# THE IMPACT OF IFRS ADOPTION ON THE EARNINGS QUALITY: A COMPARATIVE STUDY

A thesis submitted for the degree of Doctor of Philosophy

by

Ömer Faruk Büyükkurt

Department of Economics and Finance, Brunel University London

# Declaration

I hereby declare that the thesis is based on my original work, except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Brunel University or other institutions.

Name: Ömer Faruk Büyükkurt
Date: 23 November 2018
Signature: Ö. F. BÜYÜKKURT

**Abstract**

This study investigates the adoption of IFRS and its effects on earnings quality by using two of earnings quality proxies: earnings management and accounting conservatism. The study also investigates the differences in the reactions of firms from Anglo-Saxon and Continental European countries to adoption of IFRS regarding their earnings quality. In order to accomplish the study, a sample of data spans from 1990-2015 was collected. Results of this study show that firms respond differently to the adoption of IFRS regarding their accounting orientations. In general, earnings quality of firms from the UK, as the followers of Anglo-Saxon accounting regime, were not significantly affected by adoption of IFRS. On the other hand, firms from Continental European countries experienced a significant deviation in their accounting practices as the type of earnings management changes its form of accrual earnings management to real earnings management and the level accounting conservatism increases significantly. In additions to that, during post-IFRS period, higher level of firm-year accounting comparability shapes managers earnings management preferences in the way in which, if firm-year level accounting comparability is high, managers prefers to implement real earnings management practices rather than accrual earnings management practices.

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# 1. Chapter-1: INTRODUCTION

Over the last decade there has been a substantial growth in the number of studies on the adoption of International Financial Reporting Standards (hereafter IFRS) and its impact on various aspects of accounting. Some of these studies focused on the effects of the adoption on value relevance of accounting numbers while some others investigate its influence on accounting conservatism. In additions to that, some researchers specifically address the relationship between IFRS adoption and the level of earnings management, timely loss recognition or accrual quality. All these factors are all together considered as benchmarks of earnings quality in literature and it is expected that earnings quality should be higher after the adoption of IFRS as IFRS represents higher quality of accounting standard set.

Although there is a large volume of studies on earnings quality, there is no official definition about what earnings quality is. Earnings quality is to what extent net income announced on the statement on income diverges from firm's 'true' earnings (Pratt, 2000). Higher earnings quality comprises the real economic performance of the firm in its accounting figures and it is about how well accounting earnings convey genuine information about the underlying economic performances of the firm to its users (Teets, 2002). So, there is a direct proportion between earnings quality and usefulness of financial information conveyed by financial statements. The higher quality of earnings provides the more useful financial information to its users.

There are several motivations behind this current study. First motivation is that, convergence in accounting regulations and especially financial reporting standards is still ongoing activity. When it is considered that two of the biggest economies of the world (US and Japan) are still negotiating adoption of IFRS, providing new evidences on whether and how adoption of IFRS has an impact on earnings quality has a crucial role in understanding the influence of IFRS on financial reporting characteristics of firms. In additions to that, adoption of IFRS has different effects on the firms that are originated from different accounting origins. Thus, providing a new insight into the interaction between IFRS adoption and accounting origins is another motivation to locate earnings quality at the centre of relation between IFRS adoption and accounting origins of firms from different accounting backgrounds. The third motivation of this study is that, firm-year level accounting comparability's effects on earnings management preferences has been studied neither for EU nor for IFRS period yet. In order to fill this gap in the literature this research is done. The fourth motivation of this study is to consider unique

position of Turkey regarding IFRS adoption and accounting conservatism. Turkey has always been excluded in regional comparative studies despite of the fact that Turkey adopts most of the regulations concurrently with EU. From this aspect using Turkey in comparative study for the first time is another motivation. The fifth motivation of this study is to provide more credible findings on earnings quality. Previous studies on earnings quality generally used one empirical model despite of the fact that, most of the empirical models are criticized by other researchers from different aspects. Thus, reaching a conclusion or drawing any inference by relying on the results of one single empirical model is highly risky. Hence, three different empirical models are used in each empirical chapter. The last motivation of this study is to consider inflation for the first time for Basu Model, which has always been ignored. By considering possible effect of inflation on accounting conservatism, providing more credible results became possible.

The stream of the study of earnings quality is at the centre of the interest of researchers especially after adoption of IFRS. Therefore, I investigate the effects of the adoption of IFRS on earnings quality through three empirical chapters by focusing on two criteria namely: earnings management and accounting conservatism.

The first empirical chapter (Chapter 2), focuses on the effect the of IFRS adoption on real earnings management (hereafter REM) behaviours of the firms making marginally positive profit by comparing sample firms from two different accounting origins: Anglo-Saxon and Continental Europe, from 1990 to 2015. Specifically, I investigate in this chapter how firms from Anglo-Saxon and Continental Europe use REM to meet/beat zero earning target. The possible impact of IFRS on the REM behaviours is also scrutinized. It is found that firms have small positive earnings, (which are assumed to have the most motivation to engage in earnings management (hereafter EM)) from Anglo-Saxon countries involved in REM before IFRS adoption and that the adoption of IFRS did not lead to a significant deviation in such behaviours. As IFRS is very close to Anglo-Saxon accounting system, this is expected. On the other hand, same group of firms in Continental European countries did not implement REM methods to meet/beat zero earnings target. However, the managers' strategy has been significantly changed after adoption of IFRS and the managers started to use REM to manage earnings.

The second empirical chapter (Chapter 3) investigates how managers of the firms adjust their earnings management (hereafter EM) behaviours with regard to the level of firm-year accounting comparability. Accounting comparability is taken for a "cost" for the managers as "being detected of employing EM" poses a risk for them. In this chapter, sample firms include all listed firms within the EU countries (except Bulgaria, Romania and Croatia as they joined

the EU after 2005) for the period of 2005 and 2015. The reason of narrowing time span down to 10 years is to focus on IFRS period only. It is documented that when of the firm-year level of accounting comparability is high, managers avoid the implementation of accrual earnings management (hereafter AEM) methods. In addition, managers prefer implemending REM strategies under high accounting comparability conditions. Besides to that, it was found that managers' reaction to high level of firm-year accounting comparability varies with accounting origins of the countries. Under high firm-year accounting comparability conditions, managers in Anglo-Saxon countries significantly avoid practising AEM strategies however high level of accounting comparability do not lead them to practise REM. On the other hand, managers from Continental European countries significantly avoid of using AEM methods and they prefer to use REM when accounting comparability is high.

In third empirical chapter (Chapter 4) the impact of IFRS adoption on conservative accounting behaviours of managers are compared with regard to their accounting orientations. UK is used as a representative of Anglo-Saxon accounting system while Turkish firms are used as a sample of Continental Europe accounting system. It was posited that after the adoption of IFRS, accounting conservatism will increase in Turkey, while it will not have a significant impact on UK. The reason of this assumption is that accounting conservatism is one of the measures of earnings quality and the adoption of IFRS leads to an increase in earnings quality. On the other hand, the accounting system of UK, which is Anglo-Saxon system, was already close to IFRS even before the adoption of IFRS. Thus, it is expected that during pre-IFRS period, accounting conservatism, was high in the UK and the adoption of IFRS will not cause a significant change in the level of conservatism. In fact, it was found in this chapter that, the level of accounting conservatism was low in Turkey before the IFRS adoption, and after the adoption of IFRS the implementation of conservative accounting practices increased significantly. On the other hand, accounting conservatism in the UK was already significant before the IFRS adoption and the adoption of IFRS did not cause a noteworthy impact in the UK.

Empirical analyses in this study are determined based on some econometric tests. Different econometric methods are used in each chapter. In Chapter-2, Fama-Macbeth two-steps procedure is used. Fama and Macbeth (1973) stated that panel regressions prevail both the cross-correlation problem and the bias in the standard errors of regression slopes that stems from the fact that the residuals are correlated across years. However, Fama-Macbeth two-step procedure takes this into the account because of the nature of the design of the model. Although, Fama-Macbeth two-steps procedure is employed in Chapter-2, same regressions are also run by using fixed effect panel data methodology and untabulated results have

negligible differences with the results obtained through Fama-Macbeth two-steps regression methodology. In additions to that, t-statistics in Chapter-2 is calculated by using Newey-West procedure to generate standards errors corrected for heteroskedasticity and autocorrelation.

In Chapter-3, time series cross sectional pooled ordinary least squares regression is employed in main analysis section. The methodology is determined after running Hausmann and Breusch-Pagan tests. Moreover, country, industry and time dummies are also included into the model. In additions to that, standard errors of Chapter-3 are corrected for firm-level clustering.

In Chapter-4 which is the last empirical chapter, fixed-effect panel data analysis is used for the first two empirical models and in last empirical model of Chapter-4, Fama-Macbeth methodology is used. The reasoning of using fixed effect panel data analysis in first two chapters is based on the results of Hausmann and Breusch-Pagan tests. Standards errors of this chapter are also obtained in heteroskedasticity-robust way.

This study makes several contributions into the existing literature. In Chapter-2, to the best of knowledge, this is the first study that examines the effect of IFRS adoption on the REM behaviours of marginally positive profit firms, especially the comparative study of the firms from different accounting origins. Although there are numerous studies on the REM and meeting/beating earning targets, the relationship between REM behaviours of the opportunistic managers and accounting origins has not been addressed yet. There are several studies that investigate REM behaviours of the firms based on individual countries or at international level. However, these studies did not put accounting orientation of the countries on the focus of interest in their analyses.

Besides, some studies scrutinized EM activities of managers in EU countries in the sense of the adoption of IFRS. However, none of these studies particularly handles marginal positive profit firms (which is assumed to have the most motivation to engage in EM) and their income boosting EM activities. From this perspective, this current study contributes to the literature by providing an ample understanding of impact of the IFRS adoption on the decisions of the REM behaviours of firms with marginally positive income with regard to their accounting origins by comparing three biggest economies of EU: UK, France and Germany.

In additions, in contrast to most of the studies in existent literature, this chapter does not merely depend on Roychowdhury's REM models. Roychowdhury (2006) designed a REM Model which is set to capture three operational policies that are used by managers to

manipulate earnings. According to Roychowdhury (2006) managers abnormally reduce prices of the products, cut discretionary expenses and increase production level to reduce the cost of goods sold per item. Arguably, his model set is the most popular REM methodology to detect the REM in the literature. However, Cohen et al. (2016) scrutinized Roychowdhury's REM models from econometric perception and they argued that Roychowdhury's REM Models' Type-I error rates are excessive. This poses a risk of incorrectly "detect" EM when there is no such practise. To tackle this subject, Cohen et al., (2016) proposed a set of alternative REM Model options. Their performance-matched REM models (hereafter PM REM Models) gives a lower Type-I error rate. The other alternative model set formed by Cohen et al., (2016) is investment opportunity set REM Models (hereafter IOS REM Models) that encompasses additional variables to control the effect of firm-specific investment opportunity set of firms on their REM behaviours. To be able to provide a complete comprehension of the analyse and to increase the accuracy of the results, this chapter is the first empirical analysis in the literature to compare IOS and PM REM models alongside with Roychowdhury (2006) REM Models to detect EM activities (Cohen et al. (2016) only used their model sets with simulation to measure and compare Type-I error rates based on sample that was generated through a simulation process).

In Chapter-3, there are also significant contributions to the existing literature. This is first study in literature that examines firm-year level accounting comparability solely for IFRS period. Accounting comparability was simply inspected by comparing two sets of accounting standards as pre-IFRS/domestic accounting standards/local GAAP period and post-IFRS period in EU. However, the effects of firm-year accounting comparability for post-IFRS period only has not been investigated yet. This study provides a new insight into accounting comparability and how it is perceived by the managers within IFRS period.

The third chapter is also the first paper that offers an insight into the effects of firm-year accounting comparability on managers' specific EM preferences: AEM and REM, within the EU. This is also remarkably crucial to understand if new accounting standards serve to its purpose to raise up earnings quality as expected. In general, firms replace their EM activities by substituting AEM with REM which is another instrument to reach their financial targets when accounting comparability is high.

In additions, Chapter 3 is the first study in existing literature that investigates impact of accounting comparability on the EM choices of managers from different accounting origins. Under high accounting comparability conditions managers from Continental-European countries significantly avoid from implementing AEM and they prefer to REM strategies.

However, managers from UK, as an Anglo-Saxon country, significantly avoid of implementing AEM methods however they do not increase their REM practices. Apparently, accounting comparability is a factor to reduce practising one type of EM in Continental European countries, however it is substituted with other type of EM, which overall does not help to improve earnings quality as it is aimed by regulatory bodies. On the other hand, overall EM reduces under high accounting comparability in the UK since reduction in AEM is not significantly substituted with REM. From this perspective, Chapter-3 provides a new insight into the understanding of accounting comparability and its effects on EM preference of managers from different accounting origins.

Chapter-4, as the last empirical chapter, makes also several contributions to the current literature by addressing significant issues. The uniqueness of this chapter stems from the fact that the influence of inflation has always been ignored in the existing accounting conservatism studies. Existing econometric models split the sample into two by using zero return as a threshold. Positive return and negative returns are deemed as proxies for good news and bad news respectively. However, prices of stocks are affected by high inflation through the reduction in purchasing power. This can create an artificial increase in stock returns which can unrealistically leads labeling as negative return firms (bad news) as positive return (good news). Such inflationist effect has been taken into consideration for the first time in the literature and analyses are re-run separately for high-inflation free period.

In addition, this is the first study that compares Turkey with another EU country in terms of their accounting conservatism practices. This is an important contribution to the existent literature because of the unique position of Turkey in Europe. Turkey has historical and strong ties with European Union. Hence, numerous regulatory reforms in Turkey have been made collectively and concurrently with European Union authorities. The adoption of IFRS was one of these reform steps that was simultaneously taken by Turkey and EU at 2005. All Turkish listed firms have been subject to IFRSs since 2005 together with other firms which are listed in any other EU countries. However, since Turkey is not a member of EU, Turkey has been excluded from regional comparative study samples so far. Under the light of this fact, comparing Turkey and UK bridges the gap in the literature by providing a new and unique insight into literature from the aspect of the IFRS adoption and accounting conservatism.

Lastly, this chapter offers new proofs to the literature on whether accounting conservatism practices of the firms from various accounting origins react differently to the IFRS adoption.

Turkey had been following local GAAPs, which shows very high similarities with French-German GAAPs, whilst UK was following Anglo-Saxon accounting system, which is highly similar with the current IFRSs. The adoption of IFRS causes, to some extent, exogenous shocks in accounting system of the countries and the magnitude of shocks depends on how close the prevalent accounting regimes are to during pre-IFRS period. Taking all these things into account together with existing studies in the literature, being or not being member of same political structure does not lead to differentiation in accounting conservatism as long as countries belong to same accounting origin.

There are significant regulatory and practical implications of this study. As it is stated by IASB and FASB sources, convergence activities are still ongoing throughout the world. The thing is that, convergence activities does not merely aim to bring the same set of standards into force globally, but also to raise the quality of reporting, accounting and earnings. Thus, any new evidence about how earnings quality is affected by the adoption of IFRS and how domestic accounting regimes are affected by this transformation will shed a bright light onto ongoing convergence procedure. From this perspective, this study provides new and crucial evidences on the adoption of IFRS and its effects on earnings quality. Especially considering the fact that the future of accounting conservatism is still ambiguous and subject to continuing debates on academic and professional circles, new evidences on accounting conservatism provided in this study brings a new perspective about how accounting conservatism must be perceived.
In terms of practical implications, we can see in the literature that, most of popular econometric models are used as if they are irreproachable. Basu model is used without the assurance that whether alternative models give similar results. However, practitioners/researchers must be aware of existing criticisms about popular models and confirm the findings by considering alternatives. By considering alternatives and using three different econometric models in each empirical chapter, this study can be a good example of usefulness of being sceptical about the popular models.

The overall structure of the thesis takes the form of five chapters, including this introductory chapter. Next three chapters are empirical chapters that contains of their own introduction, literature review and hypothesis developments, hypothesis, data and methodology, results, discussions and conclusion. Chapter-2 is about adoption of IFRS and how small positive earnings firms REM behaviours are affected by this transition regarding same accounting orientations, Anglo-Saxon and Continental European. Chapter-3 is on impact of firm-year level accounting comparability on EM preferences of managers including an additional analysis on accounting orientations. Chapter-4 is last empirical chapter and it focuses on adoption of IFRS

and its effect on accounting conservatism in Anglo-Saxon accounting system and Continental European system. Lastly, chapter-5 provides a brief the conclusion on this whole thesis.

# CHAPTER-2: EFFECTS OF IFRS ADOPTION ON REM TENDENCIES OF THE SMALL POSITIVE EARNINGS FIRMS: A COMPARATIVE STUDY

## 2.1. Introduction:

The higher level of earnings quality makes financial information more "useful" and leads them to reflect "true and fair view" of economic events happened in firms. When it is considered that non-existence (at least lower level) of EM is one of the essential characteristics of earnings quality, detection of REM and understanding managers' REM incentives is crucial not only for investors but also for regulators.

EM has two main components as REM and accrual earnings management (hereafter AEM). Although details will be given in the literature review, it will be useful to provide a piece of brief information about them here. Earnings have two components as accrual and cash. To be able to reach specific earnings targets, some opportunistic managers may manipulate these two components of earnings, which is called earnings management. If the manipulation is done in a way in which manipulate accrual components of earnings it is called AEM and if the manipulation is done in a way in which to manipulate operational/real activities of business such as; reduction in discretionary expenses, increase in production or/and reduction in prices, (and ultimately cash flow) it is called REM. AEM activities tend to reverse in further years because of the nature of accrual recognitions, on the other hand, influence of REM activities lasts longer as they cause changings in operations. Zang (2012) reports that managers choice EM activities based on relative costs between AEM and REM.

REM studies in the literature have been increasingly prevalent in the last decade, although there are some factors that might make detection of REM relatively more challenging than the detection of AEM. The first challenge is that, labelling any operational action as EM contains some uncertainty in itself. Because of the fact that there is no clear border between opportunistic managerial operational decisions and the operational decisions that are given for the benefits of the firm, operational activities could not be classified as EM in certain terms. Arguably, lack of certain criteria set back the researchers from investigating. The second challenge is that lack of comprehensive empirical modelling might intimidate researchers to scrutinise REM activities. Although there is an asymmetric number of studies between REM and AEM in the literature, researchers have been focusing on REM with an increasing interest in recent years. Number of researchers investigated REM activities through addressing

individual manipulation techniques such as; adjusting R&D activities (Baber et al., 1991; Dechow and Sloan, 1991; Bushee, 1998; Bange and De Bondt, 1998; Dowdell and Press, 2004) and advertising expense (Anderson et al., 2003; Cohen et al., 2010). However, after Roychowdhury (2006), researchers have been approaching REM studies from a broader perspective by handling more than one REM techniques at once (Cohen et al., 2008; Cohen et al., 2010; Cohen and Zarowin, 2010; Gunny, 2010; Zang, 2012).

Arguably, Roychowdhury (2006) is one of the most cited studies in the field of REM. He structured a set of REM models on the basis of Dechow et al. (1998) study and he investigated REM tendencies of firms that announce marginally above the zero-earnings threshold as managers have additional motivation to manipulate firms' earnings to avoid announcing loss if the actual earnings figure is close but just below zero. Thus, firms announced earnings right above zero is called "suspected firms" because marginally positive earnings figure has higher possibility of being manipulated. He investigated three main REM techniques which are abnormally reducing prices and offering better credit terms to increase sales level, abnormal cuts in discretionary expenses, and an abnormal increase in production level to reduce COGS per unit.

It was found in this study that, firms that have small positive earnings in the UK, as an Anglo-Saxon country, were already implementing REM techniques both separately and collectively before IFRS adoption and adoption of new standards did not cause a noteworthy deviation in their REM tendencies. The same group of firms in France and Germany, as Continental European countries, however, employed REM techniques neither separately nor collectively in the pre-IFRS period but after the adoption of IFRS their REM tendencies changed significantly, and they used such methods to boost their earnings. Results of IOS REM Models and PM REM Models to large extent confirm the findings of Roychowdhury's REM Models.

Comply with my expectations, I found that REM behaviours of the firms vary with regard to their accounting orientations. In additions to that, adoption of IFRS asymmetrically affects suspect firms' REM behaviours associated with their accounting origins. Firms that have marginally positive earnings in the UK implemented three of REM techniques not only separately but also collectively during both pre- and post-IFRS periods. Thus, adoption of IFRS did not cause a noteworthy impact on REM behaviours of small positive earnings firms in the UK. On the other hand, it was found in this study that small positive earnings firms in France and Germany were implementing REM techniques neither separately nor collectively before IFRS adoption, however, their REM tendencies changed significantly after the adoption

of IFRS and they started to use REM methods both separately and collectively. Lastly, it was found that results of Roychowdhury's REM Models, IOS REM Models and PM REM Models do not contradict with each other.

This study has important contributions to literature. First of all, in my knowledge, this is the first study that investigates the impact of IFRS adoption on small positive earnings firms' REM behaviours based on their accounting orientation. Best of my knowledge, relations between REM behaviours of the firms and their accounting origins remains unaddressed. There are several studies that investigate REM behaviours of the firms based on individual countries such as; Roychowdhury (2006) used sample of US firms, Mande et al. (2000) investigated Japanese firms, Osma (2008) studied UK firms, Ahmad-Zaluki et al. (2011) scrutinized Malaysian firms' REM behaviours. In additions to that, there are international studies compared cross-country differences regarding firms' REM activities such as Braam et al. (2015), Enomoto et al. (2015), Ipino and Parbonetti (2017). However, these studies did not put accounting orientation of the countries on the focus of their studies. Capkun et al. (2016) that investigated EM behaviours of firms in EU under the light of IFRS adoption however they did not specifically focus on small positive earnings firms and income-boosting earnings management activities. From this point of view, this current study contributes to the literature by providing a complete insight into the impact of adoption of IFRS on REM behaviours of small positive income firms based on their accounting origins through comparing three biggest economies of EU, namely; UK, France and Germany.

The second contribution of this study is that, in contrast with most of the studies in literature, this is study does not solely rely on Roychowdhury's REM models. This is the first empirical study by far that uses Cohen et al., (2016) REM Models in the detection of REM. Cohen et al., (2016) investigated Roychowdhury's REM models from the econometric perspective and they claimed that Roychowdhury's REM Models' Type-I error rates are high. This brings a risk of incorrectly rejection of the null hypothesis when it is true which basically means that, the econometric model may wrongly "detect" EM when there is no such activity. In order to address this issue Cohen et al., (2016) offered a set of alternative REM Models and amongst them, performance-matched REM models (hereafter PM REM Models) gives the lower Type-I error rate. One of the other alternative models set designed by Cohen et al., (2016) is investment opportunity set REM Models (hereafter IOS REM Models) that contains additional variables to control the effect of firm-specific investment opportunity set of firms on their REM behaviours. To be able to provide a comprehensive insight into the analyse and to increase preciseness of the implications, first time in literature IOS and PM REM model sets are used

alongside with Roychowdhury (2006) REM Models to detect EM activities. Cohen et al. (2016) used their models in their simulation study only to measure and compare Type-I error rates.

This study has important political and practical implications. Regulatory bodies aim to increase earnings quality by minimizing earnings management practices, results of this study show that their efforts actually erode away by the opportunistic managers EM activities as they shift from one earnings management activities to another. Thus, this paper can mirror to regulatory bodies that their efforts and measures to increase earnings quality by minimizing earnings management activities can be neutralized by the counter move of the opportunistic managers. The practical implication of this study is that, although IOS and PM Models confirm the finding of Roychowdhury REM Models' results in this current study, it will be more credible to implement all three REM Model sets at once to robust findings of Roychowdhury REM Model set.

Structure of this paper is as follows; literature review and hypothesis development, research methodology and discussion of the results and conclusion.

### 2.2. Literature Review and Hypothesis:

#### 2.2.1. Literature Review:

##### 2.2.1.1. Definitions of EM Methods:

A large and growing body of literature has been investigating earnings management for decades. Prior studies on earnings management can be classified into two main groups in line with the managers' earning management preferences. Studies focus on manipulation of the accrual component of earnings refer the method as accrual earnings management and studies focus on manipulation of real activities call the method as "real activities manipulation" or "real earnings management".

Before examining the literature in detail, it would be useful to deliver some prominent definitions of EM and REM. While Shipper (1989) focuses on opportunistic behaviours of managers and defines EM as "the act of intentionally influencing the process of financial reporting to obtain some private gain", Healy and Wahlen (1999) take broader perspective and define EM as "…alteration of financial reports to mislead stakeholders about the organisation's underlying performance, or to influence contractual outcomes that depend on reported accounting numbers". Two of REM definitions in the literature are arguably more accepted than others. Roychowdhury (2006) defines REM as "… departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders

into believing certain financial reporting goals have been met in the normal course of operations". Scott (2011), defines REM "… the choice by a manager of real actions that affect earnings so as to achieve a specific reported earnings objective.". Despite the fact that both AEM and REM aims to manipulate earnings, what REM differs from AEM is that REM is implemented through operational activities that cause changings in cash components of earnings while AEM is implemented through accounting numbers that affect accrual component of earnings.

#### 2.2.1.2. Incentives of EM:

In this section a brief literature review will be given in various types of EM incentives and the literature on meeting/beating earnings targets, which is another important incentive for managers to implement EM, will be given in detail in further sections of this study.

There are various incentives mentioned in the literature to implement EM. Arguably the mostly studied incentives for implementation of EM are; EM to meet/beat earnings targets, EM around IPO offerings, EM stems from executives' opportunism and EM for not to breach debt covenants.

Studies show that EM activities are highly pronounced around IPO periods. The motivation implementing EM before IPO is that earning-increasing EM techniques lead issuing shares at higher price than their worth which ultimately results in increase in wealth of issuers (Aharony, 1993). Brau and Fawcett (2006) found in their survey study that, IPO historical earnings figures before IPO is the most important figure that they use to influence prospect investors. Friedlan (1994) found that before IPO issuers implement EM methods to upwardly manipulate their income. Marquardt and Wiedman (2004) asserted that IPO firms manipulate their earnings by using specific accruals to apply revenue recognition earlier. Darrough and Rangan (2005) found that managers implement income boosting REM technique by significantly reducing R&D expenses before IPO. Moreover, managers manipulate earnings not only before IPO but also after since usually entrepreneurs are not allowed to sell their shares immediately after IPO and keeping their wealth at high may require continuing EM practices (Brau et al. 2005).

One of the other mostly pronounced motivation for managing earnings is special management incentives. Agency theory plays a key role in explanation of these type of incentives for EM. In one of the earliest definitions, agency theory is explained as a conflict of interest between principles (owners) and the agents (executives) in the separation of ownership and control of a firm (Jensen and Meckling, 1976). So, when executives and shareholders both aim to maximize their benefits, it is possible that executives (agents) would not always give their decisions in the best interest of the owners (principles). Healy (1985) found that opportunistic managers may involve in EM practices to reduce firm's earnings if they manage to hit their

bonuses to the maximum level. Following Healy (1985) Holthausen, Larker, and Sloan (1995) found conforming results with findings of Healy. Moreover, Dechow and Sloan (1991) found that managers implement REM techniques to manage earnings in a special case that if the CEOs are in their final year, they decrease R&D spendings to boost final latest year's earnings.

Managers have various incentives to manage/manipulate earnings. One of the other mostly pronounced motivation for managers to manipulate earnings is to not breach debt covenants. Studies on EM and debt covenant valuation relationship suggest that managers practise EM methods to avoid breaching debt covenants and also to elude technical default (Defond and Jiambalvo, 1994; Dichev and Skinner 2002). Dichev and Skinner (2002) also found that the frequency of firms right above the level of violation of debt covenants are "unusually" higher than the number of firms right above the level of violation of debt covenants, which was interpreted in a way that managers of firm that right above violation of debt covenants "take action" to avoid breaching debt agreements. In additions to that, usage of REM is also the case to avoid breaching debt covenants. Franz et al. (2014) found that firms that close to breaching debt agreement conditions and firms that have a high risk of technical default engage in AEM and REM together. In additions to that, firms that under same conditions shift their EM preferences from AEM to REM if the regulatory environment becomes stricter. When it is considered that high leverage level is used as a proxy for risk of breaching debt covenants, Bartov (1993) found that gain from fixed-asset sales is higher for firms that have higher leverages, which can be interpreted as REM in terms of timing of fixed-asset sales.

Managers have various incentives to manage/manipulate earnings. One of the other mostly pronounced motivation for managers to manipulate earnings is to meet/beat stock market expectations. The reaction of the stock market participants to earning figures, reported in financial statements, can create an incentive for managers to manipulate earnings. Studies show that both executives and investors attach a great amount of importance to earnings figures more than any other items on the financial statements. Market expectations and EM relationship will be investigated in detail in section of 2.2.1.3. EM and Meeting/beating Earnings Targets.

#### 2.2.1.3. EM and Meeting / Beating Earnings Targets:

Meeting/beating earning targets is crucial for managers because if they fail to hit the target then stock markets asymmetrically react to "earnings surprise" in a way that the decrease in stock prices when they fail to hit the target is higher than the increase in prices when they succeed to hit their targets (Skinner and Sloan 2002). However, even if they manage to

meet/beat their earning targets, they can enjoy short term increase in price unless the earnings quality is high (Bhojraj et al., 2009). Thus, earnings quality in meeting/beating earnings targets plays an important role.

A noteworthy number of studies in EM literature investigate the way managers manipulate firms' earnings and their incentives to meet/ beat specific earning targets. (Cohen et al., 2010; Dechow et al. 2000; Brown and Caylor, 2005; Burgstahler and Eames 2006; Burgstahler and Dichev 1997; Durtschi and Easton 2005; Baber et al., 1991; Roychowdhury, 2006; Gunny, 2010; Degeorge et al., 1999; Graham et al., 2005; Bartov et al., 2002; Kasznik and McNichols, 2000). Brown and Caylor (2005) suggest that managers give more importance to avoid quarterly negative earnings surprises than quarterly losses or quarterly earnings decreases. Graham et al. (2005) found in their survey study that, managers consider that earnings, not cash flows, is the most important figure in financial statements that they attach importance to. They also found that managers think meeting/beating earnings targets is extremely important as much as sacrificing long-term value increases. Under conditions of the trade-off between long-term value increases and meeting/beating earning targets, managers prefer to meet/beat earning targets at the expense of long-term value increases as managers believe that meeting/beating earning targets increase firm's credibility on the market, and it would eventually be positively reflected in stock prices. Interestingly, if managers fail to meet/beat earning targets marginally, stock markets react more severely as analysts think that managers did not manage to find an additional source to meet/beat the benchmark so it would be because of a hidden problem in the firm. Dechow et al. (2000) found that firms that meet/beat earnings benchmarks have significantly high accruals and also an unusual level of special items comparing other firms in their sample. They also found that firms that have marginally positive earnings have strong incentives to postpone reporting negative news about their firms. They also assert that firms that have marginally positive earnings have relatively bad stock market performances in further years. Burgstahler and Eames (2006) found that managers manage firms' earnings levels to avoid failing analysts' forecasts especially regarding zero and marginally small positive earnings. They found that distribution of unexpected earning announcements has a significantly high frequency for marginally positive earnings and also significantly lower frequency for marginally negative earnings. They also found that firms that meat/beat analysts' forecasts have upwardly managed earnings. Degeorge et al. (1999) investigate and compare the motivational power of different earnings benchmarks regarding EM techniques. They asserted that zero earnings threshold is the predominant earnings target amongst others as they found that managers that want to excess zero earnings implement EM activities more aggressively than other managers that want to meet/beat last year's earnings or analysts' expectations.

There are some studies in the literature that specifically focused on management of earnings through real activities. Cohen et al. (2010) specifically focused on usage of advertising expense as a tool to manipulate earnings. They found that managers prefer to reduce their advertising expenses significantly under two out of three conditions. Based on their findings, managers cut advertising spendings to avoid reporting a quarterly loss. Moreover, they also decrease advertising expenses to meet/beat earnings of a same quarter of the last year. In additions to that, they found that stage of firms' lifecycle is an important factor in determining advertising expense of the firm. They found that, firms that in late-terms of their lifecycle significantly increase their advertising expenses, rather than decreasing, to meet/beat earning targets. Burgstahler and Dichev (1997) reported that apart from accruals, managers also manipulate earnings by adjusting firms' CFO and working capital levels. By doing so they can reach specific earning targets such as avoiding earnings decreases comparing last accounting period and announcing losses. Their explanation for such earnings management behaviour is that the largest benefit from earnings management is gained when a firm moves from loss to profit. Baber et al. (1991) investigate whether managers use R&D investment decisions to manipulate favourable profit trends. They found that managers cut R&D spendings if they think that announcing positive or increasing earnings figure is at risk. In additions to that, they report that managers consider "current period" more when they make an R&D spending decision as a deduction in R&D spendings directly be reflected in financial statements as a higher amount of earnings and a higher amount of cash. Rochowdhury (2006) found that managers of small positive income firms implement three main real earnings management techniques, which are offering price discounts and lenient credit terms to facilitate transaction conditions for the customers, reduction in discretionary expenses such as R&D, SG&A and/or advertising, and increase production cost to reduce CoGS per item in order to meet/beat zero earnings targets. To sum up, studies put forward in detail that managers use not only AEM but also REM methods to meet/beat specific earning targets.

#### 2.2.1.4. Methods of REM:

Especially before Roychowdhury (2006), REM studies generally focused on individual REM strategies such as adjusting decelerating or postponing of R&D activities, reduction of advertising budget or adjusting credit and pricing policies (Roychowdhury. 2006; Baber et al., 1991; Dechow and Sloan, 1991; Bushee, 1998; Bange and De Bondt, 1998; Cheng, 2005, Graham et al., 2005, Cohen et al., 2010; Anderson et al., 2003).

Baber et al. (1991) suggest that manufacturing firms allocate significantly less amount of resources for R&D activities if the firm is under the risk of reporting negative earnings. They also found that reduction in R&D is the first choice of management to resort as a first choice comparing some other discretionary investment expenses to keep/make earnings positive. Dechow and Sloan (1991) find that CEOs in their final year use reduction in discretionary expenses, particularly R&D, to boost short term firm performance. Bushee (1998) investigates the relationship between opportunistic R&D cuts and institutional owners' attitude. He finds that existence of institutional ownership causes myopic investment decisions that lead to reduction in R&D to reach short term performance goals. However, if the institutional ownership is in "extremely high level" in a company then the R&D is expenses are not reduced by the management. Bangea and De Bondtb (1988) found that managers adjust their R&D budget to minimize the difference between analysts' expectations and reported earnings. Executive remuneration plan and institutional ownership, however, has a reducing effect on REM level. Cheng (2004) finds that there is a positive correlation between CEOs option grants and R&D spending of the firms. This implies that opportunistic R&D cuts made by CEOs can be diminished by the compensation committee's decision. Graham et al. (2005) founded in their survey study that, 80% of financial managers admitted that, they would cut R&D advertising, and maintaining expenditures, in order to meet targeted earnings. Roychowdhury (2006) asserted that managers of firms that have marginally positive earnings use reduction in R&D expenses, together with other discretionary expenses such as selling & general administrative expenses and advertising expenses, as a tool to boost current year's earnings to ensure that earnings level is above the zero-earnings threshold.

As a discretionary expense, a decrease in advertising expense can be used as a tool to positively affect earnings. However, as advertising activities have an –expected- immediate positive effect on sales, an increase in advertising expense can also positively affect the earnings level. Cohen et al. (2010) find that managers reduce advertising expenditures if there is a risk of reporting negative earnings or decrease in earnings. However, they also found that firms in late stage of their life cycle can increase their earnings by increased advertising expenses. In addition to that, firms also use advertising increases in fourth quarter to beat last year's earnings if increase in advertising expense can be translated into increase in sales. Anderson et al (2003) argue that the reduction in advertising expense requires less effort and cost than the reduction in R&D expenses as the reduction in advertising expense does not involve in the disposal of assets, R&D staff layoffs and severance payments.

Roychowdhury (2006) investigated firms', which have marginally positive earnings, price and credit policies. According to his findings, managers opportunistically manipulate earnings through offering price discounts in the way in which abandoning optimum pricing to boost sales

and also through providing lenient credit terms to facilitate purchasing for the customers. By doing so, both earnings and cashflow generated for the period increase, however, cash flow from operations relative to sales will be lower than the firms that do not involve in such earnings management activities, The reason for that is that, by decreasing price and providing lenient credit terms, the cash flow that firm generates from each sale will be less than the cash that would be generated by sale that is made with optimum price and credit policy. Ahearne et al. (2016) found in their survey study that, sales executives pre-emptively change their behaviours in anticipation of top management's REM
requests. In additions to that, they found that firms that offer cash incentives to their sales staff engage in higher REM activities, that might be interpreted in a way that cash bonuses to sales personnel might be used as a tool to implement REM practices.

Roychowdhury (2006) also found that managers abnormally increase the level of production in order to reduce cost of sold goods per item. The idea behind this is that overproduction will lead to the spreading of fixed costs over higher number of the production unit. This will cause a lower fixed cost per produced item which will ultimately result in lower cost of goods sold per item. Lower cost of goods sold will be reflected in financial statements as higher profit figure. However, these policies have some "side effects" on total costs for the current period. First of all, the increase in the level of production will inflate the total costs for the current period. In additions to that, overproduced units will put an additional cost burden on the firm since firm will suffer from additional holding and storage costs because of overproduction. Under normal conditions, these costs will not be recovered by current period sales, unless manufacturing firms apply to channel stuffing or receive unexpected high demand. These strategies are employed at the expense of abnormally low cash flow from operations (CFO) and high total production cost for the period.

The fixed-asset sale is another, but arguably less studied method of REM comparing with other methods. Bartov (1993) found that managers use the timing of fixed-asset sales in terms of smooth firm's earnings. In additions to that, managers also use fixed-asset sales to mitigate the risk of breaching debt covenants. In additions to that, however, Black at al. (1998) found that if accounting system allows firms to revalue the fixed-assets, managers prefer to adjust revaluation of carrying amount rather than timing to the sale of assets. Poitras et al. (2002) found that firms may use the timing of asset sales to smooth their earnings, however, they do not practise REM through the timing of asset sales to avoid breaching debt covenants which was discussed in their study that this might be because of the specification of their sample

selection. Herrman et al. (2003) asserted that, when income from operations of a firm is below management's earnings projection, firm boosts earnings through asset sales.

#### 2.2.1.5. Adoption of IFRS and its effects on EM:

Adoption of IFRS by all EU member states at 2005 was one of the most important cornerstones of financial regulation in EU. By adopting IFRS, increase in comparability of financial reports, raise in transparency and an increase in financial reporting quality were expected (EC Regulation No. 1606/202).

There are several studies on the impact of adoption of IFRS on EM behaviours of firms. Some studies asserted that the adoption of IFRS has limited impact on EM (JeanJean and Stowoly, 2008; Doukakis, 2014). On the other hand, some researchers found a significant decline in EM after the adoption of IFRS (Chen et al., 2010; Wijayana and Gray, 2018; Antonio et al. 2011; Ipino and Parbonetti, 2017). Chen et al. (2010) used listed firms from 15 EU countries as a sample and their results suggested that after adoption of IFRS in the EU, there is less EM through earning targets. In additions to that, the magnitude of absolute discretionary accruals also become lower after the adoption of IFRS. Wijayana and Gray (2018) found that in the Asia-Pacific region, adoption of IFRS is associated with the reduction in EM and, such decrease in EM is more pronounced especially in recent years. In additions to that, they found that during the post-IFRS period, differences between EM levels within the region countries still exist, which might be interpreted in a way that institutional and cultural factors continue to be determinants of cross-country EM differences. Antonio et al. (2011) found that after adoption of IFRS, EM activities decreases due to the fact that the board of directors and audit committees become more efficient. Ipino and Parbonetti (2017) asserted that AEM declined after adoption of IFRS. On the other hand, such reduction in AEM is substituted with increase in REM. Thus, it can be said that the efficiency of regulatory bodies' effort to decreases EM level has been undermined by the managers who shift from AEM to REM since the only change is the type of EM. In additions to that, they also found that after adoption of IFRS cross-country differences are still valid.

As it was stated in the literature, adoption of IFRS did not affect all countries in the same way. Especially, in the EU, member states are affected in a different scale. This might be because of the fact that most of the countries were following rule-based Continental European accounting system, yet IFRS is principle-based system and closer to Anglo-Saxon accounting system (Callao and Jarne, 2010; Chen et al., 2010). In additions to that, adoption of IFRS is

not the only and enough strategy to improve financial reporting quality. It was stated in the literature that, apart from adoption of IFRS. Cultural variations amongst states can accelerate or decelerate the convergence process (Zeff, 2007; Wijayana and Gray, 2018; Ipino and Parbonetti, 2017). Domestic institutions, moreover, especially the strength of legal enforcement plays a crucial role in the improvement of financial information quality after the adoption of IFRS (Ball et al., 2003; Daske et al., 2008; Daske and Gebhardt, 2006).

### 2.2.2. Hypothesis:

Zang (2012) reports that managers implement EM methods based on their relative costs. Adoption of IFRS pose the risk of detection to opportunistic managers as using the same set on standards not only within the same country but cross-country level increases comparability. This leads to a reduction in AEM as the relative cost of AEM becomes higher which also means that the relative cost of REM reduces comparing with cost of AEM.

In additions to that, as it is stated above, IFRS is more principle-based and close to Anglo-Saxon accounting system thus, adoption of IFRS will cause more deviation in Continental European accounting system followers by increasing reporting quality. Hence, it is expected that after adoption of IFRS, managers of the firms that have marginally positive earnings in Continental Europe prefer to implement higher level of REM comparing with the pre-IFRS period. However, as Anglo-Saxon countries were already subject to higher quality accounting standards and have a domestic accounting system that closer to IFRS even before the adoption of IFRS, I expect no significant deviation in REM tendencies of firms in Anglo-Saxon countries between before and after IFRS period. Hence, I developed the following hypothesis;

Hypothesis-1: Comparing with pre-IFRS period, there is an increase in REM activities of SUSPECT firm-years in Continental European Countries in the post-IFRS period.

Hypothesis-2: Comparing with pre-IFRS period, there is no noteworthy change in REM activities of SUSPECT firm-years in Anglo-Saxon Countries in the post-IFRS period.

### 2.3. Data and Methodology:

#### 2.3.1. Sample:

Data of this study, retrieved from DATASTREAM, spans between 1990 and 2015. Some studies in the literature focused on 2 or 3 years before and 2 or 3 years after 2005, which is the year of mandatory adoption of IFRS for EU countries. Such a narrow time span, however, is exposed to the complication of transition period from local standards to IFRS. Thus, the findings of studies that focus on short time span of adoption oftenly contradict with each other. Considering this, time span of this chapter is chosen as covering 25 years and 15 years before and 10 years after IFRS adoption. The reason of choosing 5 years longer time period for the pre-IFRS period is that, the number of observations before IFRS is relatively scarce comparing with after IFRS period. Thus, to have a balance between pre- and post-IFRS period, regarding number of observations, time-span of pre-IFRS period is chosen 5 years longer. The sample is composed non-financial firms listed in UK, France and Germany. These three countries are chosen to analyse whether REM activities of the firms from two different major accounting orientations, Anglo-Saxon accounting regime and Continental Europe accounting regime, vary between each other. UK represents Anglo-Saxon accounting regime, while France and Germany represent Continental-European accounting regime. Following other EM studies, financial firms which are classified under banking, insurance and other financial firms are excluded from the sample. Also, following literature, the industry-years that have less than 15 firm-year observations are excluded from the sample (Roychowdhury, 2006). Although firm-year observations vary between sub-samples, total firm-year observation for the full sample is 36,518 of which 19,685, 8,524 and 8,309 were developed for UK, France and Germany respectively. The number of observations of UK is more than double of the number of observations of France and Germany. This is because the number of listed companies in London Stock Exchange is higher than Frankfurt Stock Exchange and Paris Stock Exchange.

#### 2.3.2. Methodology:

To date, various methods have been developed and introduced to measure EM. Arguably, in last two decades, popularity of REM studies has been in the rise after the introduction of Roychowdhury's REM Model set to the literature. Following the literature, Roychowdhury's REM Model set is used in main analyse section. Apart from that, considering Cohen et al. (2016)'s comments about Roychowdhury's REM Models, two additional sets of REM models from Cohel et al. (2006)'s paper also employed in this study, which are IOS REM Models and PM REM Models, in order to provide a credible insight into REM usage behaviours of the firms.

Following Roychowdhury (2006) Fama McBeth (1973) procedure are employed in analysing of the data. Fama-MacBeth (1973) procedure is composed of two steps. In the first step, a cross-sectional regression is performed for every time period and different coefficients are obtained for each period. And in second step, final coefficients are obtained by taking the average of the coefficients that are generated in the first step. So, in this study, first step regression is run cross-sectionally for every industry-year to obtain coefficients. And in second step, the estimations are used to get final coefficients through running a time-series regression. However, there is a need to consider autocorrelation and heteroskedasticity in this procedure. Thus, Newey-West procedure is applied to the procedure to generate errors robust to autocorrelation and heteroskedasticity.

Fama and Macbeth (1973) asserted that panel regressions precedes over both the cross-correlation problem and the bias in the standard errors of regression slopes that stems from the fact that the residuals are correlated across years. However, Fama-Macbeth two-step procedure takes this into the account because of the nature of the design of the model. Although, Fama-Macbeth two-steps procedure is employed in Chapter-2, same regressions are also run by using fixed effect panel data methodology and untabulated results have negligible differences with the results obtained through Fama-Macbeth two-steps regression methodology. In additions to that, t-statistics in Chapter-2 is calculated by using Newey-West procedure to generate standards errors corrected for heteroskedasticity and autocorrelation.

Same two-step regression is also run for IOS REM Model set. Different than Roychowdhury REM Model (1997), proxies for IOS for each firm is added into the first step when coefficients of each time period are estimated. In additions to that, PM REM Model set is identical with Roychowdhury's REM Model set by the end of the process that each firm's abnormal values are calculated. However, there is an additional set in the PM REM Model which is matching firm-years based on their performance. In this matching procedure, return-on-assets (ROA) is used as a proxy for performance. Firm-years are matched with each other as long as they are in the range of the firm's +/- 10% of the ROA. The observations are deleted if there is no possible matching observation within +/- 10% of the ROA range. Once firms are matched, then abnormal CFO, abnormal discretionary expenses and abnormal production costs of matched firm's values are subtracted from the firm that we are calculating its abnormal values. T-statistics in the test are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.

Details of the models the models are explained in further sections but before that, selection procedure of marginally positive earnings firm-years must be explained, as the notion behind the study is based on the ground of comparison of small positive earnings firm-years with rest of the sample.

#### 2.3.2.1 Selection of SUSPECT firm-years:

Much of the current literature on EM pays particular attention to the meeting or beating specific earning targets such as analysts' expectations, level of earning in previous year and zero-earnings threshold. Firm-years are classified based on their earning levels in order to detect whether managers of this specific group of firm-years employed EM methods to hit their earnings targets (Cohen et al., 2010; Burgstahler and Eames 1999; Burgstahler and Dichev 1997; Durtschi and Easton 2005; Skinner and Sloan 2002; Baber et al., 1991; Roychowdhury, 2006; Bhojraj et al., 2009; Gunny, 2010; Degeorge et al., 1999; Graham et al., 2005). Thus, the classification of firm-years must be precise as there is a risk to include some firm-years that have no incentives to manage their earnings (Roychowdhury, 2006).

This study specifically focuses on the zero-earnings threshold as an earning target and investigates whether firm-years that announce barely positive earnings differentiate from rest of the sample in terms of their REM activities. Roychowdhury (2006) asserts that firms that just above the zero-earnings threshold are more motivated to manage their earnings upwardly than other firms which are far from zero-earnings threshold as the positive earnings target is either met already or not possible to meet. As the ultimate aiming of earnings management is -regardless of being through real activities or accruals- is same, firm-years that are just above zero earnings can be grouped to be used as a sample for detection of real earnings management activities. Thus, considering managers' motivation for the implementation of earnings management strategies and following previous studies, firm-years just above the zero-earnings threshold is chosen as "SUSPECT firm-years".

Following Roychowdhury (2006), firm-years are clustered into intervals based on their earnings scaled by lagged total assets. Figure-1 demonstrates the frequency of all observations within the range of -0.075 and +0.075 earnings lagged total assets ratio. Interval 1 represents for the firm-years that their earnings are between -0.075 and -0.07 (not including), and interval 30 represents for the firm-years that their earnings scaled by totals assets are between +0.07 and +0.075 (not including). Following Roychowdhury (2006), observations out of this range are truncated from both sides in order to provide simplified viewing of distribution of firm-years around zero-earnings threshold. Thus, intervals in Figure-1 is restricted with 30 in which each interval representing 0.005 earnings slice. Interval number 16, which is composed of firm-years that have just above the zero-earnings threshold but below +0.005, is

considered as SUSPECT firm-years. As it can be seen there are dramatic increases from interval 15, which is just below zero earnings, to interval 16, which is barely positive earnings. Previous studies considered that such discontinuity in earnings distributions are considered as a sign of possible EM practices implemented by firm-years announced barely positive figures (Burgstahler and Dichev 1997; Hansen 2010; Roychowdhury 2006).

Figure-2.1 Figure A, B and C exhibit the distribution of firm-years for UK, France and Germany respectively. As it can be seen in the figures that the patterns of the graphs are, to large extent similar with each other and they also have a high resemblance to the patterns of distribution graphs of previous studies (List previous studies here). The frequency of earnings distribution is clearly higher for positive earnings firm-years (from interval 16 to 30) than the negative earnings firm years (from interval 15 to 1). As it can be seen, there is a dramatic increase in the frequency of firm-years from just below of zero earnings threshold (interval 15) to the just above zero earnings (interval 16) in Figure 2.1A, B and C, which can raise the question marks regarding EM for interval 16. There are 484 suspicious firm-years for the UK, 310 for France and 340 for Germany over total firm-years of 19,685, 8,524 and 8,309 in the same order.

Figure-2.1A

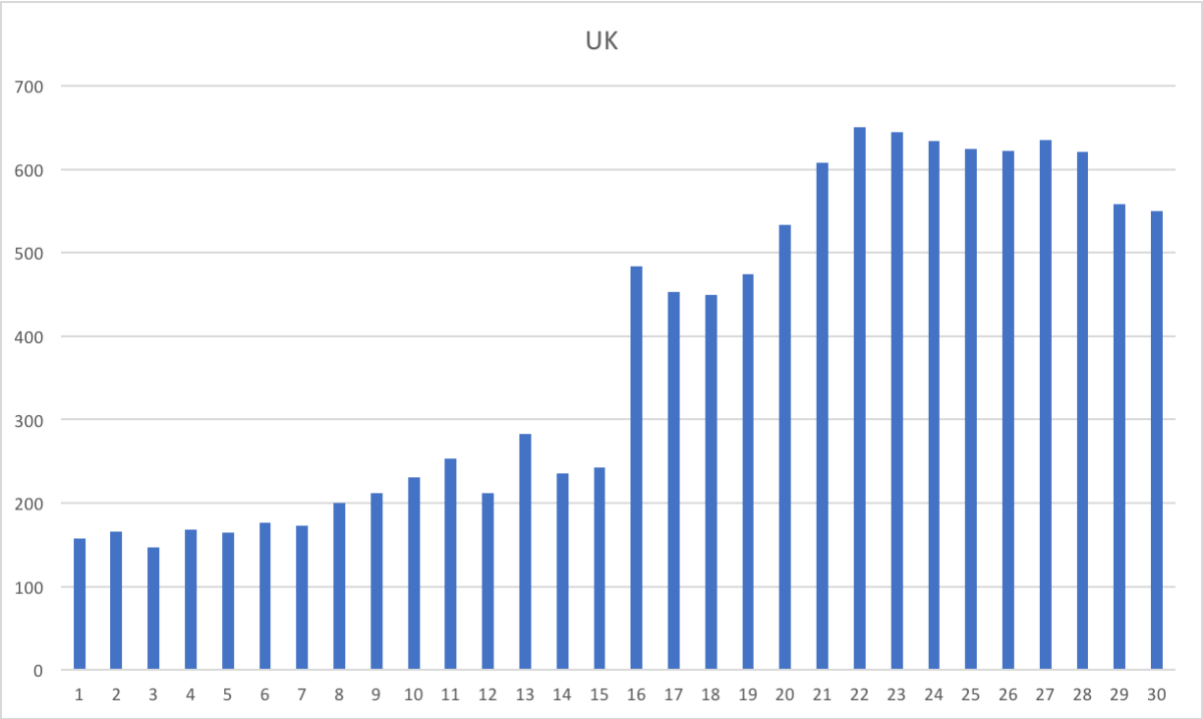


Figure-2.1A shows number of firm years classified based on earnings intervals for UK. Each interval ranges represents 0.005 percent of earning slices which is calculated as earnings before extra-ordinary items scaled by total assets. Slice number 1 shows frequency of firms-years that have -0.075 earnings before extra-ordinary items scaled by total assets slice number 30 presents frequency of firm-years that have +0.075 earnings before extra-ordinary items scaled by total assets. Slice number 16, which is called SUSPEC firm-years represents firm-years that earnings before extra-ordinary items scaled by total assets greater than or equal to zero but less than 0.005. Figure is truncated from both sides to present 30 intervals only.

Figure-2.1B

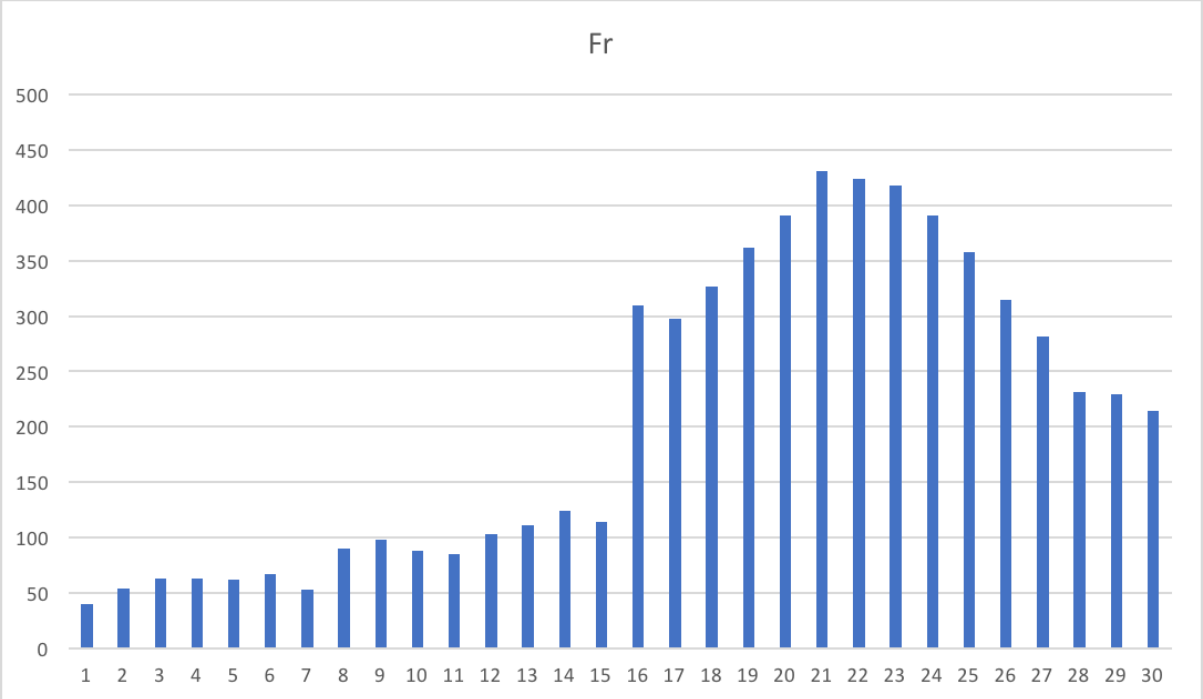


Figure-2.1B shows number of firm years classified based on earnings intervals for France. Each interval ranges represents 0.005 percent of earning slices which is calculated as earnings before extra-ordinary items scaled by total assets. Slice number 1 shows frequency of firms-years that have -0.075 earnings before extra-ordinary items scaled by total assets slice number 30 presents frequency of firm-years that have +0.075 earnings before extra-ordinary items scaled by total assets. Slice number 16, which is called SUSPEC firm-years represents firm-years that earnings before extra-ordinary items scaled by total assets greater than or equal to zero but less than 0.005. Figure is truncated from both sides to present 30 intervals only.

Figure-2.1C

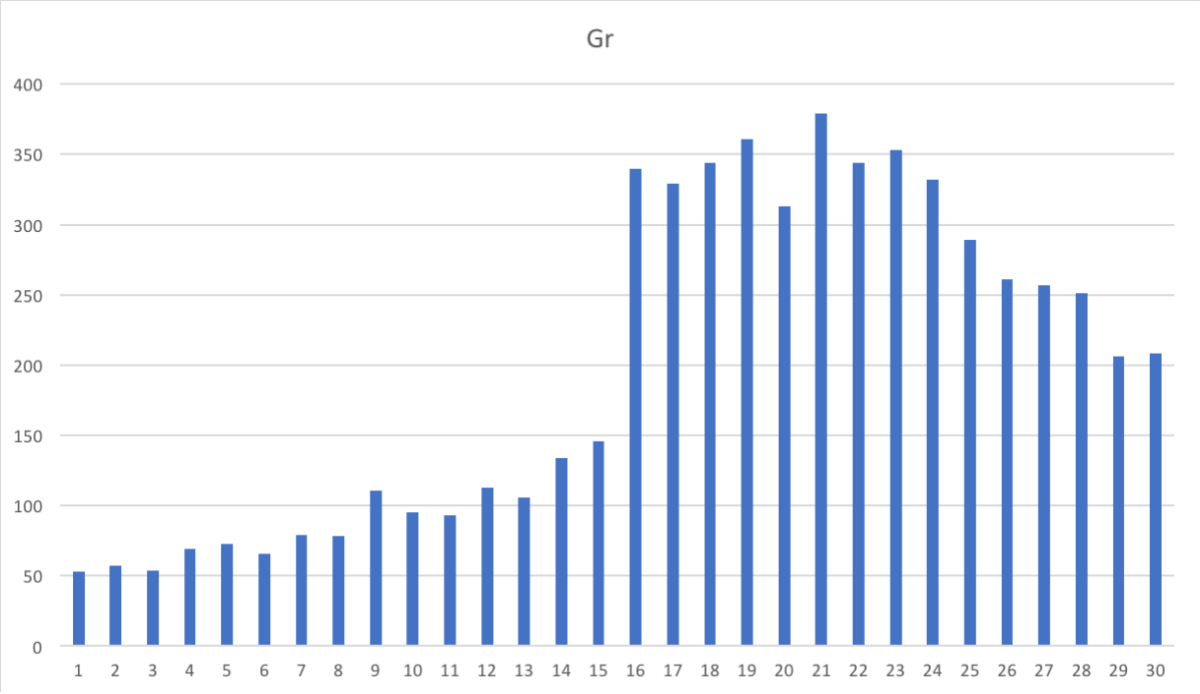


Figure-2.1C shows number of firm years classified based on earnings intervals for Germany. Each interval ranges represents 0.005 percent of earning slices which is calculated as earnings before extra-ordinary items scaled by total assets. Slice number 1 shows frequency of firms-years that have -0.075 earnings before extra-ordinary items scaled by total assets slice number 30 presents frequency of firm-years that have +0.075 earnings before extra-ordinary items scaled by total assets. Slice number 16, which is called SUSPEC firm-years represents firm-years that earnings before extra-ordinary items scaled by total assets greater than or equal to zero but less than 0.005. Figure is truncated from both sides to present 30 intervals only.

#### 2.3.2.2. Empirical Models:

Earlier studies on earnings management mainly focused on AEM thus, theoretical and empirical analyses on REM is remained relatively less flourished. However, it can be argued that the number of studies on REM dramatically increased after Roychowdhury's (2006) study, which filled the gap of comprehensive empirical modelling in the literature of REM.
Thus, the first set of REM Models used is this study is obtained from Roychowdhury (2006). Roychowdhury (2006) built his modelling based on empirical study of Dechow et al. (1998). He found evidences that managers manipulate earnings through diverging from "normal" levels of operational activities. He claimed that opportunistic managers may offer abnormal price discounts, or they can loosen the credit terms, so by doing that they facilitate the conditions for the customers and persuade them to buy products or services which cause a temporarily increase earnings (Dechow et al., 1998; Roychowdhury, 2006). As a consequence of this policy, however, production costs do not change per sale, but total production costs relative to sales will be abnormally high and this will lead abnormally lower CFO relative to sales revenue for REM firms. So, the REM activity here basically causes acceleration of sales activity, however this new level of sales is not sustainable due to the fact that new price and credit policy is set through moving away from optimum price and credit policy for the firm.

As it is stated above, implementing REM through price discounts and loosening credit terms will lead abnormally lower CFO relative to sales revenue. To detect such anomaly, following equation is employed which regresses cash flow from operations scaled by lagged total assets on sales and change in sales both scaled lagged total assets for every industry-year.

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_1\left(\frac{S_{i,t}}{A_{i,t-1}}\right) + \beta_2\left(\frac{\Delta S_{i,t}}{A_{i,t-1}}\right) + \varepsilon_t \qquad (2.1)$$

$CFO_{i,t}$= Cash flow from operations of firm i at industry-year t
$S_{i,t}$= Sales of firm i at industry-year t
$\Delta S_{i,t}$= Sales at year t minus sales at year t-1 for firm i at industry-year t
$A_{i,t-1}$= Total assets of firm i at the beginning of industry-year t.

The reason of using total asset as a deflator allow the model to adjust for the size of the firm and focus on relative performances across firms. If the variables are not deflated by total assets or likewise size proxy, then the magnitudes of larger firms' CFOs and sales will

probably greater than relatively smaller firms, which makes the coefficients biased. In additions to that, using lagged variable as a deflator, (lagged total asset in this occasion) is to evade possible issues that might arise as current size and cash flows and revenues are probably conjointly determined. Previous studies in the literature shows that ignoring so-called "scale effect" on accounting numbers can cause biasness in estimation of coefficients and can also cause heteroscedasticity (Barth and Clinch, 2005; Lo and Lys, 2000; Easton and Sommers, 2003). Same as Equation-2.1, dependant and independent variables are deflated with lagged total assets in Equation-2.3, 2.4, 2.5, 2.7, 2.9, 2.11 and 2.13, except Tobin's Q, logarithm of market value and lifecycle in Equation-2.9, 2.11 and 2.13.

The coefficients generated by this regression are used to calculate the "normal" levels of cash flow from the operations for every firm-year. Abnormal CFO for every firm-year is calculated through Equation-2.2. Normal CFO of every firm-year is subtracted from their actual CFO. As it can be seen in Equation-2.2, abnormal CFO of firm i in industry-year t is obtained through actual CFO of firm *i* in industry-year *t* minus normal CFO calculated using the estimated coefficients of the parameters through Equation-2.1.

$$AbCFO_{i,t} = CFO_{i,t} - CFO_t \qquad (2.2)$$

$AbCFO_{i,t}$= Abnormal cash flow from operations for firm *i* in industry-year *t*
$CFO_{i,t}$= Cash flow from operations for firm *i* in industry-year *t*
$CFO_t$= Normal cash flow from operation of firm i in industry-year *t* (obtained through Equation-2.1).

The second way to manage earnings through real activities is to manipulate production costs through intervening production process. The aim is to increase production and by doing so decrease cost of production per unit thanks to economy of scale. This causes a temporary decrease in cost of goods sold and increase in earnings even if price and the level of sales remain same. Although cost of sales per unit decreases, total production costs in the period relative to sales revenue increases as a result of this strategy. This is because of two factors. First, the excess inventory generated by this activity will be stored, which will lead an additional cost to the company. Second, the cash would be tied up to inventory longer period of time than it is done under normal conditions. Thus, production costs of the firms will be abnormally high relative to sales income. Following Roychowdhury (2006), normal levels of production

costs for every firm-year is estimated through combination of cost of goods sold and growth in inventory. Normal levels of COGS and growth in inventory is calculated through Equation-2.3 and Equation-2.4 respectively. Normal levels of production cost are obtained through Equation-2.5.

As it is stated above, implementing REM through increase in production level will lead abnormally lower CoGS relative to sales revenue. To reveal such abnormality, following equation is employed which regresses CoGS scaled by lagged total assets on sales scaled lagged total assets for every industry-year.

Normal levels of CoGS;

$$\frac{CoGS_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_1\left(\frac{S_{i,t}}{A_{i,t-1}}\right) + \varepsilon_t \qquad (2.3)$$

$CoGS_{i,t}$= Cost of goods sold of firm i in industry-year t

The rest of the variables are described above.

Increase in production level also leads abnormal increase in the amount of inventory held during the period as the excessive units produced in the year cannot be sold immediately. So, there will be inconsistency between amount of change in sales and amount of change in inventory held during the period. The temporary growth in amount if inventory is mapped in the “change in inventory” figure. To detect such anomaly, following equation is employed which regresses change in inventory level scaled by lagged total assets on change in sales and change in lagged sales both scaled lagged total assets for every industry-year.

Normal growth of inventory;

$$\frac{\Delta INV_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_1\left(\frac{\Delta S_{i,t}}{A_{i,t-1}}\right) + \beta_2\left(\frac{\Delta S_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon_t \qquad (2.4)$$

$\Delta INV_{i,t}$= Change in inventory of firm i from industry-year t-1 to t.

Rest of the variables are described above.

By considering Equation-2.2 and Equation-2.3 normal level of production cost is estimated through following equation via combining cost of goods sold and change in inventory for every firm for each industry-year.

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_1\left(\frac{S_{i,t}}{A_{i,t-1}}\right) + \beta_2\left(\frac{\Delta S_{i,t}}{A_{i,t-1}}\right) + \beta_3\left(\frac{\Delta S_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon_t \quad (2.5)$$

$PROD_{i,t} = CoGS_{i,t} + \Delta INV_{i,t}$

Rest of the variables are described above.

The coefficients that estimated for each industry-year with the equation, is used to obtain normal levels of production cost for each firm-year. Abnormal PROD for every firm-year is calculated through Equation-2.6. Normal PROD of every firm-year is subtracted from their actual PROD. As it can be seen in Equation-2.6, ($AbPROD_{i,t}$) is obtained through actual PROD of firm *i* in industry-year *t* ($PROD_{i,t}$), minus normal PROD ($PROD_t$) calculated using the estimated coefficients of the parameters through Equation-2.5.

Abnormal production cost is calculated via;

$$AbPROD_{i,t} = PROD_{i,t} - PROD_t \quad (2.6)$$

$AbPROD_{i,t}$= Abnormal production cost for firm *i* in industry-year *t*

$PROD_{i,t}$= Production cost for firm *i* in industry-year *t*

$PROD_t$= Normal production cost for firm i in industry-year *t* (obtained through Equation-2.5).

The last REM measure created by Roychowdhury to detect REM is discretionary expenses. Operational discretionary expenses such as R&D, selling and general administration expenses and advertising expenses can be manipulated by the managers in order to boost earnings. Reducing discretionary expenses automatically leads to an increase in earnings as total cost of the period is diminished, however, abnormally decrease in discretionary expenses will lead deviation from firm's "normal" discretionary expenses policy. This policy, however, can be implemented temporarily like other REM policies since long run deviation from optimum operational policies will causes heavier cost to the REM practitioner firms. The firms that managed their earnings by reducing discretionary expenses are expected to have significantly lower discretionary expenses relative to their sales level than other firms. "Normal" level of discretionary expenses is calculated through regressing discretionary expenses scaled by

lagged total assets on lagged sales scaled by lagged total assets as it is shown in Equation-2.7.

Normal discretionary expenses;

$$\frac{DISEXP_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_1\left(\frac{S_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon_t \quad (2.7)$$

$DISEXP_{i,t}$= Sum of Selling and General Administration Expenses and Research and Development expenses of firm i in industry year t.
Rest of the variables are already described above.

In Roychowdhury's (2006) study discretionary expenses are calculated as sum of General Administrative Expenses, Advertising Expenses and Research and Development expenses however, DATASTREAM provides Selling and General Administrative expenses including advertising expenses. Thus, although it seems that advertisement expenses are not added in discretionary expenses, SGA obtained from DATASTREAM already covers it. So, the way of calculation of discretionary expenses in this study is same with Roychowdhury's calculation.
In the same vein with calculation of normal levels of CFO and PROD, the coefficients that estimated for each industry-year in Equation-2.7 is used to obtain normal levels of discretionary expenses for each firm-year. Abnormal DISEXP for every firm-year is calculated through Equation-2.8. Normal DISEXP of each firm-year is subtracted from their actual DISEXP. As it can be seen in Equation-2.8, $AbDISEXP_{i,t}$ is obtained through actual discretionary expenses of firm *i* in industry-year *t* ($DISEXP_{i,t}$), minus normal discretionary expenses ($DISEXP_t$) calculated using the estimated coefficients of the parameters through Equation-2.7.

Abnormal discretionary expenses are calculated via;

$$AbDISEXP_{i,t} = DISEXP_{i,t} - DISEXP_t \quad (2.8)$$

$AbDISEXP_{i,t}$= Abnormal discretionary expenses for firm *i* in industry-year *t*
$DISEXP_{i,t}$= Discretionary expenses for firm *i* in industry-year *t*
$DISEXP_t$= Normal discretionary expenses for firm i in industry-year *t* (obtained through Equation-2.4).

Second set of models that are employed in this study is IOS REM Models. The notion behind this set of models is that, managers give operational, financial and investment decisions, which are the components of firms' investment opportunity sets, to maximize firm value. REM activities, that all fall under operational activities of the firms' IOS based value maximizing activities, also used by opportunist managers to meat/beat specific earnings targets. In other words, REM methods employed to manipulate earnings can also be used as a tool to maximize firm value through IOS based value maximizing activities. This means that, some managers can use operational activities in the same way with opportunist managers do, however value maximizing managers aim to maximize firm value, not to manipulate earnings or to meet/beat earning targets. Considering the effect of IOS based value maximizing activities on firms' operational policies, Cohen et al (2016) developed a set of REM Model to control IOS effect. Following Cohen et al (2016), Tobin's Q, firm size and life cycle of firms are added as proxies of firm-specific IOS levels of the firms into Roychowdhury's REM Model set. These variables are added into the process of estimations of "normal" levels of CFO, discretionary expenses and production costs. Abnormal levels of CFO, discretionary expenses and production costs are calculated in the same way that they were done in Roychowdhury's REM Models.

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_1\left(\frac{S_{i,t}}{A_{i,t-1}}\right) + \beta_2\left(\frac{\Delta S_{i,t}}{A_{i,t-1}}\right) + \beta_3 TQ + \beta_4 LogMV + \beta_5 LIFECYCLE + \varepsilon_t \quad (2.9)$$

The coefficients generated by Equation-2.9 are used to calculate the "normal" levels of cash flow from the operations for every firm-year by controlling IOS proxies. Normal level of CFO created through Equation-2.9 here is called $IOS\_CFO_t$.

$$IOS\_AbCFO_{i,t} = CFO_{i,t} - IOS\_CFO_t \quad (2.10)$$

In same vein with Roychowdhury, abnormal IOS_CFO for every firm-year is calculated through Equation-2.10 as normal CFO of every firm-year is subtracted from their actual CFO. As it can be seen in Equation-2.10, $IOS\_AbCFO_{i,t}$ is obtained through actual CFO of firm *i* in

industry-year $t$ ($CFO_{i,t}$) minus normal CFO ($IOS\_CFO_t$) calculated using the estimated coefficients of the parameters through Equation-2.9.

The notion behind employing of discretionary expenses is same with Roychowdhury (2006), which is usage of abnormally reduction in discretionary expenses as a tool to boost current year's earnings. Dependant variable in Equation-2.11 is discretionary expenses sum of General Administrative Expenses, Advertising Expenses and Research and Development expenses scaled by lagged total assets which is regressed on lagged sales scaled by lagged total assets. Other variables, Tobin's Q, LogMV and LIFECYCLE are added to control value-maximizing IOS effects.

$$\frac{DISEXP_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_1\left(\frac{S_{i,t-1}}{A_{i,t-1}}\right) + \beta_2 TQ + \beta_3 LogMV + \beta_4 LIFECYCLE + \varepsilon_t \quad (2.11)$$

Equation-2.11 controls the proxies of firms' value maximizing IOS activities during estimation process of coefficients. The coefficients estimated in Equation-2.11 is used to generate normal levels of discretionary expenses for every firm-year by considering their value-maximizing IOS policies. Once normal levels of discretionary expenses are generated for every firm-year, abnormal discretionary expenses are calculated.

$$IOS\_AbDISEXP_{i,t} = DISEXP_{i,t} - IOS\_DISEXP_{i,t} \quad (2.12)$$

Abnormal IOS_DISEXP for every firm-year is calculated through Equation-2.12 in same vein with Roychowdhury's REM Models. Normal levels of discretionary expenses of every firm-year is subtracted from their actual discretionary expenses. As shown in Equation-2.12, $IOS\_AbDISEXP_{i,t}$ is obtained through actual discretionary expenses of firm *i* in industry-year *t* ($DISEXP_{i,t}$) ,minus normal discretionary expenses ($IOS\_DISEXP_{i,t}$) calculated using the estimated coefficients of the parameters through Equation-2.11.

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_1\left(\frac{S_{i,t}}{A_{i,t-1}}\right) + \beta_2\left(\frac{\Delta S_{i,t}}{A_{i,t-1}}\right) + \beta_3\left(\frac{\Delta S_{i,t-1}}{A_{i,t-1}}\right) + \beta_4 TQ + \beta_5 LogMV + \beta_6 LIFECYCLE + \varepsilon_t \quad (2.13)$$

The way of obtaining abnormal production cost by considering value maximizing investment opportunity set activities of firms' is not different than generation of abnormal IOS_AbCFO and abnormal IOS_AbDISEXP. The coefficients obtained in Equation-2.13 is used to generate normal levels of firms' production cost for every firm-years.

$$IOS\_AbPROD_{i,t} = PROD_{i,t} - IOS\_PROD_t \quad (2.14)$$

Then abnormal level of IOS production costs of every firm-year is calculated through subtracting normal levels of production cost expenses from actual production costs. As it is shown in Equation-2.14, $IOS\_AbPROD_{i,t}$ is obtained by subtracting normal levels of production cost ($IOS\_PROD_t$) calculated using the estimated coefficients of the parameters through Equation-2.13, from actual production cost of firm *i* in industry-year *t* ($PROD_{i,t}$).

The third and last set of measures for REM is PM REM Models. Cohen et al., (2016) investigated the accuracy of Roychowdhury (2006) set of REM models with regard to their Type-I error rate and criticised that Roychowdhury's REM Models suffer from high Type-I error rate which may cause incorrectly rejection of null hypothesis when it is true. That may pose a risk that researchers can detect REM even if there are no significant REM practices. To address this issue Cohen et al., (2016) offered a set of alternative REM Models and amongst them PM REM models gives the lowest Type-I error rate. Following same methodology with Roychowdhury (2006)'s study, in PM REM Models cash flow from operations, production costs and discretionary expenses are estimated exactly in the same way. In other words, "normal" levels of CFO, DISEXP and PROD are estimated as they are done through Equation-2.1, Equation-2.5 and Equation-2.7. Abnormal CFO, abnormal DISEXP and abnormal PROD are calculated in the same way as they are done in Equation-2.2, Equation-2.6 and Equation-2.8. What is different between Roychowdhury's (2006) REM models and PM REM Models is that the abnormal figures that are obtained by Equation-2.2, 2.6 and 2.8 are not the ultimate abnormal values. Following Cohen et al (2016), eventual abnormal values are calculated once performance-matching procedure is completed. In this step, firm-years are matched with the one that has closest performance to themselves within the same industry. ROA (is used as a benchmark for performance so firm-years are individually matched with other firm-years that has closest ROA ratio. If a firm-year has no matching observation that is within the range of

+/- 10% of the firm's own ROA, such firm years are excluded from the sample as matching procedure cannot not be completed. After firm-years are matched based on their performances, performance-matched abnormal CFO, DISEXP and PROD are calculated as following;

$$PM\_AbCFO_{i,t} = AbCFO_{i,t} - AbCFO_{j,t} \quad (2.15)$$

In Equation-2.15, performance matched abnormal CFO for firm i is obtained through abnormal CFO of firm i minus another firm's abnormal CFO of firm j. These both figure for firm i and firm j are generated in Equation-2.1 and 2.2 within the same industry. The relation between firm i and firm j is that, firm j has the closest ROA value to firm i. So, performance matched abnormal CFO of firm i is the difference of abnormal CFO's between firms that have closest ROA value.

$$PM\_AbDISEXP_{i,t} = AbDISEXP_{i,t} - AbDISEXP_{j,t} \quad (2.16)$$

In same vein with calculation of performance matched abnormal CFO, in Equation-2.16. performance matched abnormal discretionary expenses for firm i is obtained through abnormal discretionary expenses of firm i that obtained in Equation-2.7 and 2.8 minus another firm's abnormal CFO of firm j generated again in Equation-2.7 and 2.8 within the same industry. The relation between firm i and firm j is that, firm j has the closest ROA value to firm i. So, performance matched abnormal DISEXP of firm i is the difference of abnormal DISEXP's between firms that have closest ROA value.

$$PM\_AbPROD_{i,t} = AbPROD_{i,t} - AbPROD_{j,t} \quad (2.17)$$

Finally, in Equation-2.17, performance matched abnormal production cost for firm i is generated by subtracting abnormal production cost of firm j from firm i's abnormal CFO. The abnormal production costs that are used in Equation-2.17 to obtain performance matched abnormal production cost of firm i, were generated in Equation-2.5 and 2.6 within the same industry. The relation between firm i and firm j is that, firm j has the closest ROA value to firm

i. So, performance matched abnormal PROD of firm i is the difference of abnormal PROD's between firms that have closest ROA value.

After abnormal values of CFO, DISEXP and PROD are calculated for three set of models, these variables run separately on the following regression. $Y_t$ is substituted in Equation-1.18, with; $AbCFO_{i,t}$, $AbDISEXP_{i,t}$, $AbPROD_{i,t}$, $IOS\_AbCFO_{i,t}$, $IOS\_AbDISEXP_{i,t}$, $IOS\_AbPROD_{i,t}$, $PM\_AbCFO_{i,t}$, $PM\_AbDISEXP_{i,t}$, $PM\_AbPROD_{i,t}$, $REM_{i,t}$, $REMIOS_{i,t}$, and $REMPM_{i,t}$ respectively.

$$Y_{i,t} = \alpha_0 + \beta_1(SIZE_{i,t-1}) + \beta_2(MTB_{i,t-1}) + \beta_3(Net\ Income_{i,t}) + \beta_4(SUSPECT_{i,t}) + \varepsilon_t \quad (2.18)$$

$Y_t$= Dependant variable that is substituted with $AbCFO_{i,t}$, $AbDISEXP_{i,t}$, $AbPROD_{i,t}$, $IOS\_AbCFO_{i,t}$, $IOS\_AbDISEXP_{i,t}$, $IOS\_AbPROD_{i,t}$, $PM\_AbCFO_{i,t}$, $PM\_AbDISEXP_{i,t}$, $PM\_AbPROD_{i,t}$, $REM_{i,t}$, $REMIOS_{i,t}$, and $REMPM_{i,t}$

$SIZE_{i,t-1}$= Lagged abnormal logarithm of market value of equity for firm i

$MTB_{i,t-1}$= Lagged abnormal market to book ratio for firm i

$Net\ Income_t$= Abnormal net income before extraordinary items scaled by lagged total assets for firm i in industry-year t

$SUSPECT_t$= Indicator variable for firm i in industry-year t that equals 1 if observation belongs to interval 16, zero otherwise.

In Equation-2.18, each REM method is regressed on size, MTB, net income and SUSPECT in order to investigate if managers of SUSPECT firm-years practise income boosting real earnings management activities. When dependant variable, $Y_t$, is substituted with AbCFO, AbDISEXP, IOS_AbCFO, IOS_AbDISEXP, PM_AbCFO and PM_AbDISEXP obtaining negative and significant $\beta_4$ indicates that managers of SUSPECT firm-years manipulate their earnings upwardly. On the other hand, once dependant variable, $Y_t$, is substituted with AbPROD, IOS_AbPROD and PM_AbPROD, positive and significant $\beta_4$ means that managers use operational decisions to manage earnings upwardly. The reason of expecting opposite sign for $\beta_4$ when $Y_t$ is substituted with AbCFO, AbDISEXP, IOS_AbCFO, IOS_AbDISEXP, PM_AbCFO, PM_AbDISEXP and AbPROD, IOS_AbPROD, PM_AbPROD is that, in case if implementation of REM methods causes abnormally lower cashflow from operations and discretionary expenses but abnormally higher production cost for SUSPECT firm-years than rest of the sample.

The REM methods listed above represent individual earnings manipulation techniques through operational activities. However, it is not necessary that SUSPECT firm-years' managers focus on only one sole REM technique. Managers may use REM techniques simultaneously to keep their earnings on zero earning threshold. As SUSPECT firm-years have a goal to generate at least positive profit, they may use not one REM techniques but all of them collaboratively. Thus, one REM variable is generated to cover all three techniques' effects at once. The thing is that, as it was stated above, negative relationship is expected between AbCFO, AbDISEXP and SUSPECT firm-years, however the expected coefficient between AbPROD and SUSPECT is positive.

$$Ops\_AbCFO_{i,t} = (AbCFO_{i,t}) * (-1) \quad (2.19)$$

To be able to generate one single REM variable $AbCFO_{i,t}$ and $AbDISEXP_{i,t}$ are multiplied with (-1) and by doing so, expected signs of coefficient between abnormal CFO, abnormal discretionary expenses and SUSPECT firm-years are turned positive in the existence of real earnings management. Thus, in Equation-2.19 $AbCFO_{i,t}$ which was obtained in Equation-2.2, is multiplied with minus 1 to generate opposite sign abnormal CFO ($Ops\_AbCFO_{i,t}$). By following same logic, in Equation-2.20, $AbDISEXP_{i,t}$, which was generated in Equation-2.8, also multiplied with minus 1 to create opposite sign abnormal discretionary expenses ($Ops\_AbDISEXP_{i,t}$).

$$Ops\_AbDISEXP_{i,t} = (AbDISEXP_{i,t}) * (-1) \quad (2.20)$$

By using Equation-2.19 and 2.20, one single REM variable is calculated as follows in Equation-2.21. $REM_{i,t}$ is sum of $Ops\_AbCFO_{i,t}$, $Ops\_AbDISEXP_{i,t}$ and $AbPROD_{i,t}$. The reason $AbPROD_{i,t}$ is not multiplied with minus 1 is that, abnormal production cost has already positive.

$$REM_{i,t} = Ops\_AbCFO_{i,t} + Ops\_AbDISEXP_{i,t} + AbPROD_{i,t} \quad (2.21)$$

Thanks to the changing signs of abnormal CFO and abnormal discretionary expenses in Equation-2.19 and 2.20, $REM_{i,t}$ generated in Equation-2.21 contains collective effects of all three REM methods in itself. In this arrangement, when $REM_{i,t}$ is substituted with $Y_t$ in Equation-2.18, positive and significant sign for $\beta_4$ indicates that managers of SUSPECT firm-years implement three REM methods collectively.

By using same logic, REMIOS and REMPM are calculated as follows;

$$Ops\_IOS\_AbCFO_{i,t} = (IOS\_AbCFO_{i,t}) * (-1) \quad (2.22)$$

To be able to generate one REMIOS variable to cover the effect of all three REM methods at once, $IOS\_AbCFO_{i,t}$ and $IOS\_AbDISEXP_{i,t}$ are multiplied with minus 1.
As shown in Equation-2.22 and Equation-2.23, $IOS\_AbCFO_{i,t}$ is and $IOS\_AbDISEXP_{i,t}$ is multiplied with minus 1 and $Ops\_IOS\_AbCFO_{i,t}$ and $Ops\_IOS\_AbDISEXP_{i,t}$ are generated respectively.

$$Ops\_IOS\_AbDISEXP_{i,t} = (IOS\_AbDISEXP_{i,t}) * (-1) \quad (2.23)$$

$REMIOS_{i,t}$ is generated in Equation-2.24 is sum of opposite sign of IOS abnormal CFO, opposite sign of IOS abnormal discretionary expenses and IOS abnormal production cost. Same as REM calculated in Equation-2.21, REMIOS is here covers collective effect of all three REM methods at once. Under the conditions of existence of real earnings management implemented by managers of SUSPECT firm-years, $\beta_4$ is expected to be positive and significant when dependant variable of Equation-2.18, $Y_t$, is substituted with $REMIOS_{i,t}$.

$$REMIOS_{i,t} = Ops\_IOS\_AbCFO_{i,t} + Ops\_IOS\_AbDISEXP_{i,t} + IOS\_AbPROD_{i,t} \quad (2.24)$$

In Equation-2.25 and 2.26, same process for generation of opposite sign abnormal CFO and opposite sign abnormal discretionary expenses variables apply. As shown in Equation-2.25,

$PM\_AbCFO_{i,t}$, which is obtained in Equation-2.15, is multiplied with minus 1 and by doing so $Ops\_PM\_AbCFO_{i,t}$ is created.

$$Ops\_PM\_AbCFO_{i,t} = (PM\_AbCFO_{i,t}) * (-1) \quad (2.25)$$

In Equation-2.26, $PM\_AbDISEXP_{i,t}$, which is generated in Equation-2.16, is multiplied with minus 1 and as a result $Ops\_PM\_AbDISEXP_{i,t}$ is created. $REMPM_{i,t}$ is created in Equation-2.27 as total of opposite sign of PM abnormal CFO, opposite sign of PM abnormal discretionary expenses and PM abnormal production cost. With the same logic of other REM variables, $REMPM_{i,t}$ in Equation-2.27 contains collective effect of all of the three performance-matched real earnings management methods at once.

$$Ops\_PM\_AbDISEXP_{i,t} = (PM\_AbDISEXP_{i,t}) * (-1) \quad (2.26)$$

$$REMPM_{i,t} = Ops\_PM\_AbCFO_{i,t} + Ops\_PM\_AbDISEXP_{i,t} + PM\_AbPROD_{i,t} \quad (2.27)$$

$REMPM_{i,t}$ generated in Equation-2.27 is substituted with $Y_t$ in Equation-2.18 and positive and significant $\beta_4$ shows that managers of SUSPECT firm-years implemented three REM methods at the same time.

### 2.4. Results and Discussion:

#### 2.4.1. Descriptive Statistics:

Table-1.1 exhibits key statistics for whole sample through panels of which Panel A is for UK, Panel B is for Germany and Panel C is for France. Results are presented separately for *SUSPECT firm-years* and for *rest of the sample* so the characteristics between groups can be compared conveniently. Mean market capitalisations of SUSPECT firm years are significantly lower than rest of the sample for three countries with the significance level of 1% for UK and 10% level for Germany and France. So, SUSPECT firm years are relatively smaller size firms in three countries. These results are consistent with Roychowdhury (2006). MTB ratios are also significantly lower for suspect firm years than rest of the sample for three countries at 1% significance level, which indicates that SUSPECT firm years have relatively slower growth pace than rest of the sample firms-years. These results are consistent with Roychowdhury (2006). Mean of cash flows scaled by total assets and sales scaled by total assets for suspect

firm years are both significantly lower than rest of the sample at 1% level for UK These results are consistent with Roychowdhury (2006). Results are similar for CFO and sales for France but significance level for the difference in sales scaled by total assets is 5% level. Difference in means of cash flows scaled by total assets and sales scaled by total assets between suspect firm years and rest of the sample in Germany is significant at 10% level. So, SUSPECT firm-years in all countries in the sample generate less cash flow, and to some extent connected with that, less cash flow than rest of the sample. Lower cash-flow and lower sales income might be because of REM activities as REM activities causes decline in CFO.

Discretionary expenses scaled by total assets are significantly lower for SUSPECT firm-years than rest of the sample firm-years. Although these findings cannot be solely interpreted as the existence of REM so far, they are in line with the REM theory as CFO/TA and DISEXP/TA are significantly lower for SUSPECT firm-years as they may have manipulated their operational activities. Difference in means of production costs scaled by total assets are all positive but insignificant for three countries.

**Table-2.1 Descriptive Statistics**

| | (Panel-A) UK | | | (Panel-B) GR | | | (Panel-C) FR | | |
|---|---|---|---|---|---|---|---|---|---|
| | Suspected firm year | Rest of the sample | Difference in | Suspected firm year | Rest of the sample | Difference in | Suspected firm year | Rest of the sample | Difference in |
| | Mean | Mean | Mean | Mean | Mean | Mean | Mean | Mean | Mean |
| MVE | 374391 | 670303 | -29591*** | 914161 | 1426280 | -512119* | 1117761 | 1692749 | -574987* |
| | | | (-2.79) | | | (-1.77) | | | (-1.74) |
| MTB | 1.72 | 2.62 | -0.89*** | 1.84 | 2.39 | -0.55*** | 1.49 | 2.32 | -0.82*** |
| | | | (-3.47) | | | (-3.31) | | | (-4.79) |
| TA | 706649 | 717559 | -10910 | 2671154 | 2509516 | 161638 | 4598406 | 2833054 | 1765351*** |
| | | | (-0.099) | | | (0.27) | | | (3.27) |
| Sales | 566894 | 588736 | -21841 | 2337960 | 2144199 | 193760 | 4101619 | 2132056 | 1969563*** |
| | | | (-0.265) | | | (0.44) | | | (5.06) |
| Earnings | 3063 | 31989 | -28925*** | 10699 | 69505 | -58806*** | 15508 | 78050 | -62541*** |
| | | | (-5.02) | | | (-3.54) | | | (-3.67) |
| CFO | 47233 | 63463 | -16229 | 142630 | 181149 | -38518 | 239902 | 191266 | 48635 |
| | | | (-1.54) | | | (-0.92) | | | (1.28) |
| Accruals | -37631 | -30643 | -6987 | -142229 | -102188 | -40041*** | -217065 | -120524 | -96541*** |
| | | | (-1.26) | | | (-3.17) | | | (-3.68) |
| Sales/TA | 1.099 | 1.226 | -0.1270*** | 1.16 | 1.26 | -0.1* | 1.062 | 1.139 | -0.077** |
| | | | (-2.64) | | | (-2.21) | | | (2.03) |
| Earnings/TA | 0.0023 | 0.0091 | -0.0067 | 0.00219 | 0.0043 | -0.00211 | 0.0024 | 0.0124 | -0.01001 |
| | | | (-0.945) | | | (-0.742) | | | (-1.48) |
| CFO/TA | 0.0329 | 0.0503 | -0.0173*** | 0.0424 | 0.0477 | -0.016* | 0.0436 | 0.0590 | -0.0154** |
| | | | (-2.38) | | | (-1.99) | | | (-2.26) |
| Accruals/TA | -0.0307 | -0.043 | -0.0427* | -0.0446 | -0.0523 | -0.0076 | -0.0414 | -0.0467 | 0.0053 |
| | | | (-1.94) | | | (-1.051) | | | (0.92) |
| Prod/TA | 0.8236 | 0.7932 | 0.0304 | 0.8987 | 0.8406 | 0.058 | 0.9279 | 0.9191 | 0.0088 |
| | | | (0.64) | | | 1.39) | | | (0.23) |
| Dis Exp./TA | 0.3086 | 0.3886 | -0.0799*** | 0.27182 | 0.3249 | -0.053*** | 0.2331 | 0.3262 | -0.0931** |
| | | | (-3.77) | | | (-2.83) | | | (-2.32) |
| Inv. TO/TA | 34.87 | 42.24 | -7.37 | 32.1 | 47.9 | -14.8 | 105.1 | 122.6 | -17.49 |
| | | | (-1.00) | | | (-1.47) | | | (0.57) |

Table-2.1 shows the mean values of main variables for SUSPECT firm-years and rest of the sample together with the differences between them. First three columns (Panel-A) of present results for UK, middle three columns (Panel-B) show results for Germany and last three columns (Panel-C) exhibit the results for France. The numbers in brackets are t-stats from t-tests. Results with ***, ** and * are significant at 1%, 5% and 10% respectively.

Table 2.2.A, B and C reports the correlation between the key variables. Consistent with literature there are negative and significant correlations between cash flow from operations and accruals, which are -43%, -35% and -42% for UK, Germany and France respectively. Not surprisingly, net incomes are positive and significantly correlated with both cash flow from operations and accruals. Correlations between abnormal discretionary expenses (AbDISEXP) and abnormal production cost (AbPROD) is negative and significant for three countries, -71.86% for UK, -68.29% for Germany and -64.57% for France respectively. Signs and magnitudes of correlations between IOS_AbDISEXP and IOS_AbPROD, and PM_AbDISEXP and PM_AbPROD are also negative and significant, which may support the idea of practising two REM strategies collaboratively. Correlation between IOS_AbDISEXP and IOS_AbPROD is -76.27% for UK, -67.92% for Germany and -59.8% for France. Similarly, correlations between PM_AbDISEXP and PM_AbPROD are -73.41%, -71.52% and -72.41% for UK, Germany and France respectively. This might suggest that firms implement reduction in discretionary expenses and increase in production to reduce cost of sold goods collectively as both method serve to increase earnings. Correlation between abnormal accruals and three different measures of abnormal cash flow from operations (AbCFO, IOS_AbCFO, PM_AbCFO) are also negative and significant for UK, Germany and France. It is -44.26% between AbACCR and AbCFO, -48.70% between AbACCR and IOS_AbCFO and -55.02% between AbACCR and PM_AbCFO for UK, -38.48% between AbACCR and AbCFO, -42.84% between AbACCR and IOS_AbCFO and -50.7% between AbACCR and PM_AbCFO for Germany and, -45.61% between AbACCR and AbCFO, -51% between AbACCR and IOS_AbCFO and -54.04% between AbACCR and PM_AbCFO for France. This might be interpreted in a way that executives may prefer to implement accrual and real manipulation methods together.

| Table-2.2A (UK) | NITAL | CFOTAL | Acc_TAL | PRODTAL | DISEXPTAL | AbCFO | AbPROD | AbDISEXP | IOS_AbCFO | IOS_AbPROD | IOS_AbDISEXP | PM_AbCFO | PM_AbPROD | PM_AbDISEXP | AbACCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NITAL | 1.0000 | | | | | | | | | | | | | | |
| CFOTAL | **0.6398*** | 1.0000 | | | | | | | | | | | | | |
| Accr_TAL | **0.3740*** | **-0.4374*** | 1.0000 | | | | | | | | | | | | |
| PRODTAL | **0.2445*** | **0.1907*** | **0.0397*** | 1.0000 | | | | | | | | | | | |
| DISEXPTAL | **0.0552*** | **0.0429*** | **-0.0239*** | **0.2157*** | 1.0000 | | | | | | | | | | |
| AbCFO | **0.5457*** | **0.9421*** | **-0.4670*** | **-0.1024*** | **-0.1148*** | 1.0000 | | | | | | | | | |
| AbPROD | **-0.180*** | **-0.2579*** | **0.0984*** | **0.3708*** | **-0.6356*** | **-0.2720*** | 1.0000 | | | | | | | | |
| AbDISEXP | **-0.033*** | **-0.0213*** | **-0.0408*** | **-0.1603*** | **0.8633*** | **-0.0804*** | **-0.7186*** | 1.0000 | | | | | | | |
| IOS_AbCFO | **0.4595*** | **0.8853*** | **-0.4921*** | **-0.1116*** | **-0.0371*** | **0.9229*** | **-0.2811*** | **-0.0478*** | 1.0000 | | | | | | |
| IOS_AbPROD | **-0.169*** | **-0.2574*** | **0.1063*** | **0.35*** | **-0.592*** | **-0.2669*** | **0.9499*** | **-0.6713*** | **-0.2885*** | 1.0000 | | | | | |
| IOS_AbDISEXP | **-0.076*** | **-0.0382*** | **-0.0501*** | **-0.3*** | **0.7729*** | **-0.0407*** | **-0.7384*** | **0.8978*** | **-0.0458*** | **-0.7627*** | 1.0000 | | | | |
| PM_AbCFO | 0.0046 | **0.5026*** | **-0.5656*** | *-0.1855** | **-0.1262*** | **0.5881*** | **-0.1396*** | **-0.0607*** | **0.5672*** | **-0.1358*** | **-0.0206*** | 1.0000 | | | |
| PM_AbPROD | -0.0013 | **-0.1098*** | *0.1261** | **0.3045*** | **-0.4117*** | **-0.1386*** | **0.6747*** | **-0.4917*** | **-0.1495*** | **0.6561*** | **-0.5319*** | **-0.2282*** | 1.0000 | | |
| PM_AbDISEXP | -0.0004 | -0.0093 | -0.0115 | **-0.1056*** | **0.5738*** | **-0.0492*** | **-0.4669*** | **0.6803*** | **-0.0524*** | **-0.4427*** | **0.6350*** | **-0.0918*** | *-0.7341** | 1.0000 | |
| AbACCR | **0.3766*** | **-0.4246*** | **0.9862*** | 0.0106 | **-0.0618*** | **-0.4426*** | **0.1025*** | **-0.0610*** | **-0.4879*** | **0.1068*** | **-0.0553*** | **-0.5502*** | *0.1276** | -0.0136 | 1.0000 |

Table-2.2A shows the Spearman correlation results between main variables for UK. Results smaller than 1% is shown with boldfaced and star, higher than 1% but smaller than 5% is with a star and *italic*, higher than 5% but smaller than 10% is with a star only.

| Table-2.2B (GR) | NITAL | CFOTAL | Acc_TAL | PRODTAL | DISEXPTAL | AbCFO | AbPROD | AbDISEXP | IOS_AbCFO | IOS_AbPROD | IOS_AbDISEXP | PM_AbCFO | PM_AbPROD | PM_AbDISEXP | AbACCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NITAL | 1.0000 | | | | | | | | | | | | | | |
| CFOTAL | **0.6141*** | 1.0000 | | | | | | | | | | | | | |
| Accr_TAL | **0.4804*** | **-0.3591*** | 1.0000 | | | | | | | | | | | | |
| PRODTAL | **0.1215*** | 0.0268 | **0.0923*** | 1.0000 | | | | | | | | | | | |
| DISEXPTAL | **-0.108*** | **-0.0924*** | **-0.0333*** | -0.0054 | 1.0000 | | | | | | | | | | |
| AbCFO | **0.5605*** | **0.9683*** | **-0.3845*** | **-0.1483*** | *-0.1551** | 1.0000 | | | | | | | | | |
| AbPROD | **-0.252*** | **-0.3284*** | **0.0587*** | **0.3806*** | **-0.6474*** | **-0.3376*** | 1.0000 | | | | | | | | |
| AbDISEXP | **-0.105*** | **-0.0629*** | **-0.0517*** | **-0.2183*** | **0.9106*** | **-0.0797*** | **-0.6829*** | 1.0000 | | | | | | | |
| IOS_AbCFO | **0.4713*** | **0.9047*** | **-0.4231*** | **-0.1436*** | **-0.0699*** | **0.9350*** | **-0.3322*** | **-0.0686*** | 1.0000 | | | | | | |
| IOS_AbPROD | **-0.225*** | **-0.3101*** | **0.0738*** | **0.3661*** | **-0.6066*** | **-0.3187*** | **0.9585*** | **-0.6404*** | **-0.3381*** | 1.0000 | | | | | |
| IOS_AbDISEXP | **-0.132*** | **-0.0665*** | **-0.0827*** | **-0.2614*** | **0.8520*** | **-0.0646*** | **-0.6578*** | **0.9325*** | **-0.0679*** | **-0.6792*** | 1.0000 | | | | |
| PM_AbCFO | **0.0599*** | **0.5434*** | **-0.5102*** | **-0.1843*** | **-0.0951*** | **0.5937*** | **-0.1561*** | **-0.0374*** | **0.5812*** | **-0.1526*** | -0.0123 | 1.0000 | | | |
| PM_AbPROD | -0.0303 | **-0.1374*** | **0.1244*** | **0.3061*** | **-0.4522*** | *-0.1540** | **0.6706*** | **-0.4921*** | **-0.1605*** | **0.6630*** | *-0.5051** | **-0.2321*** | 1.0000 | | |
| PM_AbDISEXP | -0.0208 | 0.0008 | -0.0310 | **-0.1605*** | **0.6101*** | -0.0165 | **-0.4828*** | **0.6826*** | -0.0304 | **-0.4693*** | **0.6605*** | **-0.0455*** | **-0.7152*** | 1.0000 | |
| AbACCR | **0.4502*** | -0.3699* | *0.9752** | **0.0462*** | **-0.0651*** | **-0.3848*** | **0.0595*** | **-0.0730*** | *-0.4284** | **0.0738*** | **-0.0824*** | **-0.5070*** | **0.1236*** | *-0.0440** | 1.0000 |

Table-2.2B shows the Spearman correlation results between main variables for Germany. Results smaller than 1% is shown with boldfaced and star, higher than 1% but smaller than 5% is with a star and *italic*, higher than 5% but smaller than 10% is with a star only.

| Table-2.2C (FR) | NITAL | CFOTAL | Acc_TAL | PRODTAL | DISEXPTAL | AbCFO | AbPROD | AbDISEXP | IOS_AbCFO | IOS_AbPROD | IOS_AbDISEXP | PM_AbCFO | PM_AbPROD | PM_AbDISEXP | AbACCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NITAL | 1.0000 | | | | | | | | | | | | | | |
| CFOTAL | **0.6045*** | 1.0000 | | | | | | | | | | | | | |
| Accr_TAL | **0.4158*** | **-0.4287*** | 1.0000 | | | | | | | | | | | | |
| PRODTAL | **0.1300*** | **0.0294*** | *0.1066** | 1.0000 | | | | | | | | | | | |
| DISEXPTAL | **-0.214*** | **-0.1942*** | -0.0125 | **-0.1710*** | 1.0000 | | | | | | | | | | |
| AbCFO | **0.5380*** | **0.9686*** | **-0.4652*** | **-0.1477*** | **-0.2244*** | 1.0000 | | | | | | | | | |
| AbPROD | **-0.216*** | **-0.3051*** | **0.0722*** | **0.3638*** | **-0.7206*** | *-0.3137** | 1.0000 | | | | | | | | |
| AbDISEXP | **-0.153*** | **-0.1028*** | **-0.0575*** | **-0.3019*** | **0.8713*** | **-0.1165*** | **-0.6457*** | 1.0000 | | | | | | | |
| IOS_AbCFO | **0.4409*** | **0.9118*** | **-0.5076*** | **-0.1022*** | **-0.1471*** | **0.9389*** | **-0.2817*** | **-0.0933*** | 1.0000 | | | | | | |
| IOS_AbPROD | **-0.157*** | **-0.2656*** | **0.1024*** | **0.3319*** | **-0.6669*** | **-0.2724*** | **0.9431*** | **-0.5956*** | **-0.2892*** | 1.0000 | | | | | |
| IOS_AbDISEXP | **-0.139*** | **-0.0741*** | **-0.08*** | **-0.2922*** | **0.7576*** | **-0.0731*** | **-0.5892*** | **0.8619*** | **-0.0818*** | **-0.5980*** | 1.0000 | | | | |
| PM_AbCFO | **0.0319*** | **0.5569*** | **-0.5555*** | **-0.1784*** | **-0.1122*** | **0.6080*** | **-0.1581*** | **-0.0606*** | **0.5951*** | **-0.1539*** | -0.0150 | 1.0000 | | | |
| PM_AbPROD | 0.0079 | **-0.1215*** | **0.1205*** | **0.2749*** | **-0.5201*** | **-0.1363*** | **0.6754*** | **-0.4860*** | **-0.1299*** | **0.6534*** | **-0.4844*** | **-0.2479*** | 1.0000 | | |
| PM_AbDISEXP | **-0.121*** | 0.0011 | -0.0823 | **-0.1605*** | **0.5462*** | -0.0053 | **-0.4693*** | **0.6791*** | -0.0026 | **-0.4789*** | **0.6154*** | -0.0183 | **-0.7241*** | 1.0000 | |
| AbACCR | **0.3838*** | -0.4376* | 0.9708* | **0.0467*** | **-0.0650*** | **-0.4561*** | **0.0758*** | **-0.0921*** | **-0.5100*** | **0.1051*** | **-0.0939*** | **-0.5404*** | **0.1166*** | -0.1122 | 1.0000 |

Table-2.2C shows the Spearman correlation results between main variables for France. Results smaller than 1% is shown with boldfaced and star, higher than 1% but smaller than 5% is with a star and *italic*, higher than 5% but smaller than 10% is with a star only.

### 2.4.2. Results and Discussion of Roychowdhury REM Models:

Table-2.3 exhibits the results of Equation-2.18 for France, Germany and UK respectively for the period between 1990 and 2015. As it is explained above if the firm-years that belong to interval-16, in other words firm-years that have marginally positive earnings, they are expected to implement REM activities which lead their cash flow from operations and discretionary expenses lower than rest of the sample and their production cost greater than rest of the sample. Thus, dependent variable of Equation-2.18 is substituted with abnormal CFO, abnormal discretionary expenses and abnormal production cost separately for France, Germany and UK. First three columns present the results of France, second three columns of Germany and last three of UK. If SUSPECT firm-years engage in REM activities slope of SUSPECT is expected to be negative and significant when dependent variable is abnormal CFO and abnormal discretionary expenses, and positive while dependent variable is abnormal production cost.

As it can be seen in Table-2.3 column-1, slope coefficient of SUSPECT is -0.0133 and significant at 1% level, which means that SUSPECT firm years have abnormally lower CFO than rest of the sample for France during whole period. Despite -0.0133 might be considered low, it is actually economically large as mean of CFO/TA is 3%. When dependant variable is substituted for abnormal discretionary expenses, coefficient of SUSPECT becomes -0.0314 in column-2, yet insignificant. Finally, when dependant variable is replaced with abnormal production cost, coefficient of SUSPECT takes the value of 0.0365 which is significant at 1% level. It reveals that the mean abnormal production costs of SUSPECT firm-years are larger by 5.3% of assets than the mean value of production cost of rest of the sample. Overall, results for France indicate that, SUSPECT firm-years implement pricing/credit policy manipulation and at the same time increase their productions above optimum level to boost earnings during sample period.

Column-4, 5 and 6 of Table-2.3 presents the result of Equation-2.18 for Germany. As it can be seen that German SUSPECT firm-years implemented two REM techniques during the sample period. Slope coefficient of SUSPECT is negative and insignificant, -0.00997, when dependent variable is abnormal CFO. However, it is positive and significant, 0.0950, at 10% when dependent variable is substituted with abnormal production cost. SUSPECT firm-years in Germany used discretionary expenses, also, as a tool to manage earnings as slope coefficient of SUSPECT is -0.0262 and significant when dependent variable is abnormal

discretionary expenses in column-5. Results show that, German SUSPECT firm-years use abnormal cut in discretionary expenses and abnormal increase in production level as two REM techniques.

Last three columns of Table-2.3 exhibit the results of UK for the whole sample period. It is interesting that, contrary with France and Germany, SUSPECT firm-years in UK practice all three REM methods separately and significantly. Slope coefficients of SUSPECT is negative and significant, -0.00882, in column-7, negative and significant, -0.0557 in column-8, and positive and significant, 0.0503, in column-9, when the dependent variable is replaced with abnormal CFO, abnormal discretionary expenses and abnormal production cost respectively. Results indicate that, SUSPECT firm-years of UK, as an Anglo-Saxon accounting originated country, used REM techniques more aggressively than France and Germany, which are Continental European accounting originated countries.

| Table-2.3 ALL | FR | | | GR | | | UK | | |
|---|---|---|---|---|---|---|---|---|---|
| | abCFO | abDISEXP | abPROD | abCFO | abDISEXP | abPROD | abCFO | abDISEXP | abPROD |
| Size | 0.00530*** | -0.0107* | -0.00144 | 0.00589*** | -0.00722** | 0.00727** | 0.0221*** | -0.0139* | 0.0283*** |
| | (0.000) | (0.059) | (0.194) | (0.000) | (0.034) | (0.024) | (0.000) | (0.057) | (0.000) |
| MTB | -0.00135*** | 0.0256*** | -0.0148*** | -0.00517 | 0.00247 | -0.00385 | -0.00577*** | 0.00785*** | -0.00287*** |
| | (0.000) | (0.000) | (0.000) | (0.137) | (0.266) | (0.188) | (0.000) | (0.000) | (0.002) |
| Income | 0.542*** | -0.178*** | -0.469*** | 0.641*** | 0.724*** | -0.878*** | 0.576*** | -0.323*** | -0.171*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) |
| SUSPECT | -0.0133*** | -0.0314 | 0.0365*** | -0.00997 | -0.0262** | 0.0950* | -0.0882*** | -0.0557*** | 0.0503*** |
| | (0.000) | (0.189) | (0.003) | (0.373) | (0.042) | (0.067) | (0.000) | (0.000) | (0.000) |
| Constant | -0.0122*** | 0.00779* | -0.00141** | -0.0200*** | -0.0287*** | 0.0260*** | -0.0760*** | 0.0139* | 0.00296* |
| | (0.002) | (0.054) | (0.011) | (0.000) | (0.000) | (0.000) | (0.000) | (0.087) | (0.053) |
| Observations | 8,524 | 8,524 | 8,524 | 8,309 | 8,309 | 8,309 | 19,685 | 19,685 | 19,685 |
| R-squared | 0.113 | 0.198 | 0.100 | 0.188 | 0.153 | 0.114 | 0.119 | 0.154 | 0.264 |

Table-2.3 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First three columns of the table show the results of France, middle three columns exhibit the results of Germany and last three columns present the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for whole sample period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variables are substituted with abCFO, abDISEXP and abPROD, which are obtained from Equation-2.2, Equation-2.8 and Equation-2.6 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-2.4 shows the results of all three REM techniques with one single variable for France, Germany and UK for the whole sample period. First column represents the results for France, second column for Germany and last column for UK. As it was stated in literature review section managers of the SUSPECT firm-years may not find one method enough to reach their financial goals, so they may implement more than one technique. Moreover, they may think that intensely implementation of one REM technique can be easily detected, thus they may prefer to implement more than one technique, but overall effect will be big enough to hit the financial target. Thus, managers of SUSPECT firm-years they may use not one REM techniques but all collaboratively to generate at least positive earnings. To be able to measure this, one REM variable is generated to cover all three techniques and see the effect of comprehensive REM techniques at once. First, second and third columns of Table-2.4 shows the results of France, Germany and UK respectively. As it can be seen that SUSPECT firm-years from all three countries have significant REM tendencies. Slope coefficient of SUSPECT is positive and significant for France, 0.0737, at 10%, for Germany, 0.0508, at 5% and for UK, 0.0489, at 1%. So, results show that all SUSPECT firm-years in these three different countries implemented three different REM techniques collectively. Thus, an inference can be drawn that, there is no significant difference between countries regarding simultaneous implementation of REM activities between 1990 and 2015.

| Table-2.4<br>ALL | (FR)<br>REM | (GR)<br>REM | (UK)<br>REM |
|---|---|---|---|
| Size | 0.0448*** | 0.0186** | 0.00177 |
| | (0.000) | (0.012) | (0.896) |
| MTB | -0.0455*** | -0.00252 | -0.00431 |
| | (0.000) | (0.712) | (0.121) |
| Income | -1.098*** | -2.258*** | -0.495*** |
| | (0.000) | (0.000) | (0.000) |
| SUSPECT | 0.0737* | 0.0508** | 0.0489*** |
| | (0.089) | (0.044) | (0.001) |
| Constant | 0.223*** | 0.0438*** | 0.0660*** |
| | (0.000) | (0.000) | (0.001) |
| Observations | 8,524 | 8,309 | 19,685 |
| R-squared | 0.248 | 0.263 | 0.212 |

Table-2.4 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First column of the table shows the results of France, second column exhibits the results of Germany and last column presents the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for whole sample period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variable REM is obtained from Equation-2.21, which is calculated via sum opposite abnormal CFO, opposite abnormal DISEXP and abnormal PROD which are obtained through Equation-2.19, Equation-2.20 and Equation-2.6 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Effect of IFRS adoption on SUSPECT firm-years' REM tendencies can be explored through the results presented in Tables-2.5, 2.6, 2.7 and 2.8.

Table-2.5 exhibits individual REM choices and Table-2.6 presents the collective REM practices of SUSPECT firm-years as per countries for the period between 1990 and 2004 (pre-IFRS). Table-2.7 and 2.8 shows the results of same regressions in same order for the period that covers 2005-2015 (post-IFRS).

As it can be in first three columns of Table-2.5, managers of SUSPECT firm-years in France do not manipulate their earnings significantly by implementing reduction in price and providing lenient credit terms as slope coefficient of SUSPECT is -0.0040 and insignificant when dependant variable is set as AbCFO. It is also insignificant when dependent variable is replaced with AbDISEXP and AbPROD. Coefficient of SUSPECT is 0.00133 and 0.00688 and both insignificant when dependent variable is substituted with AbDISEXP and AbPROD respectively. On the other hand, as it can be seen in colum-4, 5 and 6, slope coefficient of SUSPECT is all insignificant. It is 0.00984, -0.00527 and 0.0249 when dependent variable is substituted with AbCFO, abDISEXP and AbPROD respectively. Considering these results together with results of France, REM activities were not widespread EM method before adoption of IFRS by Continental European accounting followers. On the other hand, however, practising REM were prevalent before IFRS adoption in UK. As it can be seen in last three columns of Table-2.5, coefficients of SUSPECT are all significant. It is -0.00861 and significant at 10%, -0.0323 and significant at 5% and 0.0527 and significant at 1% when dependent variable is replaced with AbCFO, abDISEXP and abPROD respectively. These results suggest that involving in REM activities are rampant for SUSPECT firm-years in UK, as an Anglo-Saxon accounting originated country, before adoption of IFRS.

Overall results of Table-2.5 suggest that, before adoption of IFRS, individual REM strategies were actively used by SUSPECT firm-years in UK, as an Anglo-Saxon country, however it is not prevalent in Germany and France, as Continental European countries, except price manipulation in France.

| Table-2.5 | | FR | | | GR | | | UK | |
|---|---|---|---|---|---|---|---|---|---|
| Pre-IFRS | abCFO | abDISEXP | abPROD | abCFO | abDISEXP | abPROD | abCFO | abDISEXP | abPROD |
| Size | 0.00429** | 0.00351** | -0.00347*** | 0.00664*** | -0.00194 | 0.00238*** | 0.0220*** | -0.0267*** | 0.0252*** |
| | (0.015) | (0.011) | (0.000) | (0.000) | (0.156) | (0.004) | (0.000) | (0.000) | (0.000) |
| MTB | -0.00101*** | 0.0326*** | -0.0181*** | 0.0468** | 0.00450** | -0.00313*** | -0.000575** | 0.00903*** | -0.00431*** |
| | (0.010) | (0.000) | (0.000) | (0.040) | (0.014) | (0.008) | (0.028) | (0.000) | (0.000) |
| Income | 0.525*** | -0.240** | -0.358*** | 0.674*** | 0.991** | -0.808*** | 0.561*** | -0.270*** | -0.137*** |
| | (0.000) | (0.028) | (0.003) | (0.000) | (0.036) | (0.003) | (0.000) | (0.001) | (0.009) |
| SUSPECT | -0.0040 | 0.00133 | 0.00688 | 0.00984 | -0.00527 | 0.0249 | -0.00861* | -0.0323** | 0.0527** |
| | (0.151) | (0.952) | (0.493) | (0.180) | (0.800) | (0.408) | (0.082) | (0.019) | (0.012) |
| Constant | 0.00572* | 0.0168** | 0.00198 | 0.0179*** | 0.0343** | 0.0248** | 0.0571*** | 0.0198*** | 0.00685* |
| | (0.052) | (0.016) | (0.144) | (0.008) | (0.030) | (0.024) | (0.001) | (0.006) | (0.052) |
| Observations | 3,813 | 3,813 | 3,813 | 3,739 | 3,739 | 3,739 | 7,874 | 7,874 | 7,874 |
| R-squared | 0.253 | 0.272 | 0.215 | 0.183 | 0.176 | 0.155 | 0.159 | 0.137 | 0.147 |

Table-2.5 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First three columns of the table show the results of France, middle three columns exhibit the results of Germany and last three columns present the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for pre-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variables are substituted with abCFO, abDISEXP and abPROD, which are obtained from Equation-2.2, Equation-2.8 and Equation-2.6 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-2.6 presents the results of Equation-2.21 to see if SUSPECT firm-years from France, Germany and UK ever used different REM techniques concurrently. First column of Table-2.6 presents the results for France, second column shows the results for Germany and last column exhibits the results for UK for the period of 1990-2005. As it is shown in column-1 SUSPECT firm-years from France did not use REM methods collaboratively as the coefficient of SUSPECT is 0.0291 and insignificant. In additions to that, in column-2, the coefficient of SUSPECT is also positive and insignificant, 0.0495. This means that firm-years from France and Germany, that are the followers of Continental European accounting system did not implement REM techniques significantly during pre-IFRS period. On the other hand, three separate methods were used simultaneously by SUSPECT firm-years in UK as the coefficient of SUSPECT is 0.0309 and significant at 10% for UK.

When the results of Table-2.5 and 2.6 considered together, SUSPECT firm-years in UK, as an Anglo-Saxon country, used REM techniques not only separately but also collectively to reach marginal positive net profit in pre-IFRS period. On the other hand, France and Germany, as Continental European countries, used REM techniques neither separately not collectively, except low price/lenient credit policy in France, during pre-IFRS period. However, it does not mean that Continental European countries did not practise EM strategies at all. They might prefer to use AEM rather than REM to create at least positive earnings figures.

| Table-2.6<br>Pre-IFRS | (FR)<br>REM | (GR)<br>REM | (UK)<br>REM |
|---|---|---|---|
| Size | 0.0193*** | 0.00862** | 0.0348*** |
| | (0.005) | (0.024) | (0.001) |
| MTB | -0.0590*** | -0.00865* | -0.0110*** |
| | (0.001) | (0.060) | (0.000) |
| Income | -0.577*** | -2.532*** | -0.367*** |
| | (0.002) | (0.002) | (0.003) |
| SUSPECT | 0.0291 | 0.0495 | 0.104** |
| | (0.643) | (0.273) | (0.012) |
| Constant | 0.163*** | 0.0362** | 0.0309* |
| | (0.000) | (0.037) | (0.088) |
| Observations | 3,813 | 3,739 | 7,874 |
| R-squared | 0.276 | 0.280 | 0.259 |

Table-2.6 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First column of the table shows the results of France, second column exhibits the results of Germany and last column presents the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for pre-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variable REM is obtained from Equation-2.21, which is calculated via sum opposite abnormal CFO, opposite abnormal DISEXP and abnormal PROD which are obtained through Equation-2.19, Equation-2.20 and Equation-2.6 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

In the same vein with Table-2.5 and 2.6, Table-2.7 and 2.8 demonstrate the results of Equation-2.18 and Equation-2.21 respectively but for post-IFRS period.

As it is shown in Table-2.7 that SUSPECT firm-years from all three countries uses three of REM techniques significantly in post-IFRS period. As it can be seen in first three columns, SUSPECT firm-years from France uses price policy and discretionary expense manipulation significantly at 10% level and increase in production at 1% level. Slope coefficient of SUSPECT is -0.0127, -0.0583 and 0.058 for AbCFO, AbDISEXP and AbPROD respectively. Comparing with results on Table-2.5, it can be deduced that after adoption of IFRS, French SUSPECT firm-years started significantly to employ REM techniques. German SUSPECT firm-years uses two out of three separate REM techniques significantly. Coefficient of SUSPECT is -0.0262 for AbCFO and significant at 5% level, while it is -0.0434 and significant at 1% level when dependent variable is set as AbDISEXP. For AbPROD however, slope coefficient of SUSPECT is 0.00771 and insignificant. Thus, an inference can be drawn that adoption of IFRS cause a significant increase in employment of REM techniques. Last three columns of Table-2.7 show that SUSPECT firm-years in UK intensively practise REM techniques through deviating from normal levels of operating activities as coefficient of SUSPECT is -0.00898 and significant 5% level, -0.0749 and significant at 1% level and 0.0485 and significant at 1% level when dependent variable is AbCFO, AbDISEXP and AbPROD respectively. So, comparing with pre-IFRS period, there is no noteworthy difference in usage of REM methods for SUSPECT firm-years in UK.

| Table-2.7 | FR | | | GR | | | UK | | |
|---|---|---|---|---|---|---|---|---|---|
| Post-IFRS | abCFO | abDISEXP | abPROD | abCFO | abDISEXP | abPROD | abCFO | abDISEXP | abPROD |
| Size | 0.00614*** | -0.0223*** | 0.00388 | 0.00527*** | -0.0115*** | 0.0108** | 0.0222*** | -0.00343 | 0.0305*** |
| | (0.000) | (0.000) | (0.578) | (0.001) | (0.009) | (0.019) | (0.000) | (0.473) | (0.000) |
| MTB | -0.00163** | 0.0198*** | -0.0124*** | -0.000119 | 0.000808 | 0.00161 | -0.000579 | 0.00688*** | -0.00182 |
| | (0.016) | (0.002) | (0.001) | (0.752) | (0.894) | (0.782) | (0.153) | (0.000) | (0.313) |
| Income | 0.555*** | -0.127* | -0.549*** | 0.614*** | 0.504*** | -0.928*** | 0.588*** | -0.367*** | -0.196*** |
| | (0.000) | (0.075) | (0.000) | (0.000) | (0.002) | (0.001) | (0.000) | (0.000) | (0.000) |
| SUSPECT | -0.0127* | -0.0583* | 0.0580*** | -0.0262** | -0.0434*** | 0.00771 | -0.00898** | -0.0749*** | 0.0485*** |
| | (0.072) | (0.056) | (0.000) | (0.026) | (0.002) | (0.670) | (0.019) | (0.001) | (0.000) |
| Constant | 0.0174*** | 0.0279** | 0.00100* | 0.0217*** | 0.0241*** | 0.0269*** | 0.0915*** | 0.00904 | 0.00561 |
| | (0.000) | (0.031) | (0.061) | (0.000) | (0.000) | (0.000) | (0.000) | (0.573) | (0.153) |
| Observations | 4,711 | 4,711 | 4,711 | 4,570 | 4,570 | 4,570 | 11,811 | 11,811 | 11,811 |
| R-squared | 0.162 | 0.138 | 0.190 | 0.192 | 0.135 | 0.137 | 0.168 | 0.168 | 0.177 |

Table-2.7 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First three columns of the table show the results of France, middle three columns exhibit the results of Germany and last three columns present the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for post-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variables are substituted with abCFO, abDISEXP and abPROD, which are obtained from Equation-2.2, Equation-2.8 and Equation-2.6 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-2.8 displays results of Equation-2.21 and as it was explained above, it demonstrates effects of collective usage of separate REM techniques. Table-2.8's design is same with Table-2.6 and 2.4 in a way that first column is for France, second column is for Germany and third column is for UK. First column shows that, SUSPECT firm-years of France implements REM strategies collectively as coefficient of SUSPECT is positive and significant, 0.106, at 10% level. Same as France, German SUSPECT firm-years also uses three REM methods collaboratively as slope of SUSPECT is 0.0517 and significant at 10%. SUSPECT firm-years from UK also uses three REM methods intensively as coefficient is 0.0774 and significant at 1% level. So, the information in Table-2.7 and 2.8 can be summarized in a way that, after adoption of IFRS the differences between UK, as an Anglo-Saxon country, and France and Germany, as Continental-European countries, disappears in both separate REM technique level and collective REM usage level.

Considering the results of Table-2.7 and 2.8 together with Table-2.5 and 2.6, there is significant increase in usage of REM methods both separately and collectively after adoption of IFRS, specifically in Continental European countries, which strongly supports Hypothesis-1. This might be because, adoption of IFRS brings convergence in accounting standards as adoption of IFRS makes financial statements more comparable (McCreevy, 2005; Lang et al., 2010; Michael Neel, 2017). When it is considered that reporting at least positive earnings is the strongest motivation for managers (Degeorge et al., 1999), being more comparable with other firms' financial statements might dissuade opportunistic managers to implement non-operational EM methods and thus, they may be in incline to REM. On the other hand, employment of REM techniques does not show significant deviation from pre-IFRS period to post-IFRS period for UK, as an Anglo-Saxon accounting country, which supports Hypothesis-2. This might be because, UK is a follower of Anglo-Saxon accounting system country (Kothari et al., 2000), and Anglo-Saxon accounting system have similarities with IFRS, (Dunnee et al., 2008). Thus, even before adoption of IFRS, SUSPECT firm-years' financial statements were already highly comparable with other financial statements. From this perspective, managers of SUSPECT firm-years in UK might prefer to use REM techniques individually and collectively even before IFRS and as adoption of IFRS did not cause a significant deviation from domestic standards, they may continue their REM practices in the same way during post-IFRS period.

| Table-2.8<br>Post-IFRS | (FR)<br>REM | (GR)<br>REM | (UK)<br>REM |
|---|---|---|---|
| Size | 0.0633*** | 0.0258** | 0.0176 |
| | (0.000) | (0.020) | (0.105) |
| MTB | -0.0357*** | 0.00194 | -0.00831** |
| | (0.005) | (0.893) | (0.024) |
| Income | -1.477*** | -2.059*** | -0.408*** |
| | (0.000) | (0.000) | (0.000) |
| SUSPECT | 0.106* | 0.0517* | 0.139*** |
| | (0.092) | (0.083) | (0.000) |
| Constant | 0.267*** | 0.0493*** | 0.0774*** |
| | (0.000) | (0.000) | (0.005) |
| Observations | 4,711 | 4,570 | 11,811 |
| R-squared | 0.128 | 0.150 | 0.192 |

Table-2.8 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First column of the table shows the results of France, second column exhibits the results of Germany and last column presents the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for post-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variable REM is obtained from Equation-2.21, which is calculated via sum opposite abnormal CFO, opposite abnormal DISEXP and abnormal PROD which are obtained through Equation-2.19, Equation-2.20 and Equation-2.6 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Second explanation for the difference in reaction of REM usage between Continental-European and Anglo-Saxon firms to adoption of IFRS might be "quality of accounting standards". Previous studies suggest that IFRS represents "higher quality" of accounting standards than the domestic GAAPs and shifting from domestic standards to high quality international standards (IFRS) leads an increase in earnings quality (Chen et al., 2010). As low EM is considered as one of the benchmarks of earnings quality, substitution of domestic standards with IFRS may lead a decrease in non-operational EM methods and as Zang (2012) suggests, decline in usage non-operational EM methods might be made up for incline in usage of REM. From this perspective, firms in France and Germany shifted from domestic standards to, arguably, higher quality international standards and possible reduction in non-operational EM leads firms to increase their REM practices as an alternative strategy to manage earnings.

### 2.4.3. Results and Discussion of IOS REM Models and PM REM Models:

As it stated in literature review section, Cohen et al. (2016) bring some criticisms to Roychowdhury's REM Model and they claim that results of Roychowdhury Model may suffer from high Type-I error rate which poses a risk of rejection of null hypothesis while it is true. To address this issue, they offer sets of models. These models can be names as IOS REM Model and PM REM Models which were discussed in section of *2.3.2.2. Empirical Models* already. Thus, effect of IFRS adoption on the managers of SUSPECT firm-years' REM preferences is re-run by using IOS REM Models and PM REM Models. Table-2.9, 2.10, 2.11, 2.12, 2.13 and 2.14 demonstrate the results of IOS REM Models and Table-2.15, 2.16, 2.17, 2.18, 2.19 and 2.20 exhibit the result of PM REM Models.

Table-2.9 exhibits the results of Equation-2.18 for France, Germany and UK respectively for the period between 1990 and 2015. Dependant variables are calculated through IOS REM Model calculation process, that were explained in section of *2.3.2.2. Empirical Models*. As it can be seen in Table-2.9, coefficient of SUSPECT is negative, -0.0457, and significant at 5% level when dependent variable is IOS_AbCFO. The slope is -0.0541 but insignificant when the dependant variable is set as IOS_AbDISEXP. It is positive, 0.0315, and significant at 1% while dependant variable is substituted with IOS_AbPROD. These results confirm the findings in Table-2.3 that, French SUSPECT firm-years employed abnormal price discounts and abnormal increase in production during 1990 and 2015. IOS results of German SUSPECT firm-years in Table-2.9 also confirms the findings of Table-2.3. According to IOS results, managers of SUSPECT firm-years in Germany implemented reduction of discretionary

expenses and increase in production level throughout the sample period as the coefficient of SUSPECT is -0.0186 and 0.0286 and both are significant at 10% while dependent variable is set as IOS_AbDISEXP and IOS_AbPROD respectively. Lastly, results presented of UK in Table-2.9 also approve the findings of Table-2.9 as coefficient of SUSPECT is significant at 1%, 10% and 1% for IOS_AbCFO, IOS_AbDISEXP and IOS_AbPROD with coefficients of -0.0128, -0.0353 and 0.0496 respectively.

| Table-2.9 ALL | FR | | | GR | | | UK | | |
|---|---|---|---|---|---|---|---|---|---|
| | IOS_AbCFO | IOS_AbDISEXP | IOS_AbPROD | IOS_AbCFO | IOS_AbDISEXP | IOS_AbPROD | IOS_AbCFO | IOS_AbDISEXP | IOS_AbPROD |
| Size | -0.00404*** | 0.00209 | 0.00415*** | -0.00779*** | -0.000467 | 0.00713*** | -0.0257*** | 0.00522* | 0.0229*** |
| | (0.001) | (0.248) | (0.000) | (0.000) | (0.766) | (0.000) | (0.000) | (0.061) | (0.000) |
| MTB | -0.00246** | 0.00361 | -0.00110 | -0.000392 | -0.00500** | 0.00515** | 0.000433*** | 0.00244*** | -0.00244*** |
| | (0.012) | (0.144) | (0.488) | (0.300) | (0.024) | (0.013) | (0.004) | (0.000) | (0.001) |
| Income | 0.464*** | -0.274*** | -0.320*** | 0.472*** | 0.369*** | -0.657*** | 0.404*** | -0.314*** | -0.215*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.003) | (0.000) | (0.000) | (0.000) | (0.000) |
| SUSPECT | -0.0457** | -0.0541 | 0.0315*** | -0.0045 | -0.0185* | 0.0286* | -0.0128*** | -0.0353* | 0.0496*** |
| | (0.041) | (0.130) | (0.000) | (0.142) | (0.08) | (0.083) | (0.000) | (0.074) | (0.000) |
| Constant | 0.0133* | 0.00970* | 0.00240* | 0.00115** | 0.0185*** | 0.00997* | 0.0176*** | 0.0166*** | 0.00919** |
| | (0.078) | (0.057) | (0.078) | (0.17) | (0.000) | (0.091) | (0.000) | (0.000) | (0.030) |
| Observations | 8,524 | 8,524 | 8,524 | 8,309 | 8,309 | 8,309 | 19,685 | 19,685 | 19,685 |
| R-squared | 0.222 | 0.167 | 0.146 | 0.167 | 0.131 | 0.133 | 0.131 | 0.101 | 0.163 |

Table-2.9 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First three columns of the table show the results of France, middle three columns exhibit the results of Germany and last three columns present the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for whole sample period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variables are substituted with IOS_AbCFO, IOS_AbDISEXP and IOS_AbPROD, which are obtained from Equation-2.10, Equation-2.12 and Equation-2.14 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-2.10 exhibits the results of all three IOS_REM techniques with one single variable for France, Germany and UK for the whole period. Left column presents the findings for France, middle column for Germany and right column for UK. As it was mentioned in literature review section executives of the SUSPECT firm-years not may practice more than one technique at the same time. Moreover, they may think that implementation of one REM technique too much can be easily noticed, so they may decide to implement more than one technique simultaneously and manage to make the total effects of these techniques big enough to meet/beat the financial goal. To be able to capture this, one REM variable is designed to cover all three methods and observe the effect of implementation of usage of collective REM techniques at once. As it shown in the Table-2.10 that SUSPECT firm-years from all three countries have significant REM tendencies. Slope coefficient of SUSPECT is positive and significant for France, 0.0651, at 10% and it is positive and significant, 0.0326, for Germany at 5% as well. In additions to that, coefficient of SUSPECT is positive and significant, 0.0557, at 1%. So, results show that all SUSPECT firm-years in these three different countries implemented three different REM techniques collectively for the whole period. Under the light of IOS_REM results, an inference can be drawn that, there is no significant difference between countries regarding simultaneous implementation of REM activities between 1990 and 2015.

| Table-2.10<br>ALL | (FR)<br>REMIOS | (GR)<br>REMIOS | (UK)<br>REMIOS |
|---|---|---|---|
| Size | 0.0431*** | 0.0239*** | 0.0351*** |
| | (0.000) | (0.000) | (0.000) |
| MTB | -0.00558 | 0.0100* | -0.00213** |
| | (0.260) | (0.060) | (0.017) |
| Income | -0.747*** | -1.592*** | -0.357*** |
| | (0.003) | (0.000) | (0.000) |
| SUSPECT | 0.0651* | 0.0326* | 0.0557*** |
| | (0.92) | (0.090) | (0.007) |
| Constant | 0.199*** | 0.00278* | 0.0108* |
| | (0.000) | (0.051) | (0.093) |
| Observations | 8,524 | 8,309 | 19,685 |
| R-squared | 0.140 | 0.149 | 0.213 |

Table-2.10 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First column of the table shows the results of France, second column exhibits the results of Germany and last column presents the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for whole sample period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variable REMIOS is obtained from Equation-2.24, which is calculated via sum of opposite abnormal IOS CFO, opposite abnormal IOS DISEXP and abnormal IOS PROD which are obtained through Equation-2.22, Equation-2.23 and Equation-2.14 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-2.11 and 2.12 exhibit the REM activities of SUSPECT firm-years for sample countries during pre-IFRS period by using IOS REM Models.

As it can be in first three columns of Table-2.11, executives of SUSPECT firm-years in France do not practice real earnings management significantly by implementing reduction in price and providing lenient credit terms as slope coefficient of SUSPECT is -0.00830 and insignificant when dependant variable is substituted with as IOS_AbCFO. Moreover, it is also insignificant when dependent variable is set as IOS_AbDISEXP and IOS_AbPROD. Coefficient of SUSPECT is -0.00401 and 0.0172 and both insignificant when dependent variable is substituted with IOS_AbDISEXP and IOS_AbPROD respectively. In additions to these, as it is presented in colum-4, 5 and 6, slope coefficients of SUSPECT are all insignificant as well. It is -0.00697, 0.0249 and 0.0134 when dependent variable is substituted with IOS_AbCFO, IOS_AbDISEXP and IOS_AbPROD respectively. Considering these results together with results of France, the result can be drawn that REM activities were not a first EM method to appeal during pre-IFRS period by the managers of small positive earnings firms in Continental European accounting follower countries. On the other hand, however, practising REM was common before IFRS adoption in UK. As it is shown in the last three columns of Table-2.11, coefficients of SUSPECT are all significant. It is -0.0139 significant at 5%, -0.00887 significant at 10% and 0.0536 significant at 5% when dependent variable is replaced with IOS_AbCFO, IOS_abDISEXP and IOS_abPROD respectively. These results indicate that practising REM activities are widespread for SUSPECT firm-years in UK, as an Anglo-Saxon accounting originated country, during pre-IFRS period.

| Table-2.11 Pre-IFRS | FR | | | GR | | | UK | | |
|---|---|---|---|---|---|---|---|---|---|
| | IOS_AbCFO | IOS_AbDISEXP | IOS_AbPROD | IOS_AbCFO | IOS_AbDISEXP | IOS_AbPROD | IOS_AbCFO | IOS_AbDISEXP | IOS_AbPROD |
| Size | -0.00216*** | 0.00616*** | 0.00247 | -0.00628** | -0.00236 | 0.00649*** | -0.0215*** | 0.000304 | 0.0186*** |
| | (0.007) | (0.000) | (0.146) | (0.017) | (0.506) | (0.002) | (0.000) | (0.946) | (0.000) |
| MTB | -0.00357*** | 0.00895*** | -0.00632* | -0.000860** | -0.00270*** | 0.00329*** | 0.000418 | 0.00221*** | -0.00235*** |
| | (0.006) | (0.003) | (0.068) | (0.041) | (0.001) | (0.004) | (0.239) | (0.001) | (0.000) |
| Income | 0.454*** | -0.347*** | -0.191*** | 0.501*** | 0.453 | -0.463** | 0.393*** | -0.284*** | -0.162*** |
| | (0.000) | (0.002) | (0.010) | (0.000) | (0.156) | (0.033) | (0.000) | (0.000) | (0.000) |
| SUSPECT | -0.00830 | -0.00401 | 0.0172 | -0.00697 | 0.0249 | 0.0134 | -0.0139** | -0.00887* | 0.0536** |
| | (0.215) | (0.899) | (0.203) | (0.515) | (0.189) | (0.558) | (0.031) | (0.096) | (0.016) |
| Constant | 0.00179* | 0.0219*** | 0.0705*** | 0.00261* | 0.0181** | 0.00174* | 0.0109** | 0.00910** | 0.00758** |
| | (0.091) | (0.001) | (0.007) | (0.078) | (0.021) | (0.094) | (0.023) | (0.044) | (0.027) |
| Observations | 3,813 | 3,813 | 3,813 | 3,739 | 3,739 | 3,739 | 7,874 | 7,874 | 7,874 |
| R-squared | 0.189 | 0.199 | 0.139 | 0.156 | 0.145 | 0.140 | 0.119 | 0.182 | 0.135 |

Table-2.11 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First three columns of the table show the results of France, middle three columns exhibit the results of Germany and last three columns present the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for pre-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variables are substituted with IOS_AbCFO, IOS_AbDISEXP and IOS_AbPROD, which are obtained from Equation-2.10, Equation-2.12 and Equation-2.14 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-2.12 presents the collective IOS_REM practices of SUSPECT firm-years as per countries for the period between 1990 and 2004 (pre-IFRS). First column shows the results for France, second column presents the results for Germany and last column shows the results for UK. As it is shown in Table-2.12 that the coefficient of SUSPECT is insignificant for France with the positive sign slope of 0.000569. Germany has the similar result. The slope coefficient of SUSPECT is positive yet again insignificant, 0.0265. On the other hand, slope coefficient of SUSPECT is positive and significant, 0.0743, at 5% for the UK. These results confirm the findings of Table-2.4 and there is no significant difference between results of Roychowdhury's REM Models and IOS REM Models so far. This indicates that small positive earnings firms in France and Germany, as the followers of Continental European accounting system, do not significantly practice REM techniques collectively throughout pre-IFRS period. On the other hand, same group of firms significantly implemented REM methods collectively during pre-IFRS period.

Overall, results of Table-2.11 and 2.12, that present the results of IOS_REM Models for the period between 1990 and 2015, support the findings exhibited in Table-2.5 and 2.6 that, REM activities were not significantly used by small positive earnings firms in Continental European countries while it was a common method in Anglo Saxon countries in EU.

| Table-2.12<br>Pre-IFRS | (FR)<br>REMIOS | (GR)<br>REMIOS | (UK)<br>REMIOS |
|---|---|---|---|
| Size | 0.0279** | 0.0265*** | 0.0434*** |
| | (0.017) | (0.001) | (0.000) |
| MTB | -0.0196*** | 0.00417** | -0.00446** |
| | (0.000) | (0.024) | (0.040) |
| Income | -0.194* | -1.605** | -0.279*** |
| | (0.058) | (0.023) | (0.004) |
| SUSPECT | 0.000569 | 0.0265 | 0.0743** |
| | (0.993) | (0.439) | (0.046) |
| Constant | 0.156*** | 0.0275** | 0.00614** |
| | (0.001) | (0.045) | (0.029) |
| Observations | 3,813 | 3,739 | 7,874 |
| R-squared | 0.112 | 0.168 | 0.136 |

Table-2.12 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First column of the table shows the results of France, second column exhibits the results of Germany and last column presents the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for pre-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variable REMIOS is obtained from Equation-2.24, which is calculated via sum of opposite abnormal IOS CFO, opposite abnormal IOS DISEXP and abnormal IOS PROD which are obtained through Equation-2.22, Equation-2.23 and Equation-2.14 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Effect of IFRS adoption on SUSPECT firm-years' REM tendencies can be seen in Table-2.13, 2.14, that presents the results of IOS_REM Models for the period between 2005 and 2015. Table-2.13 shows individual REM preferences while Table-2.14 exhibits the collective REM practices of SUSPECT firm-years as per countries for the period between 1990 and 2004.

Frist three columns of Table-2.13 shows that managers of SUSPECT firm-years in France involve in manipulation of earnings significantly by implementing reduction in price and providing lenient credit terms as slope coefficient of SUSPECT is -0.0152 and significant at 10% when dependant variable is set as IOS_AbCFO. It is also significant when dependent variable is set as IOS_AbDISEXP and IOS_AbPROD. Slope coefficient of SUSPECT is -0.0951 and 0.0420 significant at 5% and 1% when dependent variable is substituted with IOS_AbDISEXP and IOS_AbPROD respectively. On the other hand, as it is shown in colum-4, 5 and 6 that managers of SUSPECT firm-years involve in REM practices as two out of three slope coefficients of SUSPECT are significant. It is -0.0206, -0.0540 when dependent variable is substituted with IOS_AbCFO and IOS_abDISEXP. It is, however, not significant when dependant variable is substituted with IOS_AbPROD. Considering these results together with results of France, REM activities are widespread EM method after adoption of IFRS amongst small positive earnings firms in Continental European accounting follower countries. On the other hand, however, practising REM are prevalent after IFRS adoption in UK. As it can be seen in last three columns of Table-2.13 that coefficients of SUSPECT are all significant. It is -0.0119 and significant at 10%, -0.0714 and significant at 1% and 0.0467 and significant at 1% when dependent variable is replaced with IOS_AbCFO, IOS_abDISEXP and IOS_abPROD respectively. These results suggest that involving in REM activities are rampant for SUSPECT firm-years in UK, as an Anglo-Saxon accounting originated country, after adoption of IFRS. So, the results of Table-2.13 high correspond with the results presented in Table-2.7, that means that results of IOS REM Models do not contradict with the results of Roychowdhury's REM Models.

| Table-2.13 Post-IFRS | FR | | | GR | | | UK | | |
|---|---|---|---|---|---|---|---|---|---|
| | IOS_AbCFO | IOS_AbDISEXP | IOS_AbPROD | IOS_AbCFO | IOS_AbDISEXP | IOS_AbPROD | IOS_AbCFO | IOS_AbDISEXP | IOS_AbPROD |
| Size | -0.00557*** | -0.00125 | 0.00537*** | -0.00903*** | 0.00108 | 0.00759*** | -0.0291*** | 0.00925** | 0.0261*** |
| | (0.000) | (0.313) | (0.000) | (0.000) | (0.265) | (0.000) | (0.000) | (0.012) | (0.000) |
| MTB | -0.00155 | -0.000766 | 0.00270** | -1.03e-05 | -0.00688* | 0.00651 | 0.000445 | 0.00262*** | -0.00249 |
| | (0.269) | (0.451) | (0.035) | (0.987) | (0.081) | (0.118) | (0.130) | (0.000) | (0.157) |
| Income | 0.473*** | -0.214*** | -0.414*** | 0.448*** | 0.300** | -0.797*** | 0.414*** | -0.339*** | -0.253*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.017) | (0.003) | (0.000) | (0.000) | (0.000) |
| SUSPECT | -0.0152* | -0.0951** | 0.0420*** | -0.0206* | -0.0540*** | 0.0223 | -0.0119* | -0.0714*** | 0.0467*** |
| | (0.087) | (0.021) | (0.000) | (0.065) | (0.001) | (0.329) | (0.054) | (0.000) | (0.001) |
| Constant | 0.0387** | 0.0262** | 0.0099* | 0.00483* | 0.0188*** | 0.0160* | 0.0232*** | 0.0227*** | 0.0153*** |
| | (0.032) | (0.028) | (0.099) | (0.051) | (0.006) | (0.055) | (0.000) | (0.001) | (0.001) |
| Observations | 4,711 | 4,711 | 4,711 | 4,570 | 4,570 | 4,570 | 11,811 | 11,811 | 11,811 |
| R-squared | 0.249 | 0.141 | 0.152 | 0.176 | 0.121 | 0.129 | 0.141 | 0.117 | 0.183 |

Table-2.13 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First three columns of the table show the results of France, middle three columns exhibit the results of Germany and last three columns present the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for post-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variables are substituted with IOS_AbCFO, IOS_AbDISEXP and IOS_AbPROD, which are obtained from Equation-2.10, Equation-2.12 and Equation-2.14 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-2.14 shows results of Equation-2.21 and it exhibits the effects of collective usage of separate REM techniques calculated through IOS REM variables for the period of 2005-2015. Design of Table-2.14 is in a way that first column is for France, second column is for Germany and third column is for UK. First column shows that, SUSPECT firm-years of France implements REM strategies collectively as coefficient of SUSPECT is positive and significant, 0.112, at 10% level. Same as France, German SUSPECT firm-years also uses three REM methods collaboratively as slope of SUSPECT is 0.077 and significant at 5%. Managers of SUSPECT firm-years in UK also implement three REM methods intensively as coefficient is 0.123 and significant at 1% level. So, the information in Table-2.7 and 2.8 can be summarized in a way that, after adoption of IFRS the differences between UK, as an Anglo-Saxon country, and France and Germany, as Continental-European countries, disappears in both separate REM technique level and collective REM usage level.

Overall, results of IOS REM variables significantly corresponds with results of Roychowdhury's REM Models. The drive of creating of IOS REM Models and PM REM Models was the claim that Roychowdhury's REM Models suffer from high Type-I error rate which may cause rejection of null hypothesis although null hypothesis is true. However, it can be said, at least for this study, that results of Roychowdhury's REM Models are robust for Type-I error rate, as relatively lower Type-I error rate model set of IOS REM results does not conflict with results of Roychowdhury's Model.

| Table-2.14<br>ALL | (FR)<br>REMIOS | (GR)<br>REMIOS | (UK)<br>REMIOS |
|---|---|---|---|
| Size | 0.0543*** | 0.0220*** | 0.0491*** |
| | (0.000) | (0.000) | (0.000) |
| MTB | 0.00464 | 0.0143 | -0.00651** |
| | (0.474) | (0.161) | (0.017) |
| Income | -1.149*** | -1.583*** | -0.335*** |
| | (0.000) | (0.000) | (0.000) |
| SUSPECT | 0.112* | 0.0770** | 0.123*** |
| | (0.093) | (0.041) | (0.000) |
| Constant | 0.230*** | 0.0152* | 0.0765** |
| | (0.000) | (0.065) | (0.027) |
| Observations | 8,524 | 8,309 | 19,685 |
| R-squared | 0.161 | 0.135 | 0.157 |

Table-2.16 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First column of the table shows the results of France, second column exhibits the results of Germany and last column presents the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for whole sample period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variable REMPM is obtained from Equation-2.24, which is calculated via sum of opposite abnormal PM CFO, opposite abnormal PM DISEXP and abnormal PM PROD which are obtained through Equation-2.25, Equation-2.26 and Equation-2.17 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Last set of models to investigate the effect of IFRS adoption on SUSPECT firm-years REM behaviours is PM REM Models. As it was explained in previous sections of this chapter, Cohen et al. (2016) created PM Model set as they claim that Roychowdhury's REM Models suffer from high Type-I error rate and PM REM Models give the lowest Type-I error rate comparing with Roychowdhury's REM Model set. Thus, to be able to see if the results are robust to PM REM Models, all the analyses are re-run and the results are presented in further tables.
Designs of the tables are identical with the tables that present the outcomes of Roychowdhury and IOS PM Models above. There are tables to see separate effect of REM techniques as well as their collective effects. Table-2.15 and 2.16 exhibits the results for all period separately for France, Germany and UK and Table-2.17 and 2.18 shows the results of pre-IFRS period, whilst Table-2.19 and 2.20 presents the results of post-IFRS period.

Table-2.15 presents the results of Equation-2.18 for France, Germany and UK respectively for the period between 1990 and 2015. Dependant variables are calculated through PM REM Model calculation process, that were explained in section of *2.3.2.2. Empirical Models*. As it is shown in Table-2.15 that coefficient of SUSPECT is negative, -0.00769, and significant at 1% level when dependent variable is PM_AbCFO. It is -0.0515 but insignificant when dependant variable is set as PM_AbDISEXP, while it is positive, 0.0315, and significant at 1% while dependant variable is substituted with PM_AbPROD. These results confirm the findings in Table-2.3 that, French SUSPECT firm-years employed abnormal price discounts and abnormal increase in production during 1990 and 2015. PM results of German SUSPECT firm-years in Table-2.15 also confirms the findings of Table-2.3. According to PM REM results, managers of SUSPECT firm-years in Germany implemented reduction of discretionary expenses and increase in production level throughout the sample period as the coefficient of SUSPECT is -0.0383 and 0.0399 and both are significant at 1% while dependent variable is set as PM_AbDISEXP and PM_AbPROD respectively. Lastly, results of UK presented in Table-2.15 also approve the findings of Table-2.3 as all of the coefficients of SUSPECT are significant at the level of 1%, 5% and 10% with coefficients of -0.0487, -0.0290 and 0.0675 when dependant variables are replaced with PM_AbCFO, PM_AbDISEXP and PM_AbPROD respectively.

| Table-2.15 ALL | FR | | | GR | | | UK | | |
|---|---|---|---|---|---|---|---|---|---|
| | PM_AbCFO | PM_AbDISEXP | PM_AbPROD | PM_AbCFO | PM_AbDISEXP | PM_AbPROD | PM_AbCFO | PM_AbDISEXP | PM_AbPROD |
| Size | 0.00492*** | -0.0167*** | -0.00515** | 0.00739*** | -0.00168 | 0.00568*** | 0.00295 | 0.00192 | 0.0241*** |
| | (0.000) | (0.000) | (0.012) | (0.000) | (0.377) | (0.000) | (0.442) | (0.801) | (0.000) |
| MTB | -0.000464 | 0.00549 | -0.0110*** | -0.00163** | -0.000959 | -0.00101 | 0.000487 | 0.00386*** | -0.00143** |
| | (0.792) | (0.237) | (0.000) | (0.014) | (0.696) | (0.720) | (0.166) | (0.000) | (0.045) |
| Income | -0.00111 | -0.128 | 0.0144 | -0.118*** | 0.339*** | -0.266*** | 0.262*** | -0.187*** | -0.0955*** |
| | (0.938) | (0.318) | (0.723) | (0.000) | (0.000) | (0.006) | (0.000) | (0.001) | (0.000) |
| SUSPECT | -0.00769*** | -0.0515 | 0.0530** | -0.00293 | -0.0383*** | 0.0399** | -0.0487*** | -0.0290** | 0.0675* |
| | (0.001) | (0.176) | (0.032) | (0.361) | (0.000) | (0.016) | (0.000) | (0.011) | (0.085) |
| Constant | 0.0775** | 0.0109** | 0.0464*** | 0.110*** | 0.0159* | 0.00677* | 0.0913*** | 0.0211*** | 0.0888*** |
| | (0.038) | (0.022) | (0.002) | (0.001) | (0.056) | (0.065) | (0.001) | (0.000) | (0.004) |
| Observations | 8,524 | 8,524 | 8,524 | 8,309 | 8,309 | 8,309 | 19,685 | 19,685 | 19,685 |
| R-squared | 0.125 | 0.118 | 0.128 | 0.127 | 0.125 | 0.131 | 0.178 | 0.131 | 0.123 |

Table-2.15 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First three columns of the table show the results of France, middle three columns exhibit the results of Germany and last three columns present the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for whole sample period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variables are substituted with PM_AbCFO, PM_AbDISEXP and PM_AbPROD, which are obtained from Equation-2.15, Equation-2.16 and Equation-2.7 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-2.16 presents the results of Equation 2.18 for France, Germany and UK for the period of 1990 and 2015 with dependant variables of REMPM. Similarly, REMPM contains the collective effects of three individual REM techniques in itself. First column of the table presents the findings for France, second column for Germany and last column for UK. As it was stated in literature review section that managers of the SUSPECT firm-years may prefer to implement more than one REM techniques at once because of various reasons. To explore this possibility, one REM variable is created as it was done before to capture all three methods and see the effects of collectively practising REM techniques at once. As it is shown in Table-2.16 that SUSPECT firm-years from all three countries have significant REM tendencies. Slope coefficient of SUSPECT is positive and significant for France, 0.243 at 10%, positive and significant, 0.0611, at 5% for Germany. In additions to that, coefficient of SUSPECT is positive and significant, 0.830, at 1% for UK. So, results show that all SUSPECT firm-years in these three different countries implemented three different REM techniques collectively for the whole period. Under the light of PM_REM results, an inference can be drawn that, there is no significant difference between countries regarding simultaneous implementation of REM activities between 1990 and 2015. These results confirm the findings presented in Table-2.4 and Table-2.10.

So, it can be briefly said that, results of PM REM models to large extent consistent with Roychowdhury's REM Models and IOS REM Models. Same as Roychowdhury's Models' and IOS Models' results, PM REM Models' findings suggest that SUSPECT firm-years from France implement abnormally price discounts and production increase to manage earnings throughout the whole sample period as coefficient of SUSPECT is significant only for PM_AbCFO and PM_AbPROD with 1% and 5%. Similarly, results for German SUSPECT firm-years also correspond with other two models. German SUSPECT firm-years practise reduction in discretionary expenses and increase in production cost during whole sample period at 1% and 5% significance level. Lastly, findings on REM activities of SUSPECT firm-years in UK also match with first two sets of models that managers of SUSPECT firms implemented all three manipulation methods during the period by practising abnormal price discounts, abnormal discretionary expense cuts and abnormal increase in production level at 1%, 5% and 10% significance level respectively.

| Table-2.16<br>ALL | (FR)<br>REMPM | (GR)<br>REMPM | (UK)<br>REMPM |
|---|---|---|---|
| Size | 0.0368*** | 0.0860*** | 0.0275*** |
| | (0.000) | (0.000) | (0.000) |
| MTB | 0.00285 | 0.0242 | -0.00483** |
| | (0.393) | (0.166) | (0.027) |
| Income | -1.250*** | -1.472*** | -0.562*** |
| | (0.000) | (0.000) | (0.000) |
| SUSPECT | 0.243* | 0.0611** | 0.830*** |
| | (0.077) | (0.039) | (0.000) |
| Constant | 0.451*** | 0.0334* | 0.00815** |
| | (0.000) | (0.071) | (0.017) |
| Observations | 4,711 | 4,570 | 11,811 |
| R-squared | 0.190 | 0.124 | 0.181 |

Table-2.16 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First column of the table shows the results of France, second column exhibits the results of Germany and last column presents the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for post-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variable REMIOS is obtained from Equation-2.24, which is calculated via sum of opposite abnormal IOS CFO, opposite abnormal IOS DISEXP and abnormal IOS PROD which are obtained through Equation-2.22, Equation-2.23 and Equation-2.14 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-2.17 and 2.18 gives the results for pre-IFRS period. Table-2.17 presents the REM tendencies of small positive earnings firms from France, Germany and UK during pre-IFRS period. First three columns show the results for France, second three columns present the findings for Germany and last three columns exhibits the findings for UK. Dependant variables are set as PM_AbCFO, PM_AbDISEXP and PM_AbPROD, that are calculated through performance matching procedure as they are explained in methodology section. As it is shown in the first three columns of Table-2.17 that slope coefficient of SUSPECT is negative and insignificant, -0.00544, when dependant variable is set as PM_AbCFO. It is positive and insignificant, 0.0111, and positive and insignificant again, 0.00793, when dependant variables are set as PM_AbDISEXP and PM_AbPROD respectively. These results indicate that that small positive earnings firms did not implement REM techniques individually during pre-IFRS period in France. Second three columns of Table-2.17 shows the findings for Germany. Results of Germany is similar with the results of France as slope coefficients of SUSPECT are all insignificant. It is 0.00307, -0.00398 and 0.00716 when dependant variables are set as PM_AbCFO, PM_AbDISEXP and PM_AbPROD respectively. These results support the findings of Roychowdhury's REM Model and IOS REM Models presented in Table-2.3 and Table-2.11, that small positive earnings firms did not involve in individual REM techniques in Continental European accounting system follower countries during pre-IFRS period.

Last three columns of Table-2.17 presents the findings of UK and slope coefficients of SUSPECT are all significant. It is negative and significant, -0.0321, at 10% when dependant variable is set as PM_AbCFO. In additions to that, slope coefficient of SUSPECT is negative and significant, -0.0385, at 10% when dependant variable is PM_AbDISEXP. Finally, it is positive and significant, 0.154, at 5% when dependant variable is PM_AbPROD. These results show and support the findings in Table-2.13 and 2.11 that small positive earnings firms in UK were implanting REM methods individually during pre-IFRS period.

| Table-2.17 Pre-IFRS | FR | | | GR | | | UK | | |
|---|---|---|---|---|---|---|---|---|---|
| | PM_AbCFO | PM_AbDISEXP | PM_AbPROD | PM_AbCFO | PM_AbDISEXP | PM_AbPROD | PM_AbCFO | PM_AbDISEXP | PM_AbPROD |
| Size | 0.00440** | -0.0112 | -0.00338 | 0.00889*** | 0.000144 | 0.00637** | 0.0116*** | -0.0123 | 0.0187*** |
| | (0.043) | (0.351) | (0.599) | (0.002) | (0.972) | (0.031) | (0.002) | (0.140) | (0.000) |
| MTB | 0.00257 | 0.0114 | -0.0113*** | -0.000115 | 0.00131 | -0.00380 | 0.000258 | 0.00472*** | -0.00253** |
| | (0.373) | (0.589) | (0.001) | (0.824) | (0.675) | (0.151) | (0.518) | (0.001) | (0.010) |
| Income | -0.0200 | -0.000428 | 0.0134 | -0.177*** | 0.460* | -0.260 | 0.216*** | -0.0966* | -0.0492 |
| | (0.487) | (0.999) | (0.916) | (0.001) | (0.055) | (0.355) | (0.000) | (0.057) | (0.158) |
| SUSPECT | -0.00544 | 0.0111 | 0.00793 | 0.00307 | -0.00398 | 0.00716 | -0.0321* | -0.0385* | 0.154** |
| | (0.204) | (0.124) | (0.523) | (0.835) | (0.172) | (0.869) | (0.086) | (0.088) | (0.041) |
| Constant | 0.00223* | 0.0186** | 0.0058* | 0.00361* | 0.0314*** | 0.0107* | 0.0509* | 0.0195*** | 0.0168** |
| | (0.058) | (0.044) | (0.075) | (0.081) | (0.003) | (0.091) | (0.088) | (0.003) | (0.028) |
| Observations | 3,813 | 3,813 | 3,813 | 3,739 | 3,739 | 3,739 | 7,874 | 7,874 | 7,874 |
| R-squared | 0.130 | 0.113 | 0.136 | 0.138 | 0.141 | 0.156 | 0.156 | 0.119 | 0.118 |

Table-2.17 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First three columns of the table show the results of France, middle three columns exhibit the results of Germany and last three columns present the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for pre-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variables are substituted with PM_AbCFO, PM_AbDISEXP and PM_AbPROD, which are obtained from Equation-2.15, Equation-2.16 and Equation-2.17 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-2.18 exhibits the relationship between the collective REM techniques and the REM behaviours of small positive earnings firms during pre-IFRS period. First column presents the results of France, second column shows the findings of Germany and last column exhibits the findings of UK. As it is presented in first column, slope coefficient of SUSPECT is positive and insignificant, 0.166, that means that small positive earnings firms in France do not practice REM techniques collectively between 2005 and 1990. Findings of Germany is also similar with the findings of France. As it is shown in second column, coefficient of SUSPECT is positive and insignificant as well, 0.224, and similar with France, marginally positive earnings firms in Germany also did not implement REM techniques collectively during pre-IFRS period. These results confirm the findings of Roychowdhury's REM Models and IOS REM Models presented in Table-2.5 and Table-2.11. These results can be interpreted in a way that SUSPECT firm-years in France and Germany did not involve in REM techniques collectively. On the other hand, third column of Table-2.18 shows that SUSPECT firm-years significantly use REM techniques collectively before the adoption of IFRS as the slope coefficient of SUSPECT is positive and significant, 0.152, at 5%.

Considering together with the findings presented in Table-2.17, the results of Table-2.18 can be interpreted in a way that small positive earnings firms in Continental European accounting system follower countries implement REM techniques neither separately nor collectively before the adoption of IFRS. On the other hand, same group of firms in UK, as an Anglo-Saxon accounting system follower, did practice REM techniques both separately and collectively in pre-IFRS period. So, the findings support the results of Roychowdhury REM Models and IOS REM Models.

| Table-2.18<br>Pre-IFRS | (FR)<br>REMPM | (GR)<br>REMPM | (UK)<br>REMPM |
|---|---|---|---|
| Size | 0.0514** | 0.0443*** | 0.0255*** |
| | (0.032) | (0.007) | (0.002) |
| MTB | -0.0638 | -0.0519 | -0.00627*** |
| | (0.327) | (0.101) | (0.003) |
| Income | 7.315 | -3.933** | 0.00960 |
| | (0.363) | (0.045) | (0.907) |
| SUSPECT | 0.166 | 0.224 | 0.152** |
| | (0.260) | (0.167) | (0.039) |
| Constant | 0.177*** | 0.0797* | 0.0687** |
| | (0.008) | (0.074) | (0.041) |
| Observations | 3,813 | 3,739 | 7,874 |
| R-squared | 0.181 | 0.115 | 0.116 |

Table-2.18 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First column of the table shows the results of France, second column exhibits the results of Germany and last column presents the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for pre-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variable REMPM is obtained from Equation-2.24, which is calculated via sum of opposite abnormal PM CFO, opposite abnormal PM DISEXP and abnormal PM PROD which are obtained through Equation-2.25, Equation-2.26 and Equation-2.17 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Last two tables of this chapter are Table-2.19 and Table-2.20. Table-2.19 and 2.20 gives the results for post-IFRS period with dependant variables that are calculated via performance matching procedure. Table-2.19 shows the REM behaviours of marginally positive earnings firms from France, Germany and UK throughout pre-IFRS period from 1990 to 2005. First three columns exhibit the results for France, second three columns show the findings for Germany and last three columns presents the findings for UK. PM_AbCFO, PM_AbDISEXP and PM_AbPROD are set as dependant variables that are calculated via performance matching process. As it is shown in the first three columns of Table-2.19 that slope coefficient of SUSPECT is negative and significant, -0.00953, at 5% when dependant variable is PM_AbCFO. It is also negative and significant, -0.946, at 5% when dependant variables are set as PM_AbDISEXP. Moreover, slope coefficient of SUSPECT is positive and significant, 0.0858, at 1% when dependant variable is PM_AbPROD. These findings show that small positive earnings firms practised REM techniques individually before the adoption of IFRS in France. Mid-three columns of Table-2.17 exhibits the results for Germany. Slope coefficients of SUSPECT is -0.00783 and -0.0371 significant at 10% and 1% when dependant variables are set as PM_AbCFO and PM_AbDISEXP respectively. It is, on the other hand, positive but insignificant, 0.0636, when dependant variable is set as PM_AbPROD. These results support the findings of Roychowdhury's REM Model and IOS REM Models presented in Table-2.7 and Table-2.13, that small positive earnings firms have been practising REM techniques in Continental European accounting system follower countries during post-IFRS period.

Last three columns of Table-2.17 presents the findings of UK and slope coefficients of SUSPECT are all significant. It is negative and significant, -0.0622, at 1% when dependant variable is set as PM_AbCFO. In additions to that, slope coefficient of SUSPECT is negative and significant, -0.0456, at 10% when dependant variable is PM_AbDISEXP. Finally, it is positive and significant, 0.0882 at 1% when dependant variable is PM_AbPROD. These results show and support the findings in Table-2.7and 2.13 that small positive earnings firms in UK were implementing REM methods individually during pre-IFRS period.

| Table-2.19 Post-IFRS | FR | | | GR | | | UK | | |
|---|---|---|---|---|---|---|---|---|---|
| | PM_AbCFO | PM_AbDISEXP | PM_AbPROD | PM_AbCFO | PM_AbDISEXP | PM_AbPROD | PM_AbCFO | PM_AbDISEXP | PM_AbPROD |
| Size | 0.00534*** | -0.0211** | -0.00643*** | 0.00616*** | -0.00317 | 0.00517** | -0.00412* | 0.0135*** | 0.0280*** |
| | (0.000) | (0.031) | (0.000) | (0.000) | (0.170) | (0.013) | (0.080) | (0.001) | (0.000) |
| MTB | -0.00295*** | 0.000655 | -0.0108** | -0.00287*** | -0.00282 | 0.00102 | 0.000675 | 0.00316** | -0.000635 |
| | (0.003) | (0.935) | (0.012) | (0.000) | (0.645) | (0.870) | (0.447) | (0.031) | (0.714) |
| Income | 0.0144 | -0.232* | 0.0151 | -0.0703** | 0.241** | -0.270 | 0.300*** | -0.261*** | -0.129*** |
| | (0.228) | (0.052) | (0.780) | (0.034) | (0.014) | (0.118) | (0.000) | (0.000) | (0.000) |
| SUSPECT | -0.00953** | -0.946** | 0.0858*** | -0.00783* | -0.0371*** | 0.0636 | -0.0622*** | -0.0456* | 0.0882*** |
| | (0.030) | (0.023) | (0.005) | (0.097) | (0.008) | (0.589) | (0.000) | (0.091) | (0.000) |
| Constant | 0.0417* | 0.0133* | 0.038*** | 0.0947* | 0.0324*** | 0.039*** | 0.0124*** | 0.0225** | 0.0313** |
| | (0.088) | (0.075) | (0.006) | (0.083) | (0.009) | (0.007) | (0.000) | (0.044) | (0.013) |
| Observations | 4,711 | 4,711 | 4,711 | 4,570 | 4,570 | 4,570 | 11,811 | 11,811 | 11,811 |
| R-squared | 0.121 | 0.139 | 0.122 | 0.118 | 0.112 | 0.112 | 0.196 | 0.141 | 0.127 |

Table-2.19 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First three columns of the table show the results of France, middle three columns exhibit the results of Germany and last three columns present the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for post-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variables are substituted with PM_AbCFO, PM_AbDISEXP and PM_AbPROD, which are obtained from Equation-2.15, Equation-2.16 and Equation-2.17 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-2.20 presents the collective REM behaviours of small positive earnings firms throughout the post-IFRS period. First column shows the findings of France, mid-column exhibits the findings of Germany and last column shows the findings of UK. First column of the table shows that slope coefficient of SUSPECT is positive and significant, 0.112, at 10% which indicates that small positive earnings firms in France have been implementing REM techniques collectively after the adoption of IFRS. As it is shown in second column of the table, coefficient of SUSPECT is also positive and significant for the German small positive earnings firms, 0.143, and similar with France, marginally positive earnings firms in Germany also practice REM techniques collectively during post-IFRS period. These findings confirm and support the findings of Roychowdhury's REM Models and IOS REM Models presented in Table-2.8 and Table-2.14. These results can be interpreted in a way that SUSPECT firm-years in France and Germany involve in REM techniques collectively and simultaneously. In additions to these, third column of Table-2.20 exhibits that SUSPECT firm-years significantly use REM techniques collectively before the adoption of IFRS as the slope coefficient of SUSPECT is positive and significant, 0.0510, at 1%.

Considering together with the findings presented in Table-2.19, the results of Table-2.20 can be interpreted in a way that small positive earnings firms in Continental European accounting system and in Anglo-Saxon accounting system follower countries practice REM techniques both collectively and separately after the adoption of IFRS. So, the findings support the results of Roychowdhury REM Models and IOS REM Models.

| Table-2.20<br>Post-IFRS | (FR)<br>REMPM | (GR)<br>REMPM | (UK)<br>REMPM |
|---|---|---|---|
| Size | 0.0543*** | 0.00994* | 0.0224*** |
| | (0.000) | (0.063) | (0.006) |
| MTB | 0.00464 | 0.00705 | -0.00487 |
| | (0.474) | (0.631) | (0.214) |
| Income | -1.149*** | -0.431* | -0.131** |
| | (0.000) | (0.051) | (0.013) |
| SUSPECT | 0.112* | 0.143** | 0.0510*** |
| | (0.093) | (0.043) | (0.002) |
| Constant | 0.230*** | 0.0917* | 0.0491** |
| | (0.000) | (0.080) | (0.029) |
| Observations | 4,711 | 4,570 | 11,811 |
| R-squared | 0.161 | 0.116 | 0.120 |

Table-2.20 shows the regression results which are estimated through Equation-2.18;
$Y_t = \alpha_0 + \beta_1(SIZE_{t-1}) + \beta_2(MTB_{t-1}) + \beta_3(Net\ Income_t) + \beta_4(SUSPECT_t) + \varepsilon_t$
First column of the table shows the results of France, second column exhibits the results of Germany and last column presents the results of UK.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for post-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
Dependant variable REMPM is obtained from Equation-2.24, which is calculated via sum of opposite abnormal PM CFO, opposite abnormal PM DISEXP and abnormal PM PROD which are obtained through Equation-2.25, Equation-2.26 and Equation-2.17 respectively.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

The analyses in *2.4.3. Results and Discussion of IOS REM Models and PM REM Models* are done to see whether alternative REM Models support the findings of Roychowdhury's REM Models presented in section *2.4.2. Results and Discussion of Roychowdhury's REM Models*. After comparing the findings presented in section *2.4.3. Results and Discussion of IOS REM Models and PM REM Models* with the results of Roychowdhury's REM Models, in general, IOS REM and PM REM results do not contradict with results of Roychowdhury's REM Models. In other words, findings of IOS REM Models and PM REM Models support the results of Roychowdhury's REM Models and confirms the Hypothesis-1 and 2. Based on the findings of IOS REM Models and PM REM Models, there is an increase in REM activities of small positive earnings firms in Continental European countries from pre-IFRS period to post-IFRS period. In additions to that, REM activities of small positive earnings firms in UK did not change their REM activities significantly from pre-IFRS period to post-IFRS period. So, it can be said that, even models with relatively lower Type-I error rates confirm that there is significant increase in usage of REM methods both separately and collectively after adoption of IFRS, specifically in Continental European countries, which strongly supports Hypothesis-1 and employment of REM techniques does not show significant deviation from pre-IFRS period to post-IFRS period for UK, as an Anglo-Saxon accounting country, which dominantly supports Hypothesis-2.

**2.5. Conclusion:**

The present study was designed to determine the effect of IFRS adoption on REM behaviours of marginally positive earnings firms from two different accounting regimes; Anglo-Saxon and Continental Europe. First major finding of this study is that, marginally positive earnings firms in France and Germany, as the followers of Continental European accounting system, were implementing REM techniques neither separately nor collectively before adoption of IFRS. In post-IFRS period, however, same group of firms have been significantly practicing REM techniques both separately and collectively. This might be because of the fact that convergence in standards brings increase in comparability in accounting numbers which can re-shape firms' EM behaviours and to be able to avoid detection of implementing other EM methods opportunistic managers may shift to REM which is relatively more difficult to detect. In additions to that, IFRS represents a higher quality set of accounting standards which causes improvement in accounting quality by restricting non-operational EM methods. Thus, increase in REM might be because restrictions in non-operational EM may lead the managers to operational EM methods. Second main finding of this study is that, marginally positive earnings firms in UK, as an Anglo-Saxon accounting country, were implementing REM techniques not only separately but also collectively during both pre-IFRS and post-IFRS

periods. This might be because there was already high resemblance between Anglo-Saxon accounting system and IFRS before adoption of IFRS and being closer to higher quality accounting standards might restrict implementation of non-operational EM methods even before adoption of IFRS. Findings of this study show that, efforts of IASB to increase the quality of earnings can be eroded by opportunist managers through increasing REM methods. Moreover, such erosion can be accelerated in Continental EU countries after adoption of IFRS.

In this current study, three different model sets employed. First and main model set is Roychowdhury's (2006) REM Models and the last two, IOS and PM Models which were developed by Cohen et al. (2016) based on some criticisms over Roychowdhury's REM Models. Results of IOS and PM REM Models, however, to large extend supports the findings of Roychowdhury's REM Models. The presents study makes several noteworthy contributions to literature. First of all, in my knowledge, this is first study that investigates the effects of IFRS adoption on small positive earnings firms' REM behaviours based on their accounting orientation. Previous studies explained the relation between AEM and accounting origins, however its relations with REM remains unaddressed. Secondly, this study is first empirical study that use Cohen et al., (2016) REM Models in detection of REM since Cohen et al. (2016) used their models in their simulation study only to measure and compare Type-I error rates. As adoption of IFRS and its effect on accounting quality still subject of discussion not only in academic but also in regulatory circles, results of this study provide a new insight on function of IFRS and its efficiency.

# CHAPTER-3: EFFECTS OF ACCOUNTING COMPARABILITY ON AEM AND REM TENDENCIES OF FIRMS IN EU: A COMPARATIVE STUDY

### 3.1. Introduction:

IFRS has adopted by 150 countries around the world currently and shift from domestic standards to international ones had an impact on the world economy (Soderstrom and Sun, 2007). One of the objects of IASB is to create a set of accounting standards that have high quality and increase uniformity between the countries regarding their accounting practices. The higher set of accounting standards are expected to generate a higher quality of earnings. In fact, earnings quality and accounting quality are frequently used between each other in the literature.

Although the definitions of key terms are explained in literature review sections of this thesis in detail, it will be useful to give a brief information on earnings management, accounting comparability and earnings quality. Despite updated version of the conceptual framework will be published at 2020, a current conceptual framework which is used by both IASB and FASB after joint conceptual framework meeting at December 2004, accounting comparability is defined as “a qualitative characteristic that enables users to identify and understand similarities in, and differences among, items.” So, accounting comparability is a vital characteristics of accounting information to be able to draw useful economic interpretation and to give economic decisions.

Definition of EM is "…alteration of financial reports to mislead stakeholders about the organisation's underlying performance, or to influence contractual outcomes that depend on reported accounting numbers" (Healy and Wahlen (1999)). As there was no AEM and REM distinctness in the early periods of EM studies, most of EM definitions are, in fact, defined AEM, despite of the fact that they attempted to define EM concept. However, as long as the number of studies on REM increases, the need of proper definition of REM became evident. Amongst others, two of REM definitions in the literature are arguably more accepted by the researchers. Roychowdhury (2006) defines REM as "… departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations". Scott (2011), defines REM "… the choice by a manager of real actions that affect earnings so as to achieve a specific reported earnings objective."

Higher earnings quality makes the accounting information relevant and useful to its users. Because of its key role, earnings quality is an important component of accounting literature for decades as it helps to accounting information to serve its purpose. Besides that, effects of accounting comparability on earnings quality is also widely studied. Accounting comparability makes the users of accounting information able to compare accounting numbers in the same firm with a historical approach, between the competitor firms in the same industry in the same country and thanks to using the same set of accounting standards after the adoption of IFRS, even between firms operating in different countries. In additions to that, increase in comparability has another indirect positive impact on earnings quality. Higher comparability can make the managers more cautious when they prepare financial statements as it increases efficiency of monitoring of financial figures. In additions to that, higher comparability brings higher degree of "detection risk" for the managers if there is any financial weakness or some violation of regulations in their firms.

Thus, studies on accounting comparability provide a deep insight into the earning quality that can be used by professional and regulatory bodies and policymakers.

Over the last decade, there has been a considerable discussion on academic and regulatory circles as to whether or not adoption of IFRS leads an increase in earnings quality. Researchers investigate this issue by approaching earnings quality benchmarks individually such as value relevance (Horton and Serafeim 2010; Barth et al., 2008; Aharony et al., 2010; Lin and Paananen, 2009; Jermakowicz, E. K. 2007; Aubert and Grudnitski, 2011; Morais and Curto, 2009) and timely loss recognition & accounting conservatism (Chan et al., 2015; Barth et al. 2008; Chen et al., 2010). In additions to that, effects of adoption of IFRS on earnings management is also investigated (JeanJean and Stowoly, 2008; Doukakis, 2014; Chen et al., 2010; Barth et al. 2008). There are contradictory findings in the literature about the adoption of IFRS and its effects on earnings quality but, arguably, the number of papers find a positive association between IFRS and earnings quality relatively outnumbers the ones that found negative association no relation.

In additions to that, researchers focused on accounting comparability and its association with the adoption of IFRS. In contrast with earnings quality, in my knowledge, there is no study that finds negative or no relation between IFRS adoption and accounting comparability. Only Callao et al. (2012) found that comparability is negatively affected after IFRS adoption if domestic standards are also available for firms as an option to prepare financial statements. However, their study can be interpreted as a decrease in comparability cannot be attributable to IFRS adoption but to local regulatory bodies policies since most countries forbid usage of

local standards for listed firms after the adoption of IFRS. Other studies in literature find that adoption of IFRS increase comparability not only within the same country as IFRS is mandatorily used by all firms within the adopting countries but also between the countries as the same set of standards are employed in the same way by all adopting countries. Apart from that after IFRS adoption, thanks to the increase in accounting comparability, analyst became more accurate in their forecasts (Horton et al., 2012), cross-border investments increased (Defond et al., 2011), reporting quality increased (Neel, 2016).

It is posited in this study that a high level of firm-year level accounting comparability will make the opportunistic managers avoid from AEM as it is relatively easier to be detected. Secondly, it is expected that managers compensate the reduction in AEM by an increase in REM if firm-year accounting comparability is high. Lastly, it is expected that higher accounting comparability will cause such "compensation" pronounced more in Code-Law countries as the shift from local standards to IFRS was more drastic in Code-Law countries than it is in Common-Law countries.

It is found in this study that, during the post-IFRS period, higher firm-year accounting comparability is still shaping managers' earnings management behaviours. If the firm-year comparability level is high, managers prefer not to implement AEM. In additions to that, the same group of firms make up for their less AEM behaviours by increasing their REM activities. Moreover, firms that are from Common Law accounting origin avoid implementing AEM techniques same as firms from Code-Law countries if firm-year accounting comparability is high. However, firms that are from Common Law accounting origins do not make this up for implementing by REM techniques under higher firm-year level accounting comparability conditions. In contrast to that, firms from Code-Law accounting origins, increase their REM policies significantly which means that high firm-year accounting comparability reduces overall EM activities in Common-Law county originated firms, however, it does not dissuade the managers or mitigates their incentives to manage their earnings in Code-Law countries.

This paper contributes to the accounting literature from several important aspects. Firstly, this is the first study that investigates impact of accounting comparability on EM choices of managers from different accounting origins. There is no study in the literature that compares Code-Law countries with Common-Law countries regarding their level of accounting comparability and earnings management behaviours. Thus, "Whether during IFRS period, a higher level of accounting comparability shapes the earnings management preferences of opportunist managers and if so, how?" question remains unaddressed. As this question is unaddressed, it is also unknown that "Whether an increase in comparability by convergence

activities in EU leads disappearing of differences in earnings management behaviours between countries". Results show that implementing one set of accounting standards is apparently not enough to disappear all cross-country differences between firms' regarding their EM practices. As it is stated in Zang (2012), managers implement EM methods based on their relative costs. Besides that, being easily detectable when they imply AEM can be considered as an additional cost by managers, which is what high level of accounting comparability leads for the AEM implementers. In addition to that, IFRS adoption causes an increase in comparability and facilitates the users of financial information to compare accounting figures more efficiently (Horton et al., 2012). From this perspective, results reported in this paper is crucially important to show that new accounting standards serve to its purpose by increasing earnings quality through reducing AEM in both Code-Law and Common-Law countries. However, the way firms react to the higher level of firm-year accounting comparability regarding their REM practices varies based on their accounting origins. Substitution of AEM with REM is more pronounced in Code-Law countries as they avoid implementing AEM, but they employ REM instead. However, the reaction of firms to higher level of firm-year accounting comparability in Common-Law countries not in the same way as they do not increase their REM practices. These results have very important contributions to the literature by addressing to the question that, even increase in accounting comparability by implementing the same set of standards is not enough to remove cross-country differences over EM preferences of the managers as in Code-Law countries managers keep manipulating earnings by simply substituting AEM practices with REM. On the other hand, in Common-Law countries managers also avoid implementing AEM under higher accounting comparability conditions but they did not have a tendency to increase REM.

Secondly, best of my knowledge, this is first paper in the literature that investigates firm-year level accounting comparability based on single set of accounting standards in EU. Previous studies simply examine effect of accounting comparability by comparing two periods as pre-IFRS and post-IFRS, however, effects of accounting comparability within same set accounting standards in EU has remained unaddressed. Investigating this issue brings new understanding of how usage of single set of accounting standards is perceived by the managers regarding the level of accounting comparability.

Lastly, this is first paper in the literature that connects firm-year accounting comparability with EM in EU. Along with the growing number of studies on accounting comparability, there is no study that investigates accounting comparability and its effect on EM from the perspective of IFRS yet. Existing studies in the literature focus on accounting comparability and other aspects

of earnings quality benchmarks, however, the relation between accounting comparability and earnings management remains unaddressed.

Structure of this paper is as follows; literature review and hypothesis development, research methodology and results, discussion of the results and conclusion.

### 3.2. Literature Review and Hypothesis:

#### 3.2.1. Literature Review:

##### 3.2.1.1. Definition of Accounting Comparability:

Importance of accounting comparability has been emphasized for a long time in the accounting literature. Before it was officially defined by regulatory bodies, the absence of proper definition of comparability in accounting was subject of criticism (Simmon, 1967). Despite updated version of the conceptual framework will be published at 2020, a current conceptual framework which is used by both IASB and FASB after joint conceptual framework meeting at December 2004, accounting comparability is defined as “a qualitative characteristic that enables users to identify and understand similarities in, and differences among, items.” (FASB 2010). In additions to that, FASB (Financial Accounting Standards Board) provides an implicit comment for comparability hidden its mission statement as “…improving the quality of accounting standards used around the world while reducing differences among those standards”.

Together with other qualitative enhancing characteristics accounting comparability increase usefulness of financial information by facilitating decision making of its users. ESMA (European Securities and Markets Authority) suggests similar definition for comparability with IASB. It defines comparability as “…enhances the usefulness of information between entities or about the same entity from one period to another.”

#### 3.2.1.2. Accounting Comparability, Earnings Quality and Accounting Standards:

The number of academic papers investigates the relation between accounting comparability and earnings quality is significantly scarce in the literature except for study of Byungcherl (2016). Thus, these subjects are investigated separately in the following section.

##### 3.2.1.2.1. Accounting Comparability and IFRS:

There are some prominent studies investigated if there is association between accounting comparability and adoption of international accounting standards. Horton et al. (2012) found that adoption of IFRS leads more comparable accounting figures and after adoption of IFRS analysts' forecasts became more accurate. Defond et al. (2011) found that the uniformity brought by the adoption of IFRS improved comparability and it leads to an increase in cross-border investments. Neel (2016) examined adoption of IFRS and its after-effects on economic outcomes through improved accounting comparability and reporting quality. He found that better comparability and reporting quality associated with higher Tobin's Q, stock liquidity, accurateness of analysts' forecasts. Barth et al. (2012) investigated if accounting figures of non-US firms that use IFRS are comparable with the US firms using US GAAP. They found that firms using IFRS have higher degree of comparability when they are using IFRS then they were using their domestic standards. Yip and Young (2012) investigated if adoption of IFRS improved comparability in European Union. They employed three comparability benchmarks; resemblance of accounting functioning, level of information transmission and resemblance of information about income and book value of equity. They found that after adoption of IFRS cross-border comparability enhanced. They also suggested that enhancing in comparability was due to accounting convergence and higher quality of new standards. Lastly, they found that enhancing comparability is affected by companies' institutional environment.

Some researchers scrutinized the relation between IFRS adoption and comparability on local based. Brochet et al. (2012) also suggested that after adoption of IFRS, accounting numbers became more comparable. They used UK listed firms as a sample, and they found that an increase in comparability after the adoption of IFRS leads capital market benefits and this is attributable to increase in accounting comparability. The reason they chose UK firms as the sample is that domestic standards of the UK are closer to IFRS even before the adoption of IFRS, thus increase in comparability after the adoption of IFRS can only be attributable to change in accounting standards. Lee and Fargher (2010) investigated whether adoption of IFRS leads cross-country investments made by Austrian investors and they found that an increase in comparability reduces asymmetry in information and stimulates cross-country

stocks investments. Callao et al. (2007) found that adoption of IFRS can deteriorate comparability if domestic standards are still valid option for the firms. They found that Spanish firms' comparability of financial figures deteriorated if the system allows implementing either local standards or IFRS. Liao et al. (2012) studied comparability of firms between France and Germany only. They found that just in the first year after the adoption of IFRS, German and French firms became more comparable, however, during further years level of comparability decreased.

By considering the prominent papers stated above, adoption of IFRS served its purpose by bringing uniformity and this dramatic change leads to an increase in comparability between countries. Adoption of IFRS increased comparability as well, however, if domestic and IFRS are subject to use at the same time adoption of new international standards may reduce the comparability.

**3.2.1.2.2. The relation between accounting comparability and EM:**

The number of studies on the relation between accounting comparability and earnings management is extremely scarce in the accounting literature. So, the effect of accounting comparability on EM is discussed in a broader perspective here.

Zang (2012) proved that managers choose AEM and REM strategies based on their costs. According to her, if the costs of one type of EM increase, managers adjust their EM preferences from higher cost method to the lower one. Besides that, managers avoid being detected when they use EM methods as EM is practically implemented by the managers to hide the actual performance of the firms. From this perspective REM is considered relatively more difficult to detect than AEM, in other words detecting AEM is easier than detecting REM (Graham et al., 2005; Gunny, 2010).

As it is stated in the previous section, IFRS adoption is considered as an event leads enhancing of comparability of financial figures (Defond et al., 2011; Horton et al., 2012). Once it is considered that AEM is implemented solely by changing in accounting policies to manipulate true performance of the firms, shifting from local standards to IFRS increases the number of comparable firms as all firms use the same set of standards. This also facilitates comparability amongst firms and implementing AEM becomes riskier than the pre-IFRS period. Hence, managers shift their EM preferences from AEM to REM as implementing AEM becomes riskier. In fact, the higher level of accounting comparability is considered as an additional mechanism to dissuade managers to implement AEM policies and managers prefer to use REM instead (Byungcherl, 2016).

#### 3.2.1.2.3. Earnings Quality and IFRS:

Harmonisation activities in accounting have started during the second half of the 1970s in Europe as European countries aimed to remove multi-fractioned economic establishment in the continent, together with creating a higher quality of accounting standards (Soderstrom and Sun, 2007). These activities and their consequences have been attracting researchers from the beginning and earnings quality has been widely studied in literature for decades (La Porta et al. 1998; La Porta et al., 2006; Leuz et al., 2003; Francis and Wang, 2008; Ball et al., 2000; Arya et al., 2003; Houqe et al., 2012; Dichev and Tang, 2008). Nonetheless, these discrete harmonisation activities remained small-scaled by 2005. One of the biggest steps of accounting harmonisation (or accounting convergence) was taken through adoption of IFRS by all member states of European Union in 2005. Essentially, financial markets also positively responded to activities that raise the prospect of adoption of IFRS before 2005 (Armstrong et al. 2010).

The number of papers focused on the adoption of IFRS and its effects on earnings quality as to whether IASB services its purpose which is to minimize the variation between countries and increase earnings quality at the same time. However, there are contradictory results about IFRS and its effects on earnings quality in literature. Some researchers found that earnings quality increased after adoption of IFRS in terms of value relevance (Horton and Serafeim 2010; Barth et al., 2008; Aharony et al., 2010; Lin and Paananen, 2009; Jermakowicz, E. K. 2007), timely loss recognition & accounting conservatism (Chan et al., 2015; Barth et al. 2008). On the other hand, some others found that adoption of IFRS has no positive effect on earnings quality regarding value relevance (Aubert and Grudnitski, 2011; Morais and Curto, 2009) timely loss recognition & accounting conservatism (Chen et al., 2010).

Reduction in earnings management is one of the other benchmarks of earnings quality.
There are also contradictory findings on the effect of IFRS adoption on earnings management. Some studies found that adoption of IFRS has not significantly positive effect on earnings quality (JeanJean and Stowoly, 2008; Doukakis, 2014). On the other hand, it is claimed by some other researchers that after the adoption of IFRS earnings management behaviours decreased significantly (Chen et al., 2010; Barth et al. 2008).

As it can be seen that there are contradictions between studies regarding the effects of IFRS adoption on earnings quality. This contradiction might be because of regional institutional settings. Some studies found that observing no increase in earnings quality after the adoption of IFRS might be the institutional settings (such as investor protection enforcement, legal

regime, accounting origins) of firms operates in (Soderstrom and Sun, 2007; Pope and Mc Leay; Ball et al., 2003; JeanJean and Stolowy, 2008). Actually, La Porta et al. (1998) proved that the institutional environment affects earnings quality.

### 3.2.2. Hypothesis:

Based on the literature review above, the following hypothesises are developed.

H1: Under high firm-year level accounting comparability conditions, managers prefer not to implement AEM.

H2: Under high firm-year level accounting comparability conditions, managers prefer to implement REM.

## 3.3. Data and Methodology:

### 3.3.1. Sample:

To gauge accounting comparability and its association with accrual and real earnings management, annual and quarterly data is derived from DATASTREAM and BLOOMBERG. The initial sample consisted of 22,853 firm-year observation from all EU member states, spans between 2005 and 2015. However, as methodology requires at least 16 quarterly data in a row for earnings and price lack of observation -especially before 2003- restricted data availability. In additions to that, joining years of countries to EU vary. Thus, the countries that joined EU after 2005, namely Bulgaria, Croatia and Romania were excluded from the sample. Moreover, financial firms were also excluded from the sample as their operational and financial statement structures are different than non-financial firms. After considering these, final sample consists of 22,853 firm-year observations from 28 EU countries span between 2005 and 2015. All variables are winsorized at 1% to eliminate the effects of outliers.

### 3.3.2. Methodology:

Following Byungcherl (2016), the econometric methodology in this analysis is time-series cross sectional pooled ordinary least square regression with standard errors are corrected for firm-level clustering. Clustered standard errors are robust to correlation between error terms of same unit. In additions to that, clustered standard errors robust to heteroskedasticity within time. The methodology is determined after running Hausmann and Breusch-Pagan tests. However, in order to see if there is any contradiction, I also run the same regression with fixed-

effect panel data analysis and the untabulated results were almost (except the degree of significance of some control variables) same with the results tabulated in this chapter based on time-series cross sectional pooled ordinary least square methodology.

#### 3.3.2.1. Measurement of Accounting Comparability:

Following Byungcherl (2016) accounting comparability is gauged according to the model created by De Franco et al. (2011). Preceding studies, in general, captured accounting comparability concept by taking accounting systems as ultimate benchmark of comparability. However, De Franco et al. (2011) generated a model that enables to measure accounting comparability even in same accounting system and firm-year level. In this study, following De Franco et al. (2011), accounting comparability is measured through a function which captures the relation between earnings figures announced via financial statements and economic events.

$$Financial\ Statements_i = f_i(Economic\ Events_i) \quad (3.1)$$

Where $f_i(\ )$ is the accounting system of firm i. Based on Equation-3.1, firm's financial results are the function of the economic events. Thus, as stated in De Franco et al. (2011), two firms have comparable accounting systems even in firm-year level if their mappings are similar. So, if two firms are subject to same economic events, they are expected to give, at least, similar financial statement figures as a result of high firm-level comparability. Following De Franco (2011), earning figure stated in financial statement is used as a proxy of output of accounting system and return is used as a proxy for economic event.

$$Earnings_{it} = \alpha_i + \beta_i\ Return_{it} + \ \varepsilon_{it} \quad (3.2)$$

Where $Earnings$ is quarterly net income before extraordinary items of firm $i$ at time $t$ scaled by market value of equity of time $t-1$, and $Return$ is difference of share price of firm $i$ between period $t$ and end of $t-1$ scaled by price at the end of $t-1$, where $t$ represents a quarter. The reason of using quarterly data in this chapter is that, there is a need of using 16 continuous data point to run the regression and without using quarterly data, there would be need of using 16 years data to estimate the data point of year 17. However, using 16 quarter

reduce the minimum data need to 4 years to be able to run the regression. By using Equation-3.2 for each firm and quarter on a rolling basis for 16 quarters $\widehat{\alpha_i}$ and $\widehat{\beta_i}$ are estimated for firm $i$ and $\widehat{\alpha_j}$ and $\widehat{\beta_j}$ are estimated for firm $j$.

$$E(Earnings)_{it} = \widehat{\alpha_i} + \widehat{\beta_i}\ Return_{it} + \ \varepsilon_{it} \tag{3.3}$$

$$E(Earnings)_{jt} = \widehat{\alpha_j} + \widehat{\beta_j}\ Return_{jt} + \ \varepsilon_{jt} \tag{3.4}$$

To be able to get accounting comparability measure, firstly proxy for economic event of firm $i$ ($Return_{it}$) is run on proxy of accounting outcome of firm $j$ ($Earnings_{jt}$).

$$E(Earnings)_{iit} = \widehat{\alpha_i} + \widehat{\beta_i}\ Return_{it} \tag{3.5}$$

$$E(Earnings)_{ijt} = \widehat{\alpha_j} + \widehat{\beta_j}\ Return_{it} \tag{3.6}$$

Where $E(Earnings)_{iit}$ is estimated earnings of firm $i$ based on $i$ 's return and $E(Earnings)_{ijt}$ is the estimated earnings of firm $j$ based on $i$ 's return as well. By running earnings of different firms on same firm's return, economic event is hold constant.

Then earnings of other firms in same two digit SIC code also run to firm $i$'s return one by one. Same process is repeated for every firm (firm $j$, firm $k$, firm $l$, etc.) in same two digit SIC code industry classification separately.

It is expected that if two firms accounting systems are comparable, the difference between two expected earnings figures will be smaller. In other words, the more comparable accounting systems the smaller difference between two expected earnings.

De Franco et al. (2011) measured accounting comparability between firm $i$ and firm $j$ via following calculation:

$$COMP_{ijt} = -1/16 \; x \sum_{t-15}^{t} \left| E(Earnings_{iit}) - E(Earnings_{ijt} \right| \quad (3.7)$$

The greater values (the smaller magnitudes) of $COMP_{ijt}$ means higher accounting comparability between firm $i$ and firm $j$. Equation-3.7 is calculated for every firm-quarter in same two digit SIC codes and approximately 12 million firm-quarter observations obtained in total. To attain firm-year level accounting comparability mean of 4 greatest observations of $COMP\_YEAR_{it}$ for each quarter is calculated and $ymean$ is acquired as a key variable for firm-year level accounting comparability.

**3.3.2.2. Measurement of AEM:**

Earnings has two components as cash flows and accruals. During early periods of EM studies, comparing mean of accruals scaled by lagged total assets are used as a proxy for measurement of EM (Healy, 1985). Healy (1985) used change in total accruals deflated by lagged total assets as a proxy for non-discretionary accruals. The reason of deflation of total accruals with lagged total assets is to control firm-size effect, which is a method that will be used in further econometric models of EM studies later on. In additions to that, scaling variables with lagged total assets helps to diminish heteroskedasticity in error terms (White, 1980). The thing is that, using total accruals deflated by lagged total assets as a measure of EM is risky as firms may have abnormally high or abnormally low total accruals because of rational economic reasons. In another model, De Angelo (1986) used total accruals deflated by lagged total assets of previous year as a proxy for non-discretionary accruals. It is stated in the literature that, Healy (1985) and De Angelo (1986) have strict assumptions in their models as both assume that total accruals from the estimation period as a proxy for non-discretionary accruals. However, this strict assumption makes their models feasible under strict conditions (Dechow et al. 1995). Later studies of Healy (1985) and De Angelo (1986), researchers attempted to calculate accruals with two sub-components as discretionary accruals and non-discretionary accruals through regressions. Since discretionary accruals is the part that can be manipulated by opportunistic managements, correct detection of discretionary accruals plays a vital role on EM studies.

Arguably, one the most commonly employed econometric model to detect AEM is Jones Model (1991). Jones specified her econometric model the way in which, total accruals scaled by lagged total assets is dependant variable which is regressed on change in revenue from period t-1 to t, scaled by lagged total assets and gross property plant and equipment scaled

by lagged total assets. Estimated parameters of this regression are used to detect non-discretionary accruals. And finally, non-discretionary accruals are subtracted from total accruals to obtain discretionary accruals.

Jones model (1991) is modified later on by Dechow et al. (1995). The notion behind modification of Jones Model (1991) by Dechow (1995) is that, Jones (1991) assumes in his model that accounting of all revenues is non-discretionary, although the receivable component of revenues is a typical accrual that can be manipulated by managements. From this perspective, Dechow's model is similar with Jones Model except, he added change in accounting receivables from year t-1 to t, to the regression.

Jones Model (1995) is also improved in further years by other researchers. Kothari (2005) consider effect of firm performance on discretionary and non-discretionary levels of accruals. Thus, he modified Jones (1991) model by adding proxy for firm performance. In additions to that, he also added an intercept to the model which is lack of in Jones Model (1991) and Modified Jones Model (1995). To provide more accurate estimations and to be able to provide more accurate comparison with REM models, following Byungcherl (2016), Kothari Model (2005) is used to estimate discretionary accruals.

$$\frac{TACC_{it}}{TA_{it-1}} = \alpha_0 + \beta_1\left(\frac{1}{TA_{it-1}}\right) + \beta_2\left(\frac{\Delta Sales_{it}}{TA_{it-1}}\right) + \beta_3\left(\frac{PPE_{it}}{TA_{it-1}}\right) + \beta_4\, ROA_{it} + \varepsilon_{it} \qquad (3.8)$$

Where, $TACC_{it}$ is total accruals which is calculated as earnings before extraordinary items minus cash flow from operations, $PPE_{it}$ is gross property plant and equipment and $ROA_{it}$ which is return on assets, calculated via net income before extraordinary items scaled by lagged total asset of firm $i$ and in year $t$. $\Delta Sales_{it}$ is change in sales from year $t-1$ to $t$. $TA_{it-1}$ is total asset of firm $i$ at the beginning of year $t$. As it stated above, the reason of deflation of total accruals with lagged total assets is to control firm-size effect, which is a method that will be used in further econometric models of EM studies later on. In additions to that, scaling variables with lagged total assets helps to diminish heteroskedasticity in error terms (White, 1980). As it was discussed in Chapter-2, the underlying notion beneath of using total asset as a deflator lets the model to adjust for the size of the firm and consider relative performances across firms rather than using misleading raw unscaled figures. If the variables are not deflated by total assets or by similar size proxies, then the magnitudes of larger firms' change in sales and gross PPE values will possibly bigger than relatively smaller firms that makes the coefficients biased. Moreover, scaling variables with lagged value, (lagged total asset in this occasion) is to avoid issues that might arise from the fact that current total assets are

concurrently determined with current accruals, current change in sales and current gross PPE's are deflated with. The studies in the literature argue that no considering so-called "scale effect" on accounting figures can cause biasness in estimation of coefficients and can cause heteroscedasticity (Barth and Clinch, 2005; Lo and Lys, 2000; Easton and Sommers, 2003). Similar with Equation-3.8, dependant and independent variables of Equation-3.2, 3.3, 3.4, 3.5, 3.6 and both dependant and independent variables of Equation-3.9, and all the equation that is used to calculate REM variables (which are same with Chapter-2) are descaled with lagged size denominators.

To be able to estimate non-discretionary accruals for each firm and year, the parameters from Equation-3.8 is used in Equation-3.9. Non-discretionary accruals are cross-sectionally estimated by employing the following equation for each firm and year:

$$\frac{NONACC_{it}}{TA_{it-1}} = \widehat{\alpha_0} + \widehat{\beta_1}\left(\frac{1}{TA_{it-1}}\right) + \widehat{\beta_2}\left(\frac{\Delta Sales_{it} - \Delta REC_{it}}{TA_{it-1}}\right) + \widehat{\beta_3}\left(\frac{PPE_{it}}{TA_{it-1}}\right) + \widehat{\beta_4}\, ROA_{it} + \varepsilon_{it} \quad (3.9)$$

Where, $NONACC_{it}$ is non-discretionary accruals for firm $i$ and in year $t$ and, $\Delta REC_{it}$ is change in receivables from year $t-1$ to $t$. Rest of the variables same as Equation-3.8.

Finally, discretionary accruals are obtained by subtracting non-discretionary accruals from total accruals of each firm and year.

$$DISACC_{it} = TACC_{it} - NONACC_{it} \quad (3.10)$$

Where, $DISACC_{it}$ is discretionary accruals. Rest of the variables are already described above. Since discretionary accruals is the part that can be manipulated by opportunistic managements, $DISACC_{it}$ is renamed as $AEM_{it}$ and used as a variable for accrual earnings management for firm $i$ and in year $t$.

#### 3.3.2.3. Measurement of REM:

Following Roychowdhury (2006), REM measures are calculated through abnormal CFO, abnormal discretionary expenses and abnormal production costs. Since, same REM calculation methodology is followed with Chapter-1 to obtain REM variables in this chapter, same formulas are not repeated here. The details of calculation of Roychowdhury, IOS and PM REM variables can be found in this study between page 20 and 26 under the title of "*2.3.2.2. Empirical Models"*. However, differently than Chapter-1, following Byungcherl (2016),

$AbCFO_{i,t}$ and $AbDISEXP_{i,t}$ are multiplied by minus 1 which makes their sign positive if CFO and discretionary expenses are used as REM tools. $AbPROD_{i,t}$ has already positive sign under REM conditions. As all three proxies for REM have positive signs, adding them together and obtaining single $REM_{i,t}$ variable will make us available to investigate if REM strategies are also used collaboratively apart from using them separately.

$$REM_{i,t} = AbCFO_{i,t} + AbDISEXP_{i,t} + AbPROD_{i,t} \quad (3.11)$$

### 3.3.2.4. Accounting Comparability and AEM & REM Relation:

Following Byungcherl (2016), relation between managers' EM preferences when they are subject to comparable accounting figures is investigated by following equation:

$$\begin{aligned} EM_{it} = {} & \alpha_0 + \beta_1 COMP\_YEAR_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 ROA_{it} \\ & + \beta_5 AbsROA_{it} + \beta_6 LEV_{it} + \beta_7 CFOTAL_{it} \\ & + \beta_8 AbsCFOTAL_{it} + \beta_9 SDSALES_{it} + \beta_{10} LOSS_{it} \\ & + \beta_{11} OFFER_{it} + \beta_{11} RET_{it} + \sum_i COUNTRY_{it} \\ & + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it} \end{aligned} \quad (3.12)$$

Where, $EM_{it}$ is substituted with $REM_{i,t}$ and $AEM_{i,t}$ respectively and $COMP\_YEAR_{it}$ is the key independent variable which is calculated through the process that is explained above. Following Byungcherl (2016), the control variables listed below are added into the model.

$SIZE_{it}, MTB_{it}, ROA_{it}, AbsROA_{it}, LEV_{it}, CFO_{it}, AbsCFO_{it}, SDSALES_{it}, LOSS_{it}, OFFER_{it}, RET_{it}$ are the control variables. $SIZE_{it}$, is natural logarithm of market value of equity. Firm-size is added into the model as previous studies shows that firm-size has an effect on earnings management. Essentially, there are contradictory findings in the literature in terms of relation between firm-size and earnings management. Lobo et al. (2006) asserted that because of complexity of their operational system, it is relatively harder to detect EM practices in large firms, thus they may have stronger motivation to implement EM comparing smaller size firms. In additions to that, the capital market pressure that they face may be taken as an incentive to practise EM (Richardson et al. 2002). On the other hand, Watts and Zimmerman (1990) claimed that larger firms have higher market scrutiny, higher number of analysts' coverage, greater governmental and public monitoring and all these are the factors that demotivate large firms to implement EM. $MTB_{it}$ is market to book value which is mainly used as a proxy for

growth in the literature. There are evidences in the literature that the relation between growth and AEM is positive (Lee et al. 2006) and the relation between growth and REM is negative (Cohen and Zarovin, 2010). $ROA_{it}$ is return on asset which is mainly used as a proxy for performance in the literature. The findings in the literature regarding relation between firm-performance and EM depends on the level of performance. Studies found that, the firm has high performance employ downward EM activities and the firm has low performance practise upward EM activities (Collins et al. 2012). $AbsROA_{it}$ is absolute value of $ROA_{it}$, $LEV_{it}$ is leverage calculated through total liabilities scaled by total assets. Studies on EM and leverage suggest that managers practise EM methods to avoid breaching debt covenants and also to elude technical default (Watts and Zimmerman, 1990, Defond and Jiambalvo, 1994; Dichev and Skinner 2002; Beatty and Weber, 2003). $CFOTAL_{it}$ is cash flow from operations deflated by lagged total assets, $AbsCFOTAL_{it}$ is absolute value of $CFOTAL_{it}$ , $SDSALES_{it}$ is standard deviation of sales and $LOSS_{it}$ is a dummy variable equals 1 if firm has negative net income and 0 otherwise. Dechow and Dichew found a negative correlation between standard deviation of sales and magnitude of accruals. They also found negative correlation between loss incidence and absolute value of accruals. $OFFER_{it}$ is a dummy variable equals 1 if share issuance exceeds of share repurchases scaled by total assets is equal or higher than 5% and 0 otherwise. Share issuance is taken as an incentive by some opportunist managements as it is an opportunity to transfer wealth from prospect investors to existing shareholders. Opportunist managers may involve in AEM and REM around equity issuance process (Kothari et al. 2016). $RET_{it}$ is raw return of share from period from year $t-1$ to $t$, for firm $i$ and in year $t$. Apart from these variables, to control country, industry and year effects 69 dummy variables are added in total.

$\beta_1$ in the regression is the key coefficient to gauge the relation between different EM strategies and accounting comparability. When $EM_{it}$ is set as AEM, $\beta_1$ shows the relationship between AEM practices and accounting comparability while $EM_{it}$ is substituted with REM $\beta_1$ presents the association between REM practices and accounting comparability. In same vein with AEM and REM, when individual REM methods (such as abnormalCFO, abnormalDISEXP, abnormalPROD etc.) are set as $EM_{it}$, then $\beta_1$ will give the relationship between accounting comparability and implementation of these individual REM methods.

### 3.4. Results and Discussion:

#### 3.4.1. Descriptive Statistics:

Table-3.1 presents the descriptive statistics of main variables. Since the formula of calculation of COMP_YEAR contains negative multiplication, mean of COMP_YEAR is negative. Mean and median of COMP_YEAR is -0.2926 and -0.2463 respectively and standard deviation is 0.2409. This shows that COMP_YEAR is proportionately distributed. Magnitudes of these values are lower than De Franco et al. (2009) and Byungcherl C. S. (2016) but the way they distributed are not noteworthily different from them. Mean of and median of AEM (discretionary accruals scaled by lagged total assets) are -0.0163 and 0.0073 respectively. Mean and median of AEM are both negative at Byungcherl C. S. (2016) which indicates that distribution of AEM in this current study is larger. Means of REM, REMios and REMPM are 0.09, 0.1369 and 0.2839 respectively. Mean of REMPM is almost noteworthily higher than mean of REM and REMios. Means of absolute REM, REMios and REMPM are 0.4464, 0.3339 and 0.5273 respectively. Again, mean of absolute REMPM is higher than absolute means of REMios and REMPM. Same variation in mean values valid, also, for individual REM instruments of CFO, DISEXP and PROD. These indicate that different calculation methods of REM cause significant variation in REM values. Descriptive statistics of rest of the variables; SIZE, MTB, ROA, LEV, CFOTAL, SDSALES, OFFER, are not substantially different than literature. However, mean of LOSS is high in noteworthy level. LOSS is a dummy variable, so 35% of the firm-year observations in the sample announce negative net profit. Mean of RETURN is also low which is not surprising as the level of negative net profit is high.

Table-3.2 provides the correlation between main variables. Correlations significant at 1% level are presented as bold and with star, 5% levels are with star, and 10% with *italic*. Supporting Hypothesis-1, correlation between AEM and COMP_YEAR, -0.024, is negative and significant at 1% level which indicates that the more level of comparability is associated with less accrual earnings management. In additions to that, supporting Hypothesis-2, the correlation between COMP_YEAR and REM, 0.012, is positive, and significant at 10% which can be interpreted as higher accounting comparability accompanies with higher real earnings management. Correlation between AEM and REM is negative and significant, -0.233, at 5% level. Besides that, correlation between AEM and REMios is, - 0.126, negative and significant at 1% level, as it is also negative and significant at 1% level between AEM and REMPM, -0.127. This might be because as Zang (2012) states that opportunistic managers implement EM methods based on their relative costs and thus they might choose one EM method to another based on cost comparison which may lead negative correlation between AEM and REM. Expectedly, correlations between various REM variables (REM, absREM, REMios, absREMios, REMPM,

absREMPM) are all positive and significant at 1% level as they measure the same phenomena. Correlation between SIZE and all REM variables are all positive and significant at 1% level but negative and significant with AEM which supports the notion that larger firms are under more monitoring of analysts and state institutions and thus they may prefer to implement REM rather than AEM techniques as AEM is relatively easier to detect than REM. Correlations between leverage and EM techniques also meet the expectations. Negative correlation between LEV and AEM and positive correlation between LEV and REM was expected. The underlying notion of this expectation is that, firms that have higher leverages are subject to stricter debt covenant than the ones that have lower leverages. Thus, firms have higher leverages are keen to practise EM techniques and sophisticated lenders can easily aware if earnings figures are boosted by AEM techniques however detection of REM is not as easy as to detect AEM. As it can be seen on the table, there is negative and significant, -0.205, correlation between AEM and LEV however all the correlation results between REM variables and LEV are positive and significant at 1%.

| Table-3.1 | n | Mean | Std. Dev. | 25% | Median | 75% |
|---|---|---|---|---|---|---|
| COMP_YEAR | 22,853 | -0.2926 | 0.2409 | -0.3832 | -0.2463 | -0.1457 |
| AEM | 22,853 | -0.0163 | 0.1588 | -0.0616 | 0.0073 | 0.0534 |
| absAEM | 22,853 | 0.0947 | 0.0980 | 0.0217 | 0.0490 | 0.0987 |
| REM | 22,853 | 0.0900 | 0.5990 | -0.2324 | 0.0960 | 0.3961 |
| absREM | 22,853 | 0.4464 | 0.0980 | 0.0217 | 0.0490 | 0.0987 |
| REMios | 22,853 | 0.1369 | 0.4656 | -0.1270 | 0.0611 | 0.3298 |
| absREMios | 22,853 | 0.3339 | 0.3522 | 0.0925 | 0.2173 | 0.4533 |
| REMPM | 22,853 | 0.2839 | 0.7644 | -0.1702 | 0.0624 | 0.5689 |
| absREMPM | 22,853 | 0.5273 | 0.6221 | 0.1244 | 0.3016 | 0.6870 |
| OpsabnormalCFO | 22,853 | 0.0118 | 0.1905 | -0.0720 | -0.0112 | 0.0550 |
| absOpsabnormalCFO | 22,853 | 0.1093 | 0.1565 | 0.0298 | 0.0653 | 0.1282 |
| OpsabnormalDISEXP | 22,853 | 0.0971 | 0.3190 | -0.0714 | 0.1028 | 0.2781 |
| absOpsabnormalDISEXP | 22,853 | 0.2004 | 0.2305 | 0.0714 | 0.1402 | 0.2376 |
| abnormalPROD | 22,853 | -0.0184 | 0.3605 | -0.1740 | -0.0226 | 0.1362 |
| absabnormalPROD | 22,853 | 0.1939 | 0.2272 | 0.0550 | 0.1224 | 0.2493 |
| OpsabnormalCFOios | 22,853 | -0.0039 | 0.1579 | -0.0700 | -0.0074 | 0.0485 |
| absOpsabnormalCFOios | 22,853 | 0.0971 | 0.1245 | 0.0261 | 0.0593 | 0.1205 |
| OpsabnormalDISEXPios | 22,853 | 0.1135 | 0.2230 | -0.0238 | 0.0423 | 0.2263 |
| absOpsabnormalDISEXPios | 22,853 | 0.1797 | 0.1990 | 0.0604 | 0.1259 | 0.2245 |
| abnormalPRODios | 22,853 | 0.0309 | 0.297 | -0.1030 | -0.0135 | 0.0872 |
| absabnormalPRODios | 22,853 | 0.1826 | 0.2086 | 0.0529 | 0.1189 | 0.2342 |
| OpsabnormalCFOPM | 22,853 | -0.0044 | 0.2316 | -0.0804 | 0.0014 | 0.0838 |
| absOpsabnormalCFOPM | 22,853 | 0.1367 | 0.1870 | 0.0360 | 0.0823 | 0.1634 |
| OpsabnormalDISEXPPM | 22,853 | 0.2076 | 0.5779 | -0.0815 | -0.0010 | 0.3590 |
| absOpsabnormalDISEXPPM | 22,853 | 0.2784 | 0.3154 | 0.0746 | 0.1793 | 0.3644 |
| abnormalPRODPM | 22,853 | 0.0867 | 0.3072 | -0.0779 | -0.0019 | 0.1986 |
| absabnormalPRODPM | 22,853 | 0.2714 | 0.2878 | 0.0802 | 0.1881 | 0.3622 |
| SIZE | 22,853 | 4.8235 | 2.5358 | 3.0320 | 4.6317 | 6.4885 |
| MTB | 22,853 | 2.3579 | 3.7935 | 0.7500 | 1.4700 | 2.7600 |
| ROA | 22,853 | -0.0280 | 0.2422 | -0.0331 | 0.0267 | 0.0679 |
| LEV | 22,853 | 0.5391 | 0.2939 | 0.3523 | 0.5251 | 0.6769 |
| CFOTAL | 22,853 | 0.0388 | 0.1990 | -0.0003 | 0.0616 | 0.1206 |
| SDSALES | 22,853 | 0.2718 | 0.0023 | 0.0838 | 0.1648 | 0.3150 |
| LOSS | 22,853 | 0.3500 | 0.0315 | 0.0000 | 0.0000 | 1.0000 |
| OFFER | 22,853 | 0.1169 | 0.3213 | 0.0000 | 0.0000 | 0.0000 |
| RET | 22,853 | 0.0256 | 0.3140 | -0.1521 | 0.014 | 0.1477 |

Table-3.1 presents descriptive statistics of main variables for whole sample. All variables are defined in methodology section.

| Table-3.2 | COMP_YEAR | AEM | absAEM | REM | absREM | REMios | absREMios | REMPM | absREMPM | SIZE | MTB | ROA | LEV | SDSALES | LOSS | OFFER | RET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COMP_YEAR | 1.000 | | | | | | | | | | | | | | | | |
| AEM | **-0.024*** | 1.000 | | | | | | | | | | | | | | | |
| absAEM | 0.103* | **-0.461*** | 1.000 | | | | | | | | | | | | | | |
| REM | *0.012** | -0.233* | **0.030*** | 1.000 | | | | | | | | | | | | | |
| absREM | 0.039* | 0.015* | **0.145*** | **0.192*** | 1.000 | | | | | | | | | | | | |
| REMios | -0.003 | **-0.126*** | **0.083*** | **0.860*** | **0.292*** | 1.000 | | | | | | | | | | | |
| absREMios | -0.014* | **0.020*** | **0.181*** | **0.385*** | **0.775*** | **0.635*** | 1.000 | | | | | | | | | | |
| REMPM | -0.006 | **-0.127*** | **0.048*** | **0.526*** | **0.178*** | **0.491*** | **0.284*** | 1.000 | | | | | | | | | |
| absREMPM | -0.020* | 0.016* | **0.139*** | **0.276*** | **0.361*** | **0.308*** | **0.371*** | **0.829*** | 1.000 | | | | | | | | |
| SIZE | 0.247* | **-0.070*** | **-0.234*** | **0.092*** | **0.070*** | **0.027*** | **0.082*** | **0.035*** | **0.052*** | 1.000 | | | | | | | |
| MTB | 0.038* | **-0.020*** | **0.043*** | **-0.160*** | **0.092*** | 0.004 | **0.121*** | **-0.041*** | **0.028*** | **0.193*** | 1.000 | | | | | | |
| ROA | 0.121* | **0.482*** | **-0.457*** | **-0.172*** | **-0.027*** | **-0.192*** | **-0.119*** | **-0.030*** | **-0.056*** | **0.331*** | 0.004 | 1.000 | | | | | |
| LEV | -0.065* | **-0.205*** | **0.173*** | **0.101*** | **0.070*** | **0.042*** | **0.035*** | **0.029*** | **0.038*** | **-0.062*** | **-0.032*** | **-0.286*** | 1.000 | | | | |
| SDSALES | -0.055* | **-0.033*** | **0.180*** | **0.065*** | **0.209*** | **0.093*** | **0.192*** | **0.072*** | **0.113*** | **-0.169*** | **0.038*** | **-0.071*** | **0.077*** | 1.000 | | | |
| LOSS | -0.138* | **-0.187*** | **0.197*** | **0.104*** | *-0.010** | **0.092*** | **0.037*** | 0.007 | *0.011* | **-0.359*** | **-0.029*** | **-0.463*** | **0.129*** | **0.047*** | 1.000 | | |
| OFFER | 0.091* | **0.018*** | **-0.074*** | **-0.050*** | *-0.011** | **-0.055*** | **-0.043*** | **-0.018*** | -0.016* | **0.168*** | **0.027*** | **0.108*** | 0.002 | **-0.047*** | **-0.121*** | 1.000 | |
| RET | -0.020* | -0.002 | 0.007 | -0.002 | -0.010 | -0.008 | -0.007 | 0.003 | 0.001 | **0.017*** | 0.015* | 0.010 | 0.014* | -0.010 | 0.005 | -0.005 | 1.000 |

Table-3.2 shows the Spearman correlation results between main variables for whole sample. Results smaller than 1% is shown with boldfaced and star, higher than 1% but smaller than 5% is with a star and *italic*, higher than 5% but smaller than 10% is with a star only.

### 3.4.2. Results and Discussion Roychowdhury REM Models, AEM and Comparability:

Table-3.3 presents the results obtained from Equation-3.12, which shows the relation between level of accounting comparability and two major earnings management methods namely, AEM and REM. Column-1 shows the relation between REM and accounting comparability while column-2 presents the relation between accounting comparability and AEM. As it can be seen in column-1 coefficient of COMP_YEAR, $\beta_1$ ,is positive and significant, 0.0586, at 1% level. This indicates that when accounting comparability is high in firm-year level, managers prefer to implement REM methods to manipulate their earnings. So, managers of such firms use their price policies, production policies and discretionary expense policies separately or collectively to increase their earnings figures. Since REM, as a holistic proxy for all three real earnings management methods, it is not possible to determine at this stage of the analyse that if these methods are used separately. On the other hand, in column-2, $\beta_1$ is negative and significant, -0.00688, again at 1% level when dependent variable is set as AEM in Equation-3.12. This result suggests that if firm-year accounting comparability level is high, opportunistic managers avoid from implementation of earnings management through boosting accruals. The above findings are consistent with the study by Byungcherl (2016).
The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.

Different attitudes of managers to two different earnings management methods under high firm-level accounting comparability conditions can be explained by the argument that was put forward by Zang (2016). She claims that managers compare EM methods based on their relative costs and a reasonable manager chooses the lower cost one amongst alternatives. As it was mentioned in literature review section that IFRS adoption increased the comparability between firms and high accounting comparability increase the risk of detection which is an additional cost for AEM. However, REM is based on operational decisions and it is relatively more ambiguous if the change in operational policies made to manipulate earnings or for the benefits of firm. Thus, high level of comparability may motivate the managers to implement REM rather than AEM as; first, it is relatively more difficult to detect, and second, it is not as clear as AEM to label it as earnings management by the users of financial information.

| Table-3.3<br>VARIABLES | (1)<br>REM | (2)<br>AEM |
|---|---|---|
| COMP_YEAR | 0.0586*** | -0.00688** |
| | (0.000) | (0.039) |
| SIZE | 0.0176*** | -0.00110*** |
| | (0.000) | (0.001) |
| MTB | -0.0160*** | 0.000430 |
| | (0.000) | (0.164) |
| ROA | -0.414*** | 0.936*** |
| | (0.000) | (0.000) |
| absROA | -0.478*** | |
| | (0.000) | |
| LEV | 0.137*** | -0.0145*** |
| | (0.000) | (0.001) |
| CFOTAL | | -0.781*** |
| | | (0.000) |
| SDSales | 0.123*** | -0.00352 |
| | (0.000) | (0.274) |
| LOSS | -0.0815*** | -0.0203*** |
| | (0.000) | (0.000) |
| Offer | 0.00127 | -0.00251** |
| | (0.902) | (0.037) |
| RET | -0.00271 | -0.00193 |
| | (0.118) | (0.229) |
| Constant | 0.222*** | 0.0767*** |
| | (0.000) | (0.000) |
| Observations | 22,853 | 22,853 |
| R-squared | 0.234 | 0.193 |
| Country Dummies | YES | YES |
| Year Dummies | YES | YES |
| Industry Dummies | YES | YES |

Table-3.3 presents the impact of accounting comparability on different EM techniques of REM and AEM.

Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1 COMP\_YEAR_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 ROA_{it} + \beta_5 AbsROA_{it} + \beta_6 LEV_{it} + \beta_7 CFOTAL_{it} + \beta_8 AbsCFOTAL_{it} + \beta_9 SDSALES_{it} + \beta_{10} LOSS_{it} + \beta_{11} OFFER_{it} + \beta_{11} RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and REM, while second column provides the relation between accounting comparability and AEM.

The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.

p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Number of observations and adjusted R squares are presented on the bottom of the table.

Table-3.4 shows the impact of high firm-year level accounting comparability's on the implementation of individual REM techniques. As it can be seen in column-1, 2 and 3 managers significantly used all three individual REM measures under high firm-year level accounting comparability conditions. In column-1, $\beta_1$, is positive and significant, 0.0177, at 1% level when dependant variable is OpsabnormalCFO. This indicates that when firm-year comparability level is high, managers employ abnormal price discounts and offer lenient credit terms to their customers to boost their earnings by facilitating purchase transaction for them. In the same vein with column-1, it can be seen in colum-2 that, $\beta_1$ is positive and significant, 0.0288, at 1% level when dependant variable is set as OpsabnormalDISEXP. This shows that opportunistic managers also use abnormal discretionary expense cuts as a tool to upwardly manipulate earnings if the firm-year comparability level is high. In column-3, $\beta_1$ is positive and significant, 0.0192, at 5% level when dependant variable is substituted with abnormalPROD. This indicates that managers use increase in production during high level firm-year comparability conditions to create a manipulative increase in earnings because of the fact that abnormal increase in production level reduces the COGS per item by spreading fixed costs to higher number of productions.

Overall, the findings in Table-3.4 is also consistent with the findings of Byungcherl (2016), except price discount and offering lenient credit terms policy, which is positive but insignificant at his study. Considering the findings in Table-3.4, managers uses all three REM methods affectively. And when the findings of Table-3.4 interpreted together with the findings of Table-3.3, managers use REM methods not only separately both also collectively to manipulate earnings upwardly.

| Table-3.4<br>VARIABLES | (1)<br>OpsabnormalCFO | (2)<br>OpsabnormalDISEXP | (3)<br>abnormalPROD |
|---|---|---|---|
| COMP_YEAR | 0.0177*** | 0.0288*** | 0.0192** |
| | (0.002) | (0.001) | (0.045) |
| SIZE | 0.00638*** | 0.00518*** | 0.0164*** |
| | (0.000) | (0.000) | (0.000) |
| MTB | 0.00153*** | -0.0102*** | -0.00902*** |
| | (0.001) | (0.000) | (0.000) |
| ROA | -0.478*** | -0.0480 | -0.412*** |
| | (0.000) | (0.122) | (0.000) |
| absROA | -0.162*** | -0.0662** | -0.429*** |
| | (0.000) | (0.029) | (0.000) |
| LEV | 0.00453 | 0.0835*** | 0.0396*** |
| | (0.106) | (0.000) | (0.001) |
| SDSales | 0.0423*** | 0.0349*** | 0.0462*** |
| | (0.000) | (0.000) | (0.000) |
| LOSS | 0.0308*** | -0.0458*** | -0.0337*** |
| | (0.000) | (0.000) | (0.000) |
| Offer | -0.0130*** | 0.00929* | -0.00747 |
| | (0.000) | (0.095) | (0.220) |
| RET | 0.00183 | -0.00538 | 0.000521 |
| | (0.126) | (0.131) | (0.143) |
| Constant | 0.0290** | 0.148*** | 0.0149*** |
| | (0.016) | (0.000) | (0.000) |
| Observations | 22,853 | 22,853 | 22,853 |
| R-squared | 0.222 | 0.167 | 0.169 |
| Country Dummies | YES | YES | YES |
| Year Dummies | YES | YES | YES |
| Industry Dummies | YES | YES | YES |

Table-3.4 presents the impact of accounting comparability on individual REM techniques of abnormal CFO, abnormal DISEXP and abnormal PROD.

Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1 COMP\_YEAR_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 ROA_{it} + \beta_5 AbsROA_{it} + \beta_6 LEV_{it} + \beta_7 CFOTAL_{it} + \beta_8 AbsCFOTAL_{it} + \beta_9 SDSALES_{it} + \beta_{10} LOSS_{it} + \beta_{11} OFFER_{it} + \beta_{11} RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_t YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and abnormal CFO, second column provides the relation between accounting comparability and abnormal DISEXP, while last column presents the relation between accounting comparability and abnormal PROD.

The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.

p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Number of observations and adjusted R squares are presented on the bottom of the table.

Table-3.5 presents the findings of absolute values of REM and AEM and their relationship with high level firm-year accounting comparability. Opposite of managers that use EM methods to increase their earnings, some managers may have incentives to manipulate earnings downwardly. In order to take into account that some managers' can have downward earnings manipulation behaviours, absolute abnormal EM measures employed in literature before (Byungcherl, 2016; Dechow and Dichew, 2002; Frankel et al. 2002; Bergstresser and Philippon, 2006; Hribar and Nichols, 2007). In Table-3.5 colum-1, slope coefficient of COMP_YEAR, $\beta_1$, is positive and significant, 0.151, at 1% level when dependant variable is absREM, while in column-2, $\beta_1$ is negative and significant, -0.00617, at 10% level when dependant variable is set as absAEM. This means that, marginal increase in standard deviation of COMP_YEAR (0.2409) leads an increase in absREM by 0.0363 (0.2409*0.151), while it causes a decrease in absAEM as much as -0.00148 (0.2409*-0.00617). As it can be seen in Table-3.1 that mean absREM is 0.4464 while mean of absAEM is 0.0947. So marginal change in absREM and absAEM because of 1-unit change in standard deviation of COMP_YEAR, can corresponds only 8% and 1% of means of absREM and absAEM respectively.

These results confirm the findings of Table-3.1 that opportunistic managers avoid implementation of AEM methods, and they opt for REM when firm-year accounting comparability level is high and considering downward earnings management activities does not change this outcome. In additions to that, managers use REM methods earnings increasing way when they face with high level firm-year accounting comparability.

| Table-3.5<br>VARIABLES | (1)<br>absREM | (2)<br>absAEM |
|---|---|---|
| COMP_YEAR | 0.151*** | -0.00617* |
| | (0.000) | (0.079) |
| SIZE | 0.0153*** | -0.00566*** |
| | (0.000) | (0.000) |
| MTB | 0.00444*** | -0.00110*** |
| | (0.000) | (0.000) |
| ROA | 0.330*** | |
| | (0.000) | |
| absROA | 0.210*** | 0.233*** |
| | (0.000) | (0.000) |
| LEV | 0.145*** | -0.0282*** |
| | (0.000) | (0.000) |
| absCFOTAL | | 0.124*** |
| | | (0.000) |
| SDSales | 0.186*** | 0.0287*** |
| | (0.000) | (0.000) |
| LOSS | -0.0161** | 0.0147*** |
| | (0.016) | (0.000) |
| Offer | 0.00579 | -0.00704*** |
| | (0.155) | (0.000) |
| RET | -0.0166* | 0.00227 |
| | (0.054) | (0.114) |
| Constant | 0.455*** | 0.0347*** |
| | (0.000) | (0.000) |
| Observations | 22,853 | 22,853 |
| R-squared | 0.130 | 0.158 |
| Country Dummies | YES | YES |
| Year Dummies | YES | YES |
| Industry Dummies | YES | YES |

Table-3.5 presents the impact of accounting comparability on different EM techniques of REM and AEM. Dependent variables of REM and AEM are presented with their absolute values.
Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1\, COMP\_YEAR_{it} + \beta_2\, SIZE_{it} + \beta_3\, MTB_{it} + \beta_4\, ROA_{it} + \beta_5\, AbsROA_{it} + \beta_6\, LEV_{it} + \beta_7\, CFOTAL_{it} + \beta_8\, AbsCFOTAL_{it} + \beta_9\, SDSALES_{it} + \beta_{10}\, LOSS_{it} + \beta_{11}\, OFFER_{it} + \beta_{11}\, RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and absolute REM, while second column provides the relation between accounting comparability and absolute AEM.
The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-3.6 exhibits the results of individual absolute REM variables. First column of Table-3.6 exhibits the relation between abnormal price discounts and providing abnormal lenient credit terms with high level firm-year accounting comparability. As in Table-3.4, slope coefficients of COMP_YEAR, $\beta_1$, is positive and significant, 0.0101, at 5% in colum-1 when dependant variable is absOpsabnormalCFO. This means that, managers abnormally reduce prices and provide abnormally loose credit terms when they face high level of firm-year accounting comparability. Second column of Table-3.6 exhibits the relationship between high level firm-year accounting comparability and its relationship with value increasing abnormal discretionary expense cuts. As it can be seen that slope coefficient of COMP_YEAR, $\beta_1$, is positive and significant, 0.0331, at 1% when dependant variable is set as absOpsabnormalDISEXP. This shows that managers abnormally cut discretionary expenses to increase the earnings. Last column of Table-3.6 presents the relationship between absolute abnormal production changes and high level firm-year accounting comparability. As it is shown that slope coefficient of COMP_YEAR, $\beta_1$, is positive and significant, 0.0357, at 1% when dependant variable is set as absolute abnormal production cost.

Based on these findings, marginal increase in standard deviation of COMP_YEAR (0.2409) causes an increase in absolute abnormal CFO, absolute abnormal discretionary expenses and absolute production as 0.0042 (0.2409*0.0177), 0.0069 (0.2409*0.0288) and 0.0046 (0.2409*0.0192). As it is shown in Table-3.1 that means of absolute value of abnormal CFO, abnormal discretionary expenses and abnormal production costs are 0.1093, 0.2004 and 0.1939 respectively. So, marginal change in COMP_YEAR correspond to only 3% of mean of absolute value of abnormal CFO, 3% of mean of abnormal discretionary expenses and 2.3% of mean of abnormal production costs. These findings also confirm the results given in Table-3.4 that opportunistic managers significantly use three of REM methods in a way to increase their earnings when firm-year accounting comparability is high, and results are not affected by the earnings management activities of the managers that aim to reduce earnings.

| Table-3.6<br>VARIABLES | (1)<br>absOpsabnormalCFO | (2)<br>absOpsabnormalDISEXP | (3)<br>absabnormalPROD |
|---|---|---|---|
| COMP_YEAR | 0.0101** | 0.0331*** | 0.0357*** |
| | (0.043) | (0.000) | (0.000) |
| SIZE | 0.000461 | 0.00536*** | 0.0118*** |
| | (0.118) | (0.000) | (0.000) |
| MTB | 0.00357*** | 0.00524*** | 0.00611*** |
| | (0.000) | (0.000) | (0.000) |
| ROA | 0.0683*** | 0.02857*** | 0.285*** |
| | (0.000) | (0.006) | (0.000) |
| absROA | 0.366*** | 0.0367* | 0.211*** |
| | (0.000) | (0.078) | (0.000) |
| LEV | 0.0146** | 0.0326*** | 0.0678*** |
| | (0.031) | (0.000) | (0.000) |
| SDSales | 0.0366*** | 0.0694*** | 0.0903*** |
| | (0.000) | (0.000) | (0.000) |
| LOSS | 0.0202*** | 0.00451 | 0.00274 |
| | (0.000) | (0.101) | (0.124) |
| Offer | -0.00643*** | -0.00407 | -0.00211 |
| | (0.000) | (0.161) | (0.111) |
| RET | -0.00283 | 0.00525 | -0.00503 |
| | (0.137) | (0.194) | (0.186) |
| Constant | 0.0442*** | 0.203*** | 0.148*** |
| | (0.000) | (0.000) | (0.000) |
| Observations | 22,853 | 22,853 | 22,853 |
| R-squared | 0.277 | 0.220 | 0.169 |
| Country Dummies | YES | YES | YES |
| Year Dummies | YES | YES | YES |
| Industry Dummies | YES | YES | YES |

Table-3.6 presents the impact of accounting comparability on different REM techniques of abnormal CFO, abnormal DISEXP and abnormal PROD. Dependent variables of abnormal CFO, abnormal DISEXP and abnormal PROD are presented with their absolute values.

Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1 COMP\_YEAR_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 ROA_{it} + \beta_5 AbsROA_{it} + \beta_6 LEV_{it} + \beta_7 CFOTAL_{it} + \beta_8 AbsCFOTAL_{it} + \beta_9 SDSALES_{it} + \beta_{10} LOSS_{it} + \beta_{11} OFFER_{it} + \beta_{11} RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_t YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and absolute abnormal CFO, second column provides the relation between accounting comparability and absolute abnormal DISEXP, while last column shows the relation between accounting comparability and absolute value of abnormal PROD.

The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.

p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Number of observations and adjusted R squares are presented on the bottom of the table.

Table-3.7 and Table-3.8 present if earnings management behaviours of firms under high firm-year level accounting comparability differ based on their law origins. As it was stated in literature review section that accounting standards is not the only determinant of earnings quality. There are some other regional institutional factors that affect earnings quality. Soderstrom and Sun, 2007; Pope and Mc Leay; Ball et al., 2003; JeanJean and Stolowy, 2008; La Porta et al., 1998). Thus, based on local institutional determinants, earnings quality may vary from one country to another even if they are subject to same accounting standards. Based on this fact, investigating of earnings management behaviours of firms from different law originated countries under high accounting comparability will give an additional insight into understand how earnings quality varies between countries. Table-3.7 exhibits the relationship between EM preferences of firms from UK, which is an Anglo-Saxon accounting system follower, when they face high level firm-year accounting comparability. As it can be seen in the first column of the table that, higher firm-year level of accounting comparability does not have an effect on REM tendencies of firms in the UK as slope coefficient of COMP_YEAR, $\beta_1$, is negative and insignificant, -0.0368. However, high level firm-year accounting comparability has a mitigating effect on AEM as $\beta_1$ is negative and significant, -0.0238, at 10% level when dependant variable is set as AEM in column-2.

Table-3.8 presents the results for the relation between accounting comparability and earnings management preferences for the firms from rest of the EU, which are Continental European accounting system followers. As it is shown in the first column of the Table-3.8 that slope coefficient of COMP_YEAR, $\beta_1$, is positive and significant, 0.112, at 1% level, which means that under high level firm-year accounting comparability conditions firms from EU prefer to use REM techniques. In additions to that, high level firm year accounting comparability has a mitigating effect on AEM as $\beta_1$ is negative and significant, -0.00436, at 10% level when dependant variable is set as AEM in column-2.

| Table-3.7<br>VARIABLES | (UK)<br>REM | (UK)<br>AEM |
|---|---|---|
| COMP_YEAR | -0.0368 | -0.0238* |
| | (0.201) | (0.079) |
| SIZE | 0.00580** | -0.00394*** |
| | (0.026) | (0.000) |
| MTB | -0.00705*** | 0.000356* |
| | (0.000) | (0.096) |
| ROA | -0.342*** | 0.764*** |
| | (0.000) | (0.000) |
| absROA | -0.293*** | |
| | (0.000) | |
| LEV | 0.00351 | -0.00458 |
| | (0.158) | (0.182) |
| CFOTAL | | -0.594*** |
| | | (0.000) |
| SDSales | -0.0740*** | -0.00701* |
| | (0.000) | (0.052) |
| LOSS | -0.0579*** | -0.0263*** |
| | (0.000) | (0.000) |
| Offer | -0.0255 | -0.00403** |
| | (0.132) | (0.048) |
| RET | -0.0234 | -0.0131 |
| | (0.190) | (0.125) |
| Constant | 0.462*** | 0.0681*** |
| | (0.000) | (0.000) |
| Observations | 8,788 | 8,788 |
| R-squared | 0.201 | 0.190 |
| Country Dummies | YES | YES |
| Year Dummies | YES | YES |
| Industry Dummies | YES | YES |

Table-3.7 presents the impact of accounting comparability on different EM techniques of REM and AEM in UK.
Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1 COMP\_YEAR_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 ROA_{it} + \beta_5 AbsROA_{it} + \beta_6 LEV_{it} + \beta_7 CFOTAL_{it} + \beta_8 AbsCFOTAL_{it} + \beta_9 SDSALES_{it} + \beta_{10} LOSS_{it} + \beta_{11} OFFER_{it} + \beta_{11} RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and REM, while second column provides the relation between accounting comparability and AEM.
The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

| Table-3.8<br>VARIABLES | (REST of EU)<br>REM | (RESTof EU)<br>AEM |
|---|---|---|
| COMP_YEAR | 0.112*** | -0.00436* |
| | (0.000) | (0.070) |
| SIZE | 0.0151*** | -0.0546** |
| | (0.000) | (0.030) |
| MTB | -0.0155*** | 0.0192* |
| | (0.000) | (0.064) |
| ROA | -0.438*** | 0.776*** |
| | (0.000) | (0.000) |
| absROA | -0.566*** | |
| | (0.000) | |
| LEV | 0.118*** | -0.00873** |
| | (0.000) | (0.011) |
| CFOTAL | | -0.653*** |
| | | (0.000) |
| SDSales | 0.0977*** | 0.00499* |
| | (0.000) | (0.086) |
| LOSS | -0.0649*** | -0.0126*** |
| | (0.000) | (0.000) |
| Offer | 0.0134* | -0.00234** |
| | (0.095) | (0.013) |
| RET | -0.00657 | -0.00216 |
| | (0.116) | (0.137) |
| Constant | 0.381*** | 0.0583*** |
| | (0.000) | (0.000) |
| Observations | 14,065 | 14,065 |
| R-squared | 0.237 | 0.116 |
| Country Dummies | YES | YES |
| Year Dummies | YES | YES |
| Industry Dummies | YES | YES |

Table-3.8 presents the impact of accounting comparability on different EM techniques of REM and AEM in whole sample except UK.
Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1\, COMP\_YEAR_{it} + \beta_2\, SIZE_{it} + \beta_3\, MTB_{it} + \beta_4\, ROA_{it} + \beta_5\, AbsROA_{it} + \beta_6\, LEV_{it} + \beta_7\, CFOTAL_{it} + \beta_8\, AbsCFOTAL_{it} + \beta_9\, SDSALES_{it} + \beta_{10}\, LOSS_{it} + \beta_{11}\, OFFER_{it} + \beta_{11}\, RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and REM, while second column provides the relation between accounting comparability and AEM.
The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Results show that higher level of accounting comparability mitigates accrual earnings management activities in UK while it has insignificantly reducing effect on real earnings management in UK as a Common Law country. This means that firm-year level of accounting comparability has overall positive impact on earnings quality in UK. However, in rest of the EU, firm-year level of accounting comparability reduces AEM however increase REM, which means that higher level of firm-year accounting comparability does not dissuade managers to implement earnings management activities in Code-Law countries.

### 3.4.3. Results and Discussion of IOS & PM REM Models, AEM and Accounting Comparability:

As it is analysed in Chapter-2, all dataset is reanalysed through running IOS REM Model set and PM REM Model set to find out whether or not results confirm the findings presented in Table-3.3, 3.4, 3.5, and 3.6.

Table-3.9, 3.10, 3.11 and 3.12 presents the findings of IOS REM Model results and Table-3.13, 3.14, 3.15 and 3.16 presents the findings of PM REM Models respectively.

Table-3.9 compares the managers REM and AEM preferences and their relationship with high level of accounting comparability. Differently than Table-3.3 REM used as an independent variable in Table-3.9 calculated based on IOS estimation procedure explained in the methodology section of Chapter-2 in detail. It is apparent from the first column of Table-3.9 that slope coefficient of COMP_YEAR, $\beta_1$, is positive and significant, 0.0291, at 5% level when dependant variable is set as REMios. In additions to that, in second column, $\beta_1$, is negative and significant, -0.00688, at 5% when dependant variable is AEM. These findings confirm the results of Table-3.3, where REM variable is calculated through Roychowdhury's REM Model specification, that when managers face high level firm-year accounting comparability, they prefer not to use AEM and they practice real earning management techniques. These results are revealing in a way that involving IOS variables in estimation process of REM does not lead a significant change in results.

| Table-3.9<br>VARIABLES | (1)<br>REMios | (2)<br>AEM |
|---|---|---|
| COMP_YEAR | 0.0291** | -0.00688** |
| | (0.017) | (0.039) |
| SIZE | 0.0248*** | -0.00110*** |
| | (0.000) | (0.001) |
| MTB | 0.00171 | 0.000430 |
| | (0.119) | (0.164) |
| ROA | -0.0290 | 0.936*** |
| | (0.137) | (0.000) |
| absROA | 0.00707 | |
| | (0.139) | |
| LEV | 0.0236** | -0.0145*** |
| | (0.013) | (0.001) |
| CFOTAL | | -0.781*** |
| | | (0.000) |
| SDSales | 0.115*** | -0.00352 |
| | (0.002) | (0.274) |
| LOSS | -0.0419*** | -0.0203*** |
| | (0.007) | (0.000) |
| Offer | -0.0203*** | -0.00251** |
| | (0.007) | (0.037) |
| RET | -0.00359 | -0.00193 |
| | (0.193) | (0.229) |
| Constant | 0.0931** | 0.0767*** |
| | (0.039) | (0.000) |
| Observations | 22,853 | 22,853 |
| R-squared | 0.189 | 0.193 |
| Country Dummies | YES | YES |
| Year Dummies | YES | YES |
| Industry Dummies | YES | YES |

Table-3.9 presents the impact of accounting comparability on different EM techniques of REMios and AEM.
Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1\, COMP\_YEAR_{it} + \beta_2\, SIZE_{it} + \beta_3\, MTB_{it} + \beta_4\, ROA_{it} + \beta_5\, AbsROA_{it} + \beta_6\, LEV_{it} + \beta_7\, CFOTAL_{it} + \beta_8\, AbsCFOTAL_{it} + \beta_9\, SDSALES_{it} + \beta_{10}\, LOSS_{it} + \beta_{11}\, OFFER_{it} + \beta_{11}\, RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and REMios while second column provides the relation between accounting comparability and AEM.
The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

| Table-3.10<br>VARIABLES | (1)<br>absREMios | (2)<br>absAEM |
|---|---|---|
| COMP_YEAR | 0.0516*** | -0.00617* |
| | (0.000) | (0.079) |
| SIZE | 0.00540*** | -0.00566*** |
| | (0.001) | (0.000) |
| MTB | 0.00724*** | -0.00110*** |
| | (0.000) | (0.000) |
| ROA | 0.126*** | |
| | (0.002) | |
| absROA | 0.0960*** | 0.233*** |
| | (0.009) | (0.000) |
| LEV | 0.0527*** | -0.0282*** |
| | (0.005) | (0.000) |
| absCFOTAL | | 0.124*** |
| | | (0.000) |
| SDSales | 0.139*** | 0.0287*** |
| | (0.009) | (0.000) |
| LOSS | -0.0206*** | 0.0147*** |
| | (0.005) | (0.000) |
| Offer | -0.0126** | -0.00704*** |
| | (0.033) | (0.000) |
| RET | -0.00459 | 0.00227 |
| | (0.173) | (0.114) |
| Constant | 0.326*** | 0.0347*** |
| | (0.007) | (0.000) |
| Observations | 22,853 | 22,853 |
| R-squared | 0.138 | 0.258 |
| Country Dummies | YES | YES |
| Year Dummies | YES | YES |
| Industry Dummies | YES | YES |

Table-3.10 presents the impact of accounting comparability on different EM techniques of REMios and AEM. Dependent variables of REMios and AEM are presented with their absolute values.

Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1\, COMP\_YEAR_{it} + \beta_2\, SIZE_{it} + \beta_3\, MTB_{it} + \beta_4\, ROA_{it} + \beta_5\, AbsROA_{it} + \beta_6\, LEV_{it} + \beta_7\, CFOTAL_{it} + \beta_8\, AbsCFOTAL_{it} + \beta_9\, SDSALES_{it} + \beta_{10}\, LOSS_{it} + \beta_{11}\, OFFER_{it} + \beta_{11}\, RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and absolute REMios, while second column provides the relation between accounting comparability and absolute AEM.

The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.

p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Number of observations and adjusted R squares are presented on the bottom of the table.

In additions to that, Table-3.10 exhibits the findings of absolute values of REMios and AEM. The purpose is same with the analyses presented in Table-3.5 that this analyse scrutinizes whether REM and AEM practices are done to increase earnings rather than decrease it. As it is shown in Table-3.10 that, slope coefficient of COMP_YEAR, $\beta_1$, is positive and significant, 0.0516, at 1% level when dependant variable is absREMios and it is negative and significant, -0.0124, at 1% level when dependant variable is set as absAEM. These results confirm the finding of Table-3.3 that, when firm-year accounting comparability is high managers evade implementing AEM and they prefer to employ REM techniques collectively.

Table-3.11 and 3.12 show the individual IOS REM variables and absolute individual IOS REM variables relationship with the high level of firm-year accounting comparability respectively. As it can be seen in the first column of Table-3.11 that slope coefficient of COMP_YEAR, $\beta_1$, is positive and significant, 0.0161, at 1% level when dependant variable is set as OpsabnormalCFOios. This confirms the findings in Table-3.4 that managers implement price discounts and provide loose credit terms to increase income when they face high level firm-year accounting comparability. In second column, slope coefficient of COMP_YEAR is also positive and significant, 0.0277, at 10%. This result also confirms the findings presented in Table-3.4 that managers abnormally cut discretionary expenses under high firm-year accounting comparability conditions. Finally, it is shown in last column of Table-3.11, that slope coefficient of COMP_YEAR is positive and significant, 0.0147, at 10% when dependant is replaced with abnormalPRODios. This finding also supports the results presented in Table-3.4 that managers decide to abnormally increase production level as a way of REM when they encounter high level firm-year accounting comparability. Overall, results of individual IOS REM variables show that managers significantly practise three of REM techniques individually under high firm-year accounting comparability conditions.

Table-3.12 presents the findings on absolute individual IOS REM variables and their relationship with high level firm-year accounting comparability. As it is shown in first column that, slope coefficient of COMP_YEAR, $\beta_1$, is positive and significant, 0.00525, at 1% when dependant variable is absOpsabnormalCFOios. This indicates that managers using pricing and credit policies in an income-increasing way when they face high level firm-year accounting comparability. In second column, $\beta_1$, is positive and significant, 0.0303, at 1% when dependant variable is absOpsabnormalDISEXPios. This means that managers implement abnormal discretionary expense cuts under high firm-year accounting comparability conditions to increase earnings. In last column of Table-3.12, $\beta_1$, is again positive and significant, 0.0354, at 1% when dependant variable is set as absabnormalPRODios level. This shows that

| Table-3.11<br>VARIABLES | (1)<br>OpsabnormalCFOwios | (2)<br>OpsabnormalDISEXPwios | (3)<br>abnormalPRODwios |
|---|---|---|---|
| COMP_YEAR | 0.0161*** | 0.0277* | 0.0147* |
| | (0.000) | (0.070) | (0.088) |
| SIZE | 0.00975*** | 0.00357*** | 0.0158*** |
| | (0.000) | (0.000) | (0.001) |
| MTB | -0.000567 | 0.00215*** | -0.000493 |
| | (0.211) | (0.000) | (0.186) |
| ROA | -0.430*** | 0.121*** | -0.201*** |
| | (0.004) | (0.002) | (0.001) |
| absROA | -0.236*** | 0.148*** | -0.143*** |
| | (0.001) | (0.003) | (0.007) |
| LEV | 0.0204*** | 0.0245*** | 0.00222 |
| | (0.000) | (0.000) | (0.104) |
| SDSales | 0.0142*** | 0.0545*** | 0.0518*** |
| | (0.000) | (0.000) | (0.000) |
| LOSS | 0.0257*** | -0.0222*** | -0.0174*** |
| | (0.000) | (0.003) | (0.000) |
| Offer | -0.00623*** | -0.0137*** | -0.0105** |
| | (0.000) | (0.009) | (0.048) |
| RET | -0.00254 | -0.00132 | -0.0466* |
| | (0.256) | (0.156) | (0.066) |
| Constant | -0.0188* | 0.0801*** | 0.0578*** |
| | (0.098) | (0.000) | (0.000) |
| Observations | 22,853 | 22,853 | 22,853 |
| R-squared | 0.193 | 0.182 | 0.129 |
| Country Dummies | YES | YES | YES |
| Year Dummies | YES | YES | YES |
| Industry Dummies | YES | YES | YES |

Table-3.11 presents the impact of accounting comparability on different REM techniques of abnormal CFOios, abnormal DISEXPios and abnormal PRODios.

Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1 COMP\_YEAR_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 ROA_{it} + \beta_5 AbsROA_{it} + \beta_6 LEV_{it} + \beta_7 CFOTAL_{it} + \beta_8 AbsCFOTAL_{it} + \beta_9 SDSALES_{it} + \beta_{10} LOSS_{it} + \beta_{11} OFFER_{it} + \beta_{11} RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and abnormal CFO, second column provides the relation between accounting comparability and abnormal DISEXP, while last column shows the relation between accounting comparability and value of abnormal PROD.

The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.

p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Number of observations and adjusted R squares are presented on the bottom of the table.

| Table-3.12<br>VARIABLES | (1)<br>absOpsabnormalCFOwios | (2)<br>absOpsabnormalDISEXPwios | (3)<br>absabnormalPRODwios |
|---|---|---|---|
| COMP_YEAR | 0.00525*** | 0.0303*** | 0.0354*** |
| | (0.003) | (0.005) | (0.006) |
| SIZE | 0.00460*** | 0.00754*** | 0.0116*** |
| | (0.000) | (0.000) | (0.000) |
| MTB | 0.00292*** | 0.00434*** | 0.00486*** |
| | (0.000) | (0.000) | (0.000) |
| ROA | 0.115*** | 0.0556*** | 0.161*** |
| | (0.000) | (0.000) | (0.000) |
| absROA | 0.281*** | 0.0709*** | 0.118*** |
| | (0.001) | (0.002) | (0.000) |
| LEV | 0.0240*** | 0.0214*** | 0.0494*** |
| | (0.004) | (0.000) | (0.000) |
| SDSales | 0.0290*** | 0.0506*** | 0.0703*** |
| | (0.000) | (0.005) | (0.008) |
| LOSS | 0.0142*** | 0.00136 | 0.00365 |
| | (0.000) | (0.115) | (0.134) |
| Offer | -0.00787*** | -0.00608* | -0.00443 |
| | (0.000) | (0.064) | (0.00383) |
| RET | -0.00340 | -0.00135 | -0.00284 |
| | (0.253) | (0.142) | (0.00439) |
| Constant | 0.0730*** | 0.185*** | 0.191*** |
| | (0.003) | (0.008) | (0.0194) |
| Observations | 22,853 | 22,853 | 22,853 |
| R-squared | 0.213 | 0.167 | 0.136 |
| Country Dummies | YES | YES | YES |
| Year Dummies | YES | YES | YES |
| Industry Dummies | YES | YES | YES |

Table-3.12 presents the impact of accounting comparability on different REM techniques of abnormal CFOios, abnormal DISEXPios and abnormal PRODios. Dependent variables of abnormal CFOios, abnormal DISEXPios and abnormal PRODios are presented with their absolute values.

Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1\, COMP\_YEAR_{it} + \beta_2\, SIZE_{it} + \beta_3\, MTB_{it} + \beta_4\, ROA_{it} + \beta_5\, AbsROA_{it} + \beta_6\, LEV_{it} + \beta_7\, CFOTAL_{it} + \beta_8\, AbsCFOTAL_{it} + \beta_9\, SDSALES_{it} + \beta_{10}\, LOSS_{it} + \beta_{11}\, OFFER_{it} + \beta_{11}\, RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and absolute abnormal CFOios, second column provides the relation between accounting comparability and absolute abnormal DISEXPios, while last column shows the relation between accounting comparability and absolute abnormal PRODios.

The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.

p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Number of observations and adjusted R squares are presented on the bottom of the table.

managers increase production level to reduce COGS and increase earnings when firm-year accounting comparability is high. Overall, results of Table-3.12, where dependant variables are calculated based on IOS REM estimation procedure, support the findings of Table-3.6 that managers use all three of individual REM techniques to increase earnings rather than to decrease it under high level firm-year accounting comparability.

Overall, results of IOS REM Model sets shown in Table-3.9, 3.10, 3.11, 3.12 all confirm the findings of REM Model set presented in Table-3.3, 3.4, 3.5, 3.6. and confirm the hypothesis that, under high level firm-year accounting comparability managers prefer to avoid from AEM. On the other hand, high level firm-year accounting comparability is associated with implementation of REM techniques both collectively, and individually. Moreover, managers use these techniques mainly to increase earnings rather than to decrease. Finally, avoiding from AEM and preferring to implementation of REM is more pronounced in Continental European countries as managers in UK, as an Anglo-Saxon country, avoid of implementation of AEM however they do not increase their REM practices under high firm-level accounting comparability.

Table-3.13, 3.14, 3.15 and 3.16 exhibit the findings of PM REM Model set in the same vein with Roychowdhury's REM Model set and IOS REM Model set. Table-3.13 and 3.14 shows the results of PM REM Models together with AEM and absolute versions of them. Table-3.15 and 3.16 give the outcomes of individual PM REM variables and absolute individual PM REM variables respectively.

Table-3.13 presents the relationship between high level of firm-year accounting comparability with collective implementation of individual REM techniques that are calculated through performance-matching procedure explained in methodology section of Chapter-2, and AEM. The first column of Table-3.13 shows the relationship between REMPM and high level firm-year accounting comparability. Slope coefficient of COM_YEAR, $\beta_1$, is positive and significant, 0.0539, at 5% level when dependant variable is REMPM which means that managers prefer to implement REM techniques when firm-year accounting comparability is high. On the other hand, slope coefficient of COMP_YEAR,$\beta_1$, is negative and significant, -0.00688, at 5% level when dependant variable is AEM which means that managers avoid implementation of AEM techniques when firm-year accounting comparability is high. This shows that again managers have specific priorities under high level of firm-year accounting comparability and higher comparability level make them reluctant to implement AEM methods and they shift their attention to REM measures to reach their earnings targets. With these findings, Table-3.13

supports the results of Table-3.3, where Roychowdhury's REM Model results are presented, and Table-3.9, where IOS REM Model results are exhibited.

Table-3.14 shows the results of absolute PM REM and AEM variables. Slope coefficient of COMP_YEAR, $\beta_1$, in is positive and significant, 0.0627, at 1% level in first column where dependant variable is absREMPM. This indicates that under high level firm-year accounting comparability conditions, managers practice individual REM techniques collectively to increase the earnings rather than to decrease it. In second column, however, where absAEM is the dependant variable slope coefficient of COMP_YEAR, $\beta_1$, is negative and significant, -0.00617. This shows that, managers avoid implementation of AEM when high level firm-year accounting comparability exists. This confirms the findings of Roychowdhury's REM Model results and IOS REM model results and indicates that managers use REM techniques mainly to boost their firms' earnings and they avoid implementing AEM methods under high firm-year level accounting comparability conditions. These findings support the results presented in Table-3.5 and in Table-3.10 where results of Roychowdhury's REM Models and IOS REM Models are presented.

In Table-3.15 and Table-3.16, individual REM tendencies of the managers and their attitudes against high level firm-year accounting comparability is investigated. In Table-3.15, actual values of PM REM variables are used as dependant variables while in Table-3.16, absolute values of the PM REM variables are substituted to investigate whether managers use these individual REM techniques upwardly or downwardly.

In the first column of Table-3.15, slope coefficient of COMP_YEAR, $\beta_1$, in is positive and significant, 0.0159, at 1% level when dependant variable is OpsPMabnormalCFO. This means that managers abnormally reduce prices and offer abnormally lenient credit terms when accounting comparability is high. In second column, slope coefficient of COMP_YEAR, $\beta_1$, in is again positive and significant, 0.0368, at 5%, which indicates that managers abnormally cut the discretionary expenses when they encounter high firm-year accounting comparability. In last column of the Table-3.15 slope coefficient of COMP_YEAR, $\beta_1$, in is positive and significant, 0.0361, at 5%. This shows that managers abnormally increase production level to reduce COGS and boost the income when they are under high firm-year accounting comparability conditions. Overall findings presented in Table-3.15 confirm the results in Table-3.4 and Table-3.11.

| Table-3.13<br>VARIABLES | (1)<br>REMPM | (2)<br>AEM |
|---|---|---|
| COMP_YEAR | 0.0539** | -0.00688** |
| | (0.021) | (0.039) |
| SIZE | 0.00789*** | -0.00110*** |
| | (0.000) | (0.001) |
| MTB | -0.0115*** | 0.000430 |
| | (0.001) | (0.164) |
| ROA | 1.157*** | 0.936*** |
| | (0.001) | (0.000) |
| absROA | 1.075*** | |
| | (0.009) | |
| LEV | 0.127*** | -0.0145*** |
| | (0.001) | (0.001) |
| CFOTAL | | -0.781*** |
| | | (0.000) |
| SDSales | 0.120*** | -0.00352 |
| | (0.001) | (0.274) |
| LOSS | -0.0232* | -0.0203*** |
| | (0.062) | (0.000) |
| Offer | -0.00142 | -0.00251** |
| | (0. 151) | (0.037) |
| RET | -0.00816 | -0.00193 |
| | (0.167) | (0.229) |
| Constant | 0.225*** | 0.0767*** |
| | (0.002) | (0.000) |
| Observations | 22,853 | 22,853 |
| R-squared | 0.169 | 0.193 |
| Country Dummies | YES | YES |
| Year Dummies | YES | YES |
| Industry Dummies | YES | YES |

Table-3.13 presents the impact of accounting comparability on different EM techniques of REMPM and AEM.

Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1\, COMP\_YEAR_{it} + \beta_2\, SIZE_{it} + \beta_3\, MTB_{it} + \beta_4\, ROA_{it} + \beta_5\, AbsROA_{it} + \beta_6\, LEV_{it} + \beta_7\, CFOTAL_{it} + \beta_8\, AbsCFOTAL_{it} + \beta_9\, SDSALES_{it} + \beta_{10}\, LOSS_{it} + \beta_{11}\, OFFER_{it} + \beta_{11}\, RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and REMPM while second column provides the relation between accounting comparability and AEM.

The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.

p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Number of observations and adjusted R squares are presented on the bottom of the table.

| Table-3.14<br>VARIABLES | (1)<br>absREMPM | (2)<br>absAEM |
|---|---|---|
| COMP_YEAR | 0.0627*** | -0.00617* |
| | (0.001) | (0.079) |
| SIZE | 0.00453*** | -0.00566*** |
| | (0.001) | (0.000) |
| MTB | 0.00946*** | -0.00110*** |
| | (0.008) | (0.000) |
| ROA | 0.237*** | |
| | (0.001) | |
| absROA | 0.0859*** | 0.233*** |
| | (0.000) | (0.000) |
| LEV | 0.0367*** | -0.0282*** |
| | (0.007) | (0.000) |
| absCFOTAL | | 0.124*** |
| | | (0.000) |
| SDSales | 0.240*** | 0.0287*** |
| | (0.000) | (0.000) |
| LOSS | -0.0492*** | 0.0147*** |
| | (0.000) | (0.000) |
| Offer | -0.0461** | -0.00704*** |
| | (0.049) | (0.000) |
| RET | -0.00459 | 0.00227 |
| | (0.174) | (0.114) |
| Constant | 0.326*** | 0.0347*** |
| | (0.003) | (0.000) |
| Observations | 22,853 | 22,853 |
| R-squared | 0.244 | 0.258 |
| Country Dummies | YES | YES |
| Year Dummies | YES | YES |
| Industry Dummies | YES | YES |

Table-3.14 presents the impact of accounting comparability on different EM techniques of REMPM and AEM. Dependent variables of REMPM and AEM are presented with their absolute values.
Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1 COMP\_YEAR_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 ROA_{it} + \beta_5 AbsROA_{it} + \beta_6 LEV_{it} + \beta_7 CFOTAL_{it} + \beta_8 AbsCFOTAL_{it} + \beta_9 SDSALES_{it} + \beta_{10} LOSS_{it} + \beta_{11} OFFER_{it} + \beta_{11} RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and absolute REMPM, while second column provides the relation between accounting comparability and absolute AEM.
The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-3.16 is the last table of this chapter and presents the absolute values of individual PM REM variables and their relationship with high level firm-year accounting comparability. The first column of Table-3.16, slope coefficient of COMP_YEAR, $\beta_1$, in is positive and significant, 0.0865, at 1% level when dependant variable is absOpsPMabnormalCFO. This result indicates that executives abnormally decrease prices and abnormally loose credit terms to facilitate purchase transactions for the prospect purchasers when accounting comparability is high. In the mid column, slope coefficient of COMP_YEAR, $\beta_1$, in is positive and significant, 0.0400, at 1%, that shows that executives abnormally reduce the discretionary expenditures when they face with high firm-year accounting comparability. In last column of the Table-3.16 slope coefficient of COMP_YEAR, $\beta_1$, in is positive and significant, 0.0408, at 10%. This shows that executives abnormally heighten production level to decrease COGS and increase the earnings when the firm-year accounting comparability is high. Overall findings presented in Table-3.16 confirm the results in Table-3.6 and Table-3.12.

| Table-3.15<br>VARIABLES | (1)<br>OpsPMabnormalCFO | (2)<br>OpsPMabnormalDISEXP | (3)<br>PMabnormalPROD |
|---|---|---|---|
| COMP_YEAR | 0.0159*** | 0.0368** | 0.0361** |
| | (0.009) | (0.037) | (0.011) |
| SIZE | 0.00495*** | 0.00436 | 0.00786*** |
| | (0.000) | (0.214) | (0.001) |
| MTB | 0.00138* | -0.0848*** | -0.00456*** |
| | (0.000) | (0.007) | (0.000) |
| ROA | 0.0325 | 0.275*** | 0.377*** |
| | (0.239) | (0.000) | (0.002) |
| absROA | -0.0409 | 0.681*** | 0.321*** |
| | (0.272) | (0.000) | (0.003) |
| LEV | 0.00116 | 0.0709*** | 0.0227** |
| | (0.105) | (0.005) | (0.0489) |
| SDSales | 0.0471*** | 0.0429*** | 0.0410*** |
| | (0.007) | (0.001) | (0.009) |
| LOSS | 0.0119*** | 0.00996 | -0.00603 |
| | (0.004) | (0.258) | (0.105) |
| Offer | -0.00797** | 0.0182 | -0.00953 |
| | (0.036) | (0.106) | (0.258) |
| RET | -0.0068 | 0.00277 | 0.00204 |
| | (0.152) | (0.131) | (0.167) |
| Constant | 0.0963*** | 0.199*** | 0.0564*** |
| | (0.000) | (0.000) | (0.000) |
| Observation | 22,853 | 22,853 | 22,853 |
| R-squared | 0.116 | 0.146 | 0.147 |
| Country Dummies | YES | YES | YES |
| Year Dummies | YES | YES | YES |
| Industry Dummies | YES | YES | YES |

Table-3.15 presents the impact of accounting comparability on different REM techniques of abnormal PMCFO, abnormal PMDISEXPios and abnormal PMPRODios

Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1 COMP\_YEAR_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 ROA_{it} + \beta_5 AbsROA_{it} + \beta_6 LEV_{it} + \beta_7 CFOTAL_{it} + \beta_8 AbsCFOTAL_{it} + \beta_9 SDSALES_{it} + \beta_{10} LOSS_{it} + \beta_{11} OFFER_{it} + \beta_{11} RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and abnormal PMCFO, second column provides the relation between accounting comparability and abnormal PMDISEXP, while last column shows the relation between accounting comparability and value of abnormal PMPROD.

The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.

p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Number of observations and adjusted R squares are presented on the bottom of the table.

| Table-3.16<br>VARIABLES | (1)<br>absOpsPMabnormalCFO | (2)<br>absOpsPMabnormalDISEXP | (3)<br>absPMabnormalPROD |
|---|---|---|---|
| COMP_YEAR | 0.0865*** | 0.0400*** | 0.0408* |
| | (0.006) | (0.009) | (0.093) |
| SIZE | 0.00296*** | 0.00744*** | 0.00872*** |
| | (0.000) | (0.001) | (0.001) |
| MTB | 0.000651 | 0.00426*** | 0.00364*** |
| | (0.245) | (0.0008) | (0.000) |
| ROA | 0.0367** | 0.0796*** | 0.285*** |
| | (0.012) | (0.000) | (0.002) |
| absROA | 0.389*** | 0.282*** | 0.245*** |
| | (0.001) | (0.000) | (0.009) |
| LEV | 0.00852 | 0.0169* | 0.0548*** |
| | (0.173) | (0.076) | (0.008) |
| SDSales | 0.0380*** | 0.0663*** | 0.0819*** |
| | (0.005) | (0.008) | (0.000) |
| LOSS | 0.0204*** | 0.0240*** | 0.0397*** |
| | (0.002) | (0.005) | (0.000) |
| Offer | -0.00620** | -0.00344 | -0.0104* |
| | (0.025) | (0.125) | (0.054) |
| RET | -0.00131 | 0.07345 | -0.00822 |
| | (0.181) | (0.176) | (0.162) |
| Constant | 0.0819*** | 0.316*** | 0.274*** |
| | (0.003) | (0.000) | (0.0282) |
| Observations | 22,853 | 22,853 | 22,853 |
| R-squared | 0.242 | 0.151 | 0.183 |
| Country Dummies | YES | YES | YES |
| Year Dummies | YES | YES | YES |
| Industry Dummies | YES | YES | YES |

Table-3.16 presents the impact of accounting comparability on different REM techniques of abnormal PMCFO, abnormal PMDISEXPios and abnormal PMPRODios Dependent variables of abnormal PMCFO, abnormal PMDISEXP and abnormal PMPROD are presented with their absolute values.

Table shows the regression results which are estimated through Equation-3.12;

$$EM_{it} = \alpha_0 + \beta_1 COMP\_YEAR_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 ROA_{it} + \beta_5 AbsROA_{it} + \beta_6 LEV_{it} + \beta_7 CFOTAL_{it} + \beta_8 AbsCFOTAL_{it} + \beta_9 SDSALES_{it} + \beta_{10} LOSS_{it} + \beta_{11} OFFER_{it} + \beta_{11} RET_{it} + \sum_i COUNTRY_{it} + \sum_i INDUSTRY_i + \sum_i YEAR_t + \varepsilon_{it}$$

First column of the table shows the results the relation between accounting comparability and absolute abnormal PMCFO, second column provides the relation between accounting comparability and absolute abnormal PMDISEXP, while last column shows the relation between accounting comparability and absolute abnormal PMPROD.

The results are based on the time series cross sectional pooled ordinary least squares regressions with standard errors corrected for firm-level clustering.

p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Number of observations and adjusted R squares are presented on the bottom of the table.

Overall, as it can be seen in Table-3.9, 3.10, 3.11, 3.12, 3.13, 3.14, 3.15 and 3.16 that IOS and PM REM Model results all confirm and supports the findings of Roychowdhury's REM Model results presented in Table-3.3, 3.4, 3.5 and 3.6. This shows that managers are implementing all of REM techniques both individually (i.e. offering abnormal price discounts and abnormal lenient credit terms, abnormal cuts in discretionary expenses, abnormally increase production levels) and collectively when firm year accounting comparability level is high. In additions to that, managers abstain from AEM methods as it is easier to be detected under high comparability conditions. Moreover, results of the tables where absolute values of REM and AEM are employed shows that managers use these REM techniques to increase earnings rather than decrease them. When it is considered that IOS and PM REM Models are designed as alternative models by Cohen et al. (2016) for Roychowdhury's REM Models for the risk of being exposed to high Type-1 error rate, results are robust to this concern as results of alternative models also confirm the findings of Roychowdhury's REM Model outcomes.

### 3.5. Conclusion:

In this study, impact of firm-year level of accounting comparability on earnings management preferences of managers in EU is investigated. It is found that, under circumstances where firm-year accounting comparability is high, opportunist managers abstain from implementing AEM. Contrarily, high level of accounting comparability creates an incentive for managers to implement REM methods, not only collectively, but also individually, to reach their financial goals. This study derives listed firms of EU as a sample spanning from 2005 to 2015. The reason of this time-span choice is that, 2005 is the year of adoption of IFRS in EU which creates an environment where usage of one set of international accounting standards is compulsory. From Zang's (2012) points of view this development in EU may pose a new risk for managers to implement AEM as being detected becomes easier. In fact, as it is shown in the results, managers take comparability as a cost and relative increase in the cost of implementing AEM push them to practise REM methods. In additions to that, results of IOS and PM REM Models, which are alternative econometric models offered by Cohen et al. (2016) to address high Type-I error rate issue of Roychowdhury Model set, confirm and support same findings. Lastly, considering with literature, these results can be interpreted in a way that implementing one set of accounting standards increase accounting comparability however higher level of accounting comparability does not dissuade managers to implement earnings management as managers just change the method they implement earnings management.

There are significant contributions of this chapter to the literature. Best of my knowledge, current study is the first and only study that inspects firm-year level accounting comparability for same accounting standards in EU. In previous studies accounting comparability was basically examined by linking two sets of accounting standards; local GAAPs and IFRS, in EU however, influence of firm-year accounting comparability in same accounting standards has not been scrutinized yet. This study shed a light on accounting comparability and how managers reflect the effects of comparability on their practices. Next contribution of this is study is that, this is first paper that offers an insight into effects of firm-year accounting comparability on managers specific EM preferences; namely AEM and REM, within EU. This is also remarkably crucial to understand if new accounting standards serves to its purpose by reducing EM. Generally, firms evade of practising AEM however, they replace their EM activities by substituting AEM with REM as another instrument to reach their financial targets. Thus, from the perspective of reducing AEM, new standards can be considered as effective, however, increase in REM erodes the overall efficiency in decreasing EM as a whole.

Lastly, this is first study in literature that explores effects of firm-year level accounting comparability on the EM preferences of managers from different accounting regimes. Employing single set of accounting standards is seemingly not sufficient to remove the cross-country differences as firm-year accounting comparability has dissimilar effect on reducing overall EM in different accounting regimes.

# CHAPTER-4: EFFECTS OF IFRS ADOPTION ON ACCOUNTING CONSERVATISM: A COMPARATIVE STUDY

## 4.1. Introduction:

Adoption of International Financial Reporting Standards (hereafter IFRS) is a cornerstone event for the business environments of the member of European Union countries as implementing of IFRS has been obligatory for all firms that are listed in stock exchange markets of EU countries since 2005. Alongside of EU countries, Turkey followed simultaneous procedure together with EU countries regarding adoption and implementation of IFRS, despite the fact that Turkey has not been member of the Union yet. Turkish authorities made applying of IFRS obligatory for listed firms thus, all listed companies in Istanbul Stock Exchange Market have been required to publish their financial statements in accordance with IFRS since 2005. IFRS is a complete set of standards that were developed in order to bring transparency, accountability and efficiency to the financial markets (IASB, 2012). This object leads rising in expectations that, implementing of IFRS leads to improvements in earnings quality in adopting countries. However, the complete abandonment of domestic accounting principles and enforcement of using a new whole set of accounting standards caused exogenous shocks on the accounting systems since the adoption of IFRS caused more or less of deviation from their domestic systems as domestic accounting systems stem from the needs of local (Ding et al., 2007). The magnitude of shock depends on how different the domestic accounting regimes were from the IFRS. Consequences of IFRS adoption are more palpable especially for the countries that used to follow the Continental Europe accounting system than those followers of Anglo-Saxon accounting regime since IFRS was predominantly generated by the Anglo-Saxon countries.

Earnings quality has various benchmarks and accounting conservatism is considered as one of them. In this study, accounting conservatism is also used as proxy for earnings quality. Before moving on, it will be useful to provide a definition of accounting conservatism here. One of the oldest and simplest definitions of accounting conservatism is “anticipate no profit but provide all possible losses” (Bliss, 1924) and one of the most cited definitions of accounting conservatism is “… accountant’s tendency to require a higher degree of verification for recognizing good news than bad news in financial statements” (Basu, 2006). Basically,

accounting conservatism requires asymmetric recognition approach to positive and negative economic events in the firm or economy. If the negative event is possible, firm should recognize and reflect it immediately in earnings figure, however, if the economic event is positive, the firm must wait until the moment that event comes true.

Higher conservatism is deemed as higher earnings quality (Ball. 2006; Dechow et al. 2010). Previous studies revealed that shifting from domestic standards to IFRS leads an improvement in earnings quality of adoption countries (Armstrong et al., 2010; Doupnik, 2009). Thus, it is expected that the adoption of IFRS leads to an increase in the degree of accounting conservatism. As IFRS is closer to Anglo-Saxon accounting system, rather than to Continental European Accounting system, increase in the accounting conservatism is expected to be higher for the countries where Continental Europe accounting system was prevalent before the adoption of IFRS (Busman and Piotroski, 2006).

Adoption of IFRS is not the ultimate determinant of earnings quality. Prevalent accounting regime during pre-IFRS period has also influence on the improvement in earnings quality. In fact, Bushman and Pitroski (2006) demonstrated that the conservative tendencies of the firms vary across different accounting regimes. When it is considered that most of the countries have abrogated their domestic accounting standards and substituted them with IFRS, it is probable that the conservative attitudes of the firms might be affected in different ways. Actually, it was found that in the post-IFRS period the level of accounting conservatism experienced more deviation comparing with pre-IFRS period and this deviation is pronounced more in Continental European countries (Capkun and Collins, 2018; Hellman, N., 2008).

The aim of this paper is to investigate the effects of the adoption of IFRS on the level of accounting conservatism by bringing two countries, Turkey and UK, into the focus. The paper also explores the effect of IFRS adoption on the level of accounting conservatism on two major accounting systems through comparison of Turkey and UK that can be considered as representatives of Continental Europe and Anglo-Saxon accounting regimes respectively.

To investigate the research objective, three different econometric models are used in this study. These models are Basu Model (2006), which was developed to investigate accounting conservatism through the asymmetric approach of accounting systems against stock market returns as a proxy for positive economic events (good news) and negative economic events (bad news). The second model is Ball and Shivakumar Model (2005). This model is to measure the same phenomena by using cash flows. In this model abnormal increase in cash flows from operations is used as a proxy for positive economic events (good news) and an abnormal decrease in cash flows from operations is used as the proxy for negative economic events (bad news). Third and the last model is Khan and Watts Model (2009). This final model basically uses the same logic of Basu Model however, it measures accounting conservatism

in annual-cross sectional level rather than panel-data as Basu did. The reason of implementing three different models is to reinforce the reliability of findings.
Live up to expectations, it has been documented that, results of two out of three models demonstrates that Turkish firms, which were following so-called “Continental Europe” accounting regime, did not have conservative accounting tendencies before the adoption of IFRS, however, the level of conservatism increased after adoption. Thus, the adoption of IFRS has had positive impact on the earnings quality of Turkish accounting system. Increase in the conservative tendencies of Turkish firms after IFRS adoption stemmed from not only increase in responsiveness of bad news on earnings but also decrease in timeliness of good news. In contrast with Turkish firms, firms listed in the UK, which were following so-called “Anglo-Saxon” accounting regime, had been already implementing conservative accounting practices before IFRS adoption, and adoption of IFRS did not lead significant deviation on their conservative tendencies. Thus, during pre-IFRS period earnings quality was already high from the perspective of accounting conservatism in the UK as an Anglo-Saxon accounting regime follower and IFRS adoption did not cause noteworthy deviation in conservative accounting tendencies. This might be because of the fact that IFRS is developed mainly in line with Anglo-Saxon accounting regime characteristics.

Firm-specific factors, namely size, leverage and MTBV, were controlled as they have impact on the level of conditional conservatism, however, results exhibit that controlling these factors caused negligible alterations on significance of results.

The current study contributes to the literature by addressing several significant issues. The uniqueness of this study exists in the fact that inflation has always been ignored in accounting conservatism studies but not in this study. Existing econometric models split the sample into two by using zero return as a threshold. Positive return and negative returns are deemed as good news and bad news respectively. However, prices of stocks are affected by high inflation through the reduction in purchasing power and this can increase an artificial increase in return which can unrealistically lead to label negative return firms (bad news) as a positive return (good news). Such an inflationist effect has taken into account for the first time in the literature and analyses are repeated separately for inflation free period. The notion behind exclusion inflationist period from the time-span is not to analyze the effect of inflation on accounting conservatism but to create high-inflation-free sample period to see if inflation has a determinative influence on conservatism. The second contribution of this study is that this is the first study compares Turkey with another EU country in terms of their accounting conservatism tendencies. This is a significant contribution to the literature because of the unique position of Turkey in Europe. Turkey has historical and strong ties with the European

Union. Thereby, numerous regulatory reforms in Turkey have been made collectively and concurrently with European Union authorities. Adoption of IFRS was one these reform steps that was simultaneously taken by Turkey and EU at 2005. All Turkish listed firms have been subject to IFRSs since 2005 together with other firms which are listed in any other EU countries. However, since Turkey is not a member of EU, Turkey has been excluded from regional comparative study samples so far. Under the light of this fact, comparing Turkey and UK provides a new and unique insight into the literature on IFRS adoption and accounting conservatism. The third contribution to the literature is that this provides new evidences to the literature about how accounting conservatism behaviours of the firms from different accounting origins react differently to IFRS adoption. Turkey had been following local GAAPs, which shows very high resemblance with French-German GAAPs whilst, the UK was following the Anglo-Saxon accounting regime, which shows similarity with the current IFRSs. Adoption of IFRS causes to some extent deviations in accounting system of the countries and the level of deviation depends on the accounting regime that was followed by the countries in pre-IFRS period. Considering together with existing studies in the literature, being or not being a member of same political structure does not lead differentiation in accounting conservatism as long as countries belong to same accounting origin.

Findings and contributions of this study should make important policy and practical implications as the future of accounting conservatism is still ambiguous. IASB dismissed accounting conservatism from desirable qualitative characteristics of accounting information at September 2010, since it was thought that existence of accounting conservatism as a “desirable characteristic”, arguably erodes another “desirable characteristics” which are neutrality and faithful representation. Surprisingly, after less than four years, at 2014, IASB declared that conservatism may be re-inserted into qualitative characteristics again (Robes and Stadler, 2014). As the future of the concept of accounting conservatism is still subject of ongoing discussions on regulatory institutions and academic circles, providing new evidences about adopting of IFRS and its effects on accounting conservatism, as a benchmark of earnings quality, involves high importance for policymakers.

The rest of the paper is organized as follows. In section 4.2. literature review and hypothesis are presented. In the following section, 4.3., data and methodology explained in detail. In section 4.4. results and discussions are given and finally, conclusion is presented in section 4.5.

### 4.2. Literature Review and Hypothesis:

#### 4.2.1. Literature Review:

##### 4.2.1.1. Definition of Accounting Conservatism:

Although there is a large volume of studies on accounting conservatism, there is no one commonly held definition of this phenomenon despite of the fact that history of accounting conservatism dates back to 14th century (Basu, 2009). Some of the definitions of accounting conservatism, however, are more pronounced than others. The notion underlying beneath accounting conservatism was defined with the adage by Bliss (1924) as "anticipate no profit but provide all possible losses", which was used as one of the earliest definitions of conservatism in previous studies (Ball and Shivakumar, 2005; Guay and Verrechia, 2006). Accounting conservatism was defined in more detailed way in further years. Watts and Zimmerman (1986) defined conservatism as "Conservatism is reporting the lowest value among possible alternative values for assets and the highest value for the liabilities" whilst, Belkaoui (1985) offered, to some extent, parallel definition with Watts and Zimmerman as "conservatism implies that preferably the lowest value of assets and revenues and highest values of liabilities and expenses should be reported". Watts (2003) explained conservatism as the differential verifiability required for recognition of profit versus losses while Basu (1997) defined conservatism as "… accountant's tendency to require a higher degree of verification for recognizing good news than bad news in financial statements". Arguably, Basu's definition of conservatism has been accepted with higher degree of espousing than any others. Unlike researchers, regulatory bodies provided more detailed descriptions for conservatism. IASB (1989) describes conservatism (by using the term of "prudence") as "…a degree of caution in the existence the judgements needed in making the estimates required under conditions of uncertainty, such that assets or incomes are not overstated, and liabilities or expenses are not understated", in spite of the fact that this concept would be removed from IASB's qualitative characteristics at 2010. FASB defines accounting conservatism as "A prudent reaction to uncertainty to try to ensure that uncertainty and risks inherent in business situations are adequately considered". While IASC provides similar definition, but importantly IASC adds a piece of cautionary advice just after the definition as "…prudence does not, however, justify the creation of secret or hidden reserves".

##### 4.2.1.2. Types of Accounting Conservatism:

One of the pioneering studies on accounting conservatism studies is Ball and Shivakumar (2005)'s study that splits conservatism into subcategories, namely as conditional and unconditional conservatism. Unconditional conservatism is biasness in accounting for reporting of the low book value of net asset that causes reporting permanent low average net incomes. This type of conservatism prescinds the timing of losses, nevertheless records the lowest possible value of assets at the commencement of the asset's life or lowest possible value of income at its recognition. Unconditional accounting conservatism leads to persistent downward pressure on the net income over the course of subsequent accounting periods since under unconditional conservatism the lowest possible book value of equity is recorded as an accounting policy. Besides that, unconditionally conservative accounting does not respond timely losses or gains. In other words, unconditional conservatism does not reflect the current economic events that will result in an increase or decrease in the future economic value of the assets. Accelerated depreciation methods, expensing of R&D costs, expensing of advertising costs, allowance for doubtful debts or implementing of LIFO method can be examples of unconditional conservatism (Ruch and Taylor, 2015). In contrast with unconditional conservatism, conditional conservatism considers the timing or losses as it reflects current losses on current income. Goodwill impairment, fixed asset impairment and recording inventory at the lower of cost or market value method can be examples for the conditional conservatism (Ruche and Taylor, 2015). The classification offered by Ball and Shivakumar (2005) made a significant contribution with regard to comprehension of the concept of conservatism. As this study does not focus on "unconditional" part of such concept, the rest of the review will be expatiated on conditional conservatism. It has been found that implementation of unconditional conservative accounting practices "pre-empts" the possibility of conditional conservatism since unconditional conservative practices decrease the value of assets at the beginning of their life and early reduction in the value of assets decrease the possibility of subsequent losses (Beaver and Ryan, 2005; Garcia Lara and Mora, 2010). The association between unconditional and conditional conservatism was also empirically investigated from different aspects by some other researchers and similar results can be extracted from these studies (Pope and Walker, 2003; Pae et al., 2005). Regardless of being conditional or unconditional, it was asserted that accounting conservatism causes downward pressure on the book value of net assets and as a result conservatism causes higher market-to-book value since the market price the economic events symmetrically (Kabir and Laswad, 2014).

#### 4.2.1.3. Measures of Accounting Conservatism:

Accounting conservatism, arguably, is one of the most studied fields in last decades. The number of papers has increased after Basu's (1997) study which brought a new insight into the subject. Basu (1997) used "news" as a proxy, based on the assumption that "good news" (positive return) and "bad news" (negative return) are symmetrically reflected via return in an efficient market. Nevertheless, he found that timeliness of reflection of current bad news on current earnings is timelier than the reflection of current good news as an outcome of conservative accounting practices. This mechanism works via accruals since timelier reflection of bad news on earnings occurs through the recording of negative accruals, which has an immediate impact on current earnings, however, the reflection of good news on earnings is delayed by the time that realisation of good news is certain. He also asserts that the level of conservatism has been an increasing trend in the last three decades before his study.

Basu's asymmetric timeliness model has been attracted researchers' attention since it was published. By using Basu Model (1997); some researchers focused on the relationship between accounting conservatism and corporate governance. (Beekes et al. 2004) found that if the board of directors composed of more outside members, they recognize bad news in a timelier manner and they also recognize good news less timely. Lara et al. (2007) found that strong corporate governance characteristics are associated with a higher degree of conservatism. Some researchers used Basu Model to investigate the conservative tendencies of firms over time. Givoly and Hayn (2000) argued that accounting conservatism has an increasing trend over time. Holthausen and Watts (2001) also found that accounting conservatism rises over time. Raonic et al. (2004) investigated effect of converging activities on cross-listed firms within EU. They found that converging activities is associated with increase in conservative tendencies of financial reporting. Basu Model (1997) is also intensively used to investigate the relationship between accounting conservatism and auditing.

Despite it is popularity, there are some several criticisms on Basu Model in the literature as well. Dietrech et al. (2007) argued that the coefficients generated by Basu (1997) Model are biased and the biasedness can be neglected only if very strict conditions are met, however lack of these conditions makes running of asymmetric timeliness model less credible. They explain the biasedness in a way that return is an endogenous variable, thus, using return as an independent variable in a reverse regression causes selective bias as having negative or positive return is not exogenous, in fact, a firm characteristic. In additions to that, they found that that the sample without asymmetric timeliness in earnings can generate results in line with conservatism. Thus, it can be asserted that relying solely on the results of Basu (1997) Model risky. Another criticism argued by Givoly et al. (2007) based on their real and simulated

data is that the features of information environment have the impact on the level of asymmetric timeliness, despite the fact that this information is irrelevant with the dynamics of conservatism. Moreover, they emphasized a point in line with Dietrech et al. (2007) is that relying solely not only on Basu Model (1997) but also any other single measure for detection of conservatism may lead an erroneous inference. Another point that they claimed is that existing econometric models to detect accounting conservatism is to some extent inadequate to be able to evaluate all aspects of conservatism. Basu Model (1997) is also criticised by Gregoriou and Skerratt (2007). They argued that Basu Model (1997) gives results in a way of existence of accounting conservatism even in the absence of conservatism. Such misleading results of Basu Model (1997) stems from the observations on returns that are negative yet right under of zero return threshold. Moreover, results of Basu Model (1997) do not suggest existence of conservatism when such observations are omitted. In additions to that, strangely, when they substitute earnings with cash flows, Basu Model (1997) still gives results supporting existence of conservatism. This is surprising because the coefficient of asymmetric timeliness, b1 (it is β3 in this study), should have been zero as the conservatism mechanism in Basu Model (1997) works via accruals. Thus, they put forward that Basu Model (1997) is not an appropriate of way analysing accounting conservatism.

Basu's asymmetric timeliness model (1997) can be employed only for listed firms since "news" is measured via an abnormal return of share price. So, Ball and Shivakumar (2005) attempted to analyse the earnings quality of private firms thus they created a model that uses operational cash flow as proxy for news. They regressed operational cash flow on the accrual component of earnings because according to Ball and Shivakumar accounting conservatism affects the accrual part of income before the cash flow. Despite the fact that the purpose of the model is to investigate the conservative tendencies of private firms, the model allows the researchers to use it for public firms as well since the dependent and independent variables are common for both private and public firms. In fact, Ball and Shivakumar Model has been used to examine propensities of public firms for conservatism (Brown et al., 2006; Bushman and Piotroski, 2006; Krishnan, 2007; Lara et al., 2009; Pae, 2007).

Khan and Watts (2009) also developed a proxy to measure accounting conservatism. They structured their measures on the backbones of Basu Model (1997) to create a new measure that can detect conditional conservatism on firm-year base. These factors are namely, size, market to book ratio and leverage. As it was stated above, one of the most popular models to capture conditional conservatism is Basu Model, but Basu Model is estimated either by using cross-sectional industry-year of firms in the sector or by using a time-series of firm-years. Khan and Watts considered that there are two limitations here. The first limitation is that the industry-year measure failed to detect cross-sectional alteration in the financial reports of individual

firms because of the assumption that all companies in the sector are homogeneous. However, firms have different specific characteristics that have impact on their conservative behaviours which undermines homogeneity assumption. The second limitation is that the time series of firm-year measure obscures to detect the timing of changes in the conservatism of individual firms' financial reports by assuming that the firms' operating characteristics are stationary. Khan and Watts (2009) claimed that they removed these limitations by running the model in annual-cross sectionally as they could capture both cross-sectional and time series variations of individual firms. In order to measure the timeliness of positive and negative return on earnings in firm-year level, Khan and Watts (2009) designed so-called G_Score and C_Score. Khan and Watts defined that both timeliness of good news (symbolized with G_Score) and incremental timeliness of bad news (symbolized with C_Score) each year are linear functions of firm-specific characteristics.

#### 4.2.1.4. Accounting Conservatism and Its Effects on the Financial Information:

Previous studies in the literature investigated possible impact of accounting conservatism on financial statements and information asymmetry. From this perspective, it is likely that accounting conservatism will have effect on the economic decisions of the users of financial statements.

In terms of the users of financial information from stock markets, accounting conservatism may have two possible effect on their economic decisions: effect of conservatism on value relevance, and effect of conservatism on information asymmetry (Ruch and Taylor, 2015).
Balachandran and Mohanram (2011) investigated the effect of accounting conservatism on value relevance aspect of accounting information. They investigated the period between 1975 and 2004. They did not find any evidence indicating that increasing conservatism is associated with descent in value relevance. Instead, they found evidences that the firms experiencing high value relevance are the ones have no increase in accounting conservatism. Monahan (2005) scrutinized the relation between accounting conservatism and R&D and historical growth in R&D and value relevance. He found that accounting conservatism in R&D transactions affects earnings and return relationship but only in firms that have growth in R&D investments.
Effects of accounting conservatism on information asymmetry is another area that can affect the decisions of financial information users from stock markets. Kim et al. (2013) investigated the seasoned equity offerings between the period of 1989 and 2008. They reactions during post stock issuance. They also found that conservative stock issuer firms continue their conservative accounting practices after the period of stock issuance. LaFond and Watts

(2008) also investigated the relation between information asymmetry and accounting conservatism. They investigated the period between 1983 and 2001. They found that the information asymmetry between firm insiders and outsiders is the source of accounting conservatism in financial statements. They claimed that conservatism is the mechanism that mitigates executives' incentives and capability to manipulate earnings, so it reduces information asymmetry between insiders and outsiders. They asserted that change in the level of information asymmetry is significantly associated with change in the level of accounting conservatism.

Studies in the literature also investigated the effects of accounting conservatism on the users of financial information from debt markets. The mechanism between the impact of accounting conservatism and the decision making of debt market users works via information quality. High quality of financial information is associated with better decision makings by lenders (Ruch and Taylor, 2015). Ahmed et al. (2002) found that accounting conservatism leads to an increase in quality of financial information which reduces the conflict cost of debt. Study found a negative relation between accounting conservatism and cost of debt since the lenders are contended thanks to the existence of conservative accounting practices that there will not be a wealth transfer to the shareholders. In additions to that, Wittenberg and Moerman (2008) found that thanks to the conservative accounting practices, information asymmetry between bond issuers and prospect bond investors reduces. This helps to facilitate the trade of loan securities in the secondary bond market. Zhang (2008) claimed that, the more conservative accounting practices are implemented, the more firms become riskier to breach debt covenants, especially after a downward movement in their stock prices. In additions that, it was also found in the same study that, lenders offer fund with lower interest rates to the more conservative fund-seekers.

Some studies investigated the effect of accounting conservatism on information environment by considering both debt markets and equity markets together. Ball et al. (2008) claimed in their international study that the main influencer behind the conservative accounting practices is debt market. They claimed that debt investors "rate" the financial figures consistently, however, equity market does not "rate" the financial statements as consistent as debt market investors. Thus, debt markets participants demand higher timeliness and conservatism in financial statements. In additions to that Lara et al. (2014) claimed that conservatism is "useful" to not only shareholders but also bondholders since accounting conservatism improves the information environment which helps to decrease in information asymmetry between the outside-users of financial information and insiders.

#### 4.2.1.5. Accounting Conservatism and Firm-Specific Factors:

The relationship between firm-specific factors and accounting conservatism has been investigated by previous studies and it was argued that these factors have determinative effects on accounting conservatism (LaFond and Watts, 2008). In general, theoretically, there are two main contradictive argument in the literature about the relation between contractual incentive of conservatism and firm size. It has been argued that large scale companies have better information environment than smaller companies and as they are under more financial analysts' monitoring, total uncertainty tends to be low which leads less information asymmetry, so lower contractual demand for conservatism (LaFond and Watts, 2006). On the other hand, because of the fact that large scale companies inherently involve more complexity in their operations, information asymmetry between managers and stakeholders in large corporations tend to be higher as managers have an opportunity to obtain private information which increases the contractual demand of conservatism (Khan and Watts, 2009). Larger firms are under more state-monitoring and thus, managers of large firms may feel additional motivation to implement more conservative accounting practices (Frankel and Roychowdhury, 2008). Large firms also have taxation and litigation motives to publish conservative accounting figures. Conservative practices decrease the current year's tax expense and defer it to the subsequent periods, thus the present value of the tax expense decreases, and this situation increases the firm value. Avoiding from litigation cost can also be the factor that explains relationship between size an accounting conservatism. Large corporations are subject to (Watts, 2003a). Furthermore, as large firms have more opportunities to transfer its earnings between sub-divisions, they have more opportunity to defer earnings to forthcoming periods to decrease the present value of tax and increase the value of the company. Additionally, as large firms are subject to more lawsuits, litigation motivation also drives the large firms to report conservative results (Khan and Watts, 2009). As it can be seen that large firms are incited by different motivations, however, practically, empirical studies show that the net effect of size on the contractual demand of conservatism is negative, which indicates that the level of conservatism is lower for large companies than smaller ones (Easly et al., 2002). In additions to this, institution systems of countries, to some extent, can be the source of demand for conservatism for large companies. As, large companies, in Code law countries, are exposed to more governmental monitoring than the smaller ones, there is an extra driver to report conservative results for large firms in Code law countries. This causes a positive

relationship between accounting conservatism and firm size (Frankel and Roychowdurry, 2008).

Another firm-specific factor has had an impact on accounting conservatism is firms' leverages (Watts, 2003a; Khan and Watts, 2009; Ruch and Taylor, 2015). Watts et al. (2003a) argued that the conflict of the interests between debtholders and shareholders arises the demand of contractual conservatism. In fact, the opportunistic asymmetric payoff in favour of shareholders -in other words at the expense of debtholders- can be prevented by conservative accounting practices such as recalling of debts by lenders in the case of breaching the conditions of debt agreement contracts which is generally established based on accounting numbers. Accounting conservatism is also a tool to addresses the concerns of debtholders in the way in which reducing the likelihood of delivering excessive distributions of firm's sources to the shareholders by limiting the dividend payment to shareholders under certain circumstances since debt holders' claims can be satisfied only if there is enough net asset available in the firm at the maturity date of their investments (Bushman and Piotroski, 2006). Thus, debtholders are more sensitive to bad news than good news. Such asymmetry is also reflected in differentiation of returns of bonds against good news and bad news (Easton et al., 2009; Defond and Zhang, 2011). Ahmed et al. (2002) found that implementing conservative practices not only address the conflict between shareholders and debtholders but also leads a reduction in the cost of debt for borrowers by improving debt ratings. Some other papers also confirm the findings of Ahmed et al. (2002) that implementing conservative accounting practices decrease the cost of debt for borrower companies (Zhang, 2008; Beatty et al., 2012). In additions that, although they offered contra argument to themselves at 2008, Ball et al. (2000) argued that accounting conservatism is driven by shareholders, not by stockholders, as stockholders have their private channels to obtain crucial knowledge for their investments. In 2008, however, they asserted that conservatism increases in line with the importance of debt markets, which is interpreted as the eventual cause of accounting conservatism is debt market (Mora and Walker, 2014). It has been argued that leverage and the level of accounting conservatism may vary with respect to accounting origins that countries follow. It was found that the relationship between leverage and the level of conservatism in Common Law countries Code law countries varies. Firms' main finance source in Code Law countries is banking industry however in Common Law countries main source finance of firms is stock markets. As the loan agreements with banks contain some strict requirements such as earnings level, Code law countries have less incentive to implement conservative accounting practices comparing with firms in Common Law countries (Ball, Kothari and Robin, 2000; Busman and Piotroski, 2006).

Arguably, the relation between the MTBV and conservatism is the most studied factor as both to explain MTBV's effect on accounting conservatism and to detect accounting conservatism

by using MTBV as a proxy (Beaver and Ryan, 2005). The foundation of the studies on the relationship between MTBV and accounting conservatism was laid by Feltham and Ohlson (1995). They asserted that implementing conservative accounting practices leads to a decrease in book value of net assets in comparison to its market value, and higher MTBV indicates a continual differentiation between market and book value of net assets as conservative accounting practices push net book value of assets down because of the fact that market equally reacts to gains and losses but, inversely, in conservative accounting gains are not recognized till they become verifiable but losses are recognized when they are possible. Thus, higher MTBV can be used as a proxy to capture accounting conservatism.
Moreover, MTBV can also be the source of the accounting conservatism. It has been documented that companies that have a greater MTBV, have more growth options and this situation fuels the agency cost within the firm (Smith and Watts, 1992). As the agency problem increases the demand for conservatism (Watts, 2003a), higher MTBV leads higher level of accounting conservatism. In additions that, high MTBV ratio surges the risk of fluctuation in the stock price as the proportion of growth option in the value of the share is relatively higher than lower MTBV firms. These conditions provide a room for large losses in price which fuels the demand for conservatism from litigation perspective (Khan and Watts, 2009).

#### 4.2.1.6. Accounting Conservatism and Accounting Origins:

Countries that follow different accounting regimes have different characteristics with respect to accounting conservatism. Previous studies show that Continental Europe accounting and Anglo-Saxon accounting regimes have different accounting conservatism tendencies in the way in which countries that follow Continental European accounting system show higher unconditional conservatism but lower conditional conservatism and followers of Anglo-Saxon accounting regime, however, exhibit lower unconditional conservatism but higher conditional conservatism (Bushman and Piotroski, 2006; La Porta Garcia Lara and Mora, 2004). Bushman and Piotroski (2006) addressed this issue from a comprehensive perspective. They classified the countries according to their judicial backgrounds, as Code Law countries and Common Law countries, and they compared these two group of countries with respect to their conservative tendencies under the light of their institutional characteristics. It has been found in their study that institutional structures of countries may create a set of incentives for accounting conservatism. In the last analysis, they asserted that firms in common law countries report results with higher level of conservatism than the firms do in code law countries. Garcia Lara and Mora (2004) also classified countries as code-law and common-law countries and run a cross-country analysis. They found that code-law countries are also

conservative but what they implement is an unconditional type of conservatism. On the other hand, they found that common-law countries show higher conditional conservative than code-law countries. These results are parallel with the findings of Busman and Pitroski's (2006) results. In additions that, they evidenced that there is a negative relation between conditional conservatism and unconditional conservatism, which can be the explanation for the fact that conditional conservatism is less pronounced in code law countries than common law countries since unconditional conservatism is prevalent in code law countries. Giner and Rees, (2001) compared France, Germany and United Kingdom and, in contrast with prior studies, they interestingly found no statistically significant differences between two accounting regimes' conservative behaviours, yet the level of conditional conservatism in the UK was found higher than France and Germany. Pope and Walker, (1999) investigated two major Anglo-Saxon countries which are representative of common-law system. They found that when "before extraordinary items" is used as earning figure, US firms are more conservative than UK companies however if "after extra-ordinary items" is used, UK firms announce more conservative results than US firms. In additions that, they found that US firms reflect good news in a slower than UK firms. Thus, although majority of studies put forward similar results for cross-country conservatism studies, there are some non-supportive studies for mainstream view that accounting conservatism may vary not only between different accounting regimes but also within particular accounting regime as they might not be homogenous in themselves since same accounting regime countries vary in terms of their institutional specifications (Pope and Walker, 1999).

#### 4.2.1.7. Accounting Conservatism and IFRS:

The effect of adoption of IFRS on accounting conservatism has been studied from different aspects before by previous papers. Some studies handle only one country to analyse (Hung and Subramanyam, 2007) while, some others used a group of countries to provide cross-country analysis (Andre, Filip and Paugam, 2015; Ahmed, Neel and Wang, 2013). Hung and Subramanyam (2007) found that after adoption of IFRS German listed firms, which is one of the major representatives of Continental Europe Accounting system, announced more conservative results than the pre-IFRS period.

Lu and Trabelsi (2013) investigated the relationship between information asymmetry and accounting conservatism and impact of adoption of IFRS on these two. 19 European countries were used in this study within the time span of 2001-2010. They found that the level of accounting conservatism diminished after IFRS adoption and, they also discovered that positive relationship between information asymmetry and accounting conservatism weakens under new set of standards. They asserted that users of financial statements used some other

channels to reach credible financial information as decreasing in accounting conservatism undermines the credibility of financial information disseminated by financial statements. The level of accounting conservatism, however, increased sharply after 2008 financial crisis broken as the demand for credible financial information surged. Andre and Filip (2012) collected a sample of 16 European countries that covers the time span of 2003-2007 and, following La Porta et al. (1998), they grouped the countries as code-law and common-law countries. They investigated if adoption of IFRS has differential effect on the countries that follow different law regimes and different institutional characteristics. They documented that the level of accounting conservatism experienced a decrease in almost all countries in the sample after adoption of IFRS, but the decrease in conservatism pronounced more in countries where code law system prevails. The crucial outcome of their study is that after adoption of IFRS the differentiation in accounting conservatism between the followers of common law and code law countries disappeared. In other words, they found that regardless of the law systems they follow, conservative tendencies of countries are not significantly different from each other in the post-IFRS period. This occurred via a higher level of decrease of accounting conservatism in code law countries than the level of decrease in common law countries as it was found that level of conservatism was higher in code law countries than the common law countries before the adoption of IFRS. Andre, Filip and Paugam (2015) studied the impact of IFRS adoption on accounting conservatism by collecting a sample from 16 countries. Similar to Trabelsi and Lu (2013), Andre, Filip and Paugam (2015) also found that conditional conservatism was decreased after IFRS adoption. Additionally, they found that the decrease in conservatism was more intense in countries where audit quality is advance and compliance with enforcement is higher. From this aspect, Trabelsi and Lu's (2013) study contradicts with the results of Andre, Filip and Paugam (2015) as they found that decrease in accounting conservatism is higher in code law countries which is considered as countries where audit quality exists.

Future of accounting conservatism is subject of debates. IASB removed accounting conservatism from desirable qualitative characteristics of accounting information at September 2010, since it was thought that existence of accounting conservatism as a "desirable characteristic", arguably erodes another "desirable characteristics" which are neutrality and faithful representation. Surprisingly, after less than four years, at 2014, IASB declared that conservatism may be re-inserted into qualitative characteristics again (Robes and Stadler, 2014). This shows that regulatory bodies have a lack of precision in the future of conservatism and they are in dilemma between the existence or non-existence of this concept. In fact, as it is argued in the literature that, IFRS should not be conservative at all (Barker and McGeachin, 2015). As the future of the concept of accounting conservatism is still subject of ongoing discussions on regulatory institutions and academic circles, providing new evidences

about adopting of IFRS and its effects on accounting conservatism, as a benchmark of earnings quality, involves high importance for policymakers.

### 4.2.2. Hypothesises:

Based on the literature review above, I developed the following two hypotheses:
H1: The level of accounting conservatism increases in Turkey as a Code Law / Continental Europe country after adoption of IFRS
H2: The level of accounting conservatism does not change in the UK as a Common Law / Anglo Saxon country after adoption of IFRS

## 4.3. Data and Methodology:

In this chapter, sample, methodology, results and discussion sections take places respectively.

### 4.3.1. Sample:

The time span of this study covers 24 years from 1990 to 2014. Although sizes of the sub-samples vary with regard to availability of data for each empirical model, the main data set, which covers the widest period (1990-2014), is composed of 6,769 firm-year observation in totalling. The time period of this chapter is different than Chapter-3, which is because this chapter compares pre and post IFRS period however, Chapter-3 focuses solely on post-IFRS period. Chapter-2 is composed of 25 years and the reason that time-span of this current chapter in one year shorter than Chapter-2 is that, this is the first chapter amongst in 3 empirical chapters and while the dataset was being collected 2014 was the latest time period available. 4,556 firm-year observation of total sampling was composed of non-financial firms listed in London Stock Exchange Main Market and remaining 2,213 firm-year observation was comprised of non-financial firms quoted in Istanbul Stock Exchange National Market. Since financial firms such as banks, insurance companies and other financial institutions are subject to specific conditions and regulations regarding their financial statement structures, they are excluded from the sample. The data of 1990 was lost due to the necessity for calculation of lagged variables. The final sample size was reached after truncating of top and bottom 1% of variables to mitigate the influence of extreme values. The whole dataset was obtained via Datastream apart from other current assets and other current liabilities, which were downloaded via COMPUSTAT Global.

### 4.3.2. Methodology:

There are three commonly used models in literature to capture accounting conservatism. However, most of studies preferred to employ only one of these three models in their studies. Some studies, in fact, used two different models however, they presume that Basu Model (2006) is already effective way to measure accounting conservatism and they check the second model's efficiency by comparing it with Basu Model (Chan et al., 2015). In order to avoid relying on the results of one model only, three mostly used accounting conservatism models are employed in this study which are namely; Basu's Asymmetric Timeliness Model (1997), Ball and Shivakumar's Asymmetric Accrual to Cash-Flow Model (2005) and Khan & Watts Firm Specific Asymmetric Timeliness Model (2009).

Fixed-Effect Panel Data methodology is used to run Basu Model and Ball & Shivakumar Model. The selection of Fixed-Effect methodology is determined after running Breusch-Pagan Test and Hausmann Test as the probabilities of chi-square tests were both lower than 0.05. The results of Basu Model and Ball & Shivakumar Model have heteroskedasticity-robust standard errors.

For Khan and Watts Model annual Fama-MacBeth methodology is employed. The coefficients estimated at the end of second-step is used to calculate G_Score and C_Score.

#### 4.3.2.1. Measurement of Accounting Comparability:

First measure used in this study is Basu Model (1997). Basu (1997) claimed that earnings reflect "bad news" in a timelier manner than "good news". According to him, this occurs due to fact that the events that cause negative returns (bad news) are recognized as soon as they become probable, whereas the events that cause positive returns (good news) are deferred into future periods until they become certain, pursuant to accounting regulations. However, it is assumed that price reflects good news and bad news with a same level of timeliness in an efficient market. Thus, asynchronous approach of market and regulations to the "news" causes an asymmetry between recognition of positive return (good news) and negative return (bad news) in terms of their reflection time in current earnings figure.

Such asymmetric timeliness is captured by the following model (Basu, 1997). Basu used buy-and-hold return as a proxy to capture news. Negative return is used as a proxy for "bad news" whilst positive return is used for "good news"

$$E_{it}/MV_{it-1} = \beta_0 + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 DR_{it} R_{it} + \mathcal{E}_{it} \quad (4.1)$$

Where $E_{it}$ is earnings before extraordinary items of firm $i$ in fiscal year $t$, $MV_{it-1}$ is market value of equity of firm $i$ at the beginning of fiscal year $t$, $R_{it}$ is buy-and-hold return of firm $i$ beginning nine months before to the three months after of the fiscal year end t, $DR_{it}$ is an indicator variable equals 1 if $R_{it}$ is less than zero and 0 otherwise for firm $i$ in fiscal year $t$.

The notion of using lagged size denominator to scale variables is discussed in Chapter-2 and Chapter-3. If it is needed to discuss here again, as it is discussed above, the motive of scaling of total accruals with lagged total assets is to control firm-size effect. Using denominator allow the model to adjust for the size of the firms and enable the researchers to compare the data from large companies with the relatively smaller ones since the larger firms' earnings and market values are relatively greater than the smaller one. Without using denominator coefficients would be biased and heteroskedasticity in error terms would make the results infeasible to draw credible inference. In additions to that, scaling variables with lagged value, (lagged market value of equity in this occasion) helps to evade possible problems that might result of the fact that current earnings are generated with the factors that also have effect on current market value of equity. The studies in the literature also put forward that no considering of so-called "scale effect" on accounting figures can lead biasness in estimation of coefficients and can cause heteroscedasticity (Barth and Clinch, 2005; Lo and Lys, 2000; Easton and Sommers, 2003). Similar with Equation-4.1, dependant variables of Equation-4.2 and 4.3 are scaled with lagged market value of equity, dependant variable of Equation-4.4, 4.6 and 4.7 are deflated with lagged total assets and dependant variable of 4.8 and 4.11 scaled with lagged price.

In Equation-4.1 $\beta_2$ reflects responsiveness of positive returns to current earnings whilst ($\beta_2$+ $\beta_3$) represents the responsiveness of negative return to current earnings. So, the coefficient of interaction term, $\beta_3$, individually captures the asymmetric timeliness between good news and bad news. In the existence of the conditional conservatism, $\beta_3$ is expected to be positive, and higher (lower) $\beta_3$ means higher (lower) conditional conservatism. Besides these measures, the ratio between responsiveness of bad news and responsiveness of good news to earnings,

($\beta_2$+$\beta_3$)/ $\beta_2$, is also used as another benchmark to detect conditional conservatism. In the presence of conditional conservatism, this ratio is expected to be greater than 1 and higher value is interpreted as higher conditional conservatism.

In order to scrutinize the consequences of IFRS adoption on the level of conditional conservatism Equation-4.1 is modified with ifrs indicator variable and related interaction terms. Interpretation of Equation-4.2 is in a similar spirit to that of Equation-4.1. ($\beta_2$+ $\beta_6$) represents the responsiveness of positive return to current earnings and ($\beta_2$+ $\beta_6$+$\beta_3$+ $\beta_7$) represents the responsiveness of negative returns to current earnings. ($\beta_3$+ $\beta_7$) represents the overall asymmetric timeliness of earnings and $\beta_7$ individually represents asymmetric treatment of accounting between positive return and negative return in post-IFRS period. Following the same logic with Equation-4.1, in the existence of the conditional conservatism $\beta_7$ is expected to be positive and higher (lower) $\beta_7$ represents higher (lower) accounting conservatism in post-IFRS period.

$$E_{it}/MV_{it-1} = \beta_0 + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 DR_{it} R_{it} + \beta_4 ifrs_{it} + \beta_5 ifrsDR_{it} + \beta_6 ifrsR_{it} + \beta_7 ifrsDRR_{it} + \mathcal{E}_{it} \quad (4.2)$$

Where $E_{it}$ is earnings before extraordinary items of firm $i$ in fiscal year $t$. $MV_{it-1}$ is market value of equity of firm $i$ at the beginning of fiscal year $t$. $DR_{it}$is an indicator variable equals 1 if $R_{it}$ is less than zero and 0 otherwise for firm $i$ in fiscal year $t$. $R_{it}$ is buy-and-hold return of firm $i$ beginning nine months before to the three months after of the fiscal year end t. $ifrs_{it}$ is an indicator variable equals 1 if observation $i$ from 2005 and after, and 0 otherwise.

As it was stated in a detailed way in the literature review section, previous studies put the evidences forward that three significant firm specific factors have an impact on the level of conditional conservatism. These factors are namely market to book value, leverage and firm size. These factors are going to be controlled in Basu model (as well as they are controlled in Ball and Shivakumar Model) in order to see the pure effect of IFRS adoption on conditional accounting conservatism. Thus, Equation-4.2 is modified by adding firm specific factors and other related interaction terms. By doing so, Equation-4.3 is develop as follows;

$$EPS_{it}/MV_{it-1} = \beta_0 + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 DR_{it} * R_{it} + \beta_4 ifrs_{it} + \beta_5 ifrs * DR_{it} + \beta_6 ifrs * R_{it} + \beta_7 ifrs * DR_{it} * R_{it} + \beta_8 MTB_{it} + \beta_9 Lev_{it} + \beta_{10} Size_{it} + \varepsilon_{it} \quad (4.3)$$

Where, $MTB_{it}$is market-to-book ratio of equity of firm $i$ at the end of fiscal year $t$. $Lev_{it}$is leverage of firm, defined as sum of short term debt and long-term debt scaled by market capitalization of firm $i$ at the end of fiscal year $t$. $Size_{it}$is natural logarithm of market capitalization of firm $i$ at the end of fiscal year $t$. Rest of the variables are already defined above. Similar with Equation-4.2, in Equation-4.3 ($\beta_2$+ $\beta_6$) denotes the responsiveness of positive returns to current earnings whilst ($\beta_2$+ $\beta_6$+$\beta_3$+ $\beta_7$) denotes the responsiveness of negative returns to current earnings. ($\beta_3$+ $\beta_7$) gives the overall asymmetric timeliness of earnings and $\beta_7$ individually represents asymmetric treatment of accounting between positive return and negative return in post-IFRS period.

Second model used in this study is Ball & Shivakumar's Asymmetric Accruals to Cash Flow model (2005), which was originally created to measure accounting conservatism behaviour of *private companies* as they do not have market price which is essential element of the majority of conservatism measures including Basu Model. The notion behind of this model is that, losses are more likely to be recognized in a timelier basis than gains and such asymmetric recognition is expected to cause higher correlation between negative cash flows and accruals because of the fact that gains and losses directly affect accruals. In order to measure conditional accounting conservatism, Ball and Shivakumar developed the following model;

$$Acc_{it}/TA_{it-1} = \beta_0 + \beta_1 DCFO_{it} + \beta_2 CFO_{it} + \beta_3 DCFO_{it} CFO_{it} + \varepsilon_{it} \qquad (4.4)$$

Where, operating accruals are calculated as;

$$Acc_{it} = \Delta\text{Inventory} + \Delta\text{Debtors} + \Delta\text{Other Current Assets} - \Delta\text{Creditors} - \Delta\text{Other Current Liabilities} - \text{Depreciation} \qquad (4.5)$$

and, $TA_{it-1}$is total assets of firm $i$ at the beginning of firm year $t$. $DCFO_{it}$is an indicator variable equals 1 if CFO is less than zero and 0 otherwise for firm $i$ in fiscal year $t$. $CFO_{it}$ is cash flows from operations of firm $i$ at the end of fiscal year $t$. In Equation-4.8, $\beta_2$ is expected to be negative because of the time differences between recognition of accruals and the cash flows that arise from realisation of the economic events that caused recognition of accruals. In the existence of conditional conservatism $\beta_3$ is expected to have positive value and higher (lower) $\beta_3$ is interpreted as higher (lower) level of conditional conservatism.

To be able to investigate the effects of IFRS adoption on the level of conditional conservatism Equation-6 is developed by adding ifrs indicator variable and interaction terms into Equation-4.4;

$$Acc_{it}/TA_{it-1} = \beta_0 + \beta_1 DCFO_{it} + \beta_2 CFO_{it} + \beta_3 DCFO_{it} CFO_{it} + \beta_4 ifrs_{it} + \beta_5 ifrs_{it} * DCFO_{it} + \beta_6 ifrs * CFO_{it} + \beta_7 ifrs * DCFO_{it} * CFO_{it} + \mathcal{E}_{it} \quad (4.6)$$

The level of conditional conservatism before IFRS adoption period is captured by ($\beta_3$+$\beta_7$) and $\beta_7$ individually denotes the level of conditional conservatism after IFRS adoption. $\beta_7$ is expected to have positive value if conditional conservatism exists after IFRS period, and higher (lower) $\beta_7$ is interpreted as higher (lower) level of conditional conservatism.

$$Acc_{it}/TA_{it-1} = \beta_0 + \beta_1 DCFO_{it} + \beta_2 CFO_{it} + \beta_3 DCFO_{it} * CFO_{it} + \beta_4 ifrs_{it} + \beta_5 ifrs_{it} * DCFO_{it} + \beta_6 ifrs * CFO_{it} + \beta_7 ifrs * DCFO_{it} * CFO_{it} + \beta_8 MTB_{it} + \beta_9 Lev_{it} + \beta_{10} Size_{it} + \varepsilon_{it} \quad (4.7)$$

In Equation-4.7, firm-specific factors are controlled to see the pure effect of IFRS adoption on the level of conditional conservatism. Interpretation of Equation-4.7 is on the same line with Equation-4.3, in a way that the level of conditional conservatism before IFRS adoption period is captured by ($\beta_3$+$\beta_7$) and $\beta_7$ alone gives the level of conditional conservatism after IFRS adoption. $\beta_7$ has positive value if conditional conservatism exists after IFRS period, and greater $\beta_7$ is inferred as higher level of conditional conservatism.

As it was stated above, one of the most popular models to capture conditional conservatism is Basu Model, however Basu Model is estimated either by using cross-sectional industry-year of firms in the sector or by using a time-series of firm-years. Khan and Watts considered that there are two limitations in here. First limitation is that, the industry-year measure failed to detect cross-sectional alteration in the financial reports of individual firms because of the assumption that all companies in the sector are homogeneous. However, firms have different specific characteristics that have impact on their conservative behaviours which undermines homogeneity assumption. Second limitation is that, the time series of firm year measure obscures to detect the timing of changes in the conservatism of individual firms' financial reports by assuming that the firms' operating characteristics are stationary. Khan and Watts

removed these limitations by running the model in annual-cross sectional way in which they could capture both cross sectional and time series variations of individual firms.

In order to measure the timeliness of positive and negative return on earnings in firm-year level,
Khan and Watts (2009) designed their model the backbones of Basu's Model:

$$EPS_i/P_{it-1} = \beta_0 + \beta_1 DR_i + \beta_2 R_i + \beta_3 DR_i R_i + \mathcal{E}_i \quad (4.8)$$

Khan and Watts defined that both timeliness of good news (symbolized with G_Score) and incremental timeliness of bad news (symbolized with C_Score) each year are linear functions of firm-specific characteristics.

$$\text{G\_Score} = \beta_2 = \mu_1 + \mu_2 Size_i + \mu_3 MTB_i + \mu_4 Lev_i \quad (4.9)$$

$$\text{C\_Score} = \beta_3 = \lambda_1 + \lambda_2 Size_i + \lambda_3 MTB_i + \lambda_4 Lev_i \quad (4.10)$$

Equation-4.9 and Equation-4.10 are not estimations. They are replaced in Equation-4.8 to obtain Equation Equation-4.11. μ and λ are the constant between firms but changes from one year to the next as they are estimated via annual cross-sectional regression.

$$\begin{aligned} EPS_i/P_{it-1} = {} & \beta_0 + \beta_1 DR_i + R_i * (\mu_1 + \mu_2 Size_i + \mu_3 MTB_i + \mu_4 Lev_i) \\ & + DRR_i * (\lambda_1 + \lambda_2 Size_i + \lambda_3 MTB_i + \lambda_4 Lev_i) \\ & + (\delta_1 Size_i + \delta_2 MTB_i + \delta_3 Lev_i + \delta_4 DR_i Size_i \\ & + \delta_5 DR_i MTB_i + \delta_6 DR_i Lev_i) + \varepsilon \end{aligned} \quad (4.11)$$

G_Score and C_Score can be analysed in the same vein with the analysing of $\beta_2$and $\beta_3$. G_Score reflects responsiveness of positive returns to current earnings whilst (G_Score+ C_Score) represents the responsiveness of negative return to current earnings. So, C_Score individually captures the asymmetric timeliness between good news and bad news. In the existence of the conditional conservatism, C_Score is expected to be positive and higher (lower) C_Score means higher (lower) conditional conservatism.

### 4.4. Results and Discussion:

#### 4.4.1. Descriptive Statistics:

Table-4.1 reports the descriptive statistics; mean, median, standard deviation, maximum and minimum values of key variables for Turkey and UK. Table-1A exhibits the results for the

period between 1990 and 2014. Similarly, Table-1B shows the descriptive statistics of UK for the period between 1990 and 2014.

As it can be seen in Table-4.1A that mean earnings scaled by market value for Turkish firms is 0.048 and return is 61%. In contrary to literature, mean of accruals are surprisingly positive, 0.0179. Comparing with literature, mean return, also, is significantly high for Turkey, which is 61.32% Comparing with other studies (La Fond, R. and Roychowdhury, S. 2008; Roychowdhury 2006; Ahmed A.S. and Duellman S., 2012). This issue might be because of high inflation in Turkey which will be addressed in further sections of this study. Other variables are comparable with literature.

Table-4.1B demonstrates the descriptive statistics of UK. Mean of earnings scaled by market value is 0.048, mean of return is 19.4%. Results are all comparable with the literature and there are no noteworthy abnormalities about them.

Table-4.1A Descriptive statistics (1990/2014)
Turkey

| Variable | Obs | Mean | Median | Std Dev | Max | Min |
|---|---|---|---|---|---|---|
| E/MV | 2,213 | 0.0828 | 0.0785 | 0.2360 | 1.818 | -1.704 |
| R | 2,213 | 0.6132 | 0.2047 | 1.4389 | 14.333 | -0.7978 |
| Acc/TA | 2,213 | 0.0179 | -0.0106 | 0.1853 | 1.2733 | -0.7101 |
| CFO/TA | 2,213 | 0.0699 | 0.0749 | 0.2207 | 1.1966 | -1.0053 |
| Size | 2,213 | 10.954 | 11.187 | 2.5803 | 17.002 | 2.3025 |
| Lev | 2,213 | 0.4390 | 0.2022 | 0.7049 | 9.1263 | 0 |
| MTB | 2,213 | 2.4121 | 1.471 | 3.9340 | 54.339 | 0.1631 |

Table-4.1B Descriptive statistics (1990/2014)
UK

| Variable | Obs | Mean | Median | Std Dev | Max | Min |
|---|---|---|---|---|---|---|
| E/MV | 4,556 | 0.048 | 0.068 | 0.174 | 0.939 | -1.793 |
| R | 4,556 | 0.194 | 0.112 | 0.617 | 5.735 | -0.864 |
| Acc/TA | 4,556 | -0.001 | -0.0004 | 0.100 | 0.275 | -0.291 |
| CFO/TA | 4,556 | 0.125 | 0.1075 | 0.242 | 3.588 | -0.985 |
| Size | 4,556 | 12.777 | 12.808 | 2.177 | 18.510 | 6.363 |
| Lev | 4,556 | 0.365 | 0.1777 | 0.728 | 9.118 | 0 |
| MTB | 4,556 | 3.949 | 2.190 | 10.768 | 176.184 | 0.070 |

Table-1 presents descriptive statistics of main variables for whole sample for the period between 1990 and 2014. Table-1A presents the results for Turkey while Table-1B shows the results for UK. All variables are defined in methodology section.

| Table-4.2A | Correlation Matrix (1990/2014) Turkey | | | | | | |
|---|---|---|---|---|---|---|---|
| | EPS/P | R | Acc | CFO | Size | Lev | MTB |
| EPS/P | 1.0000 | | | | | | |
| R | **0.222*** | 1.0000 | | | | | |
| Acc | *-0.055** | -0.025 | 1.0000 | | | | |
| CFO | **0.343*** | 0.067* | **-0.177*** | 1.0000 | | | |
| Size | *0.047** | **-0.165*** | **-0.183*** | **0.183*** | 1.0000 | | |
| Lev | **-0.301*** | **-0.137*** | -0.027 | **-0.209*** | **-0.117*** | 1.0000 | |
| MTB | **-0.125*** | **0.145*** | -0.040 | 0.017 | **0.113*** | **-0.056*** | 1.0000 |

| Table-4.2B | Correlation Matrix (1990/2014) UK | | | | | | |
|---|---|---|---|---|---|---|---|
| | EPS/P | R | Acc | CFO | Size | Lev | MTB |
| EPS/P | 1.0000 | | | | | | |
| R | *0.0308** | 1.0000 | | | | | |
| Acc | **-0.145*** | **-0.075*** | 1.0000 | | | | |
| CFO | **0.2286*** | **0.0838*** | **-0.454*** | 1.0000 | | | |
| Size | **0.1248*** | 0.0253* | **0.0479*** | **0.1345*** | 1.0000 | | |
| Lev | **-0.191*** | **-0.11*** | **0.0632*** | **-0.116*** | **-0.081*** | 1.0000 | |
| MTB | -0.0014 | **0.089*** | 0.0069 | **0.0861*** | **0.1264*** | **-0.077*** | 1.0000 |

Table-4.2 shows the Spearman correlation results between main variables for whole sample for the period between 1990 and 2014. Table-4.2A shows the results for Turkey while Table-4.2B presents the results for the UK. Results smaller than 1% is shown with bold and star, higher than 1% but smaller than 5% is with a star and *italic*, higher than 5% but smaller than 10% is with a star only.

Table-4.2 gives correlation coefficients of main variables. Table-4.2A presents the results of Turkey while Table-4.2B presents the results of UK. Results smaller than 1% is shown with bold and star, higher than 1% but smaller than 5% is with a star and *italic*, higher than 5% but smaller than 10% is with a star only. Positive correlation is expected between earnings and return, and negative correlation is expected between accruals and operating cash flows for both Turkey and UK. Results correspond with the expectations. Correlation between earnings and return is positive and significant at 1% level, 0.222. Similarly, it is positive and significant at 5% level, 0.0308, for UK. Correlations between accruals and cash flows from operations are negative and significant at 1% level for both Turkey and UK. It is -0.177 for Turkey and -0.454 for UK respectively. There are no noteworthy abnormalities in remaining coefficients in Table-4.2

### 4.4.2. Results and Discussion:

The outcomes of the models employed in this study are presented in Table 4.3, Table 4.4 and Table 4.5 as in the order of Basu Model, Ball and Shivakumar Model and Khan and Watts Model respectively. Tables are presented with panels for Turkey and UK separately.

Table-4.3 reports the results of Basu Model in which Table-4.3A and 4.3B presents the outcomes of the model for Turkey and UK respectively for the period between 1990-2014. First columns of the Table-4.3A and 4.3B reports the results of Equation-4.1 which is the standard Basu Model and, the second columns of the same tables exhibit the results of Equation-4.2 that captures the change in the level of conditional accounting conservatism after IFRS adoption through IFRS indicator variable and other related interaction terms. The last column of Table-4.3A and 4.3B reports the results of Equation-4.3. Number of observations and adjusted R squares are also given in the bottom part of the tables.

It is reported in Table-4.3A that, the slope coefficient of return for the full period, $\beta_2$, is positive and significant, 0.0288, at 1% level. The coefficient that captures the level of conditional conservatism, $\beta_3$, which is also called as Basu coefficient, is positive and significant, 0.0647, at 5 percent level. This indicates that Turkish firms had conservative tendencies between 1990 and 2014. Adjusted R square is 16.7% and this figure is comparable with previous studies. Column-2 of Table-4.3A reports the effects of IFRS adoption on the level of conditional accounting conservatism. Indicator variable, ifrsit, divides sample period at the year of 2005 as before and after IFRS adoption. DRRit captures the difference in incremental sensitivity of earnings to negative and positive return pre-IFRS period while, ifrsDRRit captures the same concept for post-IFRS period. Coefficient of DRRit, $\beta_3$, is negative and insignificant, -0.037, before IFRS adoption, which indicates that Turkish companies did not have conservative characteristics in their financial reports before IFRS period. However, the difference in incremental sensitivity of earnings between bad news and to good news, $\beta_7$, is positive and significant, 0.151, at 5% significance level. This result supports the Hypothesis-1 that Turkish companies become conservative after IFRS adoption. Thus, earnings quality increased in terms of accounting conservatism after adoption of IFRS in Turkey. Third column of Table-4.3A presents the effect of IFRS adoption on conditional conservatism after adding control variables to seize firm specific factors. $\beta_3$ becomes positive, 0.1474, but still highly insignificant with 0.545 p-value, which confirms that although Turkish companies' accounting practices

were not conservative before IFRS adoption period. In additions to that, after IFRS adoption level of conservatism remains positive and significance level increases from 5 percent to 1 percent as $\beta_7$ is 0.176. After firm specific factors are taken into consideration, having still positive and significant $\beta_7$ reinforces the Hypothesis-1 that Turkish firms became more conservative after implementation of new standards. Adjusted R squares are 16.6%, 16.75% and 17% for column-1, 2 and 3 respectively, which comparable with previous literature (Basu. 2006).

In general, results of Basu Model demonstrate that after IFRS adoption, Turkish listed non-financial firms become conservative at 5 percent significance level, and after firm specific factors are added into the model, significance level increased at 1 percent. As accounting conservatism is considered as an indicator of earnings quality, results support Hypothesis-1 that adoption of IFRS has had a positive impact on earnings quality of Turkey, which is a Code-Law country, through increase in accounting conservatism. These results correspond with the findings of Hung and Subrayanyam (2007).

| Table-4.3A TR (1990-2014) | Standard | | IFRS | | IFRS & Control | |
|---|---|---|---|---|---|---|
| Variables | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| Intercept | 0.0985*** | 0.000 | 0.128*** | 0.000 | 0.0866 | 0.173 |
| DR | -0.057*** | 0.000 | -0.12*** | 0.000 | -0.1277 | 0.182 |
| R | 0.0288*** | 0.001 | 0.02** | 0.05 | 0.0379 | 0.484 |
| DR*R | 0.0647** | 0.048 | -0.037 | 0.561 | 0.1474 | 0.545 |
| ifrs | | | -0.055*** | 0.002 | -0.0756*** | 0.000 |
| ifrs *DR | | | 0.105*** | 0.001 | 0.1097*** | 0.001 |
| Ifrs *R | | | 0.012 | 0.236 | 0.0175 | 0.425 |
| ifrs *DR*R | | | 0.151** | 0.038 | 0.1762*** | 0.01 |
| MTB | | | | | -0.0112*** | 0.002 |
| Lev | | | | | -0.1010** | 0.041 |
| Size | | | | | 0.0098* | 0.06 |
| Obs. | 2,213 | | 2,213 | | 2,213 | |
| Adj. $R^2$ | 0.167 | | 0.1675 | | 0.17 | |

| Table-4.3B (UK) | 1990-2014 (Raw) | | 1990-2014 (ifrs) | | 1990-2014 (Contr) | |
|---|---|---|---|---|---|---|
| Variables | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| Intercept | 0.0874*** | 0.000 | 0.0912*** | 0.000 | 0.1406*** | 0.004 |
| DR | -0.0096 | 0.273 | -0.0141 | 0.206 | -0.0555 | 0.422 |
| R | -0.0372** | 0.014 | -0.0373* | 0.058 | -0.2144* | 0.086 |
| DR*R | 0.2612*** | 0.000 | 0.2709*** | 0.000 | 0.8800*** | 0.000 |
| ifrs | | | -0.0077 | 0.511 | -0.0043 | 0.723 |
| ifrs *DR | | | 0.0099 | 0.560 | 0.0072 | 0.700 |
| Ifrs *R | | | 0.0003 | 0.992 | -0.0117 | 0.713 |
| ifrs *DR*R | | | -0.0154 | 0.812 | -0.0111 | 0.881 |
| MTB | | | | | 0.0001 | 0.379 |
| Lev | | | | | -0.0135 | 0.479 |
| Size | | | | | -0.0040 | 0.262 |
| Obs. | 4,556 | | 4,556 | | 4,556 | |
| Adj. $R^2$ | 0.161 | | 0.162 | | 0.176 | |

Table-4.3 presents the impact of IFRS adoption of accounting conservatism by considering firm-specific factors through Basu Model for the period between 1990-2014.
Table-4.3A presents the results for Turkey while Table-3B shows the results for UK.
Table shows the regression results which are estimated through Equation 4.1, 4.2 and 4.3.
First column of the table shows the results of Equation-4.1, which measures the relation between earnings scaled my lagged market value of firms and asymmetric timeliness of earnings. Second column presents results of Equation-4.2, which measures the effect of IFRS adoption on asymmetric timeliness of earnings while last column of the table presents the results of Equation-4.3, which measures the effect of IFRS adoption on asymmetric timeliness of earnings by considering firm specific factors.
The results are based on panel data, fixed-effect analysis, with heteroskedasticity-robust standard errors.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table 4.3B exhibits the results of Basu Model for UK for the course of 1990-2014. As it is shown in Table 4.3B column-1 that $\beta_3$ is positive and significant, 0.2612, at 1% level. Positive and significant $\beta_3$ indicates that UK firms showed conservative accounting tendencies within the course between 1990 and 2014. Column-2 of Table-4.3B demonstrates the effects of IFRS adoption on conservative characteristics of UK firms. $\beta_3$ remains positive and significant, 0.2709, at 1% level, while $\beta_7$ is negative and insignificant, -0.0154. These results suggest that IFRS adoption does not have a noteworthy impact on the conservative characteristics, which had already existed before the adoption. Adding firm specific factors does not cause significant differences on $\beta_3$ and $\beta_7$. Column-3 confirms the results of column-2 that UK firms were already conservative before IFRS adoption and adoption of new standards leads no significant differences. These results support Hypothesis-2 that adoption of IFRS has not have significant impact on accounting conservatism on UK, which is an Anglo-Saxon country. Results correspond with the findings of Ball et al. (2000) and Giner and Rees (2001) that pre-IFRS period UK firms were already conservative in their accounting practices. Adjusted R square is 16.1 percent. Adjusted R square is 16.2 percent for column-2 and 17.6 percent for column-3.

Overall, results of Basu Model show that after IFRS adoption Turkish firms became more conservative which was expected as adoption of IFRS standards increase earnings quality, whilst UK firms were conservative before IFRS adoption and implementing new standard sets did not cause a significant deviation in their conservative characteristics. This might me because of the fact that IFRS is developed in the way in which standards are closer to Anglo-Saxon accounting origin. Thus, deviation in accounting practices of Anglo-Saxon countries after IFRS adoption is relatively weaker than the shift occurred in Continental-European countries.

The second measure that is employed in this study is Ball and Shivakumar's asymmetric accruals to cash flow model. Results of Ball and Shivakumar Model are presented in the same order with Table-4.3. Table-4.4A and 4.4B exhibit the results of Turkey and UK respectively. Design of the Table-4.4 is also parallel with Table-4.3. Column-1 shows the results of Equation-4.4 while column-2 exhibits the results of Equation-5, which is modified version of Equation-4.4. with ifrs indicator variable and related variables and column-3 demonstrates the outcomes of Equation-4.6, that contains additional variables representing firm-specific factors.

First column of Table-4.4A shows that listed firms in Turkey have significant conservative accounting practices between 1990 and 2014 as the coefficient of $\beta_3$ is positive, 0.306, at 10% level. This result indicates and confirms the results of Table-4.3A. Second column of Table-4.4A reflects the effects of IFRS adoption and, results reveal that, Turkish listed firms had not

had conservative tendencies before adoption of IFRS. However, $\beta_7$ is positive, 0.367, and significant at 5%. These results also correspond with Table-3 and states that Turkish firms became conservative in post-IFRS period. Adding firm-specific factors did not lead substantial changes on the results. Coefficient of $\beta_7$ becomes 0.4387, and still positive and significant at 10% level. Adjusted R squares are between 60%, 61% and 66% respectively from column-1 to column-3. The level of R square is also comparable with previous studies.

Remarkably, Basu Model and Ball and Shivakumar Model support Hypothesis-1 that Turkish firms as Continental Accounting regime followers, produced significantly conservative accounting numbers after IFRS adoption both with and without firm-specific control variables.

| Table-4.4A TR | 1990-2014 (Raw) | | 1990-2014 (ifrs) | | 1990-2014 (Contr) | |
|---|---|---|---|---|---|---|
| Variables | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| Intercept | 0.0149** | 0.023 | 0.0422** | 0.027 | -0.0307 | 0.509 |
| DCFO | 0.0051 | 0.570 | 0.0057 | 0.836 | -0.0213 | 0.734 |
| CFO | -0.4881*** | 0.000 | -0.5052*** | 0.000 | -0.6301* | 0.075 |
| DCFO*CFO | 0.3060* | 0.088 | 0.1085 | 0.428 | 0.3551 | 0.462 |
| ifrs | | | 0.0312 | 0.124 | -0.0222 | 0.279 |
| Ifrs*DCFO | | | 0.0042 | 0.886 | -0.0176 | 0.546 |
| Ifrs*CFO | | | 0.0129 | 0.901 | -0.0608 | 0.581 |
| Ifrs*DCFO*CFO | | | 0.3670** | 0.048 | 0.4387* | 0.087 |
| MTB | | | | | -0.0059** | 0.028 |
| Lev | | | | | -0.0224*** | 0.003 |
| Size | | | | | 0.0072** | 0.073 |
| Obs | 1,657 | | 1,657 | | 1,657 | |
| Adj. $R^2$ | 0.60 | | 0.61 | | 0.66 | |

| Table-4.4B | 1990-2014 (Raw) | | 1990-2014 (ifrs) | | 1990-2014 (Contr) | |
|---|---|---|---|---|---|---|
| Variables | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| Intercept | 0.0129*** | 0.003 | 0.0142** | 0.041 | -0.0440* | 0.087 |
| DCFO | 0.0027 | 0.726 | 0.0073 | 0.558 | 0.0520 | 0.253 |
| CFO | -0.5125*** | 0.000 | -0.5180*** | 0.000 | -0.3706** | 0.050 |
| DCFO*CFO | 0.1343* | 0.089 | 0.3217** | 0.034 | 1.191*** | 0.004 |
| ifrs | | | -0.0030 | 0.763 | -0.0018 | 0.850 |
| Ifrs*DCFO | | | -0.0073 | 0.666 | -0.0204 | 0.196 |
| Ifrs*CFO | | | 0.0154 | 0.839 | 0.0078 | 0.916 |
| Ifrs*DCFO*CFO | | | 0.0255 | 0.887 | -0.0722 | 0.654 |
| MTB | | | | | 0.0005** | 0.027 |
| Lev | | | | | -0.0078 | 0.182 |
| Size | | | | | 0.0045*** | 0.007 |
| Obs | 4,360 | | 4,360 | | 4,360 | |
| Adj. $R^2$ | 0.6705 | | 0.6709 | | 0.70 | |

Table-4.4 presents the impact of IFRS adoption of accounting conservatism by considering firm-specific factors through Ball & Shivakumar Model for the period between 1990-2014.
Table-4.4A presents the results for Turkey while Table-4.4B shows the results for UK.
Table shows the regression results which are estimated through Equation-4.4, 4.6 and 4.7.
First column of the table shows the results of Equation-4.4, which measures the relation between operating accruals scaled my lagged total assets of firms and asymmetric timeliness of earnings. Second column presents results of Equation-4.6, which measures the effect of IFRS adoption on asymmetric timeliness of earnings while last column of the table presents the results of Equation-4.7, which measures the effect of IFRS adoption on asymmetric timeliness of earnings by considering firm specific factors.
The results are based on panel data, fixed-effect analysis, with heteroskedasticity-robust standard errors.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-4.4B provides the results of Ball and Shivakumar Model for listed UK firms for the time span between 1990 and 2014. Positive and significant, 0.1343, coefficient of $\beta_3$ shown in column-1 demonstrates that UK listed firms are conservative at 10% significance level. This result corresponds with the outcomes of Basu Model presented in Table-4.3B. As it is shown in column-2, $\beta_3$ remains positive, 0.3217, and significant at 5% level, while $\beta_7$ is also positive but insignificant, 0.0255. In same the vein with Table-4.3, results of Table-4.4B shows that UK firms were already conservative in pre-IFRS period and in post-IFRS period there is no material deviation from it. After firm specific factors are added into the model, $\beta_3$ remains still insignificant, 1.191, at 1% level while, $\beta_7$ is insignificant again. This indicates that the UK listed firms were conservative before IFRS adoption and applying of IFRS did not lead significant changings in conservatism in UK. Adjusted R squares are 67% for Equation-4.4 and Equation-4.6 and 70% for Equation-4.7 which are comparable with literature.

To sum up, results of Ball and Shivakumar model reveals that listed British firms were already conservative before adoption of IFRS and, in general sense, adoption of IFRS caused insignificant and negligible change on the level conditional conservatism. While, adoption of IFRS leads increase in accounting conservatism and thus, earnings quality in Turkey. These results support Hypothesis-1 and Hypothesis-2.

The last measure employed in this study is Khan and Watts Model. Following Khan and Watts (2009) the mean coefficients from annual cross-sectional regression (Fama-Macbeth) of earnings on the stated variables are estimated as given in Equation-4.11. Allowing the coefficients to vary overtime is one of the strengths of the Khan and Watts Model over the other measures as it can capture the changings in the trend by calculating the coefficients annually overtime. Besides that, model gives an opportunity to see the results of overall period by calculating the mean of the coefficients. As it stated above, Equation-4.9 and Equation-4.10, which give C_Score and G_Score respectively, are not regressions. In essence, they are equations that are substituted in Equation-4.8 to obtain the Equation-4.11.

The findings of Khan and Watts Model (2009) are presented in Table-4.5 where, Table-4.5A presents the results of Turkey and Table-4.5B demonstrates the results of UK respectively for the period between 1990 and 2014. The results in Table-4.5 give coefficients only however as the bare coefficients are not the informative data in Khan and Watts model but the G and C_Scores, the interpretation is made through Table-4.6.

| Table-4.5A TR | 1990-2004 | | 2005-2014 | |
|---|---|---|---|---|
| Variables | Coeff | p-value | Coeff | p-value |
| Constant | 0.0703 | 0.671 | -0.3265 | 0.181 |
| DR | 0.2668 | 0.379 | 0.1909 | 0.458 |
| R | 0.0483 | 0.877 | 0.2032 | 0.522 |
| RSize | 0.0219 | 0.466 | -0.0121 | 0.682 |
| RMTB | -0.0326 | 0.038 | -0.0198 | 0.355 |
| RLev | -0.1363 | 0.195 | 0.0237 | 0.868 |
| DRR | -0.2313 | 0.828 | 0.1459 | 0.742 |
| DRRSize | 0.1041 | 0.371 | 0.0054 | 0.902 |
| DRRMTB | -0.5539 | 0.375 | 0.0032 | 0.924 |
| DRRLev | -0.6553 | 0.110 | 0.0113 | 0.929 |
| Size | 0.0188 | 0.274 | 0.0389 | 0.089 |
| MTB | -0.0196 | 0.074 | -0.0162 | 0.163 |
| Lev | -0.0513 | 0.440 | -0.0829 | 0.031 |
| DRSize | -0.0061 | 0.719 | -0.0162 | 0.495 |
| DRMTB | -0.0995 | 0.398 | -0.0070 | 0.665 |
| DRLev | -0.2915 | 0.031 | 0.0457 | 0.475 |
| Obs. | 732 | | 1,208 | |

| Table-4.5B UK | 1995-2004 | | 2006-2014 | |
|---|---|---|---|---|
| Variables | Coeff | p-value | Coeff | p-value |
| Constant | 0.0910 | 0.150 | 0.0511 | 0.500 |
| DR | -0.1312 | 0.121 | 0.0283 | 0.719 |
| R | 0.0193 | 0.866 | -0.0015 | 0.997 |
| RSize | -0.0012 | 0.883 | 0.0054 | 0.826 |
| RMTB | 0.0031 | 0.440 | -0.0113 | 0.128 |
| RLev | -0.0443 | 0.595 | -0.0570 | 0.302 |
| DRR | 0.1745 | 0.498 | 0.8296 | 0.302 |
| DRRSize | 0.0015 | 0.951 | -0.0520 | 0.363 |
| DRRMTB | -0.0506 | 0.309 | 0.0056 | 0.770 |
| DRRLev | 0.2294 | 0.194 | 0.0361 | 0.690 |
| Size | 0.0007 | 0.857 | 0.0003 | 0.945 |
| MTB | -0.0056 | 0.120 | 0.0027 | 0.151 |
| Lev | -0.0194 | 0.414 | 0.0039 | 0.857 |
| DRSize | 0.0081 | 0.161 | -0.0002 | 0.960 |
| DRMTB | -0.0014 | 0.577 | -0.0006 | 0.815 |
| DRLev | 0.0475 | 0.327 | -0.0477 | 0.208 |
| Obs. | 1734 | | 2057 | |

Results of Equation-4.11 are shown where Panel-A and Panel-B exhibits the results for Turkey and UK respectively.
The results are based on Fama-Macbeth (two steps procedure) regression analysis for post-IFRS period.
T-statistics are calculated using standard errors corrected for autocorrelation using the Newey–West procedure.
*, **, *** Represent significance at the level of 10 percent, 5 percent, and 1 percent levels, respectively.

Responsiveness of bad news on current year earnings are reflected as sum of C_Score and G_Score, while G_Score gives the responsiveness of good news only. The difference between responsiveness of good news and bad news, which is C_Score, individually shows the incremental timeliness of bad news. Positive C_Score is the indicator of existence of conditional accounting conservatism and higher (lower) C_Score is indicative of higher (lower) conditional conservatism. Khan and Watts Model gives some additional insight about conservatism via analysing of the descriptive statistics and correlation matrix of G_Score and C_Score which are presented in Table-4.6. Table-4.6A provides the result of Turkey and Table-4.6B exhibits the results of UK. As narrowing sample period makes employing of Khan

and Watts Model unfeasible because of data requirement of the model, it is run between 1990 and 2014 only.

As it can be seen in Table-4.6A, C_Score for Turkey between 1990-2014 is 0.197 and positive, while G_Score is -0.003. This result indicates that, there is overall conservative accounting practices in Turkish firms between 1990-2014. When the period is split into pre and post IFRS periods, C_Score becomes negative, -0.58, in pre-IFRS period and positive, 0.605, in post-IFRS period. These results support the findings of Basu Model and Ball and Shivakumar Models as, Turkish firms become conservative after IFRS adoption.

Table-4.6B shows the results of Equation-4.11 for UK. C_Score is positive throughout the whole sample period, 0.106, and this result does not vary across sub-periods as it is positive in pre-IFRS, 0.091, and also positive in post-IFRS period, 0.153. Results of Khan and Watts Model support Hypothesis-2 that adoption of IFRS does not cause significant increase in accounting conservatism in UK as an Anglo-Saxon accounting originated country.

Table-4.6 also provides descriptive statistics and correlation between G_Score and C_Score, which provides an insight to the components of changing in conservatism trend. As it can be seen in Table-4.6A, shows the results of Turkey. There is a negative and significant correlation between G_Score and C_Score at 1%, -0.071, which indicates that accounting conservatism partly arises from not only higher bad news timeliness but also lower good news timeliness (Roychowdhury and Watts, 2007; LaFond and Watts, 2008). Same negative correlation exists in pre-IFRS period, -0.0333, but insignificant. However, in post-IFRS period correlation becomes significant and remains negative, -0.073, which means that the reflection of bad news on accounting figures are timelier whilst, recognition of good news is not as timelier as good news.

**Table-4.6A TR**

| 1990-2014 | | 1990-2004 | | 2005-2014 | |
|---|---|---|---|---|---|
| | **G_Score** | | **G_Score** | | **G_Score** |
| **C_Score** | ***-0.071 | **C_Score** | -0.033 | **C_Score** | ***-0.073 |

| | C_Score | G_Score | | C_Score | G_Score | | C_Score | G_Score |
|---|---|---|---|---|---|---|---|---|
| Mean | 0.197 | -0.003 | Mean | -0.58 | 0.048 | Mean | 0.605 | -0.04 |
| St.Dev. | 6.147 | 0.47 | St.Dev. | 4.16 | 0.313 | St.Dev. | 4.76 | 0.309 |
| Q1 | -0.145 | -0.055 | Q1 | -0.852 | -0.042 | Q1 | -0.048 | -0.072 |
| Median | 0.048 | 0.013 | Median | 0.000 | 0.015 | Median | 0.172 | 0.01 |
| Q3 | 0.049 | 0.072 | Q3 | 1.317 | 0.098 | Q3 | 0.548 | 0.057 |

**Table-4.6B UK**

| 1990-2014 | | 1990-2004 | | 2005-2014 | |
|---|---|---|---|---|---|
| | **G_Score** | | **G_Score** | | **G_Score** |
| **C_Score** | ***-0.258** | **C_Score** | ***-0.125** | **C_Score** | ***-0.357** |

| | C_Score | G_Score | | C_Score | G_Score | | C_Score | G_Score |
|---|---|---|---|---|---|---|---|---|
| Mean | 0.106 | 0.039 | Mean | 0.091 | 0.025 | Mean | 0.153 | 0.055 |
| St.Dev. | 0.794 | 0.168 | St.Dev. | 0.796 | 0.129 | St.Dev. | 0.386 | 0.139 |
| Q1 | -0.034 | -0.017 | Q1 | -0.06 | -0.025 | Q1 | -0.02 | 0.016 |
| Median | 0.133 | 0.042 | Median | 0.142 | 0.029 | Median | 0.151 | 0.06 |
| Q3 | 0.327 | 0.098 | Q3 | 0.342 | 0.091 | Q3 | 0.312 | 0.105 |

Table-4.6 is composed of two panels as A and B where results of Turkey and UK are shown in Table-4.6A and in Table-4.6B respectively.
Upper part of each panel gives Spearman correlation matrix between C_Score and G_Score, while lower part of each panel provides descriptive statistics for C_Score and G_Score. First columns of the tables are for the whole sample period of 1990-2014, second columns are for pre-IFRS period of 1990-2004 and third columns are for post-IFRS period of 2005-2014. Results smaller than 1% in upper-part is shown with bold and star, higher than 1% but smaller than 5% is with a star and *italic*, higher than 5% but smaller than 10% is with a star only.

Table-4.6B presents the same information about UK. The correlations between C_Score and G_Score are all negative and significant in three different time periods. Correlation is -0.258 in overall period, -0.125 in pre-IFRS period and -0.357 in post-IFRS period. Results shows that there is not only timelier reporting of bad news and also less timelier recognition of good news throughout all periods. This supports Hypothesis-2 that UK, as an Anglo-Saxon country, were conservative before IFRS adoption and there is no noteworthy difference in conservatism after IFRS adoption.

Overall results suggest that, accounting conservatism was not pronounced before adoption of IFRS in Turkey, however accounting conservatism increased with the adoption of new standards. On the other hand, conservative accounting practices were already existing before IFRS adoption in UK and shifting to new standards did not cause significant deviation from conservative practices. Lastly, it was found that accounting conservatism is results of not only timelier reporting of bad news, but also less timelier reporting of good news on financial statements in both countries. Results correspond with the literature (Hung and Subrayanyam, 2007; Ball et al., 2000; Giner and Rees 2001).

### 4.4.3. Results and Discussion Without High-Inflation Period:

In discussion sections, all results are from the time span that covers between 1990 and 2014. In this section all equations are re-run for the period covers 2000-2010. The reason of dropping the years before 2000 is that, Turkey experienced hyperinflation period throughout the 90s and UK has also experienced a relatively inflationist period at early 90s. As inflation has destabilizing effect on market dynamics and possible artificial increase on return specifically, the observations from before 2000 are excluded from the sample in order to eliminate any possible deteriorating effect of inflation on the data. In fact, as it is shown in Table-1A and 7A, mean of return in Turkey is more than 90% higher when inflationist period is included in sample period than hyperinflation-free period. Removing the observation after 2010 was solely for the purpose of keeping sample size in balance between pre and post IFRS periods. It must be emphasized that the purpose of creating sub-sample is not for the analyzing of the effect of inflation on conditional conservatism, but to see whether eliminating possible effects of inflation from the sample will cause material differences in the results.

Apparently, narrowing down of the time span causes material differences in descriptive statistics neither for Turkey nor for UK, excluding mean value of return for Turkey sample. Mean value of return of Turkey sample decreased almost 50% by narrowing down of the time interval from 1990-2014 to 2000-2010. It is 61% in Table-4.1A and as it can be seen on Table-4.7A, it decreases to 32%. This might be because of the effect of the hyperinflationary period in Turkey throughout 90s, since it causes artificial increases on the return figure from one period to the next. This increase cannot be interpreted as “good news” as it is independent from firm performances. In fact, it is an exogenous shock on the price which affects all price, and therefore, return levels. However, magnitude of mean of E/MV is not affected as much return. It is 0.0828 on Table-4.1A and 0.0700 on Table-4.7A. This might be because figures

for financial statements in Turkey were subject to “inflation correction” before they were announced.

On the other hand, mean of return and E/MV do not vary materially for UK by narrowing down the time span. Mean of E/MV is 0.048 on Table-4.1B and 0.046 on Table-4.7B while, mean of return is 0.194 on Table-4.1B and 0.198 on Table-4.7B. Overall, there is no noteworthy abnormalities in other variables.

Table-4.7B Descriptive statistics (2000/2010)
UK

| Variable | Obs | Mean | Median | Std Dev | Max | Min |
|---|---|---|---|---|---|---|
| E/MV | 2,349 | 0.046 | 0.0659 | 0.177 | 0.939 | -1.793 |
| R | 2,349 | 0.198 | 0.1055 | 0.687 | 5.735 | -0.864 |
| Acc/TA | 2,349 | -0.005 | -0.0053 | 0.105 | 0.275 | -0.291 |
| CFO/TA | 2,349 | 0.135 | 0.1045 | 0.305 | 3.588 | -0.985 |
| Size | 2,349 | 12.888 | 12.898 | 2.109 | 18.510 | 6.363 |
| Lev | 2,349 | 0.417 | 0.2097 | 0.791 | 9.118 | 0 |
| MTB | 2,349 | 3.951 | 2.139 | 11.143 | 176.184 | 0.070 |

Table-4.7A Descriptive statistics (2000/2010)
Turkey

| Variable | Obs | Mean | Median | Std Dev | Max | Min |
|---|---|---|---|---|---|---|
| E/MV | 1,406 | 0.0700 | 0.0712 | 0.243 | 1.818 | -1.704 |
| R | 1,406 | 0.321 | 0.1493 | 0.946 | 14.333 | -0.797 |
| Acc/TA | 1,406 | -0.021 | -0.0129 | 0.176 | 0.8386 | -1.257 |
| CFO/TA | 1,406 | 0.062 | 0.0831 | 0.210 | 1.196 | -1.00 |
| Size | 1,406 | 11.716 | 11.536 | 1.687 | 17.002 | 7.654 |
| Lev | 1,406 | 0.436 | 0.1975 | 0.725 | 9.126 | 0 |
| MTB | 1,406 | 2.193 | 1.333 | 3.629 | 54.33 | 0.163 |

Table-4.7 presents descriptive statistics of main variables for whole sample for the period between 2000 and 2010. Table-4.7A presents the results for Turkey while Table-4.7B shows the results for UK.

Table-4.8 gives correlation matrix of the variables for the period between 2000 and 2014. Table-4.8A presents the results of Turkey, while Table-4.8B presents the results of UK for the same time span. As in Table-4.2, positive correlation is, also expected between earnings and return and negative correlation is expected between accruals and operating cash flows in Table-4.8A and Table-4.8B for Turkey and for UK respectively. Results correspond with the expectations. As it can be seen in Table-4.8A that correlation between earnings and return is positive and significant,0.192, at 1% level and correlation between accruals and cash flows from operations are negative and significant, -0.188, at 1% level for Turkey. Similar to Turkey, Table-4.8B exhibits that correlation between earnings and return is positive and significant,0.012, at 5% level and correlation between accruals and cash flows from operations are negative and significant, -0.422, at 1% level for UK.

Table-4.8A Correlation Matrix (2000/2010)
Turkey

| | EPS/P | R | Acc | CFO | Size | Lev | MTB |
|---|---|---|---|---|---|---|---|
| EPS/P | 1.0000 | | | | | | |
| R | **0.192*** | 1.0000 | | | | | |
| Acc | **-0.277*** | -0.014 | 1.0000 | | | | |
| CFO | **0.337*** | *0.064** | **-0.188*** | 1.0000 | | | |
| Size | **0.207*** | **0.092*** | **-0.164*** | **0.179*** | 1.0000 | | |
| Lev | **-0.318*** | **-0.106*** | 0.023 | **-0.206*** | **-0.246*** | 1.0000 | |
| MTB | **-0.149*** | 0.049* | -0.034 | -0.001 | **0.122*** | 0.014 | 1.0000 |

Table-4.8B Correlation Matrix (2000/2010)
UK

| | EPS/P | R | Acc | CFO | Size | Lev | MTB |
|---|---|---|---|---|---|---|---|
| EPS/P | 1.0000 | | | | | | |
| R | *0.012** | 1.0000 | | | | | |
| Acc | **-0.116*** | **-0.061*** | 1.0000 | | | | |
| CFO | **0.195*** | **0.067*** | **-0.422*** | 1.0000 | | | |
| Size | **0.122*** | 0.022 | **0.066*** | **0.136*** | 1.0000 | | |
| Lev | **-0.17*** | **-0.117*** | **0.088*** | **-0.107*** | **-0.11***** | 1.0000 | |
| MTB | 0.0023 | **0.056*** | 0.017 | *0.0442** | **0.132***** | **-0.07***** | 1.0000 |

Table-4.8 shows the Spearman correlation results between main variables for whole sample for the period between 2000 and 2010. Table-4.8A shows the results for Turkey while Table-4.8B presents the results for the UK. Results smaller than 1% is shown with bold and star, higher than 1% but smaller than 5% is with a star and *italic*, higher than 5% but smaller than 10% is with a star only.

Table-4.9A presents the results of Basu Model for Turkey for the period between 2000 and 2010.

$\beta_2$ is positive and significant, 0.0349, at 5 percent level however, $\beta_3$ positive, 0.0066, but not significant.

In second column, $\beta_3$is negative and insignificant, -0.10, which indicates that there was no conservative accounting in Turkey before IFRS adoption, however $\beta_7$ is positive and significant, 0.182, at 5 percent level. Lastly, in third column after adding firm-specific factors, $\beta_7$ is positive and significant, 0.2117, at 1 percent, whilst, $\beta_3$ is negative but insignificant. Adjusted R squares are also compatible with Table-3A as it is 14.3% for column-1, 14.7% for column-2 and 19.5% for column-3. Results shows that exclusion of inflationist period from sample does not change the fact that after adoption of IFRS accounting conservatism increased in Turkey.

Basu Model gives parallel results for both time periods for Turkey, except overall level of conditional conservatism. DRRit positive and significant at 5 percent level between 1990-2014 however it becomes insignificant when the time span is narrowed to 2000-2010. This might be because of deteriorating effect of high inflation on figures.

| Table-4.9A (TR) | 2000-2010 (Raw) | | 2000-2010 (ifrs) | | 2000-2010 (Contr) | |
|---|---|---|---|---|---|---|
| Variables | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| Intercept | 0.0733** | 0.000 | 0.0905*** | 0.000 | -0.0356 | 0.668 |
| DR | -0.0446** | 0.021 | -0.114*** | 0.004 | -0.2745** | 0.058 |
| R | 0.0349** | 0.014 | 0.0243 | 0.347 | -0.1257 | 0.167 |
| DR*R | 0.066 | 0.184 | -0.1004 | 0.186 | -0.2147 | 0.462 |
| ifrs | | | -0.0312 | 0.245 | -0.0460* | 0.082 |
| ifrs *DR | | | 0.116*** | 0.007 | 0.1067*** | 0.010 |
| Ifrs *R | | | 0.0203 | 0.503 | -0.0084 | 0.801 |
| ifrs *DR*R | | | 0.182** | 0.038 | 0.2117*** | 0.007 |
| MTB | | | | | -0.0108** | 0.014 |
| Lev | | | | | -0.1377** | 0.022 |
| Size | | | | | 0.0172*** | 0.009 |
| Obs. | 1,406 | | 1,406 | | 1,406 | |
| Adj. $R^2$ | 0.143 | | 0.147 | | 0.19.5 | |

| Table-4.9B (UK) | 2000-2010 (Raw) | | 2000-2010 (ifrs) | | 2000-2010 (Contr) | |
|---|---|---|---|---|---|---|
| Variables | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| Intercept | 0.0853*** | 0.000 | 0.080*** | 0.000 | 0.1057 | 0.219 |
| DR | -0.011 | 0.352 | -0.006 | 0.722 | -0.1325 | 0.195 |
| R | -0.043** | 0.032 | -0.040 | 0.136 | -0.1749 | 0.391 |
| DR*R | 0.225*** | 0.000 | 0.28*** | 0.000 | 0.5048* | 0.063 |
| ifrs | | | 0.008 | 0.636 | 0.0038 | 0.827 |
| ifrs *DR | | | -0.006 | 0.793 | -0.0176 | 0.446 |
| Ifrs *R | | | -0.006 | 0.876 | -0.0061 | 0.883 |
| ifrs *DR*R | | | -0.083 | 0.234 | -0.1419 | 0.158 |
| MTB | | | | | 0.0001 | 0.315 |
| Lev | | | | | 0.0003 | 0.990 |
| Size | | | | | -0.0022 | 0.159 |
| Obs. | 2,349 | | 2,349 | | 2,349 | |
| Adj. $R^2$ | 0.151 | | 0.153 | | 0.181 | |

Table-4.9 presents the impact of IFRS adoption of accounting conservatism by considering firm-specific factors through Basu Model for the period between 2000-2010.
Table-4.9A presents the results for Turkey while Table-4.9B shows the results for UK.
Table shows the regression results which are estimated through Equation-4.1, 4.2 and 4.3.
First column of the table shows the results of Equation-4.1, which measures the relation between earnings scaled my lagged market value of firms and asymmetric timeliness of earnings. Second column presents results of Equation-4.2, which measures the effect of IFRS adoption on asymmetric timeliness of earnings while last column of the table presents the results of Equation-4.3, which measures the effect of IFRS adoption on asymmetric timeliness of earnings by considering firm specific factors.
The results are based on panel data, fixed-effect analysis, with heteroskedasticity-robust standard errors.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

The last table that is going to be reported for Basu Model is Table-4.9B, which presents the outcomes for UK firms for the period between 2000-2010. As it can be seen that comparing with Table-4.3B, results not exhibit noteworthy changings both in $\beta_3$, $\beta_7$ and R-squares. $\beta_3$ are positive and significant 0.225, 0.28, at 1% level for column-1 and 2 respectively, and 0.5048 and significant at 10% in column-3 while, $\beta_7$ is -0.083 and -0.1419 and insignificant for column-2 and column-3. R-squares also shows similarities with Table-3B. It is 15.1%, 15.3% and 18.1% for column-1 column-2 and column-3 respectively.

Table-4.10A provides the findings of Turkey for the period between 2000 and 2010. It seems that narrowing of the time span has immaterial effect on the results. $\beta_3$ in column-1 positive and significant, 0.306, at 5% level. This suggests that excluded firm year observations do not show significantly different characteristics than the remainder of the sample regarding conditional accounting conservatism. Findings exhibited in column-2 and 3 also shows high similarity with the results presented in Table-4.4A. $\beta_3$ are both insignificant in column-2 and column-3, which indicates that Turkish firms did not significantly implement conservative accounting practices during pre-IFRS adoption. However, after IFRS adoption Turkish firms report significantly conservative results as $\beta_7$ is positive and significant at 5% level in column-2 and column-3. R squares is comparable with Table-4.4A. It is 60%, 61% and 67% for column-1 column-2 and column-3 respectively.

| Table-4.10A | 2000-2010(Raw) | | 2000-2010 (ifrs) | | 2000-2010 (Contr) | |
|---|---|---|---|---|---|---|
| Variables | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| Intercept | 0.0190** | 0.028 | 0.0392** | 0.043 | -0.0252 | 0.593 |
| DCFO | 0.0092 | 0.472 | 0.0135 | 0.644 | -0.0641 | 0.401 |
| CFO | -0.5258* | 0.069 | -0.5355*** | 0.000 | -0.9559*** | 0.004 |
| DCFO*CFO | 0.3060** | 0.014 | -0.0850 | 0.576 | 0.7794 | 0.105 |
| ifrs | | | -0.0250 | 0.251 | -0.0059 | 0.771 |
| Ifrs*DCFO | | | -0.0095 | 0.771 | -0.0196 | 0.532 |
| Ifrs*CFO | | | 0.0070 | 0.955 | -0.0952 | 0.432 |
| Ifrs*DCFO*CFO | | | 0.2365** | 0.39 | 0.1699** | 0.048 |
| MTB | | | | | -0.0045 | 0.153 |
| Lev | | | | | -0.0342*** | 0.001 |
| Size | | | | | 0.0058 | 0.170 |
| Obs | 969 | | 969 | | 925 | |
| Adj. $R^2$ | 0.60 | | 0.61 | | 0.67 | |

| Table-4.10B | 2000-2010 (Raw) | | 2000-2010 (ifrs) | | 2000-2010 (Contr) | |
|---|---|---|---|---|---|---|
| Variables | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| Intercept | 0.0081 | 0.105 | 0.0016 | 0.822 | -0.0659* | 0.081 |
| DCFO | 0.0043 | 0.685 | 0.0166 | 0.303 | 0.0545 | 0.375 |
| CFO | -0.5115*** | 0.000 | -0.5053*** | 0.000 | -0.3583 | 0.193 |
| DCFO*CFO | 0.0996* | 0.095 | 0.1453* | 0.09 | 1.100** | 0.029 |
| ifrs | | | 0.0120 | 0.334 | 0.0133 | 0.280 |
| Ifrs*DCFO | | | -0.0260 | 0.258 | -0.0358* | 0.098 |
| Ifrs*CFO | | | -0.0182 | 0.845 | -0.0358 | 0.703 |
| Ifrs*DCFO*CFO | | | -0.1115 | 0.634 | -0.1984 | 0.342 |
| MTB | | | | | 0.0006 | 0.119 |
| Lev | | | | | -0.0075 | 0.262 |
| Size | | | | | 0.0054** | 0.032 |
| Obs | 2,274 | | 2,274 | | 2,209 | |
| Adj. $R^2$ | 0.71 | | 0.7147 | | 0.74 | |

Table-4.10 presents the impact of IFRS adoption of accounting conservatism by considering firm-specific factors through Ball & Shivakumar Model for the period between 2000-2010.
Table-4.10A presents the results for Turkey while Table-4.10B shows the results for UK.
Table shows the regression results which are estimated through Equation-4.4, 4.6 and 4.7.
First column of the table shows the results of Equation-4.4, which measures the relation between operating accruals scaled my lagged total assets of firms and asymmetric timeliness of earnings. Second column presents results of Equation-4.6, which measures the effect of IFRS adoption on asymmetric timeliness of earnings while last column of the table presents the results of Equation-4.7, which measures the effect of IFRS adoption on asymmetric timeliness of earnings by considering firm specific factors.
The results are based on panel data, fixed-effect analysis, with heteroskedasticity-robust standard errors.
p values are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Number of observations and adjusted R squares are presented on the bottom of the table.

Table-4.10B presents the outcomes of the Ball and Shivakumar Model for UK for the period between 2000 and 2010. Narrowing down of the sample leads $\beta_3$ positive, 0.099, but significance level is 10%, between 2000 and 2010. So, listed British firms significantly implement conservative practices during the period. In column-2 and column-3 $\beta_3$ is 0.1453 and 1.100 and both are significant at 10% and 5% respectively. This means that UK firms were conservative before IFRS adoption. Slope of $\beta_7$ is both insignificant in column-2 and column-3 with value of -0.1115 and -0.1984 respectively. Results indicate that although UK firms were conservative before IFRS adoption, shifting to new standards did not cause a

significant deviation from their conservative behaviours. R squares are 71%, 71.47% and 74% for column-1 column-2 and column-3 respectively which are comparable with Table-4.4B.

Overall results of period without high inflation confirmed the findings stated at the end of Results and Discussion section above. In short, narrowed period shows that exclusion of inflationist period does not materially change the findings. Both Hypothesis-1 and Hypothesis-2 are supported by this robustness check that Turkey as a Code-Law country becomes more conservative in its accounting practices after adoption of IFRS which can be interpreted as earnings quality increases in Turkey by shifting from domestic standards to IFRS. On the other hand, firms in UK were already conservative before adoption of IFRS and shifting to IFRS did not have material impact on conservative tendencies of UK firms.

### 4.5. Conclusion:

This paper was designed to determine the effect of IFRS adoption on non-financial firms' conservative accounting tendencies in two countries, Turkey and UK, as followers of Continental Europe / Code Law and Anglo Saxon / Common Law system, respectively. The following conclusion can be drawn from the present study is that before adoption of IFRS there was no conservative accounting tendency in Turkish firms however, accounting conservatism increased after adoption of IFRS in Turkey. On contrary with Turkey, firms in UK were already conservative before adoption of IFRS and adoption of IFRS did not cause significant deviation on their conservative tendencies. This might me because of the fact that IFRS is developed in the way in which standards are closer to Anglo-Saxon accounting origin. Thus, deviation in accounting practices of Anglo-Saxon countries after IFRS adoption is relatively weaker than the shift occurred in Continental-European countries. This study has several contributions to the literature. First of all, effect of inflation has always been ignored in accounting conservatism studies but not in this study. This study re-run the regressions for two samples; covering inflation and inflation-free. Results shows that inflation has impact on return figures however, seemingly, econometric models are eligible to eliminate deteriorating effects of inflation on the figures since results of both periods confirm each other. Second contribution is that, Turkey has never been studied in comparative study regarding accounting conservatism. This study provides such comparison and show that accounting origin is matter in terms of adoption of IFRS and its effect on conservatism. Third contribution to the literature is that, this provides new evidences to the literature about how accounting conservatism behaviours of the firms from different accounting origins react differently to IFRS adoption. This study has significant political and regulatory implications since the role of accounting conservatism is still subject to debate in regulatory and academic circles, any contribution to understanding role of accounting conservatism has a crucial importance.

# 5. Chapter-5: SUMMARY AND CONCLUSION

The main goal of the current study was to determine the impacts of IFRS adoption on earnings quality by comparing different accounting origins namely; Anglo-Saxon and Continental European. In this study, earnings management and accounting conservatism are used as two benchmarks of earnings quality. The reason of choosing the relationship between IFRS adoption-earnings quality-accounting origins as a main topic of this current thesis not solely because of the fact that earnings quality is a hot area in the literature. The additional reason of determining this area as a research topic is the importance of earnings quality itself. Since the reason of preparing financial statements is to help users of financial information conveyed via statements and help them to give right economic decisions, understanding quality of earnings plays crucial role in terms of whether and how financial information serves to its purpose. In addition to that, IASB aims to create a high-quality set of accounting standards. From this point of view, whether IASB have managed to increase earnings quality by issuing IFRS is another question to investigate. And lastly, understanding of whether and how earnings quality has changed after the adoption of IFRS in countries that follow different accounting origins is also vital to measure the effectiveness of IFRS regarding to increase earning quality. So, determining procedure of the topic of this research is finalized after considering all these issues.

This research is composed of three empirical chapters. Although findings will be explained chapter by chapter in detail below, the main research topics are briefly restated here once again. The first empirical chapter (Chapter-2), focused on the REM activities of small positive earning firms and impact of IFRS adoption on such REM activities, by considering accounting origins of the firms. Second empirical chapter (Chapter-3), investigated the EM preferences of the firms' managers between AEM and REM, after IFRS adoption. In this chapter, the question of "whether firm-level accounting comparability is a determinant of managers' EM preferences" was scrutinized. In additions to that, reaction of firms from different accounting origins to firm-level of accounting comparability is also investigated. In last empirical chapter (Chapter-4), effects of IFRS adoption on accounting conservatism tendencies of the firms in terms of their accounting origins was analysed.

As it stated above, first empirical chapter, which is Chapter-2, focused on change in REM behaviours of managers of small positive earnings firms between pre- and post-IFRS periods

regarding their accounting orientations. EM has two components as AEM and REM. In this chapter, REM is specifically focused on since the studies on REM is relatively less flourished than AEM. As it stated above, this chapter covers comparison of two accounting origins; Anglo-Saxon accounting system and Continental European Accounting System. UK is chosen as the representative of Anglo-Saxon accounting system. In fact, UK is the biggest Anglo-Saxon accounting system follower in Europe. France and Germany, on the other hand, are chosen as the representatives of Continental-European accounting system, since they are the most significant two followers of Continental-European accounting system in EU.

In Chapter-2, three of the mostly used REM techniques are investigated both separately and collectively. First of these techniques is abnormal reduction in price of the products & services and, offering abnormally lenient credit terms. By doing this, managers aim to boost earnings as abnormal discounts and lenient credit terms persuade the prospect purchasers to complete transaction. Thanks to this technique, sales are boosted and profits as well. However, because of the abnormal reduction in price and new credit terms, each marginal sales transaction will generate abnormally less cash flow comparing with previous sales and industry-year "normal"s. Second real earnings management technique is to abnormally reduce discretionary expenses such as, research and development expenses, advertising expenses, general administration expenses, personnel training expenses, selling expenses. Reduction in discretionary expense is a reasonable way to keep profits positive in financially critical situations. However, if the discretionary expenses are abnormally reduced just to keep earnings positive, such abnormal reduction in discretionary expenses are considered as REM. By abnormally reducing these expenses managers can boost current year's earnings since the reduction in costs leads to an automatic increase profit. Third and last technique of REM covered in this study is to increase production level which has an influence on costs. Although, increase in production costs will increase total costs for the period, it has reducing impact on COGS as increased production level results in greater production quantity and higher number of productions lowers the amount of fixed-cost per item.

These three operational manipulations in earnings has some possible side-effects on the implementor firms. First of all, abnormal reduction in price and offering lenient credit terms can make the purchasers overbuy, which can make the next accounting periods' sales relatively weak as the purchasers' inventories are abnormally high. In additions to that, abnormal discounts can make the purchasers expect same discounts in further periods which again dissuade existing and prospect purchasers and make the further periods' sales relatively low. There are also possible negative impacts of abnormal reduction in discretionary expenses. As the discretionary expense types vary, it is not practical to list all the possible side-effects of this technique here, however, abnormal reduction in advertisement expenses and R&D

expenses are the ones that mostly pronounced in the literature. It is stated in the LR section that abnormal reduction in R&D can undermine possible project that can generate economic value in the future. In additions to that, reduction in advertising expenses can negatively affect public familiarity of the firms that are new in the market. Studies also show if the firms at their late stage of their life reduce the advertising budgets, their sales are more negatively affected comparing with other firms in the market. Finally, overproduction as a REM method increases storage costs as additional production must be stored in the depots. Moreover, if firms manage to sell overproduced items to their customers through channel-stuffing, further years' sales may be negatively affected.

It is also investigated in this study, whether managers of small positive earnings firms use these three operational tools collectively as well as separately. To be able to measure one single REM variable that can capture the affects of all three techniques, three separate REM variables are added into each other and one REM variable is generated.

It is hypothesized in Chapter-2 that, the adoption of IFRS will lead increase in accounting quality by making AEM costlier because of increased comparability, thus, marginally positive earnings firms' managers may appeal for implementation of REM in Continental-European countries. On the other hand, lack of comparability before the adoption of IFRS makes implementation of AEM less costly and under this circumstance managers of small positive earnings firms in Continental-European countries may prefer to use AEM which reduces the implementation of REM. Moreover, it is also hypothesized that, implementation of REM is already high in Anglo-Saxon countries before the adoption of IFRS as domestic accounting system of Anglo-Saxon countries were close to IFRS, which automatically makes firms' financial statements relatively more comparable.

Supporting the hypothesises, it is found that three of the REM techniques were not significantly implemented by small positive earnings firms in France and Germany before adoption of IFRS. Moreover, it is also found that same group of firms also not use REM techniques collectively before the adoption of IFRS. However, REM usage becomes a significant EM technique after adoption of IFRS. Small positive earnings firms in France and Germany use REM methods both separately and collectively after the adoption of IFRS. These results might be explained in two ways. First, increase in earnings quality by implementing new standards leads reduction in AEM and firms replace their AEM practising with REM. Secondly, it might be because adoption of IFRS leads an increase in comparability which might dissuade managers to implement AEM and they may make this decrease up for increasing in their REM employment.

Results supported the second hypothesis as well. It is found that managers of small positive earnings firms have been implementing REM techniques both separately and collectively in both before and after the adoption of IFRS. In additions to these, results of absolute REM variables suggest that REM is only used to increase earnings but not to decrease, by small positive earnings firms in both accounting regime and in both pre- and post-IFRS period. This might be because of the fact that, IFRS was already similar set of accounting standards with Anglo-Saxon system thus, adoption of IFRS did not cause a significant deviation in accounting practices of Anglo-Saxon countries.

In contrary of most of the one-model EM studies in the literature, I used three different econometric models are used in Chapter-2. The first model set is arguably the most popular one in the literature which is Roychowdhury's REM Model (2006) set. The second and third model sets are designed by Cohen et al. (2016) since they criticise Roychowdhury's Model set as it generates results with high Type-I error rate. The first model adopted from Cohen et al. is IOS REM Model set. This model is actually same with Roychowdhury's Model set in calculation of abnormal variables however in estimation of normal values of the variables, three IOS proxies are added into the model which are Tobin's Q, lifecycle of the firm and size of the firm. The last model adopted from Cohen et al. is PM REM Model set which is same with Roychowdhury's REM Model is calculation of normal variables, however differ from it in calculation of abnormal variables. Before calculation of abnormal variables firm-years are matched based on their performances. In this matching procedure, return-on-assets (ROA) is used as a proxy for performance. Firm-years are matched with each other as long as they are in the range of the firm's +/- 10% of the ROA. The observations are deleted if there is no possible matching observation within +/- 10% of the ROA range. Once firms are matched, then abnormal CFO, abnormal discretionary expenses and abnormal production costs of matched firm's values are subtracted from the firm that we are calculating its abnormal values.

In Chapter-2 Fama McBeth (1973)'s two-steps procedure is employed in analysing of the data. Fama-MacBeth (1973) procedure is composed of two steps. In the first step, a cross-sectional regression is performed for every time period and different coefficients are obtained for each period. And in second step, final coefficients are obtained by taking the average of the coefficients that are generated in the first step. So, in this study, first step regression is run cross-sectionally for every industry-year to obtain coefficients. And in second step, the estimations are used to get final coefficients through running a time-series regression. However, there is a need to consider autocorrelation and heteroskedasticity in this procedure. Thus, Newey-West procedure is applied to the procedure to generate errors robust to autocorrelation and heteroskedasticity.

In the next empirical chapter, which is Chapter-3, effects of firm-year level accounting comparability on EM preferences of the managers is investigated for the post-IFRS period. It is scrutinized whether firm-year level accounting comparability is a determinant of managers' EM preferences, and if so, how the mechanism of this interaction works. In additions to that, reaction of firms from different accounting systems to high level firm-year accounting comparability is also examined. It is stated in the literature that managers consider costs of possible EM methods and they decide which EM method will be implemented based on their relative costs. If AEM is costlier then managers prefer to implement REM and vice-versa. The reason of not considering REM costly when firm-year accounting comparability is high is that, REM methods are all based on operational decisions and claiming the changings in operational decisions as EM is not as easy as claiming the discretionary accrual changings as AEM. Thus, in Chapter-3 high level of firm-year accounting comparability taken as a cost for AEM only. As firms' accounting figures become more comparable, it is easier to detect if there is any implementation of AEM practices, which is an undesirable thing by the managers. Thus, under the conditions of existing high level firm-year accounting comparability, managers prefer not to implement AEM techniques and they prefer to employ REM methods.

It is hypothesized in Chapter-3 that, when the firms encounter high level of firm-year accounting comparability, managers avoid implementing of AEM techniques. It is also hypothesized that, when the firms encounter high level of firm-year accounting comparability, managers of prefer to implement REM.

Results of Chapter-3 support the hypothesizes. It is found that when firms face high level of firm-year accounting comparability, they avoid usage AEM techniques as tools to manipulate earnings. On the other hand, when firm-year level accounting comparability is high, they prefer to use REM, not only separately, but also collectively. In some additional analyses are done based on firms' accounting origins and it is found that, when firm-year accounting comparability is high, firms from Common Law accounting origins avoid implementing AEM techniques same as firms from Code-Law countries. However, firms that are from Common Law accounting origins do not make this up for implementing by REM techniques under higher firm-year level accounting comparability conditions. In contrast to that, firms from Code-Law accounting origins, increase their REM policies significantly which means that high firm-year accounting comparability reduces overall EM activities in Common-Law county originated firms, however, it does not dissuade the managers or mitigates their incentives to manage their earnings in Code-Law countries.

Results of Chapter-3 can be interpreted in a way that accounting comparability is considered as cost for AEM practices thus, managers prefer not to implement AEM under high-comparability conditions. On the other hand, managers prefer to shift to REM when accounting comparability is high. These results suggest that, high level of comparability brought by IFRS adoption in 2005 is inefficient in reducing overall EM under certain conditions since managers replace their AEM practices with REM practices. However, effect of accounting comparability on EM preferences vary based on firms accounting origins. High level of firm-year accounting comparability increase overall earnings quality by dissuading AEM and not to persuading REM in Common Law countries in contrary to Code Law countries.

Similar with Chapter-2, The REM techniques investigated in Chapter-3 are abnormal reduction in prices and offering lenient credit terms, abnormal cuts in discretionary expenses and abnormally high production levels. In additions to these, similar with Chapter-2, three different econometric models are used to detect existence of REM in Chapter-3. These models are Roychowdhury's REM Models and Cohen et al.'s IOS REM Models and PM REM Models. The way these models are run is same with it is done in Chapter-2. In additions to that, AEM is measured through Dechow's modified Jones Model together with proxy for performance (ROA) added by Kothari. Once the measures for AEM and REM are calculated, these variables are used in a model created by Byungcherl, to investigate the effects of firm-year level accounting comparability on EM preferences. Following Byungcherl (2016), the econometric methodology in this analysis is time-series cross sectional pooled ordinary least square regression with standard errors are corrected for firm-level clustering. Clustered standard errors are robust to correlation between error terms of same unit. In additions to that, clustered standard errors robust to heteroskedasticity within time. The methodology is determined after running Hausmann and Breusch-Pagan tests. However, in order to see if there is any contradiction, I also run the same regression with fixed-effect panel data analysis and the untabulated results were almost (except the degree of significance of some control variables) same with the results tabulated in this chapter based on time-series cross sectional pooled ordinary least square methodology.

In last empirical chapter, which is Chapter-4, the aim is to investigate the effects of the adoption of IFRS on the level of accounting conservatism by bringing two countries, Turkey and UK, into the focus. The paper also explores the effect of IFRS adoption on the level of accounting conservatism on two major accounting systems through comparison of Turkey and UK that can be considered as representatives of Continental Europe and Anglo-Saxon accounting regimes respectively.

Accounting conservatism is actually really interesting topic for not only academics but also regulators since future of the accounting conservatism is still subject to debates. IASB dismissed accounting conservatism from desirable qualitative characteristics of accounting information at September 2010, since it was thought that existence of accounting conservatism as a "desirable characteristic", arguably erodes another "desirable characteristics" which are neutrality and faithful representation. Surprisingly, after less than four years, at 2014, IASB declared that conservatism may be re-inserted into qualitative characteristics again (Robes and Stadler, 2014). So, this ambiguousness about the future of accounting conservatism makes the topic worth to new evidences.

Earnings quality has various benchmarks and accounting conservatism is considered as one of them. In Chapter-4, accounting conservatism is also used as proxy for earnings quality. Previous studies revealed that shifting from domestic standards to IFRS leads an improvement in earnings quality of adoption countries. Thus, it is expected that the adoption of IFRS leads to an increase in the degree of accounting conservatism. As IFRS is closer to Anglo-Saxon accounting system, rather than to Continental European Accounting system, increase in the accounting conservatism is expected to be higher for the countries where Continental Europe accounting system was prevalent before the adoption of IFRS. So, it is hypothesized in Chapter-4 that, the adoption of IFRS will lead increase in accounting conservatism in Turkey, as a follower of Continental European accounting regime. It is also hypothesized that adoption of IFRS will not have a significant deviation in accounting conservatism in UK.

Supporting the hypothesises, it is found that accounting conservatism was not prevalent in Turkish accounting system before the adoption of IFRS. In additions to that, there is a significant increase in conservative tendencies of Turkish firms after the adoption of IFRS. Moreover, existence of accounting conservatism is already significant before the adoption of IFRS in UK and IFRS adoption has not noteworthy impact on conservatism in UK.

In additions to main analyses, effect of inflation is considered in accounting conservatism studies for the first time. This analyse is done to see if inflation has any manipulative effect on the results of accounting conservatism. To be able to create hyperinflation free period, time span is narrowed down to cover between 2000-2010 only, since 1990's of Turkish economy was suffering from hyperinflation problem. The results show that models used in in Chapter-4 is robust to inflation as the outcomes of the models from inflation-free period support the findings of whole period.

Similar with Chapter-2 and Chapter-3, three different econometric models are used in Chapter-4 as well for the first time in the literature. These models are Basu's asymmetric timeliness model, Ball and Shivakumar's accounting conservatism model and Khan&Watts accounting conservatism models. It is important using these models as each model is criticized from different aspects and additional models are created based on the criticisms. So, the results are robust to these criticisms as long as the findings support each other. Basu models is designed based on the relationship between earnings and return. It is claimed in the specification of the model that earnings reflect bad news timelier than good news, however return reflect the good and bad news with same quickness. The asymmetry between earnings and return regarding reflection of good and bad news is the mechanism to capture accounting conservatism. The thing is that, specification of Basu model allow the researchers employ the model only for listed firms since the return figure is calculated based on price of the listed shares. Ball and Shivakumar designed a different model, which has the similar logic with Basu model however use different variables to capture conservatism that makes the researchers able to use the model in their studies on private firms' conservative behaviours. In Ball and Shivakumar model accruals and cash flows are used instead of earnings and return. The notion behind of this model is that, losses are more likely to be recognized in a timelier basis than gains and such asymmetric recognition is expected to cause higher correlation between negative cash flows and accruals because of the fact that gains and losses directly affect accruals. Khan and Watts model is designed on the backbones of Basu Model however they considered that there are two limitations in Basu model that are removed in their models. First limitation is that, the industry-year measure failed to detect cross-sectional alteration in the financial reports of individual firms because of the assumption that all companies in the sector are homogeneous. However, firms have different specific characteristics that have impact on their conservative behaviours which undermines homogeneity assumption. Second limitation is that, the time series of firm year measure obscures to detect the timing of changes in the conservatism of individual firms' financial reports by assuming that the firms' operating characteristics are stationary. Khan and Watts removed these limitations by running the model with Fama-MacBeth methodology, so they could capture both cross sectional and time series variations of individual firms.

Fixed-Effect Panel Data methodology is used to run Basu Model and Ball & Shivakumar Model. The selection of Fixed-Effect methodology is determined after running Breusch-Pagan Test and Hausmann Test as the probabilities of chi-square tests were both lower than 0.05. The results of Basu Model and Ball & Shivakumar Model have heteroskedasticity-robust standard errors. For Khan and Watts Model annual Fama-MacBeth methodology is employed.

This study has several contributions to the literature. Chapter-2 is the first study that scrutinizes the impact of IFRS adoption on the REM activities of marginally positive profit firms, particularly firms from different accounting origins. Despite, there are number of studies on the REM and meeting/beating earning targets, the correlation between REM behaviours of the opportunistic managers and accounting origins has not been addressed yet. There are numerous studies that examine REM activities of the companies based on specific countries or at international level. Nevertheless, these studies did not put accounting orientation of the countries on the focus of interest in their studies. In additions to that, this current study contributes to the literature by providing an ample understanding of impact of the IFRS adoption on the decisions of the REM behaviours of firms that have specifically marginally positive income with regard to their accounting origins by comparing three biggest economies of EU: UK, France and Germany. Best of my knowledge, this is the first study in the literature that puts marginally positive earnings firms into its focus as a comparative study. Moreover, this study is the first one that use Cohen et al.'s IOS and PM REM Models with real data.

Chapter-3 has also significant contributions to the existing literature. Chapter-3 is the first study that scrutinizes firm-year level accounting comparability only for IFRS period. In previous studies, accounting comparability was basically inspected by comparing two sets of accounting standards as pre-IFRS/domestic accounting standards/local GAAP period and post-IFRS period. However, the impact of firm-year accounting comparability for post-IFRS period has not been investigated yet. This study provides a new insight into accounting comparability and how it is perceived by the managers within IFRS period. Chapter-3 is also the first and only existence study that provides an insight into the impact of firm-year accounting comparability on executives' EM preferences between AEM and REM, within the EU. This is importantly vital to understand whether new accounting standards serve to its goal to improve earnings quality as expected. In additions, Chapter 3 is the first study in existing literature that investigates impact of accounting comparability on the EM choices of managers from different accounting origins. From this perspective, Chapter-3 provides a new insight into the understanding of accounting comparability and its effects on EM preference of managers from different accounting origins.

Chapter-4, which is the last empirical chapter, has also several contributions to the literature. The exclusivity of this chapter is a result of the fact that the effect of inflation has always been overlooked in the prevailing accounting conservatism studies. However, ignoring inflation might result in deteriorating effect on the results specifically in Basu Model. Basu model splits

the sample into two by using zero return as a point of division of the sample. Positive return and negative returns are considered as proxies for good news and bad news respectively. However, stock values are influenced by high inflation since the inflation reduces purchasing power. This can create an artificial increase in stock prices and automatically in stock returns which erroneously leads to classify negative return firms (bad news) as positive return (good news). Such inflationist effect has been taken into consideration for the first time in the literature and analyses are re-run separately for high-inflation free period.

Another contribution of Chapter-4 is that, it is the first paper that compares Turkey with another EU country regarding their accounting conservatism inclinations. This is a significant contribution to the existent literature because of the unique situation of Turkey in Europe. Turkey has historical and deep affairs with European Union. Thus, great number of regulatory reforms steps in Turkey have been taken collectively and in parallel with European Union authorities. The adoption of IFRS was one of them that was simultaneously taken by Turkey and EU at 2005. All Turkish listed firms have been subject to IFRSs since 2005 together with other firms which are listed in any other EU countries. However, since Turkey is not a member of EU, Turkey has been excluded from regional comparative study samples so far. Under the light of this fact, comparing Turkey and UK bridges the gap in the literature by providing a new and unique insight into literature from the aspect of the IFRS adoption and accounting conservatism.

Lastly, this chapter provides new evidences to the existing literature on whether and how accounting conservatism behaviours of the firms from different accounting origins respond to the IFRS adoption. Turkey had been following local GAAPs, that have very high correspondences with French-German GAAPs, while UK was following Anglo-Saxon accounting system, which is highly comparable with the current IFRSs. The adoption of IFRS causes, to some extent, exogenous shocks on accounting systems of the countries and the scale of shocks depends on degree of similarity between the accounting standards prevalent in pre-IFRS period and IFRSs. From this point of view, understanding the effects of IFRS adoption on conservative tendencies of the firms from different accounting origins will shed a light into the phenomenon of earnings quality and its relations with IFRS.

This study has important practical and regulatory implications through significant findings on earnings quality. IFRS adoption in accounting standards is still a continuing procedure all around the world. While IFRS adoption procedure is continuing through converging activities, financial reporting standards are keep evolving at the same time. Thus, in such a dynamic atmosphere, new and unique evidences provided in this study on adoption of IFRS and its

impact on earnings quality will shed a light upon the path of regulatory bodies in their creating unified international reporting standards efforts. Specifically results of this study provides a new and deep insight into perception of EM and accounting conservatism. When it is considered the fact that IASB has been trying to raise the quality of financial information in adopting countries since it was founded, results of chapter 2 and 3 will help to give directions to ongoing efforts regarding reduction of EM. It is clear from the results that, under certain circumstances, opportunistic managers keep manipulating earnings and they consider relative costs of EM methods. From this point of view, regulatory bodies should try to continue to raise the costs of both types of EM methods simultaneously, despite of the fact that the way to increase the cost of REM is relatively less easy. Because it is clear from the results of Chapter-3 that, increased comparability in financial statements is inefficient in reducing overall EM as most of the managers shift from AEM to REM that erodes away the gains obtained to reduce EM so far.

Regulatory implications of chapter 4 is also important but from a different perspective as the existence or non-existence of accounting conservatism is still subject to debates in regulatory and academic circles. When accounting conservatism is considered as one of the benchmarks of earnings quality, like it was done in the existing literature, protecting standards that make financial reporting conservative may increase earnings quality. In fact, findings of Chapter-4 suggest that adoption of IFRS is associated with higher quality via higher accounting conservatism in Turkey. From this point of view, results of chapter 4 will open a new window into further debates on accounting conservatism.

This study also provides practical implications for researchers. First of all, the way that inflation is considered in this study will give an idea about influence of inflation on accounting conservatism studies. Considering inflation is severely significant since there is a risk that inflation has deteriorating effect on return figure in Basu Model, which is one of the most popular models in the existing literature. Next practical implication of this study is that, it is first time in the literature that Cohen et al (2016)'s REM Model sets are employed in detection of REM. Although results of Roychowdhury's Models set and IOS and PM REM Model sets are not contradictory, it is emphasized in this study that Roychowdhury's REM Model set is subject of criticisms about the claim that its results suffer from high Type-I error rate, thus implementing additional alternative model sets is important for drawing more rational inferences.

Besides its significance, there are some limitations of this study as well. First of all, this study uses only listed firms' data, so the results cannot be generalized for SMEs. In additions to that, because of data requirement and lack of availability, Khan and Watts Model cannot be run for

the inflation-free period. Although other two models used in Chapter-4 support the hypothesises, investigating effect of accounting conservatism in Turkey by using Khan and Watts model for inflation-free period might be an interesting research area for the future studies.

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