BEF	1.04	0.964297
ACEF	1.02	0.977203
Lev	1.02	0.978328
Growth	1.01	0.993323
Mean VIF	1.05	

Table 5.6 panel B reports results of multicollinearity problem analysis between the independent variables. REM = combined proxy of real activities earnings management.

5.3.5 Regression Analysis Results

In order to achieve the first objective of this study and to understand EM behaviour, this section examined the relationship between AEM and REM. To test this relationship, the current study, firstly, used REM as a dependent variable and AEM as an independent variable in equation 1 (as explained in section 4.7 p 107). Secondly, AEM is used as a dependent variable and REM is used as an independent variable in equation 2 (as explained in section 4.7 p 107). Furthermore, the relative costs of both AEM and REM (Big4, board effectiveness, audit committee effectiveness, institutional, market share, financial health and accounting flexibility) and the company characteristics (size, industry type, profitability, growth and financial leverage) are included in the regression model as control variables.

To identify the most appropriate model for this study, some statistical issues need to be taken into account. To test whether the suitable model is the panel or pooled model, the Chow test is conducted for the two regressions, which are used in examining the relationship between AEM and REM. Twumasi et al. (2015) indicate that if the F-value in the Chow test is less than 0.05, panel data is a more suitable method than the pooled method. Since the findings of the Chow test revealed that the F-value was significant at the 0.01 level for the two models (see appendix 5), the panel data model is the more appropriate method for these two regressions for examining the relationship between AEM and REM.

Panel data could be categorised into random effect or fixed effect, which would help to mitigate the influences of various companies and time series. Due to data emanating from various companies and time series, it is believed that panel data offers suitable models, which differentiate between different companies and changes over time (Kim et al., 2012; Clark and Linzer, 2015). In order to determine whether the effect is fixed or random, the Hausman test is

conducted for the two regression models to allow the researcher to choose between the random and fixed effects models. The null hypothesis is that the random effects model is the preferred model while the alternate hypothesis shows a preference for the fixed effects model (Clark and Linzer, 2015). Clark and Linzer (2015) indicate that if the p-value is less than 0.05, the null hypothesis will be rejected. Since the results of the Hausman test in the two models were very significant at the 0.01 level, the fixed effect method is more suitable for examining the relationship between AEM and REM in the two regressions (see appendix 4).

Table 5.7 indicates that the values of overall R^2 for the two regression models (AEM and REM) are 0.228 and 0.401 respectively. These figures show that the combination of the independent variables explains the variation in the dependent variable in the two models respectively. These figures of R^2 are in line with prior research related to this type of AEM and REM regressions (e.g. Geiger and North 2006; Jenkins and Velury 2008). P-Values in the above two regressions are highly significant (0.001) suggesting that these models have a good explanatory power for the current study.

Table 5.7 presents the results of the trade-off between REM and AEM. Table 5.7 indicates that AEM is significantly and negatively related to REM (coef = -0.410, $p < 0.01$), while REM is significantly and negatively associated with AEM (coef = -0.182, $p < 0.01$). This result supports the predictions that managers can use a mixture of EM methods (i.e. AEM and REM) to meet their target. These results are consistent with previous studies (e.g. Zang, 2011; Abernathy et al., 2014; Ferentinou et al., 2016; Ipino and Parbonetti, 2017) suggesting that the managers' decision to engage in any EM strategy will be influenced by how constrained and costly this strategy is. Managers will face different levels of constraints for each strategy, which will influence their decision. When the constraints of using one EM method are high, managers are more likely to substitute the less costly alternative to manipulate earnings. Thus the relative

degree of AEM vis-a-vis REM relies on the relative costs of each strategy (see. e.g. Graham et al., 2005; Cohen et al., 2008; Zang, 2012; Abernathy et al., 2014).

Table 5.7 shows that all of the costs associated with AEM have significant coefficients with the predicted signs. The coefficients on BEF, ACEF and Big4 (Coef = -0.011, Coef = -0.013, Coef = -0.161) are negative, indicating that these costs are more likely to constrain the company's ability to manage accrual-based earnings. These findings indicate that better the effectiveness of the board, and audit committee and a high standard of auditing results in mitigating AEM. Consequently, managers may engage more in REM to achieve their target earnings. These results are in line with results reported by Zang (2011), who examined the trade-off decision between using AEM and REM and provided evidence suggesting that BEF, ACEF and Big4 have a significantly negative impact on AEM and a positive effect on REM among companies in the USA. The positive coefficient on accounting flexibility suggests that companies with less accounting flexibility are less likely to use AEM to manipulate earnings, and thus use REM more. Similarly, Abernathy et al. (2014) indicate that accounting flexibility is significantly and positively associated with AEM, and negatively related to REM.   .

The second set of costs are used to examine how firms engage relatively more in AEM when the costs associated with REM are higher. In the REM equation (see footnote 3 page 124), the coefficients on market share and financial health are positive and significant at the 0.01 and 0.05 levels respectively. These results are in line with Zang (2011), who also examines the relationship between AEM and REM among US companies and finds similar evidence that financial health and market share are positively and significantly related to REM and negatively correlated with AEM. This would suggest that companies with poorer financial health and smaller market shares have less flexibility for REM, and thus use an AEM strategy.

Table 5.7 also provides evidence that the negative coefficient on institutional ownership supports the notion that the institutional investors impose more constraint and scrutiny over

real activities manipulation than accrual based earnings management; this is perhaps because of the longer-term real consequences of the REM on firms' values (Zhang, 2011). Consequently, managers trying to achieve their target earnings may engage more in AEM.

Thus, the first aim of this study is achieved through measuring the two EM strategies (AEM and REM) and examining the trade-off between them. The significant and negative relationship between AEM and REM supports that managers in the Indian context can use AEM or REM methods to meet their target. The negative impact of the board effectiveness, audit committee effectiveness and Big4 on AEM indicates that these costs may constrain the company's ability to engage in AEM. The positive effect of accounting flexibility on AEM suggests that Indian companies with less accounting flexibility are less likely to use AEM to manipulate earnings. These results are consistent with the theoretical underpinnings derived from the agency theory, suggesting that companies might use different strategies to minimise the conflict of interests between managers and shareholders. Morris (1987) argues that, without proper monitoring, companies may face serious problems. Healy and Palepu (2001) propose several solutions to mitigate the agency problem, such as the effective control of the manager by the board, the audit committee effectiveness to control the flexibility in the accounting system and financial analysts' ability to use financial and non-financial information disclosed by managers to reduce the information asymmetry. These resolutions suggest that corporate governance mechanisms and contractual agreements play a vital role in mitigating the agency problem. The effectiveness of the audit committee and board of directors can decrease information asymmetry between managers and owners, which is more likely to constrain EM.

Due to the positive influence of the market share and financial health on REM, and the negative impact of the institutional ownership on REM, managers may try to achieve their target earnings through engaging more in AEM. These results are in line with agency theory which

suggests that, due to the existence of agency conflict, managers engage in EM opportunistically for their own interests rather than optimising the company's value. When the costs and constraints of using one REM strategy are high, managers are more likely to use the less costly alternative to manage earnings (AEM). Belgacem & Omri (2015) showed that managers (agents) might exploit the flexibility of accounting principles in estimating their reward. On the other hand, when AEM is constrained, managers may try to achieve their target earnings through engaging more in REM. Thus, EM is a kind of agency cost (Sun et al., 2010; Xie et al., 2003; Zahra et al., 2005). Managers are more concerned about their ability to remain in power, and to increase their own wealth, which in turn is likely to impact negatively on both the firms' value and reputation (Prior et al. 2008). Companies could face serious problems because of the ease with which the manager can access the company's information compared to the shareholders. Therefore, due to the existence of agency costs, accountability and transparent systems should be introduced to mitigate this problem (Leftwich, 1980; Watts & Zimmerman, 1990).

With respect to the other control variables, table 5 shows that there is a negative and significant impact of profitability on both AEM and REM (Coef = -0.090, p < 0.01; Coef = -0.101, p < 0.01 respectively). This suggests that less profitable companies are more likely to engage in EM. Company size is also significantly and negatively related to AEM at a level of 0.01, indicating that smaller companies may have a higher incentive to engage in AEM than larger companies. This is also consistent with previous studies (Scholtens & Kang, 2013; Kim et al., 2012).

Taken together, the above results suggest a substitute relationship between AEM and REM. These results provide evidence that managers change their EM strategies from AEM to REM and vice-versa based on relative costs related to EM strategy, which is consistent with previous

studies (e.g. Zang, 2012; Abernathy et al., 2014; Ho, L. et al., 2015; Ferentinou et al., 2016; Ipino and Parbonetti, 2017).

Table 5.7: Results of panel regression of the relationship between AEM and REM

	REM (1)		AEM (2)	
	Coef	**t**	Coef	t
AEM/REM	-.410***	-11.75	-.184***	-11.75
Big4	.215***	10.43	-.161***	-20.61
ROA	-.101**	-3.68	-.090***	-4.98
Size	.013	1.53	-.037***	-6.06
Growth	-.003	-0.04	.010*	1.92
Type	.013	0.89	.003	0.31
Lev	.009	0.62	-.011	-1.11
FI-HE	.001	2.57	-.001***	-1.88
AC-FL	-.001***	-1.91	.001***	3.62
MA-SH	.334***	3.01	.144	1.94
BEF	.008**	1.30	-.011***	-2.45
ACEF	.006*	0.94	-.0138***	-2.65
INSOW	-.046***	-1.28	.070**	2.88
R^2	0.2287		0.406	
P-value	0.001		0.001	

*Table 5.7 reports the findings of the primary analysis examining the relationship between AEM and REM. REM = combined proxy of real activities earnings management measured through employing Roychowdhury model (2006). AEM = Discretionary accruals measured through employing modified Jones model as a mean proxy of AEM. **ROA** = profitability, measured through net income from operations divided by total assets. **SIZE** = company size measured through the natural log of company's total assets. **GROWTH** = Growth ratio measured through the change of sale. **LEV** = leverage ratio measured through long-term debt scaled by total assets.. **BLOCK =** block holder ownership measured through the proportion of ownership more than or equal 0.05. **INSOW** = institutional ownership measured through proportion of shares held by institutions. **BEF** = board effectiveness explained in chapter four. **ACEF** = audit committee effectiveness, more explanation in chapter four. AC-FL= accounting flexibility, MA-SH = market share, FI-HE = financial health, more explanation in chapter four. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.*

5.3.6 Additional Analyses

To increase the power of the main test and obtain more confidence that the above results do represent the trend in earnings management practice, we also run the following analysis. The current study performs a cross-sectional analysis using a sub-sample of firms that are likely to have strong incentives to manage earnings. The study argues that, if associated costs related to both AEM and REM strategies play a prominent role in determining how managers choose between the two strategies, and then the trade-off between AEM and REM, and the effect of

their associated costs, should be observed even for companies with strong incentives for earnings management.

 The current study constructs a range of company-years sub-samples with strong firm-level incentives for earnings management. Firstly, following Roychowdhury (2006) and Doukakis (2014), this study creates a sub-sample of firm-years with small positive earnings (SPE), defined as firm-years that report net income from operation over lagged total assets higher than or equal to zero but less than 0.005. Prior studies provide evidence that these firms are likely to manipulate their earnings to report income marginally above zero (see. e.g. Cohen et.al. 2008; Doukakis, 2014). Secondly, we identify firm-years with changes in net income before extraordinary items (SEC) scaled by total assets which lie in the interval (0, 0.005), since it is likely that these firms, during these years, managed their earnings in order to meet the prior years' earnings figures (Graham et al., 2005; Cohen et al., 2008). Thirdly, recent research has suggested that meet or beat analysts' forecast is considered as a significant benchmark for management, and they are likely to manipulate earnings to achieve this (Burgstahler and Dichev 1997; DeGeorge et al. 1999; Cohen et al., 2008). Thus, this study also focuses on firm-years that have a small error in the analysts' forecast (SEAF), defined as the differences between actual earnings per share reported in financial statements and the earnings forecast per share reported by analysts. Specifically, it focuses on firm-year observations in which the analysts' forecast error is one cent per share or less (Kim et al., 2012). Finally, this study focuses on high-debt firms (HDF), defined as firm-years that fall above the median value of the sample. This definition is consistent with the evidence in prior research that highly leveraged firms have strong incentives to engage in both real and accruals-based earnings management (Doukakis, 2014).

Table 7.6 shows results of the suspect analysis regressions. The outcomes are reported in eight columns. In columns 1and 2, the regression estimates of AEM and REM, measured by using

SPE, are reported. Columns 3 and 4 report the regression findings of AEM and REM, measured by using SEC. Columns 5 and 6 show the regression outcomes of AEM and REM, measured by using SEAF. In columns 7 and 8, the regression estimates of AEM and REM, which are measured by using sub-sample of HDF. Table 5.8 indicate that the values of overall R^2 for the eight regression models are 72.29 per cent; 71.09 per cent; 76.99 per cent; 78.12 per cent; 29.46 per cent; 21.08 per cent; 23.77 per cent and 23.98 per cent, respectively. These figures show that the combination of the independent variables explains the variation in the dependent variable in all models respectively. P-Values in the above eight regressions are highly significant (0.001), suggesting that these models have a good explanatory power for all the models used in this section.

Table 5.8 presents the empirical findings for the four suspect samples. An analysis of the EM behaviour of these suspect firms indicates that all of the costs associated with AEM and REM have significant coefficients (at least at the 0.05 level) with the predicted signs, which is consistent with the study's main results in table 5.7. Specifically, table 5.8 shows that when AEM is used as a dependent variable in the four suspect samples (SPE, SPEC, SEAF, and SHM), the relationship between AEM and REM is significant and negative (coef $= -.321$, p $<$ 0.01; coef $= -.164$, p < 0.10; coef $= -.149$, p< 0.05; and coef $= -.135$, p < 0.10 respectively). Similarly, all suspect samples results, when REM is employed as a dependent variable, indicate that REM is related negatively to AEM (Coef $= -.455$, p < 0.01; Coef $= -.191$, p < 0.10; Coef $= -.194$, p < 0.05; and Coef $= -0.820$ p < 0.10 respectively). These results indicated that the negative relationship between AEM and REM is consistent with the main findings in table 5.7, which are still unchanged even in the samples with strong incentives to manage earnings. It can also be seen (in table 5.8) that the relative costs related to AEM constrain AEM, and lead to an increase in REM. Furthermore, the same results show that the relative costs related to REM limit the flexibility for companies to engage in REM, and lead to increased AEM. Thus,

the relative costliness related to both AEM and REM can explain the trade-off between them,

which is in line with the main results reported in table 5.7.

Table 5.8: analysis of Suspect firms

	SPE				SPEC				SEAF				HDF			
	AEM		REM		AEM		REM		AEM		REM		AEM		REM	
	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t
AEM/REM	-.321***	-12.71	-.455***	-12.71	-.164*	-1.77	-.191*	-1.77	-.149**	-2.01	-.194**	-2.01	-.135*	-1.77	-.820*	-1.77
Big4	-.015**	-2.21	-.009	-1.15	-.073**	-1.95	-.026	-0.64	.005	0.43	-.010	-0.72	-.048**	-1.78	-.190	-1.26
ROA	-.024	-0.96	-.111***	-3.70	-.059	-0.28	-.28	-1.25	-.013	-0.35	-.020	-0.45	-.991	-0.60	.278	0.69
size	.001	0.14	.006	1.16	-.039*	-1.62	-.033*	-1.30	-.002	-0.26	-.003	-0.32	-.034	-0.73	-.087	-0.75
Growth	.010	1.09	.006	0.57	.015	0.31	.036	0.69	.001	0.01	.006	0.36	.016	0.27	.061	0.41
Type	.0086	0.58	.073**	2.50	-.002	-.24	-.021**	-2.48	.002	0.67	.001	0.77	.0016	1.30	.0027*	1.77
Leve	.072**	2.08	-.038	-0.94	-.130*	-1.72	-.108	-1.30	.029	1.31	.015	0.60	-.163*	-1.14	.194	0.54
BEF	-.019**	-2.44	.029***	3.23	-.129***	-2.72	.164***	3.24	-.020*	-1.88	.004	0.33	-.123**	-2.20	.221*	1.52
ACEF	-.019**	-3.05	.014**	1.94	-.149***	-4.80	-.035	-0.94	-.025	-2.14	.026*	1.93	-.191***	-2.82	.182	0.97
INSOW	.033*	1.61	-.051**	-2.12	.069	0.79	-.44***	-5.33	-.023	-0.55	-.179***	-3.85	.033	0.22	-.103***	-3.36
FI-HE	-.001*	-1.78	.001**	2.49	-.001**	-1.98	.001***	2.90	-.002*	-1.76	-.002*	-1.87	-.001	-0.33	.001	0.95
AC-FL	.470	0.75	.001	0.90	.001***	4.75	-.001**	-2.50	.001*	1.78	-.001**	-2.08	.001***	2.89	.003**	2.59
MA-SH	-.006**	-2.25	.005*	1.64	.350	1.51	.721***	2.98	.436	1.50	.739**	2.25	-.167*	-1.57	.596**	2.41
R^2	0.7729		0.7109		0.7699		0.7812		0.2946		0.2108		0.2377		0.2398		
P-value	0.001		0.001		0.001		0.001		0.001		0.001		0.001		0.001		

Table 5.8 reports the findings of the Suspect firms' analysis to examine the relationship between AEM and REM. AEM = Discretionary accruals measured through employing modified Jones model. REM=combined proxy of real activities earnings management measured through employing Roychowdhury model (2006). Big4 = the highest 4 repetition of audit committee firms. ROA= profitability, measured through net income from operations divided by total assets. FSIZE= company size measured through the natural log of company's total assets. GROWTH= Growth ratio measured through the change of sale. LEV= leverage ratio measured through long-term debt scaled by total assets. INSOW = institutional ownership measured through proportion of shares held by institutions, BEF = board effectiveness explained in chapter four. ACEF= audit committee effectiveness, more explanation in chapter four. AC-FL= accounting flexibility, MA-SH = market share, FI-HE = financial health, more explanation in chapter four. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

5.3.7 Robustness Check

To check for more robustness of the study results, a series of alternative tests were conducted. Firstly, an alternative measure of discretionary accruals is used to test whether the primary findings are robust to various measures or not. The main empirical analyses of AEM were repeated by estimating DA according to the modified Jones model, adjusted again for operating performance using Kothari et al.'s (2005) model. Secondly, an alternative measure of REM is used to provide reasonable assurance for whether the primary findings are robust to various measures or not. Previous literature (Zang, 2012; Zhao et al., 2012) combines the individual proxies for REM (i.e. ACFO, APROD and ADISX) to compute the measure of REM. However, Doukakis (2014), argues that excluding the abnormal DISX variable has the advantage of making clear the net impact on abnormal cash flows from operations. Thus, this research estimated REM through combining only the other two individual proxies, abnormal CFO and abnormal PROD. Thirdly, following prior research (e.g. Zang, 2012; Choi et al. 2013), this study controls for endogeneity to check for robustness of our results. Previous studies (e.g. Ipino and Parbonetti, 2017; Sellami, 2016) suggest that both AEM and REM are affected by managerial decisions. Since the managers are likely to influence both AEM and REM, the relationship between them may be affected by an endogeneity problem (Zang, 2012). If AEM and REM are simultaneously determined by management's overall policies, the findings presented in table 5.7 could be biased and inefficient. Previous literature has pointed out several methods to control the endogeneity problem. The common method used in prior studies is the instrumental variables (IV) (e.g. Bound et al., 1995; Gujarati, 2008; McKnight and Weir 2009; Choi et al. 2013). In this context, the Hausman test has been used to check whether bias for the independent variables and endogeneity exists. The findings of the Hausman test for the lagged value of AEM and REM ($R^2 = 0.0965$; $P = 0.01$, $R^2 = 0.127$; $P = 0.01$ respectively) confirm that the dependent variable and its interaction variables in the

two regression models are endogenous and that the two-stage least squares approach should be adopted in the endogeneity analysis. The two main regression models, reported in table 5.7, are repeated by employing the two-stage least squares method. The results of these robustness tests provide evidence that the essential findings of this study are robust and unchanged with different alternative measures. Although some coefficients' values were lower and showed a lower level of significance, the direction of the relationship between AEM and REM and their relative cost remain the same.

Table 5.9: *Results of panel regression of the* alternative *test*

	REM (1)		AEM (2)	
	Coef	t	Coef	t
AEM/REM	-.188***	-12.51	-.718***	-13.34
Big4	-1.60***	-21.33	2.68***	13.75
ROA	-.087***	-4.99	-.036	-0.86
Size	-.035***	-6.18	-.057***	-4.14
Growth	.009	1.91	.008	0.70
Type	.003	0.41	-.002	-0.12
LEV	-.003	-0.31	.007	0.30
BEF	-.008*	-1.87	-.022**	-2.20
ACEF	-.006*	-1.73	.001	0.17
INSOW	.048**	2.03	-.236***	-4.08
FI-HE	-.001	-0.82	.001***	5.20
AC-FL	.001***	3.50	-.001	-1.06
MA-SH	.140*	1.96	.566***	3.31
R2	0.4192		0.3694	
P-value	0.001		0.001	

*Table 5.9 reports the findings of the alternative analysis examining the relationship between AEM and REM. REM = combined proxy of real activities earnings management measured through employing Doukakis model (2014). AEM = Discretionary accruals measured through employing Kothari model as a mean proxy of AEM. ROA = profitability, measured through net income from operations divided by total assets. SIZE = company size measured through the natural log of company's total assets. GROWTH = Growth ratio measured through the change of sale. LEV = leverage ratio measured through long-term debt scaled by total assets.. BLOCK = block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions. BEF = board effectiveness explained in chapter four. ACEF = audit committee effectiveness, more explanation in chapter four. AC-FL= accounting flexibility, MA-SH = market share, FI-HE = financial health, more explanation in chapter four. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.*

Table 5.10: Instrumental variables two-stage (IV 2SLS) model

	REM (1)		AEM (2)	
	Coef	z	Coef	t
Lagged AEM/REM	-1.33***	-11.38	-1.24***	-9.35
Big4	.0156	-1.59	-.017*	-1.76
ROA	-.079**	-2.27	-.190***	-4.91
Size	.003	0.47	-.0167***	-2.50
Growth	-.017	-1.35	-.0012*	-.10
Type	.013	0.89	.001	0.04
Lev	-.014	0.78	-.010	-.53
Block	-.027	-0.96	-.001	-.05
INSOW	-.036	-1.25	-.041	-1.37
BEF	.0177**	3.01	-.013	-1.56
ACEF	.018**	2.14	-.018**	-2.14
Solvency	.001	-.83	-.001***	-4.47
Cycle	-.002***	-3.02	.0002***	3.52
Status	-.061	-0.55	.0086	0.08
R^2	0.1277		0.09	
P-value	0.001		0.001	

Table 5.10 reports the findings of the analysis examining the Endogeneity problem between AEM and REM. REM = combined proxy of real activities earnings management measured through employing Doukakis model (2014). AEM = Discretionary accruals measured through employing Kothari model as a mean proxy of AEM. ROA = profitability, measured through net income from operations divided by total assets. SIZE = company size measured through the natural log of company's total assets. GROWTH = Growth ratio measured through the change of sale. LEV = leverage ratio measured through long-term debt scaled by total assets.. BLOCK = block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions. BEF = board effectiveness explained in chapter four. ACEF = audit committee effectiveness, more explanation in chapter four. AC-FL= accounting flexibility, MA-SH = market share, FI-HE = financial health, more explanation in chapter four. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

5.4 Conclusion

This chapter measures the level of AEM and REM and examines the interaction between AEM and REM based on their relative costs and constraints. While the results in Chapter five show that Food and Drinks companies report the highest mean values of AEM, the lowest mean values of AEM are reported by Oil and Gas companies. In the same vein, REM models indicate that Food and Drinks companies report the highest mean value of REM as a combined measure. In contrast, the lowest mean value of REM was among Construction companies. In respect of EM trend, in general, there are differences in the tendencies of REM and AEM. For instance, while AEM shows an overall decrease during the period of study, REM increased in the same

period. The results also provide evidence that REM and AEM are substitutes for one another throughout the sample period from 2007 to 2015. Based on the relative constraints of the different EM strategies, this study finds evidence consistent with an increased use of REM when AEM is constrained, and vice-versa. By examining the trade-off between AEM and REM based on their costs, it provides insights for practitioners, policy makers and academics. Firstly, practitioners may understand the function and importance of corporate governance roles in constraining EM and improving financial reporting quality. Managers may refer to this result when they purpose to persuade investors of the quality of financial reporting. Secondly, this study has policy implications for standard setters and regulators to continue improving the guidance and framework to assist firms to provide high-quality financial reporting. Finally, to the academics, the impact of BEEF and ACEF on the relation between REM and AEM has not been examined by previous research. This is the first study to examine this relationship based on Indian data. Thus, further research can re-examine this research question using data other than Indian data.

CHAPTER SIX: THE QUALITY OF CORPORATE SOCIAL RESPONSIBILITY DISCLOSURE IN INDIA

6.1 Introduction

The second objective of this study is to measure the quality of CSR disclosure (QCSRD). Thus, this chapter measures and verifies QCSRD among Indian listed companies over a nine-year period from 2007 to 2015. This chapter is structured as follows. Section 6.2 measures and discusses the QCSRD and its dimensions based on the full sample, different years and different industries. Section 6.3 examines the relationship between QCSRD and the accuracy of financial analysts' earnings forecasts to check the validity of the QCSRD framework, and section 6.6 presents the summary of this chapter.

6.2 Measuring and Discussion QCSRD

This section uses a multidimensional framework that allows for a wider perspective on CSR disclosure to measure the QCSRD. CSR reporting has been criticised for its lack of relevance and credibility (Husillos, Larrinaga, & Álvarez, 2011). This study seeks to contribute to this critique by offering new insights concerning the complexity of QCSRD, and develop a new multidimensional model to measure QCSRD. This framework provides evidence on the nature of a company's CSR disclosures based on three dimensions, which allows the capture of the quantitative and qualitative features concerning a specific kind of CSR information. The first dimension is the actual amount of disclosure, relative to the amount adjusted by two factors: size and complexity. Prior studies show these two variables to have a strong impact on disclosure (e.g. Beattie et al., 2004; Beretta and Bozzolan, 2008). This is more likely to help in evaluating CSR disclosure, taking into account the differences in the companies' size and industry. The second dimension measures the spread of CSR information. Using a spread dimension in this framework helps to evaluate whether the CSR information disclosed meets

the need of different stakeholders or focuses on specific groups. The usefulness dimension helps information users to evaluate CSR disclosure by capturing the four characteristic types: the relevance, faithful representation, understandability and comparability (based upon the qualitative characteristics of information suggested in the conceptual frameworks of IFRS (2010A)). These procedures used allow a rich description of the nature and patterns of disclosure to emerge, and permits these dimensions to be analysed both in combination and individually.

6.2.1 The QCSRD and its dimensions

Table 6.1 describes the mean, median, standard deviation, minimum and maximum values for all the dimensions used in measuring QCSRD during the period from 2007 to 2015. Table 6.1 shows that QCSRD has a mean of 53.3 per cent and a median value of 50.8 per cent, which is used as a benchmark to classify the low and high levels of QCSRD in the current study. These finding are consistent with previous results reported by Martinez et al. (2015), who found that the mean value of the quality of CSR disclosure among international listed companies was 50 per cent. However, these findings imply that the levels of QCSRD in India are likely to be higher than those reported in other developing countries. For instance, Said (2009) and Alotaibi and Hussainey (2015), found that Malaysian and Saudi companies have mean values of the quality of CSR disclosure of 23 per cent and 33.4 per cent respectively. Conversely, these are lower than the findings reported by Adnan et al. (2010), who found that the mean value of QCSRD among UK companies was 64 per cent. In respect to the three dimensions, which are used in measuring the QCSRD, table 6.1 also shows estimates related to USEF, STRQ, and SPR. The mean value of the USEF dimension was 40 per cent. Table 6.1 also shows that the mean value of SPR is 58 per cent. These results indicate that Indian companies disclose information related to 58 per cent of the items that are expected to cover the CSR issues

suggested by this study. Finally, as can be seen from table 6.1, STRQ (the quantity dimension of corporate social responsibility disclosure) has a mean value of 51 per cent.

Table 6.1: descriptive statistics of the QCSRD and its dimensions

Variable	Mean	sd	p25	median	p75
QCSRD	.533	.104	.18	.508	.81
SPR	.58	.10	.19	.58	.83
STRQ	.51	.21	.10	.52	.98
USEF	40	.16	0	.33	.91

Table 6.3 presents descriptive statistics for all dimensions of QCSRD in this study. QCSRD = the quality of corporate social responsibility disclosure score measured through employing multidimensional proxy index. STRQ = the quantity dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index. SPR = the width dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index. USFUL = the usefulness dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index.

6.2.2 The QCSRD and Its Dimensions Based on Different Years

The current section provides a summary of descriptive statistics of the QCSRD in order to explain whether the direction of QCSRD is increasing or decreasing over the period from 2007 to 2015. To analyse the QCSRD trend, this section also describes the mean, median, standard deviation, minimum and maximum values for all the dimensions of QCSRD for each fiscal year over the period 2007 to 2015. As can be seen in Table 6.2, the mean values of QCSRD increased from 45 per cent in 2007 to 53 per cent in 2015. The highest value of QCSRD (81 per cent) was reported in 2010 and 2011, whereas the lowest value was reported in 2008 (18 per cent). Similarly, the results in table 6.2 show that the mean values of disclosure measured, STRQ, USFUL and SPR (that make up QCSRD) also increased from 47 per cent, 35 per cent and 52 per cent respectively in 2007 to 52 per cent, 44 per cent and 63 per cent in 2015. These results suggest that Indian companies recently paid more attention to the quality of CSR disclosure than before 2010. This could be attributed to the increase of investment trends from foreign companies in India after 2010 (Srivastava & Bhutani, 2012), which demanded that the financial reporting system should bring harmonisation in the financial reports in order to make them internationally acceptable. This is in line with previous studies' findings, which suggest

that companies which have higher quality disclosure have a higher percentage of foreign sales and a higher number of foreign exchange listings (e.g. El-Gazzar et al. 1999; Murphy, 1999). This could be also attributed to a suggestion by the Institute of Chartered Accountants of India. With a view to setting up a plan for IFRS adoption and providing the necessary road map for convergence, the Accounting Standards Board set up an IFRS Task Force (Poria, 2009). Based on the recommendations from the IFRS Task Force, the council of the Institute suggested the adoption of IFRS as of 1 April 2011 (Srivastava & Bhutani, 2012). This suggestion of the new reform is believed to represent a significant commitment to transparent financial reporting and enhanced financial reporting quality.

Table 6.2: descriptive statistics of the QCSRD and its dimensions

Measures		2007	2008	2009	2010	2011	2012	2013	2014	2015
STRQ	Mean	.47	.48	.51	.52	.53	.53	.53	.53	.52
	Sd	.22	.22	.20	.21	.21	.20	.21	.21	.21
	Min	.06	.11	.11	.01	.10	.05	.04	.04	.04
	Med	.52	.52	.53	.52	.52	.52	.52	.51	.51
	Max	.97	.95	.90	.93	.92	.98	.98	.97	.97
	max	.85	.88	.88	.88	.88	.88	.88	.92	.92
USEF	mean	.35	.36	.37	.39	.41	.43	.44	.44	.44
	sd	.14	.14	.15	.15	.16	.16	.17	.17	.18
	min	16	.16	.16	.16	.16	.16	.16	.16	.16
	Med	.33	.33	.33	.33	.41	.41	.5	.5	.5
	max	.83	.83	.83	.83	.83	.91	.91	.91	.91
SPR	mean	.52	.54	.55	.57	.59	.59	.60	.62	.63
	sd	.10	.10	.10	.09	.10	.09	.10	.10	.10
	min	.19	.28	.25	.36	.30	.37	.35	.34	.27
	Med	.52	.53	.54	.57	.60	.60	.60	.62	.63
	max	.81	.83	.83	.83	.83	.82	.81	.83	.83
QCSRD	mean	.45	.47	.48	.50	.51	.52	.53	.53	.53
	sd	.13	.13	.12	.13	.13	.13	.13	.13	.13
	min	.21	.18	.22	.22	.26	.27	.28	.27	.27
	Med	.48	.48	.49	.50	.51	.51	.53	.52	.53
	max	.74	.75	.75	.75	.81	.81	.80	.79	.79

Table 6.2 provide descriptive statistics wherw, QCSRD = the quality of corporate social responsibility disclosure score measured through employing multidimensional proxy index. STRQ = the quantity dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index. WID = the width dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index. USFUL = the usefulness dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index. DIS= dispersion CSR disclosure. COV = coverage of CSR disclosure. This information is provided through industry type. Where, 1= Oil and Gas companies, 2= Service Companies, 3=Construction companies, 4=Trade companies, 5= Pharmaceutical and health Care companies, 6= Clothes companies, 7= Food and Drinks Companies, 8= Automobile manufactures, 9= Equipment and Companies, 10 = Agriculture and Fishing, 11= Diversified Metals and Mining.

6.2.3 The QCSRD Dimensions Based on Different Industries

Table 6.3 describes the mean, median, standard deviation, minimum and maximum values for CSR disclosure in different industries. As can be seen from Table 6.3 in panel A, the highest mean value of QCSRD (61 per cent) was reported by metals and mining companies. Metals and mining companies also reported the highest maximum value (81 per cent) of QCSRD among Indian companies. These results suggest that metals and mining companies paid more attention to QCSRD in comparison with other industries. It can be also seen that service companies reported the lowest mean value (37 per cent). In regard to the three dimensions of the QCSRD, the SPR dimension reported the lowest values of CSR disclosure across metals and mining companies (19 per cent), which also showed the third lowest mean value of SPR (55 per cent). These results suggest that less attention was paid by metals and mining companies to disclose of CSR information which helps different levels of stakeholders, based on the SPR dimension, compared to other sectors. Food and drinks companies reported the highest mean value of USEF (47 per cent), whereas the pharmaceutical and health care companies had the lowest mean value of USEF (32 per cent). These results indicate that food and drinks companies may present their CSR disclosure based on the qualitative characteristics of information suggested in the conceptual frameworks of the IFRS more than the other sectors do. Table 6.4 also shows that equipment companies have reported the highest mean values of CSR disclosure measured by STRQ dimension (70 per cent). These results suggest that equipment companies pay more attention to the amount of information in CSR disclosure compared to other Indian listed companies. In contrast, the lowest mean value, based on the STRQ dimension, was found in the annual reports of agriculture and fishing companies (37 per cent). Finally, it is interesting to note that, when sectors were ranked based on the values of the different dimensions, the findings indicate that there are differences between these ranks. For instance, equipment companies come first in the ranking when using the STRQ dimension, but take fifth position

when the SPR dimension is used. However, the same sector comes last in the ranking according to the USEF dimension. This issue could be an important motivation for the researcher to use the multidimensional framework (QCSRD index) for the current study.

Table 6.3: Descriptive Statistics of the QCSRD in Different Industries.

Industries	QCSRD				
	Mean	Sd	Med	MIN	MAX
Oil and Gas	*.50*	*.11*	*.50*	*.19*	*.74*
Service Companies.	*.37*	*.13*	*.49*	*.22*	*.76*
Construction companies.	*.54*	*.13*	*.53*	*.25*	*.76*
Trade companies.	*.47*	*.11*	*.50*	*.28*	*.71*
Pharmaceutical and health Care	*.50*	*.13*	*.49*	*.29*	*.72*
Clothes companies.	*.51*	*.13*	*.53*	*.19*	*.77*
Food and Drinks Companies.	*.54*	*.15*	*.54*	*.26*	*.75*
Automobile manufactures.	*.50*	*13*	*.51*	*.27*	*.77*
Equipment and Companies.	*.48*	*.15*	*.48*	*.30*	*.78*
Agriculture and Fishing.	*.50*	*.14*	*.51*	*.24*	*.78*
Metals and Mining.	*.61*	*.13*	*.53*	*.28*	*.81*

Table 6.1 provide descriptive statistics where, QCSRD = the quality of corporate social responsibility disclosure score measured through employing multidimensional proxy index.. This information is provided through industry type.

Table 6.4: Descriptive Statistics of the QCSRD Dimensions in Different Industries

Industries	*STRQ*					*USEF*					*SPR*				
	Mean	Sd	Med	MIN	MAX	Mean	Sd	Med	MIN	MAX	Mean	Sd	Med	MIN	MAX
Oil and Gas	.51	.20	.53	.10	.95	.38	.14	.33	0	.66	.60	.11	.61	.35	.83
Service Companies.	.48	.20	.51	.01	.98	.41	.16	.41	.25	.91	.51	.08	.51	.27	.70
Construction companies.	.57	.22	.55	.12	.86	.39	.15	.33	.25	.75	.61	.08	.62	.35	.76
Trade companies.	.50	.16	.53	.21	.85	.37	.11	.33	.25	.75	.54	.11	.53	.32	.77
Pharmaceutical and health Care	.52	.22	.51	.13	.88	.32	.12	.25	.16	.58	.63	.09	.65	.46	.82
Clothes companies.	.51	.21	.52	.6	.87	.43	.19	.41	.16	.91	.60	.10	.62	.35	.80
Food and Drinks Companies.	.52	.24	.53	.01	.85	.47	.20	.5	.16	.91	.63	.12	.64	.29	.83
Automobile manufactures.	.52	.21	.52	.04	.86	.41	.16	.33	.16	.83	.56	.06	.50	.37	.74
Equipment and Companies.	.70	.06	.71	.53	.79	.35	.13	.25	.25	.66	.60	.10	.61	.44	.77
Agriculture and Fishing.	.37	.23	.48	.05	.98	.38	.16	.33	.16	.75	.67	.10	.70	.40	.83
Metals and Mining.	.58	.20	.53	.13	.95	.45	.16	.50	.25	.75	.55	.11	.63	.19	.79

Table 6.1 provide descriptive statistics where, STRQ = the quantity dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index. SPR = the width dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index. USFUL = the usefulness dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index. This information is provided through industry type.

6.3 The Validity of the QCSRD Framework

To validate the QCSRD framework, this section investigates whether the disclosure quality is related to the accuracy of analysts' earnings forecasts. Botosan (2004) debates whether high quality disclosure is useful to the information's users in making financial decisions. High quality information improves the ability of investors to evaluate cash flows in future through considering better earnings forecasts. Prior empirical studies have investigated the relationship between the analysts' earnings forecasts and disclosure (e.g. Beretta and Bozzolan, 2008; Lee, 2017) and found a statistically significant relationship between the disclosure quality and the earnings forecasts accuracy. Since the main task of analysts is to estimate earnings for future periods, this study argues that QCSRD is related to the attributes of earnings forecast. As a result, when QCSRD is positively correlated with the accuracy of analysts' earnings forecasts (ACCU), the information disclosed is of high quality. Thus, following Beretta and Bozzolan (2008), this study tests the validity of the QCSRD framework. The researcher examined the relationship between CSR disclosure and the accuracy of analysts' earnings forecasts. QCSRD, STRQ, SPR and USEF are used as independent variables whereas ACCU is used as the dependent variable. The company characteristics (size, industry type, profitability, leverage and variation in accounting earnings) are included as control variables due to their impact on QCSRD and ACCU (e.g. Beretta and Bozzolan, 2008; Wang et al., 2015; Ferentinou et al., 2016). The regression[5] models are used to examine the relationship between QCSRD and

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[5] $ACCU_{it} = \beta_0 + \beta_1$ Disclosure proxies $+ \beta_2$ SIZE $+ \beta_3$ LEV$+ \beta_4$ ROA $+ \beta_5$ ChROA $+ e_{it}$ (3)

Where disclosure proxies = QCSRD, STRQ, RICH, WID and USFUL. QCSRD = the quality of corporate social responsibility disclosure score measured through employing the multidimensional proxy index (see section 4.5). STRQ = the quantity dimension of CSRD measured through employing the multidimensional proxy index. SPR = the spread is a function of the CSR disclosure coverage and CSR disclosure dispersion. USFUL = the usefulness dimension of corporate social responsibility disclosure measured through employing the multidimensional proxy index. ROA= profitability, measured through net income from operations divided by total assets. SIZE= company size measured through the natural log of the company's total assets. LEV= leverage ratio measured through long-term debt scaled by total assets. ChROA = the variation in accounting earnings. ACCU = the accuracy of analysts' earnings forecasts.

ACCU. To examine the relationship between QCSRD and ACCU, some statistical tests are required.[6] To check whether there is a multicollinearity problem between independent variables (QCSRD and other control variables), the correlation matrix is used. Table 6.5, panels A, B, C and D report the correlation coefficients between independent variables. The highest correlation (0.113) is between size and ROA, which suggests that there is no multicollinearity problem between the independent variables.

In Table 6.6, the results are presented in four columns: column 1 reports the estimates for the the relationship between ACCU and QCSRD (model 1). Column 2 shows the results for the relationship between ACCU and STRQ (model 2), column 3 presents findings related to the relationship between ACCU and USFUL (model 3),while column 4 presents results related to the relationship between ACCU and SPR (model 4). The P-Values of these four models are very significant at the 0.01 level, suggesting that these models have a good explanatory power for QCSRD. Table 6.6 also indicates that the values of overall R^2 for the four regression models (model 1, model 2, model 3 and model 4) are 21.45 per cent, 14.97per cent, 12.59 per cent, and 11.20 per cent, respectively. These findings suggest how the combination of the independent variables explains the variation in the dependent variable in all models respectively.

Table 6.6 shows that the QCSRD is statistically significant and positively related to ACCU at the 0.01 level (Model1). These results are consistent with findings reported by prior studies

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[6] The Chow tests are conducted for the 4 regressions used in this chapter in order to test whether the panel or pooled model is more suitable. Since the findings of the Chow test revealed that F-value for Chow test was significant at 0.01 level for all four models, the panel data model is more appropriate (see appendix 3). Panel data could be categorised by random effect or fixed effect, which helps to mitigate the influences of different companies and time series. To choose between the random effect and the fixed effect, the Hausman test is conducted for all the regression models. The findings of the Hausman test indicated that P-values were less than the 0.05 level for all regression models except the first model (the relationship between QCSRD and Accuracy), which was more than the 0.05 level. Thus, the random effect method is the more suitable method for the first model and the fixed effect is more suitable method for the other models (see appendices 4 and 5).

(e.g. Beretta and Bozzolan 2008; Dhaliwal et al., 2012; Becchetti et al., 2013; Casey and Grenier, 2014) indicating that the accuracy of analysts' earnings forecasts is more likely to be higher when companies publish a higher quality of CSR report. These findings suggest that the identified framework in this study is more likely to help information users to evaluate the QCSRD for making their decisions and, therefore, comprises a positive phenomenon for stock markets. Given the fact that when disclosure is positively correlated with the accuracy of analysts' earnings forecasts the information disclosed is of high quality, the above results provide evidence for the validity of the study framework (QCSRD). Table 6.6 also indicates that SPR and USEF as dimensions of QCSRD (Model 3 and Model 4) are statistically significant and positively related to ACCU (coef = 3.50, $p < 0.01$; coef = -1.54, $p < 0.05$, respectively). Although STRQ is insignificantly related to ACCU (Model 2), the relationship between them is still positive (coef = 0.334, $p < 0.282$). Taken together these results also provide evidence that the dimensions of CSR disclosure quality index (STRQ, SPR and USFL) give a more realistic CSR disclosure picture. Thus, these dimensions can be utilised complementarily for evaluating the CSR disclosure.

The significant and positive relationship between QCSRD and the accuracy of financial analysts' earnings forecast is used by this study as the validity of the quality of CSR disclosure framework, which was adopted to measure QCSRD and achieve the second aim of the current study. The significant and positive impact of SPR and USEF as dimensions of QCSRD also suggests that the characteristics of information disclosed, based on IFRS and the spread of CSR information, are more likely to help financial analysts to increase the accuracy of earnings forecasts in the Indian context. These results are also consistent with agency theory. Given that the error of earnings forecast is high when there is high information asymmetry, the QCSRD is assumed by signalling theory to be a means of mitigating the information asymmetry between management personnel and financial analysts (Chih et al., 2008). Thus, in line with

signalling theory, the study findings suggest that QCSRD could be used to mitigate information asymmetries and increase the accuracy of analysts' forecast.

In respect to other control variables, table 6.7 found evidence that SIZE (column 2) is statistically positively correlated with ACCU (coef = 0.317, $p < 0.05$), suggesting that the accuracy of earnings forecast can be predicted in large companies more easily than small companies. It can be also seen that the ACCU is statistically negatively related to industry type in column 1 (coef = -0.047, $p < 0.10$). Finally, it is interesting to note that variation in ROA (column 1 and column 3) is statistically significant and negatively associated with ACCU (coef = -0.524, $p < 0.01$; coef = -0.457, $p < 0.01$ respectively), suggesting that financial analysts are less likely to achieve high accuracy in their next years' earnings forecasts for companies that provide higher variation value in accounting earnings.

Table 6.5: panel A: Correlations metrics

	QCSRD	ROA	Size	Type	Lev	Ch-ROA	ACCU
QCSRD	1.000						
ROA	0.018	1.000					
Size	0.101***	-0.113***	1.000				
Type	0.081***	0.041*	-0.074***	1.000			
Lev	0.005	0.071***	0.059***	0.006	1.000		
ChROA	-0.003	-0.049**	0.037	-0.003	-0.022	1.000	
ACCU	0.120***	-0.002	0.007	0.075***	0.088***	-0.11***	1.000

Table 6.4 A reports the correlation coefficients between the independent variables. *QCSRD*= the quality of corporate social responsibility disclosure score measured through employing multidimensional framework. ROA=profitability, measured through net income from operations divided by total assets. SIZE= company size measured through the natural log of company's total assets. LEV= leverage ratio measured through long-term debt scaled by total assets. Ch-ROA = the variation in accounting earnings. DISE = dispersion of analysts' earnings forecasts. ACCU = accuracy of analysts' earnings forecasts. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

Table 6.5: panel B: Correlations metrics

	STRQ	ROA	Size	Type	Lev	Ch-ROA	DISE	ACCU
STRQ	1.000							
ROA	0.0239	1.000						
Size	0.0531**	-0.113***	1.000					
Type	0.038*	0.041*	-0.074***	1.000				
Lev	0.0104*	0.071***	0.059***	0.006	1.000			
ChROA	-0.042*	-0.049**	0.037	-0.003	-0.022	1.000		
ACCU	0.0967***	-0.002	0.007	0.075***	0.088***	-0.11***	.279***	1.000

Table 6.4 B reports the correlation coefficients between the independent variables. *STRQ = the quantity dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index*. ROA=profitability, measured through net income from operations divided by total assets. SIZE= company size measured through the natural log of company's total assets. LEV= leverage ratio measured through long-term debt scaled by total assets. Ch-ROA = the variation in accounting earnings. DISE = dispersion of analysts' earnings forecasts. ACCU = accuracy of analysts' earnings forecasts. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

Table 6.5: panel C: Correlations metrics

	USFUL	ROA	Size	Type	Lev	Ch-ROA	DISE	ACCU
USFUL	1.000							
ROA	0.031	1.000						
Size	0.079***	-0.113***	1.000					
Type	0.052**	0.041*	-0.074***	1.000				
Lev	0.008	0.071***	0.059***	0.006	1.000			
ChROA	-0.039*	-0.049**	0.037	-0.003	-0.022	1.000		
ACCU	0117***	-0.002	0.007	0.075***	0.088***	-0.11***	.279***	1.000

Table 6.4 C reports the correlation coefficients between the independent variables. *USFUL = the usefulness dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index*. ROA=profitability, measured through net income from operations divided by total assets. SIZE= company size measured through the natural log of company's total assets. LEV= leverage ratio measured through long-term debt scaled by total assets. Ch-ROA = the variation in accounting earnings. DISE = dispersion of analysts' earnings forecasts. ACCU = accuracy of analysts' earnings forecasts. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

Table 6.5: panel D: Correlations metrics

	SPR	ROA	Size	Type	Lev	Ch-ROA	DISE	ACCU
SPR	1.000							
ROA	0.049*	1.000						
Size	0.181***	-0.113***	1.000					
Type	0.177***	0.041*	-0.074***	1.000				
Lev	0.022	0.071***	0.059***	0.006	1.000			
ChROA	-0.038*	-0.049**	0.037	-0.003	-0.022	1.000		
ACCU	0.028	-0.002	0.007	0.075***	0.088***	-0.11***	.279***	1.000

Table 6.4 D reports the correlation coefficients between the independent variables. *SPR = the width dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index.* ROA=profitability, measured through net income from operations divided by total assets. SIZE= company size measured through the natural log of company's total assets. LEV= leverage ratio measured through long-term debt scaled by total assets. Ch-ROA = the variation in accounting earnings. DISE = dispersion of analysts' earnings forecasts. ACCU = accuracy of analysts' earnings forecasts. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

Table 6.6: Regression panel analysis of the relationship between ACCU and QCSRD and its dimensions

	ACCU Model 1		ACCU Model 2		ACCU Model 3		ACCU Model 4	
	Coef	t	Coef	t	Coef	t	Coef	t
QCSRD	1.68***	3.72						
STRQ			.334	1.08				
USFUL					3.50***	5.42		
SPR							1.54**	2.25
ROA	-.036	-0.08	.142	0.29	.012	0.03	.065	0.13
SIZE	.091	0.82	.317**	2.04	.037	.22	.176	1.04
Type	.047*	1.66	.001	-0.01	-011	-0.04	-012	-0.04
Lev	-.330	-1.31	.006	0.02	.039	0.14	.016	0.06
ChROA	-.524***	-3.84	-.455	-3.26	-.457***	-3.30	-.450	-3.23
R^2	0.2145		.1497		0.2259		0.2120	
P-value	0.01		0.02		0.01		0.01	

Table 6.6 reports the relationship between accuracy of earnings analysts' forecast and the dimensions of CSR disclosure quality. QCSRD = the quality of corporate social responsibility disclosure score measured through employing multidimensional framework. STRQ = the quantity dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index. SPR = the width dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index. USFUL = the usefulness dimension of corporate social responsibility disclosure measured through employing multidimensional proxy index. ROA= profitability, measured through net income from operations divided by total assets. SIZE= company size measured through the natural log of company's total assets. LEV= leverage ratio measured through long-term debt scaled by total assets. Ch-ROA = the variation in accounting earnings. DISE = dispersion of analysts' earnings forecasts. ACCU = accuracy of analysts' earnings forecasts * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

6.4 Conclusion

This chapter measures the QCSRD in order to achieve the second objective of this study. Different dimensions were combined to measure the QCSRD: the quantity of the information disclosed (how much is disclosed), the spread of the information disclosed (coverage and dispersion), and the usefulness of the information disclosed (characteristics of accounting information). OLS regression was also performed in this chapter to check the validity of the QCSRD index. The empirical results of measuring QCSRD provided in this chapter indicate that the highest mean value of QCSRD was reported by metals and mining companies. In contrast, service companies reported the lowest mean value. The empirical results also provide evidence that the dimensions of the CSR disclosure quality index (STRQ, SPR and USFL) give a more realistic CSR disclosure picture. Thus, these dimensions can be utilised complementarily for evaluating the CSR disclosure. The current study defined disclosure quality through the attributes of disclosure (STRQ, SPR and USFL) that can support the procedure of earnings forecast. From this point of view, the information disclosed is of high quality when disclosure leads to better inferences in order to reduce the errors in analysts' earnings forecasts. However, the importance of quality disclosure for different stakeholders raises an issue related to the definition of quality, since different users have different perspectives of disclosure quality. Thus, the quality of disclosure needs to be taken into account by further studies on this area.

Chapter Seven: The relationship Between the Quality of CSRD and EM

7.1 Introduction

 As clarified in chapter one, the main aim of this study is to examine the relationship between EM and QCSRD among the top 500 Indian listed companies. The following section (7.2) presents descriptive statistics for study variables. Next, the correlation matrix is addressed in section 7.3. Section 7.4 outlines the main results and discusses the results from examining the two main hypotheses of this study. Additional analyses are presented in section 7.5, including sign and t-test and suspect companies-year analysis. Finally, the robustness tests section (7.6), including the results of the alternative and endogeneity tests and section 7.7, provides a short summary of this chapter.

7.2 Descriptive Statistics

Table 7.1 describes the total observations, mean, standard deviation, 25 percentiles (Q1) and 75 percentiles (Q3) values and median, for all variables used in this study. The descriptive statistics show that QCSRD has an average of 53.3 per cent, which is consistent with previous results reported by Martinez et al. (2015). For the dependent variables, the mean value of AEM, measured by the modified Jones model, is 4.5 per cent; this is consistent with the average reported by Rao & Dandale (2008), Sarkar (2008) and Rudra & Bhattacharjee (2012) in India and Zeghal (2012) in 15 European countries. With reference to REM, table 7.1 also shows the mean value of REM is 0.1 per cent, which is consistent with the findings found by prior studies (e.g. Ferentinou, 2014; Kuo et al., 2014). Table 7.1 also shows that the mean values for the three individual proxies of REM (ACFO, APROD and ADISX) are 0.23 per cent, 0.27 per cent and 0.29 per cent respectively. These results are consistent with the findings of Ferentinou (2016), who found that the mean values of AB_CFO, AB_PROD and AB_DISX are 0.5 per cent, 0.2 per cent and 0.3 per cent respectively.

Table 7.1 also reports descriptive statistics for various firm-specific variables and shows that the mean company log total assets (companiy size) is 7.48. The mean value of ROA is around 11 per cent and the mean values of financial leverage and growth are 64 per cent and 25.5 per cent respectively. Regarding corporate governance variables, table 7.1 shows that the mean value for BEF is 36.7 per cent, which indicates that 36.7 per cent of Indian companies have efficient boards. It can be also seen that the mean for ACEF is 62.1 per cent, which indicates that 62.1 per cent of Indian companies have efficient audit committees. On average, 28 per cent of the study sample are audited by the Big4 international accounting firms and the mean values of institutional ownership is 26.4 per cent. Finally, blockholders ownership have a mean value of 28.9 per cent.

Table 7.1: Descriptive statistics

Variable	Mean	Sd	p25	p50	p75
QCSRD	.533	.104	.359	.508	.62
AEM	.045	.106	.007	.021	.049
REM	-.001	.128	-.037	.002	.048
ACFO	-.002	.107	-.037	-.002	.029
APROD	-.002	.102	-.032	-.001	.025
ADISX	-.002	.113	-.043	-.003	.034
ROA	.112	.124	.041	.090	.15
SIZE	7.48	.663	7.00	7.39	7.8
GROWTH	.255	.325	.088	.189	.32
LEV	.546	.224	.392	.583	.71
BEF	.367	.482	0	0	1
ACEF	.621	.485	0	1	1
Block	.289	.161	.18	.28	.4
INSOW	.264	.155	.15	.24	.35

Table 2 presents descriptive statistics for all variables used in this study. AEM = Discretionary accruals measured through employing modified Jones model. REM = combined proxy of real activities earnings management measured through employing Roychowdhury model (2006). ACFO= Abnormal cash flows from operations. APROD= Abnormal production cost; ADISX= Abnormal discretionary expenses. CSRD= Corporate social responsibility disclosure score measured through employing multidimensional proxy index. Big4 = the highest 4 repetition of audit committee firms. ROA= profitability, measured through net income from operations divided by total assets. FSIZE= company size measured through the natural log of company's total assets. GROWTH= Growth ratio measured through the change of sale. LEV= leverage ratio measured through long-term debt scaled by total assets. BLOCK= block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions, BEF = board effectiveness explained in chapter four. ACEF= audit committee effectiveness, more explanation in chapter four. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

7.3 Multicollinearity

Both the correlation matrix and VIF method are used to examine whether there is a high correlation between the independent variables. Table 7.2 panel A and panel B report the correlation coefficients between independent variables (QCSRD and other control variables). The results show that the highest correlation coefficient is between Block and INSOW, which is 36 per cent. Thus, the correlation coefficients of all other study variables are less than conventional thresholds. Table 7.3 panel A and panel B also report that the highest value of VIF test is very low (1.19). The average value is 1.06, which confirms that there is no multicollinearity problem between the study independent variables[7].

Table 7.2: Correlation Matrix Analysis.

Penal A Correlation Matrix Analysis.

	CSRD	AEM	Big4	Type	ROA	Size	Growth	Lev	Block	INSOW	BEF	ACEF
QCSRD	1.000											
AEM	-.092***	1.000										
Big4	.037	-.066***	1.000									
Type	.0814***	.0182	-.141***	1.000								
ROA	.0182	-.0487**	.0256	.045*	1.000							
SIZE	.101***	-.0480**	-0.61***	-.074***	-.113***	1.000						
GROWTH	.048**	-.052**	-0.002	-.035	.0127	.0091	1.000					
Lev	.005	-.0114	-.070***	.006	.071***	0.059***	-.0117	1.000				
Block	.071***	-.007	.006	.017	.004	.120***	.0135	-0321	1.000			
INSOW	.0017	-.0359	.0248	-.117***	-.025	-.060***	.0076	-0.0225	.360***	1.000		
BEF	.022	-.121***	-.018	-.042*	.045**	-.078***	-.032***	-.0089	.0320	-0.0185	1.000	
ACEF	-.017	-.066***	-.014	.001	-.0106	.0183	-.0108	-0.006	.042*	-.087***	.098***	1.000

Table 7.2 penal A reports the correlation coefficients between the independent variables. *CSRD* = Corporate social responsibility disclosure score measured through employing multidimensional proxy index *AEM= Discretionary accruals measured through employing modified Jones model as a mean proxy of accruals-based EM. Big4 = the highest 4 repetition of audit committee firms. ROA= profitability, measured through net income from operations divided by total assets. FSIZE= company size measured through the natural log of company's total assets. GROWTH= Growth ratio measured through the change of sale. LEV= leverage ratio measured through long-term debt scaled by total assets. BLOCK= block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions, BEF = board effectiveness explained in chapter four. ACEF= audit committee effectiveness, more explanation in chapter four*. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

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[7] Grewal et al. (2004) argue that a multicollinearity problem above 80% might harm the findings of the regression analysis. It is also argued that multicollinearity problem exist among independent variables when the average value of VIF is more than 10 (Gujarati, 2003).

Table 7.2: penal B correlation matrix.

Penal B: Correlation Matrix Analysis.

	CSRD	REM	Big4	Type	ROA	Size	Growth	Lev	Block	INSOW	BEF	ACEF
CSRD	1.000											
REM	-.014**	1.000										
Big4	.037	-.015***	1.000									
Type	.0814***	.009	-.141***	1.000								
ROA	.0182	-.092***	.0256	.045*	1.000							
SIZE	.101***	.0086	-0.61***	-.074***	-.113***	1.000						
GROWTH	.048**	-.0169	-0.002	-.035	.0127	.0091	1.000					
Lev	.005	-.005	-.070***	.006	.071***	0.059***	-.0117	1.000				
Block	.071***	-.036*	.006	.017	.004	.120***	.0135	-0321	1.000			
INSOW	.0017	-.070***	.0248	-.117***	-.025	-.060***	.0076	-0.0225	.360***	1.000		
BEF	.022	.020	-.018	-.042*	.045**	-.078***	-.032***	-.0089	.0320	-0.0185	1.000	
ACEF	-.017	.051**	-.014	.001	-.0106	.0183	-.0108	-0.006	.042*	-.087***	.098***	1.000

Table 7.3 panel B reports the correlation coefficients between the independent variables. *CSRD* = Corporate social responsibility disclosure score measured through employing multidimensional proxy index *REM=combined proxy of real activities earnings management measured through employing Roychowdhury model (2006). Big4 = the highest 4 repetition of audit committee firms. ROA= profitability, measured through net income from operations divided by total assets. FSIZE= company size measured through the natural log of company's total assets. GROWTH= Growth ratio measured through the change of sale. LEV= leverage ratio measured through long-term debt scaled by total assets. BLOCK= block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions, BEF = board effectiveness explained in chapter four. ACEF= audit committee effectiveness, more explanation in chapter four*. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

Table 7.3: panel A VIF Test Results.

Variable	VIF	1/VIF
REM	1.02	0.983153
INSOW	1.19	0.840585
Block	1.18	0.848582
Size	1.05	0.952331
Type	1.05	0.953708
ROA	1.04	0.965053
Big4	1.03	0.968839
ACEF	1.03	0.975022
BEF	1.02	0.976395
Lev	1.02	0.981911
Growth	1.00	0.996647
Mean VIF	1.06	

*Table 6.5 reports results of multicollinearity problem analysis between the independent variables. CSRD = Corporate social responsibility disclosure score measured through employing multidimensional proxy index REM=combined proxy of real activities earnings management measured through employing Roychowdhury model (2006). Big4 = the highest 4 repetition of audit committee firms. ROA= profitability, measured through net income from operations divided by total assets. FSIZE= company size measured through the natural log of company's total assets. GROWTH= Growth ratio measured through the change of sale. LEV= leverage ratio measured through long-term debt scaled by total assets. BLOCK= block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions, BEF = board effectiveness explained in chapter four. ACEF= audit committee effectiveness, more explanation in chapter four. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.*

Table 7.3: panel B VIF Test' Results

Variable	VIF	1/VIF
AEM	1.03	0.983153
INSOW	1.19	0.840585
Block	1.18	0.848582
Size	1.05	0.952331
Type	1.05	0.953708
ROA	1.03	0.965053
Big4	1.04	0.968839
ACEF	1.03	0.975022
BEF	1.04	0.976395
Lev	1.02	0.981911
Growth	1.01	0.996647
Mean VIF	1.06	

Table 6.5 reports results of multicollinearity problem analysis between the independent variables. CSRD = Corporate social responsibility disclosure score measured through employing multidimensional proxy index AEM= Discretionary accruals measured through employing modified Jones model as a mean proxy of accruals-based EM. Big4 = the highest 4 repetition of audit committee firms. ROA= profitability, measured through net income from operations divided by total assets. FSIZE= company size measured through the natural log of company's total assets. GROWTH= Growth ratio measured through the change of sale. LEV= leverage ratio measured through long-term debt scaled by total assets. BLOCK= block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions, BEF = board effectiveness explained in chapter four. ACEF= audit committee effectiveness, more explanation in chapter four.   * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

7.4 Regression Analysis Results

This chapter examines whether companies with higher QCSRD behave in a different way when making accounting and operating decisions by disclosing more transparent financial statements to shareholders and other stakeholders, during the period from 2007 to 2015. Table 4 shows findings on the relationship between QCSRD (the independent variable), and EM (the dependent variable). The company characteristics (size, industry type, profitability, growth and leverage) and corporate governance mechanisms (Big4, board effectiveness, audit committee effectiveness, institutional and blockholder ownership) were included in the regression model as control variables.

In order to identify the more appropriate models, this study uses the same steps as were used in Chapter five to examine the relationship between QCSRD and EM. To test whether the more suitable model is panel or pooled, the Chow test is conducted for all regressions used to examine the relationship between QCSRD and EM. Twumasi et al. (2015) indicate that if the F-value of the Chow test is less than 0.05, the preferred model is the panel regression. Since the finding of the Chow test reveal that the F-value was significant at the 0.01 level for all models, the panel data model is more appropriate (see appendix 3). Panel data could be categorised by random effect or fixed effect. In order to determine the fixed effect or random effect, the Hausman test is conducted for all the regression models. Since the result of Hausman test for all regression models used in this chapter were very significant at the 0.01 level (see appendix 4), the fixed effect method is more suitable in examining the relationship between QCSRD and EM in all main regressions.

Table 7.4 shows the results of fixed-effects regression. The outcomes are reported in five columns. In column 1, the regression estimates of AEM, measured by using the modified Jones (2005) model, are reported. Column 2 reports the regression findings of the combined proxy (REM), measured by using the Roychowdhury (2006) model. Columns 3, 4 and 5 show the regression outcomes of individual proxies of REM (DISX, CFO and PROD). Table 7.4 indicates that the the values of overall R^2 for the five regression models (AEM, REM, DISX, CFO and PROD) are 41.50 per cent, 27.84 per cent, 32.93 per cent, 33.99 per cent and 36.72 per cent, respectively. These figures show that the combination of the independent variables are explained at 41.50 per cent, 27.84 per cent, 32.93 per cent, 33.99 per cent and 36.72 per cent of the variation in the dependent variable in all models, respectively. These results are in line with previous studies (e.g. Prior et al., 2007; Kao et al., 2014). P-Values in the above five regressions are highly significant (0.001), suggesting that these models have a good explanatory power for the all models used in the main analysis.

Table 7.4 reports the results for the multivariate analysis of the study models using the fixed

effect of panel regression. In support of the first hypothesis, the results indicate that releasing

QCSRD is significantly and negatively associated with AEM at a level of 0.01. This finding is

expected and supports the first hypothesis which proposed that the quality of CSR disclosure

is negatively related to AEM. Thus, the H1 of this study is accepted. This is also consistent

with a number of prior studies (e.g. Rezaee and Tuo, 2017; Wang et al., 2015; Yip et al., 2011)

which find AEM to be negatively related to CSR reporting, suggesting that companies with

higher CSR disclosure quality report less discretionary accruals compared to those companies

with a lower quality of CSR disclosure. For the regressions of RAM, ACFO and APROD, the

estimated coefficient for the QCSRD score is negative and significant at 0.05, 0.10 and 0.10

level respectively. These findings are also expected and support the second hypothesis, which

proposed that the QCSRD is negatively related to REM. Thus, the H2 of this study is also

accepted. These results are in line with results reported by Kim et al. (2012) and Bozzolan et

al., (2015) who found that REM is negatively associated with CSR. Although there is no

significant impact of QCSRD on ADISX, the relationship between them is still negative. Taken

together, this evidence supports the contention that companies, which are considered as high

QCSRD, are more likely to prepare reliable and transparent financial reporting. This is also

consistent with the moral perspective, which assumes that companies, which are socially

responsible and disclose quality information of their CSR, are less likely to manipulate earnings

(Yip et al., 2011). According to this perspective, firms with a strong commitment to CSR, and

which report high QCSRD, are more prone to act in a responsible way when reporting their

financial statements (Choi et al., 2013). The study findings are also in line with signalling and

agency theories, suggesting that companies, by providing QCSRD, may mitigate information

asymmetry and the problem of conflicting interests (Prado-Lorenzo et al. 2008; Miller 2002).

Given that managers are more likely to engage in EM when there is high information

asymmetry, CSR reporting is also assumed by signalling theory as a means for mitigating the information asymmetry between management personnel and stakeholders. In the same vein, Laksmana and Yang, 2009 and Chih et al., (2008) argue that when the transparency of information is increased, the expectation of the information asymmetry between the management and stakeholders will be reduced. Thus, EM would be reduced. Agency theory also suggests that the problem of conflicting interests increases when both the managers and shareholders attempt to maximise their wealth. The key factor that leads to this problem of conflicting interests is asymmetry information. According to the agency perspective, a company is more likely to use several methods, such as a CSR disclosure, to mitigate the agency problem between agents and shareholders (Li et al., 2008). Prior research indicates that CSR disclosure can reduce opportunistic action since it reduces the asymmetry information. Consequently, CSR disclosure is significantly and negatively related to EM practices (Healy and Palepu, 2001; Eng and Mak, 2003; Sun et al. 2010) which is consistent with the main results of this study.

In summary, the above main results support the H1 and H2 which propose that the QCSRD is negatively related to both REM and AEM. This confirms that the ninth and tenth hypotheses of this study are accepted.

In regards to control variables, the study's overall findings suggest that less profitable firms (ROA) and company sizes are significantly and negatively related to both AEM and REM. These results are consistent with previous studies (Scholtens & Kang, 2013; Kim et al., 2012). While growth is insignificantly and positively associated with AEM, it is significantly and negatively related to REM. These results are consistent with previous findings by Ipino & Parbonetti (2017). International Big 4 auditors are negatively associated with AEM and positively related to REM, which is consistent with previous results reported by Zang (2011).

These results indicate that large audit firms in India can mitigate the accounting flexibility effectively and constrain AEM. Table 7.4 shows that audit committee effectiveness is significantly and negatively related to AEM at the 0.05 level, which suggests that companies with less effective audit committees have more flexibility to engage in AEM. However, it is insignificantly and positively related to REM. Although INSOW is negatively and significantly related to REM at a level of 0.05, it is positively and significantly related to AEM. These results suggest that a higher ratio of institutional ownership is likely to mitigate REM, therefore managers may use AEM activities as a substitution strategy, which is consistent with previous studies (e.g. Ipino and Parbonetti, 2017; Ho, L. et al., 2015; Ferentinou et al., 2016). Finally, blockholder ownership is negatively related to REM at a level of 0.05.

Table 7.4: *Results of panel regression of QCSRD on EM*

	AEM (1)		REM (2)		DISX (3)		CFO (4)		PROD (5)	
	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t
CSRD	-.055***	-2.77	-.078***	-2.42	-.039	-1.59	-.046*	-1.93	-.052**	-2.35
REM/AEM	-.191***	-12.21	-.425***	-11.99	-.398***	-13.38	-.358***	-12.79	-.385***	-14.82
Big4	-1.65***	-21.08	.133***	10.68	.132***	12.60	.134*	13.82	.127**	13.42
ROA	-.091***	-5.00	-.090***	-3.43	.004	0.22	-.001	-0.02	-.013	-0.65
size	-.026**	-4.46	-.003	-0.16	-.020**	-2.61	-.018**	-2.53	-.017**	-2.61
Growth	.006	1.35	-.001***	-0.27	-.003	-0.59	.003	0.48	-.001	-0.12
type	.004	0.41	.010	0.88	-.007	-0.41	-.006	-0.52	-.005	-0.43
Lev	-.014*	-1.40	.006	0.29	.004	0.44	.003	0.30	.002	0.19
BEF	-.010**	-2.43	.008	1.70	-.003	-0.57	-.011	-0.201	-.011	-2.28
ACEF	-.011***	-2.67	.009	1.59	.001	0.20	.003	0.70	.003	0.79
Block	.018	0.78	-.033	-2.09	-.051*	-1.87	-.033	-1.17	-.019	-0.73
INSOW	.067***	2.64	-.041**	-2.37	-.109**	-3.49	-.122***	-4.02	-.125***	-4.41
R²	0,4018		0.2744		0.3300		0.3413		0.3687	
P-value	0.001		0.001		0.001		0.001		0.001	

Table 7.4 reports the findings of the primary analysis examining the relationship between CSRD and EM. AEM = Discretionary accruals measured through employing modified Jones model. REM = combined proxy of real activities earnings management measured through employing Roychowdhury model (2006). ACFO= Abnormal cash flows from operations. APROD= Abnormal production cost; ADISX= Abnormal discretionary expenses. QCSRD= Corporate social responsibility disclosure score measured through employing multidimensional proxy index. Big4 = the highest 4 repetition of audit committee firms. ROA= profitability, measured through net income from operations divided by total assets. FSIZE= company size measured through the natural log of company's total assets. GROWTH= Growth ratio measured through the change of sale. LEV= leverage ratio measured through long-term debt scaled by total assets. BLOCK= block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions, BEF = board effectiveness explained in chapter four. ACEF= audit committee effectiveness, more explanation in chapter four. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

7.5 Additional Analyses

This section conducted a series of tests as additional analyses to support the main results and confirm that their evidence represents the relationship between EM and QCSRD. The current section starts by using Sign-test and t-test to examine whether EM differs between the high QCSRD and low QCSRD companies. The study identifies high quality CSR disclosure companies as company-years which fall in the fourth quartile of all samples, whereas low quality CSR disclosure companies are identified as company-years which fall in the first quartile of all samples. Sign-test and t-test are used in order to obtain more confidence that the above main results do represent the relationship between QCSRD and EM. Table 7.5 indicates that the mean and median values of AEM (mean = 0.039, median = 0.0165) and REM (mean = 0.0007, median = 0.0001) in high QCSRD companies are significantly less than the mean and median values of AEM (mean = 0.057, median = 0.0217) and REM (mean = 0.0119, median = 0.0184) in low QCSRD companies. Using t-test and sign-test, the mean and median differences in AEM and REM between the two groups are statistically significant at the 0.01 level, indicating that QCSRD firms are less likely to use discretionary accruals and real activity to manage earnings, which is also consistent with previous literature (Laksmana and Yang, 2009; Yip et al., 2011; Kim et al., 2012).

Table 7.5: The differences in EM between CSR and non-CSR companies Results of sign and t-test

| variables | CSR firms | | non-CSR firms | | Difference between CSR and non-CSR firms | |
	median	Mean	median	Mean	median	Mean
AEM	0.0165	0.039	0.0217	0.057	-0.052*	-0.017***
REM	0.0001	.0007	0.0184	.0119	0.0183**	0.0112*

Notes: the mean values in table 7.5 are estimated by using t-test in order to examine the difference in the mean values and median values are estimated by using sign-test to examine the difference in the median values between CSR and non-CSR companies. AEM = Discretionary accruals measured through employing modified Jones model. REM = combined proxy of real activities earnings management measured through employing Roychowdhury model (2006). ***, **, * = The mean and median value are statistically different from zero at the 1%, 5%, 10% significance level, respectively.

Furthermore, the current study also runs an additional analysis to increase the power of the main test and obtain more confidence that the above results do represent the trend in EM practice. This study performs a cross-sectional analysis using a sub-sample of firms that are likely to have strong incentives to manage earnings. The present research argues that, if QCSRD plays a prominent role in determining financial reporting quality and limiting management's opportunistic EM, then a decrease in the EM level should be observed even for firms with strong earnings management incentives. The current study constructs a range of firm-years sub-samples (four sub-samples) with strong firm-level incentives for earnings management. Firstly, it has suggested that meeting/beating analysts' forecasts is a significant benchmark for management; they are likely to manipulate earnings to achieve this benchmark (Cohen et al., 2008). Consistent with prior research (Cohen et al., 2008; Kim et al., 2012; Zang, 2011; Ho et al., 2015), this study defines the small analysts' forecast error (SEAF) as the difference between actual earnings per share less the consensus forecast of earnings per share. The research focuses on firm-year observations in which the analysts' forecast error is one cent per share or less (Kim et al., 2012). Secondly, the present study creates a sub-sample of firm-years observations with small positive earnings (SPE) defined as firm-years that report net income from operation scaled by lagged total assets higher than or equal to zero but less than 0.005. Prior research provides evidence that these firms are likely to manipulate their earnings to report income marginally above zero (Doukakis, 2014). Thirdly, the current study identifies firm-years with changes in net income before extraordinary items (SEC) scaled by total assets which lie in the interval (0, 0.005); it is likely that these firms, during these years, managed their earnings in order to meet prior years' earnings numbers (Graham et al., 2005; Cohen et al., 2008). Finally, this study focuses on high-debt firms (HDF), defined as firm-years that fall above the median value of financial leverage of the sample. This definition is consistent with evidence in prior research that highly leveraged firms have strong incentives to engage in both

real and accruals-based earnings management (Doukakis, 2014). Previous literature argues that the ethical perspective plays a fundamental role in determining financial reporting quality and mitigating earnings management practices (e.g. Sun et al., 2010; Yip et al., 2011; Wang et al., 2015; Belgacem & Omri, 2015). Thus, this study examines whether EM, to meet these incentives, differs between companies with high QCSRD and companies with low QCSRD among these suspect sub-samples. Based on the ethical perspective, the current research expects that the negative relationship between QCSRD and EM should also be observed on companies with strong EM incentives.

Table 7.6 presents the empirical findings for the suspect company-years analysis. The results of the four benchmarks, SEAF, SPE, SPEC and HDF, indicate that there is a negative and significant relationship between AEM and QCSRD at the 0.05, 0.05, 0.01 and 0.01 levels respectively. These results suggest that companies with high QCSRD (with strong EM incentives), are less likely to engage in AEM as compared to companies with low QCSRD and vice versa. Similarly, QCSRD is negatively and significantly associated to REM in those four strong incentives subsamples at 0.01, 0.10, 0.05 and 0.01 levels respectively. Although the suspect companies are assumed to have high potential incentives to manage earnings, generally these results indicate that high QCSRD companies are more likely to make less opportunistic decisions in their financial statements. These results provide more evidence and enhance the main results of this study, which is consistent with the ethical respective and signalling theory. In respect to the other control variables, the estimates reported in table 7.6 generally support the main findings in table 7.4; although some of the control variables show different coefficients, they are still in the same directions.

Table 7.6: Analysis of suspect firms

| | SPE | | | | SEC | | | | SEAF | | | | HDF | | | |
| | AEM(1) | | REM(2) | | AEM(3) | | REM(4) | | AEM(5) | | REM(6) | | AEM(7) | | REM(8) | |
	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t
CSRD	-.396**	-3.82	-.118***	-2.16	-.126**	-2.03	-.320*	-1.84	-.170***	0.000	-.099**	-2.03	-.178***	-3.69	-.221***	-3.85
REM/AEM	-.25***	-2.86	-.96***	-2.86	.127***	3.74	.990***	3.74	-.177**	0.013	-.259**	-2.53	-.341***	-13.63	-.482***	-13.63
Big4	-.022	-1.96	-.088*	-0.92	-.002	-0.26	.022	1.03	.005	0.655	-.009	-0.68	-.015*	-2.25	-.006	-0.74
ROA	.817	0.66	.747	1.21	.033	0.72	-.339***	-2.68	-.018	-0.51	-.021	-0.49	-.033	-1.32	-.106***	-3.55
Size	.029	0.88	.037	1.40	-.008*	1.95	-.007	-0.58	.001	0.945	-.002	-0.22	.003	0.74	.008	1.47
Growth	-.052**	-0.38	-.018	-2.29	-.005	-0.58	.015	0.52	.006	0.660	.009	0.51	.010	1.15	.006	0.59
Type	.003	0.80	.007	0.80	.002*	1.82	-.007	-1.56	.001	0.626	.001	0.61	.001	1.48	.002*	1.78
Lev	-.051	0.81	.084	-0.95	.015	0.99	-.024	-0.55	.022	0.300	.012	0.49	.037	1.06	-.071*	-1.68
BEF	.013	-0.68	-.033	0.54	-.002	-0.25	.058**	2.12	-.017*	0.092	.008	0.71	-.021**	-2.76	.032***	3.54
ACEF	-.005	0.75	.036	-0.21	-.015**	1.94	-.017	-0.78	-.027**	0.014	.021*	1.57	-.018**	-2.98	.017**	2.37
Block	-.128*	-2.76	-.350**	-1.83	.008	0.39	.016	0.26	.022	0.513	.053	1.30	-.022	-1.14	.035	1.49
INSOW	.090	-0.24	-.033	1.29	-.022	-0.75	-.104	-1.26	-.038	0.343	-.183***	-3.97	.040**	2.01	-.056**	-2.34
R^2	0.6786		0.5553		0.2990		0.2972		0.3191		0.3163		0.2423		0.2456	
P-value	0.001		0.001		0.001		0.001		0.001		0.001		0.001		0.001	

<u>Table 7.6</u> reports the findings of the Suspect firms' analysis to examine the relationship between CSRD and EM. AEM = Discretionary accruals measured through employing modified Jones model. REM = combined proxy of real activities earnings management measured through employing Roychowdhury model (2006). ACFO= Abnormal cash flows from operations. APROD= Abnormal production cost; ADISX= Abnormal discretionary expenses. QCSRD= Corporate social responsibility disclosure score measured through employing multidimensional proxy index. Big4 = the highest 4 repetition of audit committee firms. ROA= profitability, measured through net income from operations divided by total assets. FSIZE= company size measured through the natural log of company's total assets. GROWTH= Growth ratio measured through the change of sale. LEV= leverage ratio measured through long-term debt scaled by total assets. BLOCK= block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions, BEF = board effectiveness explained in chapter four. ACEF= audit committee effectiveness, more explanation in chapter four. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

7.6 Robustness Check

The current study conducts a series of tests to check the robustness of our results. **Firstly,** prior research suggests that both CSR disclosure and EM are affected by managerial decisions and may result in endogeneity problems (e.g. Dhaliwal et al. 2011; Wang et al., 2016). This would require this study to use QCSRD as an endogenous variable. The findings presented in table 7.4 have to be controlled by endogeneity analysis. Previous literature has pointed out several methods to control the endogeneity problem. The common method used in prior studies is the instrumental variables (IV) (e.g. Bound et al., 1995; Choi et al. 2013). The main analysis reported in table 7.4 is repeated by employing the two-stage least squares method, with lagged QCSRD as instrument for QCSRD. Table 7.7 reports a negative and statistically significant relationship between the lagged QCSRD and the interaction variable (AEM) (Coef = -0.09; $p < 0.001$; y), which is in line with the main results of panel regression in table 7.4. Table 7.7 also indicates that REM, PROD, DISX and CFO are negatively and significantly related to the lagged value of QCSRD (Coef = -0.06; $p < 0.05$; Coef = -0.043; $p < 0.05$; Coef = -0.048; $p < 0.05$ and Coef = -0.041; $p < 0.10$ respectively) suggesting that companies with higher QCSRD tend to report less EM. **Secondly,** an alternative measurement of the dependent variables AEM and REM are used to check for more robustness of the study results. An alternative measure of discretionary accruals is used to test whether the primary findings are robust to various measures or not. The main empirical analyses of AEM were repeated by estimating DA according to the modified Jones model, adjusted again for operating performance using Kothari et al.'s (2005) model. Moreover, an alternative measure of REM is used to provide reasonable assurance for whether the primary findings are robust to various measures or not. Although previous literature (Zang, 2011; Zhao et al., 2012) combines the individual proxies for REM (i.e. ACFO, APROD and ADISX) to compute the measure of REM, Doukakis (2014) argues that excluding the abnormal DISX variable has the advantage of making clear the net impact

on abnormal cash flows from operations. Thus, this research estimated REM through combining only the other two individual proxies, abnormal CFO and abnormal PROD. Table 7.8 shows the results of fixed-effects regression in column 1, measured by using Kothari et al.'s (2005) model. The findings indicate that the QCSRD is negatively and significantly associated to AEM at the 0.05 level. These results are consistent with the above main findings in Table 7.4, column 1, suggesting that companies with higher QCSRD behave ethically and report less AEM compared to those companies with a lower QCSRD. Table 7.8 also shows the results of fixed-effects regression in column 2, measured by using the Doukakis (2014) model. The results report a negative and statistically significant relationship between the QCSRD and the alternative proxy of REM at the 0.05 level. Overall, the results of these robustness tests show that the same main results in table 7.4 are unchanged.

Table 7.7: *Instrumental variables two-stage (IV 2SLS) model*

	AEM (1)		REM (2)		CFO (3)		DISX (4)		PROD (5)	
	Coef	t	Coef	T	Coef	t	Coef	t	Coef	t
Lag CSRDD	-.094***	-3.71	-.063**	-2.22	-.039*	-1.53	-.046**	-1.72	-.042**	-1.71
Big4	-.016***	-3.07	-.010*	-1.76	.006	1.21	.008	1.41	.005	1.11
ROA	-.042**	-2.17	-.116***	-5.29	.043**	2.20	.059***	2.81	.026	1.42
Size	-.006*	-1.73	-.002	-0.69	.007*	1.92	.008**	2.25	.007**	2.15
Growth	.014**	1.99	.001	0.12	.002	0.39	-.003	-0.38	.001	0.11
Leverage	-.003	-0.34	-.001	-0.14	.003	0.30	-.002	-0.24	.002	0.27
BEF	-.018***	-2.86	.001	0.27	-.001	-0.06	.001	0.02	-.001	-0.19
ACEF	-.014***	-2.87	.005	0.92	.003	0.77	.003	0.70	.004	0.94
Block	.017	0.97	-.032*	-1.61	.035*	1.90	.033*	1.73	.027*	1.57
INSOW	.023	1.27	-.067***	-3.29	.001	0.09	-.010	-0.54	-.001	-0.04
PROM	.019	1.03	-.063***	-2.96	.043**	2.23	.059***	2.88	.037**	2.04
R2	0.4944		0.4990		.5029		0.4939		0.4998	
P-value	0.043		0.005		0.025		0.015		0.029	

Table 7.7 reports the findings of the endogeneity analysis to examine the relationship between CSRD and EM. AEM = Discretionary accruals measured through employing modified Jones model. REM = combined proxy of real activities earnings management measured through employing Roychowdhury model (2006). ACFO= Abnormal cash flows from operations. APROD= Abnormal production cost; ADISX= Abnormal discretionary expenses. Lag QCSRD= Corporate social responsibility disclosure score in previous year measured through employing multidimensional proxy index. Big4 = the highest 4 repetition of audit committee firms. ROA= profitability, measured through net income from operations divided by total assets. FSIZE= company size measured through the natural log of company's total assets. GROWTH= Growth ratio measured through the change of sale. LEV= leverage ratio measured through long-term debt scaled by total assets. BLOCK= block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions, BEF = board effectiveness explained in chapter four. ACEF= audit committee effectiveness, more explanation in chapter four. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

Table 7.8: Results of panel regression of Alternative test

	Kothari model		Doukakis Model	
	AEM		REM2	
	Coef	**Z**	Coef	z
QD	-.036**	-1.91	-.110**	-2.29
AEM/REM	-.191***	-12.70	-.745***	-13.67
Big4	-.164***	-21.86	.269***	13.64
ROA	-.090***	-5.14	-.018	-0.46
Size	-.0283***	-4.97	-.0368***	-2.66
Growth	.006	1.42	.006	0.56
type	.007	0.46	-.019	-0.49
Lev	-.007	-0.77	.001	0.04
BEF	-.006	-1.18	-.012	-1.02
ACEF	-.007*	-1.79	.007	0.73
Block	.036	1.50	-.050	-0.87
INSOW	.060**	2.40	-.245***	-4.01
PROM	.046*	1.65	.003	0.06
R2	0.4148		0.3555	
P-value	0.01		0.01	

Table 7.8 reports the findings of the alternative analysis examining the relationship between QCSRD and EM. REM = combined proxy of real activities earnings management measured through employing Doukakis model (2014). AEM = Discretionary accruals measured through employing Kothari model as a mean proxy of AEM.. QCSRD= Corporate social responsibility disclosure score measured through employing multidimensional proxy index. Big4 = the highest 4 repetition of audit committee firms. ROA= profitability, measured through net income from operations divided by total assets. FSIZE= company size measured through the natural log of company's total assets. GROWTH= Growth ratio measured through the change of sale. LEV= leverage ratio measured through long-term debt scaled by total assets. BLOCK= block holder ownership measured through the proportion of ownership more than or equal 0.05. INSOW = institutional ownership measured through proportion of shares held by institutions, BEF = board effectiveness explained in chapter four. ACEF= audit committee effectiveness, more explanation in chapter four. * Significance at the 0.10 level, ** Significance at the 0.05 level, *** Significance at the 0.01 level.

7.7 Conclusion

To achieve the main aim of this study, this chapter examines the effect of QCSRD on EM using a sample of the top 500 Indian listed companies. Following Cohen et al., (2008) and Kim et al., (2012), this study classifies EM into AEM and REM. It also combines different dimensions to measure the QCSRD: the quantity of the information disclosed (how much is disclosed), the spread of the information disclosed (coverage and dispersion), and the usefulness of the information disclosed (characteristics of information). OLS regression is performed in this chapter and finds that QCSRD practices are associated with EM. Additional analysis on t-test

and sign-test provide more confidence that the main results do represent the relationship between QCSRD and EM. Moreover, a range of suspect firm-years observations with relatively strong earnings management incentives confirms the significant impact on AEM and REM and points to the important role that firm-level incentives play in shaping EM practice. In line with the ethical perspective, agency theory and signalling theory, these findings support the premise that firms which reveal QCSRD are less likely to engage in aggressive earnings management through discretionary accruals and/or real activities manipulation. Consistent with a number of prior studies (such as Yip et al., 2011; Wang et al., 2015) this study interprets the evidence that QCSRD practices are substantive, rather than symbolic. This study provides insights for practitioners, policy makers and academics. Firstly, practitioners may understand the function and importance of the QCSRD roles in constraining both AEM and REM and improving financial reporting quality. Managers may refer to this result when they purpose to persuade investors and perform CSR activities to reduce EM and increase investors' wealth. Secondly, our study has policy implications for standard setters and regulators to continue improving the guidance and framework to assist firms to provide high-quality CSR reports. Finally, to the academics, the empirical evidence on the effect of QCSRD on REM may present a stepping-stone for future research so that future studies can consider the role of voluntary disclosure in reducing REM to protect investors.

Chapter Eight: Summary and Conclusions

8.1 Introduction

The current chapter provides a summary and conclusions of the present thesis, which begins by clarifying its overview in section 8.2. Section 8.3 discusses the summary of study results, and s ection 8.4 discusses the study implications. The limitations of this study are explained in section 8.5, and section 8.6 shows the suggestions for future research.

8.2 Overview

This thesis purposes to achieve three objectives: 1) To measure EM practices among the top 500 Indian listed companies; 2) To measure QCSRD among the top 500 Indian listed companies; and 3) the main aim of this study is to examine the relationship between EM and QCSRD. In this respect, prior studies have attempted to investigate whether EM and CSR disclosure are related (e.g. Chih et al., 2008; Laksmana and Yang, 2009; Grougiou et al., 2014; Muttakin & Azim, 2015). Their findings substantiated an association between CSR and EM. Empirical results, however, remain inconclusive as to whether CSR has a negative or positive effect on EM and vice versa (for example, Sun et al, 2010; Yip et al., 2011; Wang et al., 2015; Muttakin & Azim, 2015; Belgacem & Omri 2015; Rezaee et al., 2017). Prior literature has provided two different approaches with respect to the link between QCSRD and EM. According to the opportunistic perspective, Sun et al. (2010) argued that, when agency conflicts exist, managers manipulate earnings opportunistically in their favour. Companies with poor quality financial reporting are more likely to use CSR disclosure to mask their opportunistic behaviour (Martínez-Ferrero, et al, 2015). Based on this perspective, prior studies found a positive relationship between CSR disclosure and EM (for example, Muttakin & Azim, 2015; Belgacem & Omri 2015; Khan & Azim, 2015). On the other hand, the moral perspective assumes that companies which are socially responsible and disclose quality information of their CSR are less likely to manipulate earnings (Yip et al., 2011). According to this perspective,

previous studies found that CSR disclosure is negatively related to EM (for example, Wang et al., 2015; Rezaee et al., 2017).

The above two theoretical perspectives pose an important research question. A closer look at the arguments behind these two perspectives, however, reveals that they can be reconciled if one can evaluate the informational content (i.e. quality) of CSR. Chih et al., (2008) suggest that managers are less likely to engage in EM in companies that provide high quality disclosure of their social activities which targets all stakeholders because, when the transparency of information is increased, the expectation of the information asymmetry among the management and stakeholders will be reduced. Since the reduction in information asymmetry tends to constrain EM (Wang et al, 2015), this study expects a negative association between QCSRD and EM.

8.3 The Summary of Study Results

To achieve the purpose of this study, the empirical research objectives were addressed in chapters five, six, and seven. The next sections present the key results of these three empirical chapters.

8.3.1 Earnings Management Practices in Indian Listed Companies

To achieve the first aim of this study, Chapter five provides results related to the level of AEM and REM practices. The findings in Chapter five indicate that, in general, there are differences in the tendencies of REM and AEM. For instance, while AEM shows an overall decrease during the period of study, REM increases in the same period. The results also indicate that there is a significant and negative relationship between AEM and REM. This result supports the predictions based on prior research, indicating that managers can use a mixture of EM methods (i.e. AEM and REM) to meet their target (e.g. Zang, 2012; Sellami, 2016). These results also suggest that the mangers' decision to engage in any EM strategy will be influenced by how

constrained and costly this strategy is. Managers will face different levels of constraints for each strategy, which will influence their decision. When the constraints of using one EM method are high, managers are more likely to substitute the less costly alternative to manipulate earnings. Thus the relative degree of AEM vis-a-vis REM relies on the relative costs of each strategy (see. e.g. Graham et al., 2005; Zang, 2012; Cohen et al., 2008). The results show that all of the costs associated with AEM have significant coefficients with the predicted signs. In fact, the study results suggest that, when firms are constrained by the relative costs associated with AEM, they substitute it with REM. The results also show that all of the costs associated with REM have significant coefficients with the predicted signs. In fact, the study evidence suggests that, when firms are constrained by the relative costs associated with REM, they substitute it with AEM. Taken together, the above results suggest a substitute relationship between AEM and REM. These results provide evidence that managers change their EM strategies from AEM to REM and vice-versa based on relative costs related to the EM strategy, which is consistent with previous studies (e.g. Ipino and Parbonetti, 2017; Zang, 2012; Abernathy et al.,2014; Ho, L. et al., 2015; Ferentinou et al., 2016). Additional analysis of firms with relatively strong EM incentives confirms the trade-off between AEM and REM. The study findings are also robust to the alternative measure of earnings management.

8.3.2 QCSRD in Indian Listed Companies

To achieve the second objective of this study, chapter six provides results related to the level of QCSRD. The findings suggest that Indian companies recently paid more attention to the quality of CSR disclosure than before 2010. This could be attributed to the increase of investment trends from foreign companies in India after 2010 (Srivastava & Bhutani, 2012), which demanded that the financial reporting system should bring harmonisation in the financial reports in order to make them internationally acceptable. The results in Chapter six also show

that the QCSRD is statistically significant and positively related to the accuracy of financial forecasts. These results are consistent with previous results reported by prior studies and indicate that accuracy of analysts' earnings forecasts is more likely to be higher when companies publish a higher quality of CSR report (e.g. Beretta and Bozzolan 2008; Dhaliwal et al., 2012; Becchetti et al., 2013; Casey and Grenier, 2014). They also suggest that the identified framework in this study is more likely to help information users to evaluate the QCSRD. The findings also indicate that SPR and USEF, as dimensions of QCSRD, are statistically significant and positively related to the accuracy of analysts' earnings forecasts. Although STRQ is insignificantly related to ACCU (column 2), the relationship between them is still positive. Taken together, these results also provide evidence that the dimensions of CSR disclosure quality framework (STRQ, SPR and USFL) give a more realistic CSR disclosure picture. Thus, these dimensions can be utilised complementarily for evaluating the CSR disclosure.

8.3.3 The Relationship between QCSRD and EM

To achieve the main aim of this study, Chapter seven provides results related to whether QCSRD is linked to AEM and REM. In support of the study hypothesis (H1), the results indicate that QCSRD is significantly and negatively associated with AEM. This is consistent with a number of prior studies which find AEM to be negatively related to CSR reporting (e.g. Rezaee and Tuo, 2017; Wang et al., 2015; Yip et al., 2011). The relationship between COM_RAM, and ACFO, APROD and QCSRD is negative and significant. Although there is no significant impact of QCSRD on ADISX, the relationship between them is still negative. Taken together, this evidence supports the second hypothesis in this study (H2) and the contention that companies that are socially responsible are more likely to prepare reliable and transparent financial reporting. These findings are in line with signalling and agency theories,

suggesting that companies, by providing QCSRD, may mitigate information asymmetry and a problem of conflicting interests (Prado-Lorenzo et al. 2008; Miller 2002). Agency theory also suggests that the problem of conflicting interests increases when both the managers and shareholders attempt to maximise their wealth. The key factor that leads to this problem of conflicting interests is asymmetry of information. According to the agency perspective, a company is more likely to use several methods, such as a CSR disclosure, to mitigate the agency problem between agents and shareholders (Li et al., 2008). Prior research indicates that CSR disclosure can reduce opportunistic action since it reduces the asymmetry information. Consequently, CSR disclosure is significantly and negatively related to EM practices (Healy and Palepu, 2001; Eng and Mak, 2003; Sun et al. 2010). Given that managers are more likely to engage in EM when there is high information asymmetry, CSR reporting is also assumed by signalling theory as a means for mitigating the information asymmetry between management personnel and stakeholders. In the same vein, Laksmana and Yang, 2009 and Chih et al., (2008) argue that when the transparency of information is increased, the expectation of the information asymmetry between the management and stakeholders will be reduced. Thus, EM would be reduced.

This chapter also examines whether EM differs between the high QCSRD and low QCSRD companies. The results indicate that high QCSRD companies are less likely to use discretionary accruals and real activity to manage earnings, which is also consistent with the main results. Additional analysis of firms with relatively strong EM incentives was carried out to confirm the impact of QCSRD on EM. The results of the four benchmarks indicate that there is a negative and significant relationship between AEM and QCSRD. The study findings are also robust to the alternative measure of EM.

The study findings support the premise that firms which reveal QCSRD are less likely to engage in aggressive earnings management through discretionary accruals and/or real activities manipulation. Consistent with a number of prior studies (e.g. Yip et al., 2011; Wang et al., 2015) the research interprets the study evidence that QCSRD practices are substantive, rather than symbolic.

8.4 The Study Implications

This study provides insights for practitioners, policy makers and academics. **Firstly,** practitioners may understand the roles and importance of QCSRD in constraining both AEM and REM and improving financial reporting quality. This result may be useful for managers when performing CSR activities that reduce EM and increase investors' wealth and confidence. Since QCSRD is publicly noticeable, the results of the current research might have practical implications for managers in assessing their accountability and transparency. The results are likely to be used by the boards of companies to evaluate the financial reporting quality based on QCSRD. By examining the trade-off between AEM and REM, based on their costs and constraints, practitioners also may understand the function and importance of corporate governance roles in constraining EM and improving financial reporting quality. Managers may refer to this result when they purpose to persuade investors of the quality of financial reporting. Moreover, the results may offer further empirical evidence that supports the decisions of market participants and shareholders in India when assessing the quality and reliability of financial reports. Financial analysts are more likely to use the results of this study to enhance their earnings forecast. High quality information improves the ability of investors to evaluate future financial performance through considering more accurate earnings forecasts. They may also use it to assess how the QCSRD impacts the decisions of the capital market. When the capital market perceives the high financial reporting quality of companies with QCSRD, the

disclosed financial statement might be received by decision-makers as more reliable information for credit assessment and investment decisions in general.

Secondly, this study has policy implications for standard setters and regulators to continue improving the guidance and frameworks to assist firms to provide high-quality financial reporting and CSR disclosure. In addition, enhancing the understanding of the impact of QCSRD on EM may help regulators and authorities, particularly in India, to improve their regulations on QCSRD. It can be also used to support the authorities of stock markets in assessing the present QCSRD requirements and how it develops the quality of financial reports.

Thirdly, besides the above implications, this study provides insights for some theoretical implications. For the quality of CSR disclosure matters, the findings of this study support the agency and signalling theories which focus on the quality of CSR reporting to mitigate the information asymmetry between managers and stakeholders. Furthermore, while the quality of CSR reporting is becoming increasingly important in the business environment, CSR disclosure decisions are seemingly driven by more traditional concerns, such as avoiding political scrutiny and the costs which may arise from that scrutiny.

8.5 Limitations of the Study

This study has made a considerable effort to ensure that it meets its aim and examines the research hypotheses. However, the current research suffers from some limitations. **Firstly,** the study sample is limited to the non-financial listed companies. Therefore, the results of the current thesis might not be applicable for the financial companies because of the unique characteristics of their financial statements. **Secondly,** the perspective of EM suggested in the current research is associated with opportunistic behaviour of EM. Nevertheless, managers are likely to use EM in providing private disclosure for the stakeholders about future returns to maximise the company's value. Therefore, the study results are restricted to the opportunistic

EM supposition. **Thirdly,** the data used in the current research was collected from annual reports that are available on companies' websites and from other available databases. Thus, any issues which affect QCSRD may have a negative influence on the research results' validity. **Fourthly**, the data used for the current research is limited to the period 2007 to 2015; given that 2008 is considered by scholars as the first year of the global financial crisis, the results might be influenced by the effect of the financial crisis. **Fifthly,** limitations might be associated with scoring procedures of the CSR disclosure index. This study followed the procedures that were widely used in prior literature. As clarified in Chapter four (see section 4.5), this study used a scoring process that is considered to be subjective. Nevertheless, effort is made by the current study to minimise subjectivity which may affect the results. **Sixthly**, the models which are used to examine the study hypotheses are likely to suffer from the omission of particular variables, leading to a factor bias related to both EM and QCSRD. Nevertheless, this study has taken several steps to reduce the occurrence probability of this issue, including tests for the fixed or random effects models, controlling endogeneity problems and using alternative measurements and robustness tests.

8.6 Suggestions for Future Research

As an avenue for future research, the study analysis could be extended by examining whether agency/contracting costs, which are related to compensation and debt contracts, impact ethical considerations in financial reporting decisions. The empirical evidence on the effect of QCSRD on REM may present a stepping-stone for future research to: consider: i) the role of voluntary disclosure, in general, and ii) CSR disclosure, in particular, in order to reduce AEM and REM to protect investors. Furthermore, the importance of disclosure quality for different stakeholders raises an issue related to the definition of disclosure quality, since different users have different perspectives of disclosure quality. Thus, the quality of disclosure needs to be taken into account by further studies. The findings of the current research are based on the

opportunistic behaviour of EM perspective rather than the informative perspective. Thus, additional research should be conducted to examine the link between QCSRD and EM from the informative perspective. Furthermore, while the study has examined the impact of QCSRD on AEM and REM using a sample of non-financial firms, it is useful to examine the link between QCSRD and both EM strategies (AEM and REM) among financial firms, to achieve a thorough understanding of the determinants of EM activities among these firms. Moreover, this research focused on only one country: India. The present research designs can be conducted in other countries. Since prior research has argued that several factors such as culture, religion and other societal norms may influence CSR disclosure and EM (e.g. Gautam & Singh, 2010; Hastings, 2000), the current research could be an interesting topic for future research. This could also encourage academic researchers to investigate the effect of countries' characteristics. India has different environmental contexts, religions and different cultures as one of the developing countries. Thus, future research could expand the current study designs by using samples from different countries in the analysis. Cross-country analysis might offer broader evidence in terms of managers' incentives to manipulate earnings and disclose CSR information. Finally, the impact of BEEF and ACEF on the relation between REM and AEM has not been examined by previous research. This is the first study to examine this relationship based on Indian data. Corporate ownership in India is predominantly concentrated in the hands of domestic individuals and promoter groups, multinational parents, or the state (Balasubramanian & Anand, 2013).Thus, further research can re-examine this research question using data other than Indian data.

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The Appendixes
Appendix 1: CSR disclosure checklist items

1-   Community development
   1- Education,
   2- Contribution to national economy
   3- Charity and donation,
   4- Social activities support
   5- Other Community investment

2-   Human resources
   1- Safety and health,
   2- Employee equal opportunities
   3- Employee training and development
   4- Retirement benefits.
   5- Other employee Data

3-   Products and services
   1- Products/ Services quality
   2- Products safety.
   3- Product or service development,
   4- ISO or other awards received by company.
    5 - Other products data

4-   Customer
   1- Customer service information.
   2- customer feedback
   3- Others customer data

5-   Environment
   1- Pollution
   2- Recycling
   3- Waste management
   4- Water usage
   5- Emission of carbon and harmful gases
   6- Energy policy statement
   7- ISO or other awards received by company
   8- Other environmental policy statement

6-   Others CSR Information
   1- General CSR Information

Appendix 2: USFUL dimension Checklist Items

	Question	Likert's	Literature
Relevance	CSR disclosure is estimated to be relevant if it has an influence on the users' decisions (IASB, 2010, p. 17). IFRS suggests that financial information impacts the decision-making by users to make it different.	0 = no CSRD 1= disclose descriptive information on CSR is disclosed, 2 = descriptive and financial information of CSRD is included, 3 = descriptive disclosure including financial and forward-looking information is reported.	e.g. Jonas and Blanchet, 2000; McDaniel et al., 2002; Chakroun et al. 2013, Hussainey, K., & Alotaibi, K., 2016.
Faithful representation	CSR disclosure to be faithfully representative, it should be natural, complete and free of the bias (IASB, 2010).	0 = no negative and positive CSR activities are disclosed. 1 = few positive events are disclosed (one paragraph). 2 = more positive events are disclosed (more than one paragraph). 3 = more positive events with negative events are disclosed.	e.g. Razaee, 2003; Cohen et al., 2004; Chakroun et al. 2013, Hussainey, K., & Alotaibi, K., 2016.
Understandability	Understandability is defined as understanding of disclosure regarding the information quality which help users to understand the disclosure meaning. (IASB, 2010), when information is classified concisely and presented clearly, understandability will be enhanced.	0 = no disclosure on CSR. 1 = poor presentation (nonfinancial information only, without any table, pictures or graphs). 2 = financial and nonfinancial information without any table, pictures or graphs are provided. 3 = a good presentation (text, financial information plus graphs, tables or pictures)	e.g. Jonas and Blanchet, 2000; Chakroun et al. 2013, Hussainey, K., & Alotaibi, K., 2016.
Comparability	The Comparability is defined as the quality of disclosure that enables users for identifying the performance trends of the company over time and help users to compare between two sets of economic activities (IASB, 2010).	0 = no ratios is found in annual report. 1 = few ratios are found (less than 5). 2 = some ratios are found (from 5 to 10). 3 = enough ratios are found (more than 10).	e.g. Cleary, 1999; Hussainey, K., & Alotaibi, K., 2016.

Appendix 3: The result Chow Test

1- The relationship between REM and AEM

AEM is dependent variable

```
     sigma_u |  .72737714
     sigma_e |  .06575317
         rho |  .9918945    (fraction of variance due to u_i)

 F test that all u_i=0: F(211, 1682) = 11.54              Prob > F = 0.0000
```

REM is dependent variable

```
     sigma u |  .60448678
     sigma e |  .09801006
         rho |  .97438477   (fraction of variance due to u_i)

 F test that all u_i=0: F(211, 1682) = 5.01               Prob > F = 0.0000
```

2-   The relationship between Accuracy and QCSRD

```
     sigma u |  1.3818162
     sigma e |  1.7994873
         rho |  .37093536   (fraction of variance due to u_i)

 F test that all u_i=0: F(211, 1689) = 5.07               Prob > F = 0.0000
```

3-   The relationship between Accuracy and STRQ

```
     sigma u |  1.4012913
     sigma e |  1.8028911
         rho |  .37660235   (fraction of variance due to u_i)

 F test that all u_i=0: F(211, 1689) = 5.07               Prob > F = 0.0000
```

4-   The relationship between Accuracy and USFUL

```
        sigma u  |  1.4348682
        sigma e  |  1.7880505
            rho  |   .39171576      (fraction of variance due to u_i)

F test that all u_i=0: F(211, 1689) = 5.24                Prob > F = 0.0000
```

5- The relationship between Accuracy and SPR

```
        sigma u  |  1.4117094
        sigma e  |  1.8008094
            rho  |   .38063124      (fraction of variance due to u_i)

F test that all u_i=0: F(211, 1689) = 5.21                Prob > F = 0.0000
```

6- The relationship between AEM and QCSRD

```
        sigma u  |  .74368149
        sigma e  |  .06596534
            rho  |  .99219354       (fraction of variance due to u_i)

F test that all u_i=0: F(211, 1683) = 11.35               Prob > F = 0.0000
```

7- The relationship between REM and QCSRD

```
        sigma u  |  .60755348
        sigma e  |  .09836472
            rho  |  .97445697       (fraction of variance due to u_i)

F test that all u_i=0: F(211, 1683) = 4.95                Prob > F = 0.0000
```

8- The relationship between ACFO and QCSRD

```
        sigma_u  |  .64433867
        sigma_e  |   .0792237
            rho  |  .98510757       (fraction of variance due to u_i)

F test that all u_i=0: F(211, 1683) = 6.91                Prob > F = 0.0000
```

9-   The relationship between APROD and QCSRD

```
     sigma_u |   .58147918
     sigma_e |   .07354126
         rho |   .98425647   (fraction of variance due to u_i)
```

F test that all u_i=0: F(211, 1683) = 7.44   Prob > F = 0.0000

10- The relationship between ADISX and QCSRD

```
     sigma_u |    .622911
     sigma_e |   .08406108
         rho |   .98211454   (fraction of variance due to u_i)
```

F test that all u_i=0: F(211, 1683) = 6.85   Prob > F = 0.0000

Appendix 4: Hausman Test

1- The relationship between REM and AEM

```
Hausman fixed random, sigmamore
```

	Coefficients			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
AEM	-.4106425	-.5575409	.1468984	.0236519
Big4	1.320283	-.0086184	1.328901	.1310187
ROA	-.1005039	-.1187661	.0182622	.0138345
size	-.0134064	-.0071305	-.0062759	.0070747
Growth	-.0002904	.0006541	-.0009445	.0017926
type	.0133558	.0001728	.013183	.0154107
Lev	.0097405	.0030308	.0067097	.0081788
Solvency	.0006088	.0001147	.0004941	.0001557
cycle	-.0000991	-.0001357	.0000366	.0000225
Stutes	.3354519	.1836662	.1517857	.0728581
BEF	.0087067	.0012645	.0074422	.0030769
ACEF	.0058529	.0057428	.0001101	.0025848
INSOW	-.0465284	-.0436678	-.0028607	.0281834

```
                      b = consistent under Ho and Ha; obtained from
            xtreg B = inconsistent under Ha, efficient under Ho; obtained
            from xtreg
   Test:  Ho:  difference in coefficients not
               systematic chi2(13) = (b-B)'[(V_b-
               V_B)^(-1)](b-B)
                    =       148.74
               Prob>chi2 =     0.0000
```

```
Hausman fixed random, sigmamore
```

	Coefficients			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
REM	-.184823	-.3204813	.1356583	.0082081
Big4	-1.61424	-.0408649	-1.573375	.08583
ROA	-.0908147	-.0807294	-.0100853	.0069707
size	-.0360632	-.024646	-.0114172	.0039843
Growth	.009761	.0121121	-.0023511	.0008772
type	.0030748	.000554	.0025208	.0109496
Lev	-.0115693	-.0097899	-.0017794	.0041633
Solvency	-.000299	-.0003163	.0000173	.0000842
cycle	.0001255	.0001756	-.0000501	.0000116
Stutes	.1447618	.1383256	.0064362	.0393027
BEF	-.0109861	-.012447	.0014609	.0015388
ACEF	-.0110198	-.0115192	.0004995	.0012853
INSOW	.0702015	.0380671	.0321344	.015916

```
            b = consistent under Ho and Ha; obtained from
        xtreg B = inconsistent under Ha, efficient
        under Ho; obtained from xtreg
   Test:  Ho:  difference in coefficients not
               systematic chi2(12) = (b-B)'[(V_b-
               V_B)^(-1)](b-B)
                    =       148.74
               Prob>chi2 =     0.0000
```

2- The relationship between Accuracy and QCSRD

```
25 . Hausman fixed random, sigmamore
```

	———— Coefficients—			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
QCSRD	1.49956	1.682542	-.1829818	.3055715
ROA	.0597625	-.0366334	.0963959	.2282366
size	.215541	.0915382	.1240028	.1160565
type	.0092109	.047042	-.0378311	.2721523
Lev	.0120146	-.3300699	.3420845	.1323677
ChROA	-.4533188	-.5241297	.0708109	.0299152

```
                    b = consistent under Ho and Ha; obtained from
           xtreg B = inconsistent under Ha, efficient under Ho; obtained
           from xtreg

      Test:  Ho:  difference in coefficients not

               systematic chi2(6) = (b-B)'[(V_b-

               V_B)^(-1)](b-B)
                    =         11.99
               Prob>chi2 =       0.0622
```

3- The relationship between Accuracy and STRQ

```
Hausman fixed random, sigmamore
```

	———— Coefficients—			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
STRQ	.3346008	.5835815	-.2489807	.1542099
ROA	.1425937	.0009181	.1416756	.2274571
size	.3178518	.1488488	.169003	.1107657
type	.0002142	.0520343	-.0518201	.272923
Lev	.0061804	-.3396743	.3458547	.1329485
ChROA	-.4550429	-.5287435	.0737006	.0300695

```
                    b = consistent under Ho and Ha; obtained from
           xtreg B = inconsistent under Ha, efficient under Ho; obtained
           from xtreg
      Test:  Ho:  difference in coefficients not
               systematic chi2(6) = (b-B)'[(V_b-
               V_B)^(-1)](b-B)
                    =         14.86
               Prob>chi2 =       0.0214
```

2- The relationship between Accuracy and USFUL

```
Hausman fixed random, sigmamore
                    ——— Coefficients————
                   (b)          (B)          (b-B)       sqrt(diag(V_b-V_B))
                 fixed        random      Difference            S.E.

      USFUL      3.508057     2.251908     1.256149          .4808738
        ROA     -.0126844     .0319095    -.0445938          .2252148
       size     -.0372674     .0458959    -.0831632          .1262284
       type     -.0113094     .0458086     -.057118          .2708167
        Lev      .0391953    -.3171962     .3563915          .1307648
      ChROA     -.4578626    -.5209593     .0630967          .0294909
```

                    b = consistent under Ho and Ha; obtained from
         xtreg B = inconsistent under Ha, efficient under Ho; obtained
           from xtreg
    Test: Ho: difference in coefficients not
                  systematic chi2 (6) = (b-B)'[(V_b-
                  V_B) ^(-1)](b-B)
                      =   18.91
                  Prob>chi2 =   0.0043

3- The relationship between Accuracy and SPR

```
Hausman fixed random, sigmamore


                    ——— Coefficients————
                   (b)          (B)          (b-B)       sqrt(diag(V_b-V_B))
                 fixed        random      Difference            S.E.

        SPR      1.54969      1.123402      .426288          .3797756
        ROA      .0653753    -.0144822      .0798576         .2275631
       size      .1760771     .1012773      .0747998         .1254592
       type     -.0122693     .0460959     -.0583652         .2724703
        Lev      .0164783    -.3191392      .3356175         .1315244
      ChROA     -.4502869    -.5312568      .0809699         .0298834
```

                    b = consistent under Ho and Ha; obtained from
         xtreg B = inconsistent under Ha, efficient under Ho; obtained
           from xtreg

    Test: Ho: difference in coefficients not

                  systematic chi2(6) = (b-B)'[(V_b-

                  V_B)^(-1)](b-B)
                      =   15.22
                  Prob>chi2 =   0.0186

4- The relationship between AEM and QCSRD

```
Hausman fixed random, sigmamore

                  ——— Coefficients———
                    (b)          (B)          (b-B)      sqrt(diag(V_b-V_B))
                   fixed        random      Difference          S.E.

      QCSRD      -.0556525    -.0696031      .0139505         .0099255
        REM      -.1913069    -.3323943      .1410874         .0082962
       Big4      -1.650218    -.0423724     -1.607845         .0859885
        ROA      -.0916874    -.0853776     -.0063098         .0072167
       size      -.0266205     -.015718     -.0109025          .004014
     Growth       .0068861      .008436     -.0015499         .0008615
       type       .0041342      .000314      .0038203         .0109872
        Lev      -.0146606    -.0118602     -.0028004         .0041047
        BEF      -.0109498    -.0126401      .0016903         .0015651
       ACEF      -.0111003     -.011376      .0002758         .0012942
      Block       .0182776    -.0060383      .0243159         .0147905
      INSOW       .0665798     .0420102      .0245696         .0162056

                        b = consistent under Ho and Ha; obtained from
            xtreg B = inconsistent under Ha, efficient under Ho; obtained
            from xtreg

      Test:  Ho:  difference in coefficients not

               systematic chi2(12) = (b-B)'[(V_b-

               V_B)^(-1)](b-B)
                    =       361.22
               Prob>chi2 =      0.0000
```

5- The relationship between AEM and QCSRD

```
Hausman fixed random, sigmamore

                  ——— Coefficients———
                    (b)          (B)          (b-B)      sqrt(diag(V b-V B))
                   fixed        random      Difference          S.E.

QCSRD            -.0789183    -.0724977     -.0064206         .0183782
AEM              -.4253807    -.5751781      .1497974         .023567
Big4             1.334894     -.0042066     1.339101          .1311156
ROA              -.0908497    -.1111477      .020298           .0140013
size             -.0031786    -.0044941      .0013155          .0069975
Growth           -.0015186     .0000682     -.0015868         .0017334
type             .0104279      .0008485      .0095795          .0153842
Lev              .0061509       .00113       .0050209          .007993
BEF              .0080937      .0010664      .0070273          .0030711
ACEF             .0088563      .0069998      .0018566          .0025521
Block            -.0337966    -.0084833     -.0253133          .02604
INSOW            -.0413804    -.0392566     -.0021238          .0284729

                        b = consistent under Ho and Ha; obtained from
            xtreg B = inconsistent under Ha, efficient under Ho; obtained
            from xtreg

      Test:  Ho:  difference in coefficients not

               systematic chi2(12) = (b-B)'[(V_b-

               V_B)^(-1)](b-B)
                    =       135.59
               Prob>chi2 =      0.0000
```

6- The relationship between AEM and QCSRD

```
Hausman fixed random, sigmamore
```

	——— Coefficients———			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
QCSRD	-.04664	-.0628318	.0161918	.0150113
AEM	-.3589628	-.4916024	.1326396	.0195998
Big4	1.415478	.0112904	1.404187	.1099817
ROA	-.0003381	.0052319	-.0055699	.0114041
size	-.018194	-.0053602	-.0128338	.0057646
Growth	.00291	.0055658	-.0026558	.0014003
type	-.0062763	.0014457	-.007722	.0129031
Lev	.0037459	.0026931	.0010528	.0064941
BEF	-.0108862	-.0103835	-.0005027	.0024907
ACEF	.0035182	.0004073	.0031109	.0020696
Block	-.0330725	.0143363	-.0474088	.0214002
INSOW	-.122212	-.0480616	-.0741504	.023418

```
                    b = consistent under Ho and Ha; obtained from
        xtreg B = inconsistent under Ha, efficient under Ho; obtained
        from xtreg

    Test:  Ho:  difference in coefficients not

            systematic chi2(12) = (b-B)'[(V_b-

        V_B)^(-1)](b-B)
                =        273.83
            Prob>chi2 =      0.0000
```

7- The relationship between AEM and QCSRD

```
Hausman fixed random, sigmamore
```

	——— Coefficients———			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
QCSRD	-.0526442	-.0670186	.0143744	.0136357
AEM	-.385946	-.5019719	.1160259	.0180758
Big4	1.276046	.0100355	1.26601	.1021002
ROA	-.0131538	-.008743	-.0044109	.0103377
size	-.0174457	-.0051022	-.0123435	.0052716
Growth	-.0006809	.0021469	-.0028278	.0012614
type	-.0048309	.0014563	-.0062872	.0119772
Lev	.002177	.0016162	.0005608	.0058744
BEF	-.0114704	-.0109071	-.0005633	.00225
ACEF	.0036444	.0007953	.0028491	.0018695
Block	-.0192325	.0156029	-.0348353	.0195327
INSOW	-.1242204	-.051884	-.0723364	.0213875

```
                    b = consistent under Ho and Ha; obtained from
        xtreg B = inconsistent under Ha, efficient under Ho; obtained
        from xtreg

    Test:  Ho:  difference in coefficients not

            systematic chi2(12) = (b-B)'[(V_b-

        V_B)^(-1)](b-B)
                =        274.88
            Prob>chi2 =      0.0000
```

8- The relationship between AEM and QCSRD

```
Hausman fixed random, sigmamore
```

	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
QCSRD	-.0408826	-.0628598	.0219773	.0157604
AEM	-.3984794	-.5149062	.1164268	.020625
Big4	1.369319	.0129942	1.356325	.1158533
ROA	.0050807	.01562	-.0105393	.0119692
size	-.0199328	-.0047743	-.0151585	.0060585
Growth	-.0038208	-.0010024	-.0028184	.0014683
type	-.0052069	.0017068	-.0069137	.0135917
Lev	.0058615	.0018401	.0040214	.0068138
BEF	-.0090579	-.0087856	-.0002722	.0026127
ACEF	.0010874	-.0010616	.0021489	.002171
Block	-.0560734	-.0004579	-.0556155	.0224848
INSOW	-.1125127	-.0556434	-.0568692	.0246072

```
                 b = consistent under Ho and Ha; obtained from
        xtreg B = inconsistent under Ha, efficient under Ho; obtained
        from xtreg

   Test:  Ho:  difference in coefficients not

           systematic chi2(12) = (b-B)'[(V_b-

           V_B)^(-1)](b-B)
                 =        250.27
           Prob>chi2 =      0.0000
```

Appendix 5: LM test

   1- **The relationship between Accuracy and QCSRD**

```
Breusch and Pagan Lagrangian multiplier test for random effects

        Accuracy[companyname1,t] = Xb + u[companyname1] +

        e[companyname1,t]

        Estimated results:
```

	Var	sd = sqrt(Var)
Accuracy	4.875076	2.207957
e	3.238155	1.799487
u	1.450404	1.204327

```
        Test: Var(u) = 0

                            chibar2(01) =  708.60

                            Prob > chibar2 =      0.0000
```
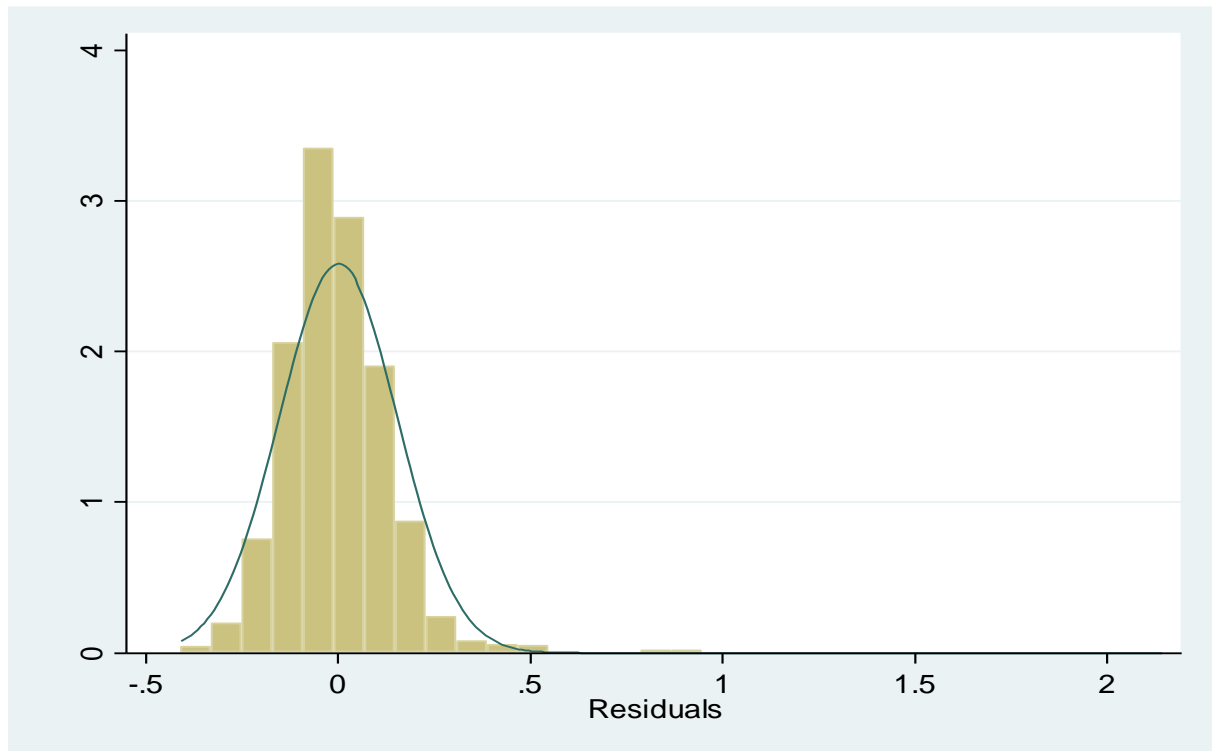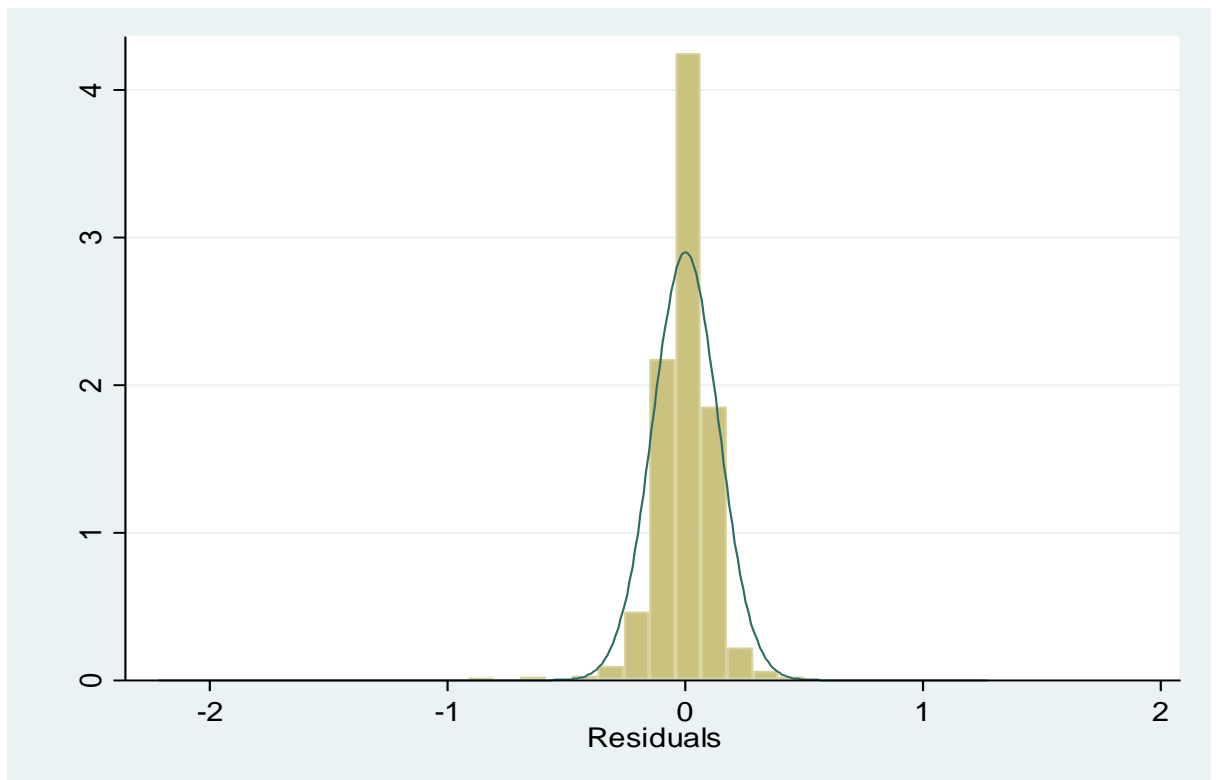
Appendix 6: The result of normality test
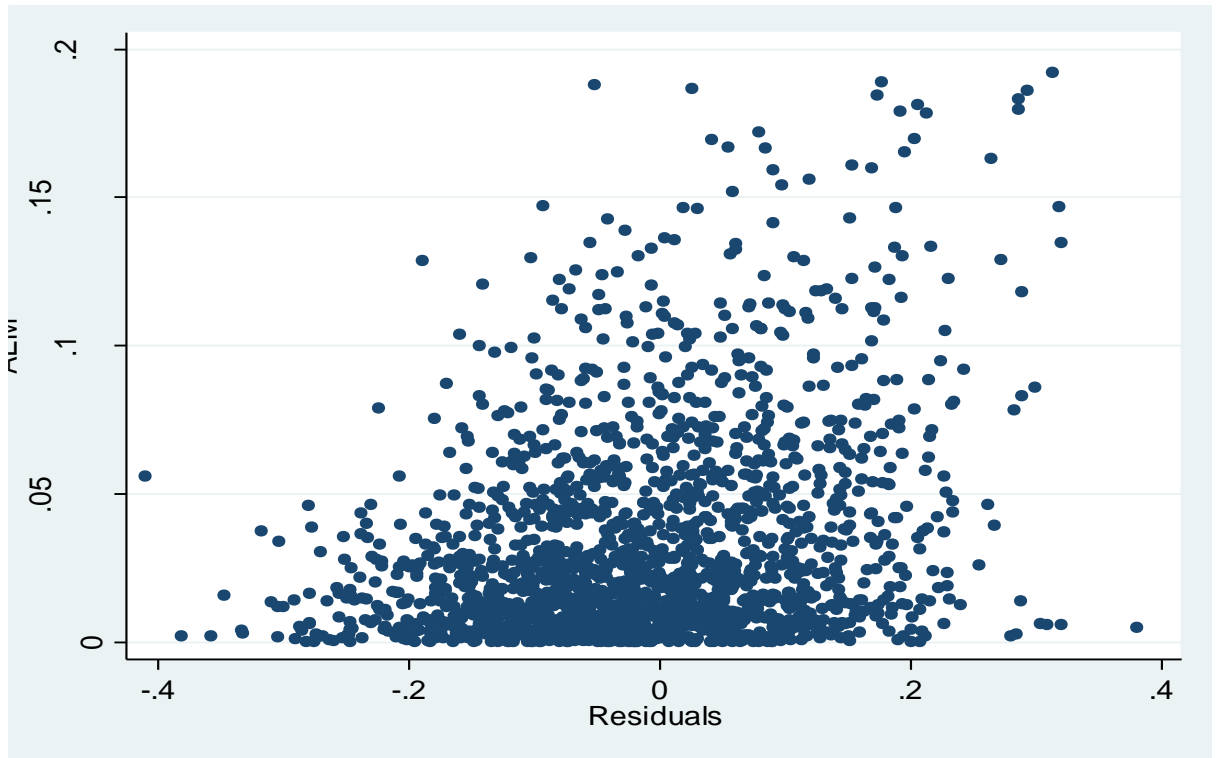   1- **The relationship between AEM and QCSRD**

  2-

3- The relationship between REM and QCSRD

Appendix 7 Heterogeneity plot test

1- **The relationship between AEM and QCSRD**

2- The relationship between REM and QCSRD