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REAL EARNINGS MANAGEMENT ACTIVITIES, MEETING EARNINGS BENCHMARKS AND FUTURE PERFORMANCE: UK EVIDENCE

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Dedication

I dedicate this thesis to the memory of my mum who passed away during my studies, and to my beloved brothers, my aunts, my cousin, my beautiful wife, my nieces, my nephews and everyone who has shared this dream with me. I also dedicate this thesis to the soul of my father.

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Abstract

This thesis presents two essays on real earnings management and future performance. The first essay draws on empirical studies that examine the three types of real earnings management activities in the United Kingdom (UK) for firms that are more likely to manipulate their earnings to avoid missing earnings targets. These targets include the zero earnings, and last year's earnings. Also drawing from empirical studies, the second essay investigates the impact of real earnings management on firms' future operating performance in the UK.

In the first essay, I examine earnings management through real activities manipulation by using a sample of UK firms over the period 2009-2013. According to the transaction cost theory and opportunistic perspective of earnings management, the results of the first essay reveal that managers in UK suspect firm-years that manage earnings upward utilise more real earnings management activities to achieve earnings benchmarks opportunistically. Specifically, I find that (1) firms which manage upward earnings have unusually low cash flows from operations by offering price discounts or/and more lenient credit terms to increase sales; (2) firms that manage upward earnings have unusually low discretionary expenditures by cutting/reducing expenditures spending to improve reported margin and (3) firms which manage upward earnings, incur unusually high

production costs by producing more products to report lower costs of goods sold in order to achieve their targets.

Further, I find evidence that UK firms' meeting/beating earnings benchmarks around zero earnings and last year's earnings engage in sales-based manipulation and reducing/cutting discretionary expenses simultaneously; they also engage in overproducing products and reducing discretionary expenses at the same time. Furthermore, I do not find, however, evidence that managers in UK firms are associated with high real earnings management through sales-based manipulation to meet/beat last year's earnings. On the other hand, I find evidence that manager in UK firms engage in income-increasing earnings management through accounting choice (e.g., accrual-based earnings management) to meet an earnings target.

Motivated by agency conflicts of real earnings management (e.g., opportunistic and signalling perspectives), the second essay investigates whether there is an association between UK firms that manipulate their business operations to meet earnings benchmarks (e.g., zero earnings, last year's earnings) and subsequent operating performance. I implement Fama and MacBeth's (1973) regression analysis to examine the effects of the magnitude of real earnings management on firms' future performance. Empirical test results show that manipulation of operating activities such as sales, discretionary expenditures, and production costs to meet earnings benchmarks has a significant positive consequence for firms' subsequent operating performance and signals firms' good future performance. Further, I find evidence that firms that manipulate their operating activities in the absence of meeting/beating earnings benchmarks experience a decline in their

subsequent operating performance. The findings of this research lend support to our understanding of the process that management follows to evaluate costs and benefits of real earnings management.

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List of Figures and Tables

List of Abbreviations

UK	United Kingdom
AEM	Accruals Earnings Management
REM	Real Earnings Management
GAAP	Generally Accepted Accounting Principles
US	United States
R&D	Research and Development
SG&A	Selling, General and Administrative
COGS	Cost of Goods Sold
SEC	Securities and Exchange Commission
IPO	Initial Public Offering
SEO	Seasoned Equity Offering
LSE	London Stock Exchange
IASB	International Accounting Standard Board
FASB	Financial Accounting Standard Board
EU	European Union
CEO	Chief Executive Officer
PAT	Positive Accounting Theory
NACFE	The National Association of Certified Fraud Examiners
IFRS	International Financial Reporting Standard
SOX	Sarbanes-Oxley Act
CFO	Chief Financial Officer
FTC	Federal Trade Commission
ITC	International Trade Commission
SFAS	Statement of Financial Accounting Standards
SSAP	Statement of Standard Accounting Practice
SIC	Standard Industrial Classification
AFO	Advance for Office
OLS	Ordinary Least Square
VIF	Variance Inflation Factor
VCs	Venture Capitalists

Chapter One
Introduction

1.1 Overview of First Essay

Previous literature has studied three types of earnings management: accrual-based earnings management (AEM), real earnings management (REM), and classification shifting. Accrual-based earnings management occurs when managers adjust revenue or expenses accrual to alter the financial report; AEM has no direct cash-flow consequence and is therefore less likely to destroy long-term firm value (Dechow and Skinner, 2000; Dechow et al., 2010). Examples of AEM include provision for bad debt expenses and delaying asset write-offs.

On the contrary, real earnings management is another indirect way to manage earnings, which refers to the purposeful altering of reported earnings in a particular direction by changing the timing or structuring of financing, operating, and investing activities; REM influences the operations with direct effects on cash flows. While AEM and REM change in the bottom-line Generally Accepted Accounting Principles (GAAP) of income statement, classification shifting simply moves certain revenues, expenses, gains, and losses to different line items on the income statement; it does not actually change net income and has no impact on GAAP earnings (McVay, 2006; Fan et al., 2010). Further, classification shifting

occurs when other earnings management tools are constrained (Abernathy et al., 2014).

Since earnings are, however, the sum of accruals and operating cash flows, earnings can be manipulated through accruals and/or operating cash flows. Actually, earnings management research involves both accrual-based earnings management and manipulation of underlying real business activities. Prior literature extensively investigates accrual earnings management and presents evidence on the pervasiveness of accruals manipulation where it has been hypothesised that managers have incentives to manage earnings (e.g., Schipper, 1989; Dechow and Sloan, 1991; Jones, 1991; Dechow et al., 1995; Teoh et al., 1998a; Healy and Wahlen, 1999; Fields et al., 2001; Dechow and Skinner, 2000; Cheng and Warfield, 2005; Bergstresser and Philippon, 2006; Dechow et al., 2010; Alissa et al., 2013; Wongsunwai, 2013).

The earnings management literature has turned its attention towards an analysis of real earnings management after survey evidence supported by Graham et al. (2005). Graham et al. (2005) report that managers in United States (US) firms prefer to engage in real earnings management compared to accrual-based earnings management to manage earnings upward, regardless of whether it is detrimental to the firm's value in the long term. Real earnings management as an earnings management tool has been a primary topic of accounting research for decades. Later, after providing a comprehensive overview of real earnings management of operating activities, Roychowdhury (2006) develops an empirical method for real earnings management. This was motivated by Cohen et al.'s (2008) findings that, lately, real earnings management is becoming more prevalent than accrual-based

earnings management lately, reflected in a growing body of real earnings management studies (Xu et al., 2007; Cohen and Zarowin, 2010; Gunny, 2010; Badertscher, 2011; Zang, 2012; Alhadab, 2015; Cohen et al. 2016; Kothari et al., 2016).

Recent literature in real earnings management suggests that managers care about three thresholds when they report net income as a motivation for engaging in real earnings management (Burgstahler and Dichev, 1997; Degeorge et al., 1999; Graham et al., 2005; Roychowdhury, 2006; Osma, 2008; Gunny, 2010; Zang, 2012; Mindak et al., 2016). They do this to meet or just beat zero earnings such as avoiding a loss; to report earnings that are above zero; to meet or just beat last year's earnings such as sustaining recent performance; and to meet analysts' consensus earnings forecast. Real earnings management includes manipulations of real activities such as operating, investing, and financing activities. Specifically, it includes the following actions. First, the provision of more price discounts or more lenient credit terms boosts sales (Roychowdhury, 2006; Cohen et al., 2008; Gunny, 2010; Kothari et al., 2016). A second action involves cutting/reducing the discretionary research and development (R&D) expenses and cutting/reducing the discretionary selling, general and administrative (SG&A) expenses (Graham et al., 2005; Roychowdhury, 2006; Gunny, 2010; Zang, 2012; Kothari et al., 2016). A third action is overproducing to report lower cost of goods sold (COGS), and finally, timing the sales of fixed assets to report profit (Hand et al., 1990; Roychowdhury, 2006; Xu et al., 2007; Gunny, 2010).

Furthermore, recent studies find that US firms that manage earnings upward to meet/beat important earnings benchmarks use aggressive real earnings

management activities as a tool for earnings management. It is also found that trade-off real earnings management and accrual-based earnings management as substitutes (e.g., Graham et al., 2005; Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Gunny, 2010; Badertscher, 2011; Zang, 2012; Kothari et al., 2016).

1.2 Overview of Second Essay

To address how real earnings management may influence future operating performance, the second essay of the current study examines the consequences of real earnings management on firms' subsequent operating performance. Specifically, the study investigates whether UK firms that manipulate their sales, discretionary expenses and production around zero earnings and last year's earnings to report higher earnings realise an impact from these activities on future financial performance or not. I adopt Roychowdhury's (2006) and Gunny's (2010) criteria to identify firms that are more likely to manage earnings, and I also utilise two criteria to identify firms potentially engaged in real earnings management. Specifically, I achieve this based on the firms' ability to meet or just beat (1) zero earnings, and (2) last year's earnings.

Literature reveals two oppositional consequences of real earnings management. One view is the 'opportunistic earnings management' argument that managers who use real earnings management deviations from normal business strategy to manage reported earnings opportunistically mislead outside investors on their assessments of firms' performance (Healy and Palepu, 1993; DeFond and Park, 1997). Further, agency conflict such as adverse selection implies that managers have better

information that outside investors do not, and thus may not reflect all they know about the firm to shareholders. This may lead managers to engage in earnings management (e.g., accrual-based earnings management and real earnings management) in order to attain private gain (Jensen and Meckling, 1976). Specifically, firms reduce R&D expenditures to increase production to report lower cost of goods sold and boost current sales via price discounts or more lenient credit terms to reduce current sales and increase current earnings. Consistent with this view, when managers alter the timing and/or structure of an operation, investment, and/or financial transaction to meet/beat important earnings benchmarks, they apply sub-optimal business strategies and thus may experience deterioration in subsequent operating performance (Roychowdhury, 2006).

Literature documents that firms that engage in real earnings management experience a negative impact on subsequent financial performance and firm value (Bens et al., 2002, 2003; Ewert and Wagenhofer, 2005; Graham et al., 2005; Gunny, 2005; Francis et al., 2016). For instance, Bens et al. (2002, 2003) find that firms that manipulate their earnings by reducing R&D experience a marginally negative impact on future operating performance, and that future operating performance declines for several years. Gunny (2005) examines the consequence of real earnings management and finds that subsequent operating future performance shows a negative relation to real earnings management activities. However, the results reported by Gunny (2005) are based on her criteria for identifying firms engaged in real earnings management. Moreover, Francis et al. (2016) examine whether firms that utilised real earnings management to meet earnings benchmarks are

associated with subsequent stock price risk, which is due to mispricing of stock under REM.

Moreover, previous papers observe a decline in future performance among firms that engage in higher real earnings management to meet/beat the analysts' earnings forecasts (Zhang, 2008; Leggett et al., 2009; De Jong et al., 2014). Apart from future performance, previous studies document experience deterioration in subsequent operating performance among firms that engage in income-increasing earnings at the time of issuing equity offerings (Initial Public Offerings (IPOs) and Seasoned Equity Offerings (SEOs)). Previous literature also finds that firms which engage in income-increasing real earnings management at the time of issuing SEOs have a negative future operating performance in the post-offering period than other firms that engage in accruals-based earnings management do (Mizik and Jacobson, 2008; Cohen and Zarowin, 2010; Kothari et al., 2016). Further, prior literature has found that IPO firms that manage up earnings using real and accrual earnings management during the IPO year have a higher probability of IPO failure and lower survival rates in subsequent periods (Wongsunwai, 2013; Alhadab et al., 2015).

The opposite view is the 'signalling earnings management' argument; this claims that firms utilise real earnings management to signal their future good performance and distinguish themselves from the poor performance (Roychowdhury, 2006). Due to the information asymmetry between insiders and outside investors, investors usually do not have as much information as the managers. Therefore, managers may use earnings to communicate their private information on firms' future performance and thus improve earnings' informativeness (Demski, 1998; Kothari 2001; Sankar and Subramanyam, 2001; Arya et al., 2003; Louis and Robinson,

2005). Real earnings management may not necessarily experience more significant decline in firms' subsequent performance. For instant, manipulations of operating activities are less likely to significantly affect the operations of firms that occupy strong financial and market positions and intend to use earnings to communicate favourable private information about future performance (Zang, 2012). Consistent with this view, Gunny (2010) finds evidence that firms that manage earnings upward in order to meet/beat earnings benchmarks achieve a more positive impact on the client's cash flow and subsequent operating performance than do those that use REM.

Zhao et al. (2012) support Gunny's (2010) findings in their study, suggesting that used-only real earnings management offers more positive signalling effects about future firm performance than those firms that used only accrual-based earnings management, which supports the signalling argument that firms use real earnings management to signal good future performance. Moreover, previous papers have observed good future performance among firms that manipulated earnings to meet/beat the analysts' earnings forecasts (Bartov et al., 2002; Roychowdhury, 2006; Koh et al., 2007; Chen et al., 2010, Taylor and Xu, 2010).

1.3 Research Aims and Objectives

Recent literature in earnings management suggests that manager care about three thresholds when they report net income: to meet or just beat zero earnings (avoiding a loss, report earnings that are above zero); to meet or just beat last year's earnings (to sustain recent performance avoiding a negative earnings surprise); and to meet analysts' consensus earnings forecast. Graham et al. (2005) document that specific

motives are among the most important reasons for earnings management behaviour. Research focusing on real earnings management is becoming more common as an alternative mechanism to test earnings management on the part of managers. Therefore, the main purpose of this study is to investigate the manipulation undertaken by firms that are more likely to manage earnings by focusing on three types of real earnings management activities in the UK, and to contribute to the existing body of knowledge, as most studies in this field are US-based. Another aim of this work is to determine the association between real earnings management and firms' operating performance in the UK.

In order to achieve these aims, the following research objectives are determined:

- To examine whether managers in UK firms are utilising earnings management through three types of real earnings management to meet or beat important earnings benchmarks (e.g., zero earnings and last year's earnings).
- To investigate whether UK firms that manipulate their sales, discretionary expenses, and production costs around zero earnings and last year's earnings to report higher earnings realise an impact on future financial performance or not.

1.4 Research Questions

The two main research questions are stated, based on the defined aims and objectives.

Research question 1: Do UK firms engage in income-increasing real earnings management activities, specifically operating activities such as sales, discretionary expenditures, and production to meet/beat important earnings benchmarks (e.g., zero earnings and last year's earnings)?

Research question 2: Operating activities cause deviation from normal operational practices and thus could potentially lead to a decline in subsequent performance (Gunny, 2005; Graham et al., 2005; Roychowdhury, 2006; Bhojraj et al., 2009; Leggett et al., 2009; Cohen and Zarowin, 2010). Other evidence from prior studies suggests that real earnings management's effect on future performance is not uniform across firms. However, occasional and modest levels of real earnings management may not necessarily have a significant negative impact on firms' future operations; it could signal a brighter future performance (Gunny, 2010; Taylor and Xu, 2010). Further, manipulations of operating activities are less likely to significantly affect the operations of firms that hold strong financial and market positions and intend to use earnings to communicate favourable private information about future performance (Zang, 2012). Therefore, an important empirical question is whether manipulations of operating activities in the presence of meeting/beating important earnings benchmarks have, on average, significant negative or positive consequences for UK firms' subsequent operating performances.

1.5 Research Problem and Motivations

There is a lack of research on the important phenomenon of earnings management using three types of real activity in the context of the UK. Earnings management affects stakeholders not only in the US but also in other countries, including the

UK. However, research on the case in the US shows that since the Sarbanes-Oxley Act was introduced, there has been a decrease in the use of accruals earnings management. However, this encouraged managers to rely on real activities manipulation to deliver earnings (e.g., Graham et al., 2005; Cohen et al., 2008; Zang, 2012). If the presence of real earnings management activities is documented in this research, UK regulatory bodies could incorporate such a finding in future reforms to mitigate the possibility of the same negative outcomes that the US has experienced, thus avoiding undesirable consequences such as those that exist in the US and improving the reliability of accounting numbers. As a matter of fact, no research is found considering the costlier real activities earnings management in United Kingdom. To address this research problem, this study is motivated to examine the real earnings management activities in the UK. The potential findings of this analysis would be important not only to stakeholders of the firm but also to accounting regulators and investors. REM is one potential consequence of regulations intended to restrict the discretion of accounting earnings management (Gunny, 2010). There is, therefore, a strong incentive to investigate, empirically, the manipulation of real earnings management in different environment.

In addition, many economists have used earnings benchmarks to evaluate firms' performance and financial position; such benchmarks are viewed as key reference points for such assessment. Generally, managers will try to meet earnings benchmarks through normal business practices. However, they will resort to the use of earnings management if expected earnings fail to meet the desired threshold. Prior literature shows that managers use earnings management to meet a number of earnings benchmarks. These include the avoidance of reporting losses

(Roychowdhury, 2006; Osma, 2008), and avoiding reporting earnings decreases (Burgstahler and Dichev, 1997). Furthermore, achieving earnings targets helps firms to keep or enhance their credibility and reputation with stakeholders. However, real earnings management through sales based-manipulation to meet or just beat last year's earnings are still empirically untested. Therefore, this study is motivated to enrich the literature by providing evidence regarding whether managers manipulate real earnings management through sales based-manipulation to meet or just beat specific earnings benchmarks (last year's earnings).

Finally, the empirical evidence to which real earnings management affects future operating performance is limited to US data. Furthermore, some studies show negative impacts, while others show positive impacts (Gunny, 2010; Chen et al., 2010; Taylor and Xu, 2010; Zhao et al. 2012). In addition to the above, it has not been addressed in prior literature in the UK. Therefore, an important question is whether such deviations from the normal business strategy due to real earnings management have an impact on firms' future performances or not. Answers to the question can provide evidence on the consequences of real earnings management activities and enhance our knowledge about how management evaluates the costs and benefits of accounting standards that may interact with the use of real earnings management. In addition, examining the implication of REM on operating performance is important, given the significance of future performance to the firm and its stakeholders. Taylor and Xu (2010, p. 129) note that "If real earnings management leads to a significant decline in these firms' future operating performances, the negative consequences would at least partially offset benefits of the heightened regulation and potentially defeat the purpose of SOX". Therefore,

UK market regulators should pay close attention to mitigate and prevent such earnings management activities.

My study is motivated to conduct an examination of the research questions in the context of the UK, which offers an interesting background against which to address these.

First, the UK environment differs from USA in many ways that could affect the inferences of this research. For example, the mandatory adoption of International Financial Reporting Standards (IFRS) is compulsory in the UK.[1] Research has shown that IFRS has had a significant effect on company measurement and reporting methods, as documented by previous research. Barth et al. (2008), Chen et al. (2010) and Zeghal et al. (2012) offer evidence that firms in those countries that adopt the international accounting standard or IFRS tend to manage reported earnings less than those firms do in countries that do apply the domestic standard, thus leading to more timely loss recognition and more value relevant accounting measures. This infers that firms applying IFRS generally show an improvement in accounting quality of earnings management between the pre- and post- adoption periods, leading to more timely loss recognition and to more value relevant accounting measures.

[1] Since 1 January 2005, all listed companies from EU member countries are required to submit their financial statements in accordance with IFRS (EC Regulation 1606/2002), so all UK firms have decided to comply with IFRS from 2005. The implementation of IFRS by the International Accounting Standards Board (IASB), targets improving the earnings quality and obtaining comparability and transparency of financial reports. Moreover, and as suggested by JeanJean and Stolowy (2008, p. 483): "IFRS should reduce the amount of reporting discretion relative to many local GAPP, and in particular, push firms to improve their financial reporting." Further, IFRS adoption tends to increase the firm's market liquidity and a lower cost of capital and increase its equity valuation (Ball, 2006; Daske et al., 2008).

Ewert and Wagenhofer (2005) provide evidence that the presence of tighter accounting standards and less accounting flexibility lead managers to substitute accruals earnings management with real earnings management. Recent research has observed evidence consistent with a substitution between AEM and REM, depending on the relative costs and benefits (Cohen et al., 2008; Zang, 2012). Furthermore, Ferentinou and Anagnostopoulou (2016) examine AEM and REM before and after the adoption of IFRS, and find evidence that firms shift from AEM to REM after IFRS adoption, suggesting that firms switched from AEM to REM following the enactment of stricter legislation. Related studies (e.g., Chi et al., 2011) indicate that the level of real earnings management increases with a higher level of audit quality.

It is, however, more difficult to track REM for outsiders as it can be masked in the form of everyday business transactions, by involving, for example, decisions about changes in the timing or structuring of a transaction (Cohen and Zarowin, 2010). Under IFRS, for instance, research and advertising costs are expensed in the period in which they are incurred. Therefore, reducing these costs reported affects income. Developments costs are, in the first instance, *expensed* rather than *capitalised* due to uncertainty issues regarding the developing product (International Accounting Standard Board (IASB) 1998). Therefore, the postponing of development projects can also increase earnings.

Second, the incentives of earnings management are different to those found in the US. Ball et al. (2000) assert that, among common law nations that they have studied, the UK has the least regulated accounting, and least regulated litigations. The Securities and Exchange Commission (SEC) that regulates firms in the US has a

higher standard compared with the UK, which is regulated by common law.[2] Moreover, Browns and Higgins (2002) find evidence that UK firms have smaller holdings of stock than their US counterparts do, and thus suggest that managers in those UK firms have less incentive to manage earnings to avoid reporting bad news. However, in their 2005 study, Brown and Higgins suggest that differences in the expectations of management behaviour in different countries may go some way to explaining the differences in earnings management incentives. That is, there is no fixed status for earnings management behaviour; rather, it is context-dependent.

1.6 Methodology

I test two major hypotheses here: (1) UK firms that meet/beat important earnings benchmarks (e.g., zero earnings and last year's earnings) are more likely to engage in real earnings management activities to achieve earnings targets. (2) There is an association between UK firms that manipulate their sales, discretionary expenses, and production costs to meet/beat earnings benchmarks (e.g., zero earnings and last year's earnings) and future operating performance.

This study employs both descriptive/univariate and multivariate analyses to test the research hypotheses. The dataset is collected from *Datastream* and *Worldscope* databases for all firms listed on the London Stock Exchange (LSE) for the period 2009-2013. Due to the requirement for data to measure subsequent operating performance, I extend the sample to 2014. Excluded from the sample are firms belonging to the financial and bank institutions, and communication, transportation

[2] In addition, Ball et al. (2000) show that the impact of accounting standards on the valuation of assets and liabilities and the recognition of costs and revenues still differs widely across countries.

and utility industries, firms without sufficient data to calculate the proxies of real earnings management. The final sample consists of 4,487 firm-year observations.

One acquisition of the appropriate data, regressions analysis is employed and run by each industry-year to measure earnings management manipulation. Specifically, models developed by Dechow et al. (1998) – and as implemented by Roychowdhury (2006) – of abnormal cash flows from operations, abnormal discretionary expenses, abnormal production costs, and the two aggregate measures of real earnings management (REM_1, REM_2) and Kothari et al.'s (2005) model of abnormal accrual are run to measure accrual-based earnings management.[3] Finally, in order to measure the association between real earnings management and firm future performance, following Bens et al. (2002) and Gunny (2010), a regression model controlling for determinants of subsequent operating performance is used.

I use STATA 13 software to analyse the data, and implement univariate analyses to report the summary statistics for the variables used in the multivariate analysis. I employ the Fama-MacBeth approach to test empirically the research hypotheses of the first essay regarding income-increasing earnings management; that suspect firm-years are more likely to manipulate earnings compared with the rest of the sample. For the second essay, I employ pooled ordinary least squares (time-series cross-sectional) regression to empirically test the research hypotheses regarding the

[3] The first aggregate measure of real earnings management (REM_1) is the sum of abnormal production costs and abnormal discretionary expenses multiplied by negative one. The second aggregate measure of real earnings management (REM_2) is the sum of abnormal cash flows from operations multiplied by negative one and discretionary expenses multiplied by negative one.

consequences of real earnings management on firms' future operating performance. Chapter Four comprehensively explains the applied research methodology.

1.7 Summary of Findings

To examine whether managers in UK firms manipulate their financial reporting by utilising real earnings management activities in order to meet/beat important earnings benchmarks, I perform a series of analysis tests. The results indicate that managers in UK firms engage in three types of real earnings management activities (e.g., sales, discretionary expenditures and production costs) in order to achieve their targets around zero earnings and last year's earnings. Specifically, compared to other firms, firms that just meet/beat earnings benchmarks around zero earning and last year's earnings show lower cash flow from operations, discretionary expenditures, and higher production costs than the rest of the sample. In addition, UK suspect firm-years that utilise accruals-based earnings management have high abnormal accruals that are in line with income-increasing accruals management. This supports the hypothesis that firms that just meet/beat earnings benchmarks around zero earnings and last year's earnings exhibit unusually low cash flows from operations, discretionary expenditures and high production costs, and are more likely to engage in real earnings management activities. In other words, these results lend support to the income-increasing real activities manipulation hypotheses. According to the transaction cost theory and opportunistic perspective of earnings management, the results of the first essay reveal that managers in UK suspect firm-years that manage earnings upward utilise more real earnings management activities to achieve earnings benchmarks opportunistically.

To investigate whether UK firms that manipulate their sales, discretionary expenses and production costs around zero earnings and last year's earnings to report higher earnings realise an impact on future financial performance or not, this study examines the association between real earnings management and UK firms' operating performance. The results indicate that managers in UK suspect firm-years who engage in sales-based, discretionary expenditures and overproduction manipulations achieve better subsequent performance than other firm-years do, and convey a signal of superior future performance to the market. The results also indicate that UK firms' managers who engage in three types of real earnings management activities – by offering sales discounts or/and more lenient credit facilities, cutting discretionary expenditures, and producing more units in the absence of meeting/beating important earnings benchmarks – experience a decline in subsequent operating performance and perform worse in signalling future performance (value-destroying).

These results support the signalling earnings management argument that firms that meet/beat earnings benchmarks utilise real earnings management activities to convey their private information to signal their future good performance and distinguish themselves from poor performance; this subsequently enhances investors' ability to predict firms' performance. In the absence of meeting/beating earnings benchmarks, the results also support the opportunistic earnings management argument. Therefore, investors are misled on their assessment of firms' performance.

To determine whether the impacts of real earnings management on subsequent operating performance extend beyond one year, I perform additional tests.

Additional analysis suggests that firms that meet/beat earnings benchmarks by engaging in real earnings management activities perform better in subsequent operating performance in year two as well as in their performance in year one. Moreover, firms that miss earnings benchmarks but engage in real earnings management activities experience deterioration in subsequent operating performance in year two as well as in their performance in year one. Lastly, to correct the cross-sectional and time-series dependencies in the data, the Newey-West (1987) corrected Fama-MacBeth (1973) procedures are used in primary tests.

1.8 Structure of the Thesis

This thesis contains seven chapters. The current chapter (Chapter One) presents a brief outline of the thesis topic. It explores the research background of the study. It explains the aim, objectives, research motivations, and research questions. In brief, the research methodology adopted to accomplish the main aim and objectives is outlined, followed by a summary of the findings. The structure of the thesis is also outlined by providing a brief note on each chapter. The rest of the thesis is as follows:

Chapter Two – Theoretical Framework: This chapter explains the most common theories behind earnings management, such as information asymmetry, agency theory (e.g., signalling and opportunistic perspectives) and transaction cost theory, that researchers have employed to explain and analyse the association between earnings management and firm future performance.

Chapter Three – Literature Review: This chapter begins with a discussion of the definition of earnings management and earnings management methods, and distinguishes between various types of earnings management that can be used to manipulate earnings in accruals-based manipulations, real activity manipulation, and classification shifting. The next section of this chapter highlights the motivations that influence the earnings management choice of firms; this includes a discussion on the benefits of earnings management. The subsequent section of this chapter reviews prior literature related to earnings management and the association between real earnings management and firm future performance.

Chapter Four – Research Hypotheses and Methodology: This chapter formulates the hypotheses regarding the manipulation in firms' financial reporting through real earnings management activities and the consequences of the real earnings management activities on firms' future operating performance. This chapter also presents an overview of the data used in the empirical analysis; identifies the data sources; describes sample selection criteria; sets out definitions of the variables; and clarifies the implementation of independent variables. Further, statistics for the samples used in the two empirical chapters are presented and described, and the methods used to measure the dependent variable (real and accruals-based earnings management and future operating performance) are clarified.

Chapter Five – First Set of Empirical Results: This chapter is devoted to the first empirical essay that examines whether UK firms manipulate financial reporting through real earnings management activities to meet or just beat important earnings benchmarks. In addition, this study also examines whether UK firms manipulate financial reporting through accruals-based earnings management (Kothari et al.'s

2005 model) to meet or just beat important earnings benchmarks. The results of data analysis for the research hypotheses through both univariate/descriptive and multivariate analysis are presented in this chapter.

Chapter Six – Second Set of Empirical Results: This chapter presents the second empirical essay. This research question examines the relationship between real earnings management and future performance; that is, whether real earnings management activities have an impact on future operating performance of UK firms that meet and/or miss earnings targets. Additional analysis is also performed to investigate whether the reported results are sensitive to different variables' measures. The findings from the data analysis for the research hypotheses of the second empirical test results through both univariate/descriptive and multivariate analysis are presented in this chapter. This chapter also contains the first study to examine the magnitude of real earnings management on UK firms' future operating performance.

Chapter Seven – Conclusions: This chapter completes the thesis by providing a brief summary of the literature, research hypotheses and methodology, the results of descriptive and multivariate analysis, and sensitivity tests. Then, it outlines the contributions of the current study to the real and accrual-based earnings management and future performance literature along with the implications of the study. Finally, the research limitations and recommendations for further research are discussed.

Chapter Two
Theoretical Framework

2.1 Introduction

Literature reports the use of a number of theories to explain the role of earnings management as an aspect of accounting. Theories that offer an appropriate framework to explicate the effects of earnings management may be more applicable to some environments or even countries than others (Gray et al., 2015). Figure 2.1 summarises the key theories underpinning prior research and of the dominant theories that have played a key role in advancing earnings management. These are asymmetry theory, agency theory, and transaction cost theory. Accordingly, the chapter is structured as follows: section two briefly discusses the accounting choice. Section three reviews these three theories and their applicability to the research question of this study. Following this, section four discusses the two perspectives of earnings management. Finally, section five summarises the chapter.

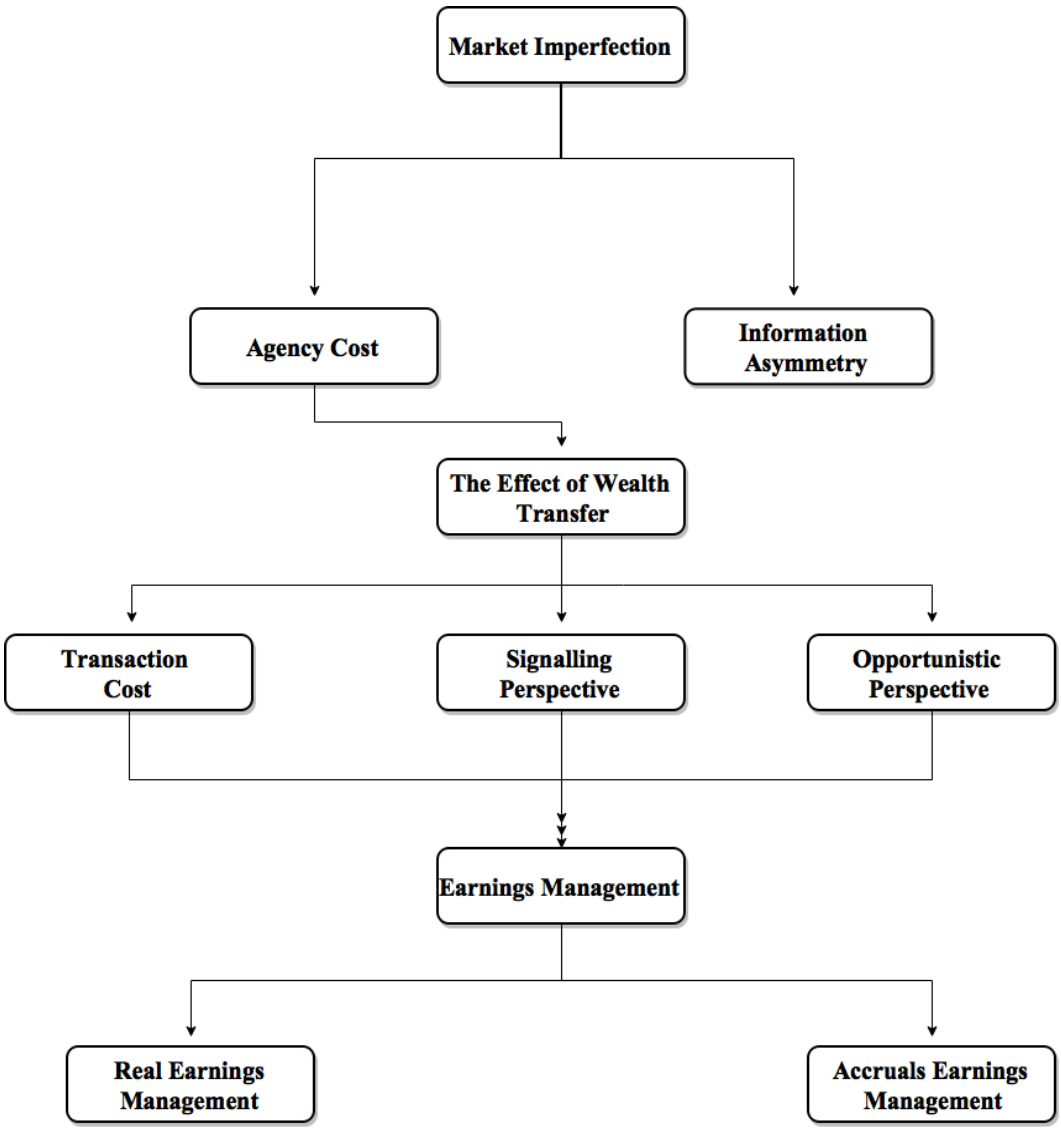

Figure 2.1: Theoretical Framework of this Study

2.2 Accounting Choice

The primary purpose of accounting choice, however, is to influence the output of the accounting system in a particular way[4], including real decisions of increasing production to reduce cost of goods sold and/or reducing R&D expenditures to increase earnings (Fields et al., 2001). Where firm managers are responsible for the preparation and publication of external accounting information, they must undertake the accounting choice processes based on their inside knowledge of the existing situation of the firm, in order to provide an objective portrayal of the financial status and performance of the firm. With respect to real decisions, the managerial intent is the key dominant factor in the accounting choice, whether the impetus behind the decision is to affect the output of the accounting system or whether the impetus emerges from other motives (Fields et al., 2001). Managers make accounting choices based on their decisions about what, how, and when to apply certain principles. This can influence perceived performance – the consequences of accounting choices. If the accounting choice is executed correctly, it could prove invaluable for facilitating the decision-making process of a range of interested parties, from investors, lenders and authorities to customers, suppliers and employees, with regard to investments, jobs and taxes, amongst other matters.

[4] According to International Accounting Standard Board 1 (IASB 1), the purpose of accounting is to provide information about the entity's financial performance, and the financial position of the entity, to assist decision makers to make economic assessments. However, the Securities and Exchange Commission (SEC) has the authority to enforce the accounting standard in the United State (US); this authority is stated in the Securities and Exchange Act of 1934. In the European Union (EU), the accounting standard is enforced by law.

2.3 Theories of Earnings Management

The prime theories employed in the earnings management literature and dominant theories that have had the greatest influence on the use of earnings management are asymmetry theory, agency theory, and transaction cost theory (Akerlof, 1970; Mitnick, 1973; Christenson, 1983; Watts and Zimmerman, 1986; Trueman and Titman, 1988; Burgstahler and Dichev, 1997; Jiraporn et al., 2008; Deegan, 2013).

2.3.1 Information Asymmetry Theory

In our world of imperfect and incomplete markets, efficient markets do not always prevail. Sun and Rath (2008) interpret the two types of market imperfections – information asymmetry and agency costs – to formulate the basic conditions for the existence of earnings management.[5] Asymmetric information refers to situations in which some agent in a trade possesses information not held by other agents involved in the same trade (Spence, 1973). This suggests that managers possess private information about the firm and its current and prospective earnings streams that current and potential shareholders do not have, which may allow them to manage earnings (Mirrless, 1999). The superior knowledge possessed by managers regarding firms' prospects is often the source of information asymmetry. The uninformed group tends to be the firm's investors (Copeland et al., 2005). This resulting power imbalance may affect the transactions concerned, leading to, at worst, and market failure. An example of such failure, provided by Wilson (2008) is adverse selection, while Ledyard (2008) suggests that two conflict outcomes may

[5] Akerlof (1970) discusses the problem of information asymmetry through studying the market for used cars, and brings the problem to the front of the important economic issues.

be moral hazard or information monopoly. In the case of moral hazard conflicts, which is one of the most common, managers' activities may affect negatively on the shareholders' interests as a result of information asymmetry between the two groups (Nygaard and Myrtveith, 2000). Concerning the second most common conflict type, adverse selection, means that managers may not reveal everything that they know about the firm to those external to the firm (e.g., shareholders) (Scott, 2003).

Literature, however, asserts that firms that are more information-ambiguous may engage in a higher degree of earnings management. This is because the more asymmetric the information is, the more difficult it becomes for stakeholders to monitor managers and hold them to account. Subsequently, it is easier for managers to manipulate earnings (Jiraporn et al., 2008). In contrast, if more information is known about the firm and its earnings, this may limit the extent of earnings management performed by firm managers (Richardson, 2000). Also, resource or incentive insufficiency, or inadequate access to information that sheds light on managers' activities can increase information asymmetry between managers and shareholders (Schipper, 1989; Warfield et al., 1995).

In fact, specific analytical models in several studies (Dye, 1988; Trueman and Titman, 1988; Christensen et al., 1999) highlight the importance of information asymmetry between a firm management and its stakeholders for managing earnings. Schipper (1989) reinforces this idea, although she proposes a less stringent version, suggesting that it is possible to eradicate the block communication by implementing contractual arrangements. Actually, the importance of information asymmetry for managing earnings was extended to posit that the level of earnings management

increases as the level of information asymmetry increases. When information asymmetry is high, stakeholders may not have the necessary information to undo the manipulated earnings. According to Richardson (2000), it may be that the fact that some firms have high levels of information asymmetry reflects the fact that their shareholders lack resources, incentives and/or the relevant information to monitor managers' actions. This may result in the practice of earnings management.

In terms of managing earnings over a prolonged period, a prime example lies in the instance where firms with debt contracts could potentially be motivated to evade debt covenant violations by managing their earnings over a prolonged period. In cases of high information asymmetry, the firms could undetectably adjust their earnings management around the debt contracts. As such, firms with high levels of information asymmetry present greater monitoring challenges than firms with less information asymmetry do. Generally, both the agency theory perspectives (beneficial and opportunistic) focus on the role of information asymmetry, as it causes an adverse selection problem by benefitting firm insiders to the detriment of outsiders. Essentially, the two groups will be privy to different information, with one having more accurate data than the other does. Thus, unlike the insiders who can ascertain the level of risk within the firm, the outsiders cannot assess the relevant information to draw their own conclusions (Chemmanur and Fulghieri, 1997). Managers, referred to as signallers, may feel driven to disclose information that best serves their own goals, particularly if their goals are entwined with the market value and activity of the firm. As explained by Cohen and Dean (2005) and Bruton et al. (2009), information asymmetry between the firm owner and potential Initial Public Offering (IPO) investors could lead to the top management signalling

data to the group of investors most likely to enhance the firm's value within the IPO procedure.

2.3.2 Agency Theory

An agency relationship is one in which "one or more persons (the principals) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent" (Jensen and Meckling, 1976, p. 5). Moreover, Mitnick (1973) identifies the problems of agency as (1) the principal's problem; (2) the agent's problem; and (3) policing mechanisms and incentives. Perhaps the most recognisable form of agency relationship is that of employer and employee, principal and agent (Mitnick, 1973) or shareholders (principals) and Chief Executive Officers (CEOs), associated with common solutions and a range of incentives contracts – these are debt contracts, management compensation contracts and employee contracts. Based on accounting numbers, contracts can diminish agency costs and increase the firm's value.

Earlier literature identifies that information asymmetry drives the agency problem, resulting in two agency-conflict types from the economic perspective. These are adverse selection and moral hazard (Ritter and Welch, 2002; Scott, 2003).[6] As a result, agency theory considers executive compensation one of the most effective solutions to address the impact of internal agency conflict and align the interests of the parties concerned (managers and stakeholders) (Jensen and Meckling, 1976; Watts and Zimmerman, 1986). This is because the financing structure influences

[6] Another classification for the agency conflict; namely, internal agency conflicts – executive compensation and external agency conflicts – bond covenants (Field et al., 2001).

the agency relationship between the shareholders and the managers whilst their conflicts of interest correlate with the executive compensation structure.

In their role as agents, managers are sometimes responsible for acting in their own interests, as opposed to meeting the interests of the principals – the shareholders. Therewith, managers have several reasons for maximising wealth, including their own status, remuneration and job security (Weir et al., 2002). It is therefore crucial that the shareholders firmly handle the agency problem as the conflict between the shareholders and the managers could adversely affect the performance of the firm. This is because the managers are more concerned with advancing their own wealth instead of that of the shareholders.

Confirming this view, prior literature shows that managers manipulate reported earnings upward utilising earnings management activities to meet performance-based compensation targets (Healy, 1985; Dechow et al., 1995). Fama and Jensen (1983) support this theory, confirming that the endurance of a company depends mostly on the control of agency problems. Briefly, the owners offer the managers compensation plans: if the management compensation value encompasses the anticipated managerial discretions, compensation contracts tend to increase the managers' expectations, thereby enhancing the level of the actual discretions (Watts and Zimmerman, 1986). Scott (1997) references this "unexpected" managerial discretion, as it leads to aggregate shareholder wealth. Conversely, within a contracting partnership, compared to other contracting parties, managers are less inclined to take risks. They will continue attempting to advance their own interests within the limits imposed by these contracts.

On the other hand, the external agency conflict-bond covenant involves another set of groups that have an important agency relationship between bondholders and shareholders, also dominated by a conflict of interest. Here, the bondholders attempt to increase the value of the firm's debts, while the shareholders try to increase the value of the firm itself (Brander and Poitevin, 1992).[7] To make sure that the debt expected return is the same as the return from other investments, the principals (bondholders) are dependent on the agents (shareholders) to enhance the debt value (Brander and Poitevin, 1992). This can result in the agency cost of debt covenant (for instance, a company's risks dictate the interest rates at which that company issues bonds or borrows debt (Jensen and Meckling, 1976). However, subsequent to the issue of bonds, managers could elect to engage in investment projects with higher risk attached, thereby increasing the shareholder value whilst decreasing the bondholder value. This is facilitated by the payoff structure, since bondholders can only share a fixed profit from projects, while their shareholding counterparts are the receptors of all the residuals. This means that, when the projects are successful, shareholders reap practically all the benefits and, when they are unsuccessful, the shareholders' losses are minimal, whilst bondholders could lose their loans (Jensen and Meckling, 1976).

Smith and Warner (1979) also point out that the firms that engage in higher risk endeavours are consequently seen to be riskier themselves, and so the bondholders should apply greater interest rates. As such, the ex-post change of asset risk level can lead to an over-investment increasing the bondholders' opportunity costs,

[7] Debt contracts could preserve a minimum amount of net assets to ensure the backing of outstanding debt by restricting dividend payments. Consequently, managers and shareholders will be less able to promote their own interests (Li et al., 2014).

whilst it could also take the wealth from the bondholders and transfer it to the shareholders; this effect is known as ‘wealth transfer’ or ‘asset substitution’ (Smith and Warner, 1979).

To control the consequences of the agency problem and the managers’ earnings manipulation, though, a new cost called ‘agency cost’ arises. Agency costs are incurred when managers and other parties seek to enhance not the firm’s value, but their own pay-off. This required monitoring the managers/agents to reduce the earnings management against the firm wealth (Jensen and Meckling, 1976). Hence, there are two types of bonding cost borne by the agent and wealth loss, which are borne by the principals when the agent’s actions do not maximise stakeholders’ welfare. Overall, agency theory assumes that managers are likely to act in their own self-interest, so, to ensure a successful organisation, and drawing from contract theory, mechanisms need to be introduced that ensure the interests of all concerned are met.

2.3.3 Transaction Cost Theory

Burgstahler and Dichev (1997) explicate that, based on transaction and information costs, investors derive economic decisions on heuristics or reference points such as zero level or earnings changes, as well on the ‘surprises’ that zero earnings generate. In this way, a loss, or decrease in earnings may send a negative signal to outsiders, particularly credit ratters and stock analysts who are assessing the firm. This signal in turn negatively affects a firm’s credit ratings and the costs of the debt, according to Dechow et al. (2000). However, outsiders may attach different weights to such a signal, depending on the firm’s previous signals. Burgstahler and Dichev (1997)

suggest that transaction cost theory could underlie the reason why companies report profit to avoid decreases in earnings. Two assumptions underpin this theory:

> i) "…Information about earnings affects the terms of transactions between the firm and its stakeholders and, more specifically, terms of transactions are generally more favourable for firms with higher, rather than lower, earnings." (p.122)

> ii) "…The costs of storing, retrieving, and processing information are sufficiently high that at least some stakeholders determine the terms of transactions with the firm based on heuristic cut-offs at zero levels or zero changes in earnings." (p.122)

Underpinning this theory is the assumption that people evaluate their choice against a point of reference, such as zero profit. Therefore, if we assume that the cost of managing earnings to attain a specific target figure is more or less constant, and that managers manipulate measures of profit to change the value assigned by the shareholders, we would expect management behaviour that intends to raise earnings above a particular point of reference. This represents zero-level profits (Burgstahler and Dichev, 1997).

Research supports the assumption that firms with higher earnings face lower costs in their transactions with stakeholders. Bowen et al. (1995) look at incentives to report higher earnings in the case of all stakeholders concerned (e.g., employees, customers and suppliers). Although there are other factors that imply disincentives to report higher earnings (e.g., regulated firms) the initial assumption is that the overall net effect incentivises the reporting of higher earnings.[8]

[8] Cornell and Shapiro (1987) attest that the value of the implicit claims of stakeholders (which is directly related to the firm's market value) reacts to information regarding the financial condition of the firm.

The second assumption is that stakeholders employ heuristics to work out the transaction terms with the firm; using heuristics is often in response to the information costs within economic models (Conlisk, 1996). Burgstahler and Dichev (1997) suggest that some stakeholders employ heuristic cut-offs at zero changes in earnings, or zero earnings, when it is costly for them to acquire and process earnings' details of all the firms they do business. DeAngelo (1988) investigates the choices that incumbent managers make regarding accounting during proxy conflict, and concludes that these managers avoid earnings decreases. DeAngelo also refers to evidence that is "... consistent with the hypothesis that incumbents exercise their accounting discretion to avoid reporting a net loss during an election campaign, perhaps because of the emphasis that dissidents accord these losses." (p. 26)

2.4 Perspectives of Earnings Management

Non-perfect conditions in the market influence managers to engage in accounting discretion in pursuit of their own self-interest, to the detriment of the shareholders. They also find opportunities to employ accounting discretion, which they then use to communicate information on their companies' performance to their investors (Trueman and Titman, 1988; Schipper, 1989). In the context of earnings management, these perspectives are reflected as opportunistic and beneficial.

Jiraporn et al. (2008) examine two competing views to explain the relation between earnings management and the agency theory. They investigate the beneficial use vs. the opportunistic use of earnings management presented under the positive accounting theory (PAT), as Watts and Zimmerman (1986) propose. The focus of

PAT is on how individuals collaborate/cooperate to provide resources to an organisation, and how accounting assists such relationships. In addition, because self-interest underpins individuals' actions and they will then act in an opportunistic manner to increase their wealth, this suggests that organisations will put in place mechanisms that align the interests of the managers and the owners. PAT offers some explanation for why managers choose certain accounting methods, based on self-interest, stakeholder relationships, and how financial accounting can reduce costs through the aligning of varying interests.

2.4.1 Opportunistic Perspective

In general, the opportunistic concept explains the discretionary behaviour of managers in relation to financial reporting. It clarifies top managers' job security and their incentives to manipulate earnings when they are faced with the possibility of losing their respective jobs. In addition, when CEOs also tend to reduce spending on research and development in their final employment years, possibly to increase reported earnings (DeAngelo, 1988; Suh, 1990; Dechow and Sloan, 1991; Guay et al., 1996; Subramanyam, 1996; Christensen et al., 1999; Bradshaw et al., 2001). Simply, opportunistic behaviour is the incentive for the choice of accounting methods, techniques, and policy decisions (Watts and Zimmerman, 1978; Christenson, 1983; Deegan, 2013), which leads the managers to manipulate earnings opportunistically to enhance either their compensation or their benefit. Healy (1985) supports this argument when he delineates the limits wherein managers are naturally more inclined to distort information in keeping with bonus schemes based on accounting earnings.

Therefore, earnings management practices are summarised by Watts and Zimmerman (1986) as three methods: bonus plan, debt covenant hypothesis, and political cost.[9] These methods seek to deceive the stakeholders and distort the actual economical state of the firm, thereby affecting contracts and allowing for more personal gain (Schipper, 1989; Healy and Wahlen, 1999). Later managers may apply practice to distort earnings via the existence of information asymmetry between them and external parties. Earnings may also be managed to meet capital market expectations. Consequently, several studies investigate whether managers, with incentives to manipulate earnings due to the nature of their compensation contracts, actually manage earnings (Jiraporn et al., 2008). Healy (1985) and Holthausen et al. (1995) find evidence that executives manage earnings downwards when their bonuses are at their maximum. Jiraporn et al. (2008) suggest two contradictory stances regarding the correlation between earnings management and the agency theory, concentrating on the use of earnings management in an opportunistic way, on the one hand, and in a beneficial way, on the other.

Furthermore, the first stance suggests that managers can take advantage of earnings management to maximise their own interests, with an adverse impact on shareholder wealth (e.g., Rangan, 1998; Teoh et al., 1998a; Kothari et al., 2016). Jiraporn et al. (2008) consider that managers are more likely to engage in opportunistic behaviour if their firm is facing with high agency costs. Essentially, managers aim to increase the value of earnings by making use of earnings

[9] Bonus plan assumes that if a manager is rewarded in terms of a measure of performance such as accounting profits, the managers will attempt to increase profits. The debt/equity plan assumes that managers exercising discretion by choosing income increasing accounting method to reduce debt constraints and the costs of technical default. Political cost assumes that firms will tend to show their profits lower by using different accounting methods and procedures so that the firm does not attract the attention of politicians (Watts and Zimmerman, 1986).

management to convey private information to shareholders and the general public. Gunny (2010) reinforces this notion, indicating that, in the long-term performance is favourably shaped by earnings management.

2.4.2 Beneficial Perspective/Efficiency Theory

From the beneficial perspective, managers can utilise earnings management to communicate private information to both the shareholders and the public to improve the information value of earnings (e.g., Watts and Zimmerman, 1986). This is what Jiraporn et al. (2008) argue relating to the use of earnings management in a beneficial way, where managers can enhance the information value of the earnings by utilising earnings management to convey private information to shareholders and the wider public and therefore help bridge the information gap between them (the managers) and the capital market. This in turn provides more timely measures of a firm's future performance (e.g., Holthausen and Leftwich, 1983; Watts and Zimmerman, 1986; Healy and Palepu, 1993; Guay et al., 1996; Subramanyam, 1996; Demski, 1998; Arya et al., 2003).

Subsequently, Jiarporn et al. (2008) postulate that when facing high agency cost levels, managers will act in self-interest and apply earnings management for the single purpose of disclosing private information. Nevertheless, the information perspective supports the notion that outsiders derive information about a firm's outlook and situation from earnings management. First developed by Holthausen and Leftwich (1983), this is also known as the signalling perspective, as the managers 'signal' the future of the firm to stakeholders. According to the information perspective, the purpose of accounting methods is to outline the

managers' expectations regarding the firm's cash flow and, if it were in their best interests to communicate information about their firm, they should be rewarded for providing information about the prospective cash flows of the firm.

Mulford and Comiskey (2002) observe that the managers' selection of accounting methods is informative for account users. They also report that earnings management "actively manipulates accounting results for the purpose of creating an altered impression of business performance" (Mulford and Comiskey, 1996, p. 360). Such an impression is not necessarily indicative that the earnings are any less pertinent. For example, it could be that the managed earnings are more indicative of the anticipated earnings than the unmanaged earnings; better depicting the financial risk that a firm faces.

Overall, the notion that earning management conveys helpful information implies that those using financial statements – particularly the shareholders and investors – would request earnings management. Two main factors underpin the shareholders' demand for earnings management. First, as predicted, a steady flow of reported earnings is seen to reduce capital costs of the firm. That same flow is also bound to influence potential investors' perceptions of the firm value. Consequently, share prices are likely to increase due to managers' manipulation of their reported earnings at a time when the current shareholders are in the process of selling to future shareholders. Hence, earnings management is beneficial to current shareholders as it helps them to secure higher sale prices later on (Dye, 1988). Whether this is done for their own interests (opportunistic) or for the firm's interest (beneficial), this decision is ruled by the contracting arrangements, compensation, and agency cost. However, this opportunistic or beneficial behaviour will either

result in harm to the firm and stakeholders' wealth (Kothari et al., 2016), or lead to a better future performance (Gunny, 2010).

2.5 Summary

Among the various theories discussed, information asymmetry and agency theory are the most popular and have received the most attention from academics and practitioners in the literature, specifically as a type that lead to market imperfection. In turn, information asymmetry leads to two main types of market failure – adverse selection, and moral hazard (Ritter and Welch, 2002; Scott, 2003; Bruton et al., 2009) – which are considered as necessary conditions for earnings management, and incentives to make accounting choices. However, the earnings management is significantly correlated to the information asymmetry level, particularly over prolonged periods. Agency theory has developed along two lines presented under PAT: opportunistic and beneficial perspectives (Harris and Raviv, 1978; Jensen, 1983). The latter stream finds that earnings management that is utilised opportunistically has a negative impact on shareholders' wealth (Teoh et al., 1998a; Fan, 2007); but that beneficial behaviour has a positive impact on shareholders' wealth (Jiraporn et al., 2008; Gunny, 2010). Consequently, to reduce the earnings management against the firm's wealth, new costs associated with monitoring and bonding with managers as well as with the residual losses arise – these are referred to as the agency costs (Jensen and Meckling, 1976).

Chapter Three

Background and Literature Review: Real Earnings Management Activities and Future Performance

3.1 Introduction

Graham et al. (2005) survey 400 US corporate executives and find that half of them cite earnings as the most important measure reported to the firm's stakeholders. Further, they present evidence that managers prefer manipulation of real operating activities to accruals management as earnings management tools. Since earnings play an essential role in valuation, contracting, and regulation, they are often the main target of managerial discretion. The role of accounting earnings is accepted in both accounting practice and research. For instance, Dechow et al. (1998, p. 133) note that,

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

This chapter clarifies the concept of earnings management. The chapter begins with a discussion of the definitions of earnings management and the factors that may encourage managers to practice it. After that, a brief clarification of the main methods of earnings management – i.e. accrual-based earnings management, real earnings management, and classification shifting – is stated. As the focus of this study is real earnings management activities, the subsequent section of this chapter

reviews extant literature related to earnings management and the association between real earnings management and firm's future performance.

3.2 Definitions of Earnings Management

Managers have the discretion to select reporting methods and estimates, and such discretion can be either firm-value maximising or opportunistic. Thus, two types of earnings management – opportunistic and informative – are employed to meet the objectives of management or shareholders. Earnings management is choosing an accounting treatment that is either opportunistic to benefit themselves by maximising their own utility and/or economically efficient (the market value of the firm) (Fields et al., 2001; Scott, 2003).

Another common definition is offered by a number of scholars (e.g., Ronen and Sadan, 1981; Demski et al., 1984; Suh, 1990; Demski, 1998; Sankar and Subramanyam, 2001). They observe that beneficial earnings management enhances the transparency of reports. In other words, earnings management involves taking advantage of the flexibility in the choice of accounting treatment to signal the manager's private information on future cash flows. Furthermore, under the information perspective of earnings management, "managerial discretion is a means for managers to reveal to investors their private expectations about the firm's future cash flows" (Beneish, 2001, p. 3). Stockholders benefit when earnings management is used to signal managers' private information (Healy and Palepu, 1993) or to reduce political costs (Watts and Zimmerman, 1986).

Studies in the filed extend evidence in support of the fact that the managers apply accounting discretion in general accepted accounting principles (GAAP) to manipulate accruals, largely via accounting choices and estimates (Healy and Wahlen, 1999; Dechow and Skinner, 2000; Beneish, 2001; Fields et al., 2001). On the other hand, accruals and operating cash flows can be used to manage earnings, which are made up of these two components. Indeed, studies in the past concerning the management of earnings have focused on both accruals management and the management of underlying real business activities. Three distinct definitions of earnings management have been formulated:

(a) Schipper (1989, p. 92) defines earnings management as "a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gains (as opposed to say, merely facilitating the neutral operation of the process)." He further asserts, "a minor extension of this definition would encompass "real" earnings management, accomplished by timing investment or financing decisions to alter reported earnings or some subset of it."

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

(c) The third, similar, definition of earnings management suggests that "earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of

> the company or to influence contractual outcomes that depend on reported accounting numbers" (Healy and Wahlen, 1999, p. 368).

These definitions imply that accrual-based earnings management takes place when managers control their reported earnings through exploitation of the accounting discretion associated with GAAP. On the other hand, real earnings management involve managers' efforts to alter their reported earnings by making suboptimal decisions on the timing and scales of underlying business activities. To distinguish accrual-based earnings management and real earnings management, Ewert and Wagenhofer (2005, p. 1102) note that accrual-based earnings management "includes the way accounting standards are applied to record given transactions and events" whereas real earnings management "changes the timing or structuring of real transactions. Real earnings management implies that the manager deviates from another wise optimal plan of actions only to affect earnings, thus, imposing a real cost to the firm" and is more harmful to the firm's future value. They further argue, "that an accounting standard setter can tighten standards to restrict the discretion for accounting earnings management, but can do little to restrict real earnings management." Roychowdhury (2006, p. 337) uses a similar definition and summarises real earnings management 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. These departures do not necessarily contribute to firm value even though they enable managers to meet reporting goals."

Xu et al. (2007, p. 3) also distinguish between accrual-based earnings management and real earnings management by mentioning that

> "accrual earnings management occurs when management manipulates reported earnings by exploiting the accounting discretion allowed under GAAP. In contrast, real earnings management involves management attempts to alter reported earnings by adjusting the timing and scale of underlying business activities."

Xu et al. (2007) classify real earnings management into two categories. The first involves operating and investing activities manipulation, such as discretionary expenditures, including research and development (R&D), selling, general and administrative expenses (SG&A), postponing of a new project, marketable securities, production, inventory, sales of long-term assets, and restructuring of investing transactions to take advantages of alternative accounting choices. The second category involves financing activities manipulation – for example, stock repurchases, financial instruments, and structuring of financing transactions.[10] Further, the reason for merging operating and investing activities is that many operating activities reported in cash-flow statements can be considered as investing activities. For instance, R&D is an example of such dual categorisation.

As argued by Roychowdhury (2006), in order to manage up earnings, managers make use of real earnings management activities such as reduction of R&D expenses, the timing of asset sales, overproduction, and providing more price discounts or/and more lenient credit terms to avoid reporting annual losses. In line with Roychowdhury's definition of real earnings management, managers' use of real earnings management to achieve various targets has been highlighted by many

[10] An example of a deviation in financing activities is stock repurchases. Stock repurchase reduces the number of shares outstanding and thus may increase earnings per share (EPS) under certain conditions. Hribar et al. (2006) mention that the only way that stock repurchase increases EPS when the earnings price ratio is larger than the foregone rate of return on cash paid for the repurchase. Further, timing may also affect the impact of repurchases on EPS.

studies, both theoretical and empirical (e.g., Ewert and Wagenhofer, 2005; Cohen et al., 2008; Cohen and Zarowin, 2010; Gunny, 2010; Zang, 2012).

Beneish (1999, p. 24) defines earnings manipulation as "an instance where management violates GAAP in order to beneficially represent the firm's financial performance." The question of whether earnings management activities violate or occur within the bounds of GAAP has also been studied. Beneish (1999), for instance, concentrates on earnings management activities, particularly earnings overstatement, that violate GAAP. He finds that, compared to firms that did not overstate their earnings, firms practicing overstatement were associated with a greater degree of insider trading. He also demonstrates that earnings manipulation is in violation of GAAP – a finding that corroborates previous definitions of earnings management proposed by Healy (1985) and Schipper (1989). Furthermore, Schipper (1989) observes that earnings management is a deliberate action, and that it includes any sort of manipulation that can affect financial reporting either through earnings numbers or any other accounting items, and can be either legitimate (within the bounds of GAAP) or illegitimate (in violation of GAAP).

The findings of the above-mentioned studies raise the question of whether earnings management activities do indeed violate GAAP, and if earnings management is actually a form of accounting fraud.[11] Addressing this issue, Dechow and Skinner (2000) outline the key differences between the two practices. From Figure 3.1, it is clear that earnings management activities do not violate GAAP. Thus, if earnings

[11] According to the National Association of Certified Fraud Examiners (NACFE) in 1993 (p. 12) Fraud is "the intentional, deliberate, misstatement or omission of material facts, or accounting data, which is misleading and, when considered with all other information made available, would cause the reader to change or alter his or her judgment or decision."

manipulations are legitimate (within the bounds of GAAP rules), this is considered earnings management. If it does not follow GAAP rules, it is considered accounting fraud. Moreover, such activities can be categorised into two types: accounting choices and real cash flow choices. Whilst the former (accrual-based earnings management) happen within the bounds of GAAP at the end of the fiscal year, the latter (real activities-based earnings management) have implications not only for current but also for future cash flows and take place throughout the fiscal year (Roychowdhury, 2006).

Reporting Type	Accounting Choices	Real Cash Flows Choices
	Within GAAP	
"Conservative Accounting"	Overly aggressive recognition of provision or reserve	Delaying sales
	Overvaluation of acquired in-process R&D in purchase acquisitions	Accelerating R&D or advertising expenditures
	Overstatement of restructuring charges and asset write-offs	
"Neutral Accounting"	Earnings that result from a neutral operation of process	
"Aggressive Accounting"	Understatement of the provision for bad debts	Postponing R&D or advertising expenditures
	Drawing down provisions or reserves in an overly aggressive manner	Accelerating sales
"Fraudulent Accounting"	**Violates GAAP**	
	Recording sales before they are "realisable"	
	Recording fictitious sales	
	Backdating sales invoices	
	Overstating inventory by recording fictitious inventory	

Figure 3.1: [12] The Distinction between Fraud and Earnings Management

[12] Source: adopted from Dechow and Skinner (2000, p. 239)

3.3 Earnings Management Methods

Since reported earnings are the outcome of accounting choices and the underlying business operations, firms may utilise alternative tools to manipulate their earnings. As observed by Lin et al. (2006), US firms utilise earnings management tools to meet or just beat analyst earnings forecasts. They find that such firms would inflate their accrual-based earnings management, manipulate their business activities, influence the operating cash flows, and opportunistically shift their expenses from core expenses (cost of goods sold (COGS) and selling, general and administrative (SG&A) expenses) to special items in order to enhance reported earnings.

Based on the definitions of earnings management set out in section 3.2, earnings however can be manipulated in a number of ways. Literature has observed three different types of earnings management. Accounting choices include a technique that biases financial reporting through (1) accrual-based earnings management (e.g., Schipper, 1989; Dechow et al., 1995; Healy and Wahlen, 1999; Fields et al., 2001), (2) classification shifting (e.g., McVay, 2006; Athanasakou et al., 2009; Fan et al., 2010; Hawa et al., 2011; Shirato and Nagata, 2012; Zalata and Roberts, 2016) and (3) real earnings management that deviates from normal business activities to enhance earnings (e.g., Dechow and Sloan, 1991; Bushee, 1998; Graham et al., 2005; Gunny, 2005; Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Gunny, 2010; Badertscher, 2011; Zang, 2012; Alhadab, 2015; Cohen et al., 2016; Kothari et al., 2016).

3.3.1 Real and Accrual Earnings Management

Earnings management can be classified into two common categories, namely accrual-based earnings management (AEM) and real earnings management (REM). Neither type of earnings management violates the generally accepted accounting principle (GAAP). Occurring at the end of the fiscal year and before the issuance of the financial statement, the former consists of generally GAAP accounting choices that attempt to "obscure" or "mask" the real economic performance (Dechow and Skinner, 2000; Dechow et al., 2010).

Accrual-based earnings management occurs when managers adjust revenue or expenses accrual to alter the financial report; AEM has no direct cash-flow consequence and is therefore less likely to destroy long-term firm value. There are a number of examples of accrual-based earnings management. These include under-provisioning for bad debt expenses (e.g., McNichols and Wilson, 1988; Admas et al., 2009); changing the depreciation methods for fixed assets (e.g., Teoh et al., 1998a; Skinner, 1993; Marquardt and Wiedman, 2004; Admas et al., 2009); deferred tax (e.g., Teoh et al., 1998a; Philipps et al., 2003); and delaying asset write-offs (e.g., Elliott and Shaw, 1988) that can bias financial reported earnings in a particular direction without changing the underlying transactions.

There are two situations where managers may have incentives to reported income increasing or decreasing by utilising accrual-based earnings management. First, when estimated change or expected future earnings fall short of the desired threshold, income-increasing accrual-based earnings management could be employed to ensure that earnings benchmarks are met, or even slightly exceeded. Second, in addition to income-increasing accrual-based earnings management,

managers may manipulate earnings through income-decreasing accrual-based earnings management to create a reserve that helps them to report a profit in the subsequent periods, which subsequently makes future targets more easily achievable (Scott, 1997; Levitt, 1998; DeGeorge et al., 1999; Barton and Simko, 2002, Nelson et al., 2002). For example, Levitt (1998) draws the attention of accounting scholars and practitioners to pervasiveness of income-decreasing accounting gimmicks including "big bath" and "Cookie Jar reserves". Healy (1985) defines "big bath" as the act of taking greater income-decreasing discretionary accruals, such as accelerating write-offs, or deferring revenues when the firms expect to miss earnings targets. Under this status, firms show to "save up discretionary losses or accruals and then record several in the same period or in a period in which the firm has already experienced below normal earnings" (Zucca and Campbell, 1992, p. 35).

Besides using accrual-based earnings management to manage/manipulate a firm's earnings, real earnings management is another indirect way to manage earnings. Further, real earnings management can be classified into three groups based on the classification of activities in the cash-flow statement include manipulations of (1) operating activities, (2) financing activities, and (3) investing activities. Specifically, this includes boosting sales by providing more price discounts or more lenient credit terms, cutting/reducing the discretionary research and development (R&D) expenses, cutting/reducing the discretionary selling, general and administrative (SG&A) expenses, overproducing to report lower cost of goods sold (COGS) and timing the sales of fixed assets to report profit (Roychowdhury, 2006;

Gunny, 2010). As this study focuses on real earnings management activities, I discuss its features and techniques in more detail in the rest of this chapter.

3.3.2 Classification Shifting

Recent research finds evidence of another activity of earnings management, classification shifting; and this occurs within the bounds of GAAP, but is not considered as real or accrual earnings management (e.g., McVay, 2006; Athanasakou et al., 2009; Fan et al., 2010). The Securities and Exchange Commission (SEC) has explicitly indicated that the issue of classification shifting is important by stating, "The appropriate classification of amounts within the income statement is as important as the appropriate measurement or recognition of such amount" (SEC, 2000). However, increasing current earnings using the former two methods has the potential to reduce future earnings. Since classification shifting simply moves certain revenues, expenses, gains, and losses to different line items on the income statement, it does not actually change net income. As a result, classification shifting is likely to be less costly and less scrutinised by auditors and regulators (Nelson et al., 2002).

Managers' usage of classification of items in the income statement for purposes of earnings management was examined by McVay (2006), who concludes that managers opportunistically shift expenses from core operating expenses (e.g., cost of goods sold and selling, general, and administrative expenses) to special items. As such, the "street earnings", which are the earnings numbers specified by analysts' forecasts, are overestimated by the expenses outlined in the statement. Managers use classification shifting as a tool of earnings management to meet/beat earnings

benchmarks (McVay, 2006). McVay (2006) sets out some of the reasons for managers' greater willingness to use classification shifting than accrual and real activity as an earnings management tools. First, while real and accrual earnings management change in the bottom-line GAAP of income statement, i.e. reported earnings, classification shifting manipulates core earnings without having any impact on GAAP earnings (McVay, 2006; Fan et al., 2010). For instance, a shift can take place from a non-operating item to an operating item with the purpose of showing better performance. Second, classification shifting is less likely to draw auditor or regulatory scrutiny. Examining whether internal corporate governance constrains classification shifting, Zalata and Roberts (2016) find that high-quality internal governance mitigates classification shifting. This suggests, therefore, that robust internal governance tends to act as a substitute for strict accounting standards. Finally, manipulation of earnings through accruals or real activities affects future earnings, with no 'settling up' cost of sacrificing economic benefit in future periods, which makes it less costly compared with the other two types.

Fan et al. (2010) find that managers tend to report core expenses as special items to inflate earnings, and this is more pronounced for firms that are motivated to meet/beat earnings benchmarks. Specifically, they further report that manager increase reported earnings by utilising classification shifting in the fourth fiscal quarter to meet/beat earnings benchmarks. In addition, Abernathy et al. (2014) find that managers are more likely to use classification shifting when other earnings management tools (e.g., real and accrual earnings management) are constrained.

Moreover, classification shifting has also attracted attention on an international level because firms often have greater discretion over classification of revenues and

expenses under the International Financial Reporting Standard (IFRS) (e.g., Hawa et al., 2011; Shirato and Nagata, 2012). Further, there has been a great deal of discussion about the practice of classification shifting by UK firms. For example, focusing on three earnings management tools – i.e. – real earnings management, accrual-based earnings management, and classification shifting, Athanasakou et al. (2011) provide evidence suggesting that UK firms' earnings forecast guidance and classification shifting be utilised to meet analysts' expectations. In addition, Athanasakou et al. (2009) find evidence suggesting that large UK firms utilised classification shifting of core expense to non-recurring items to manage earnings upward to meet/beat earnings benchmarks to avoid negative earnings surprise.

3.4 The Difference between Real and Accrual Earnings Management

There are many reasons that may prompt managers to choose real earnings management instead of accrual earnings management. First of all, ex-post aggressive accounting choices with respect to accruals are at higher risk for Securities and Exchange Commission (SEC) scrutiny and class action litigation (Ewert and Wagenhofer, 2005; Graham et al., 2005).[13] Cohen et al. (2008), for instance, find that managers changed their approach following the Sarbanes-Oxley Act 2002 (SOX), generally switching from using accrual earnings management to real earnings management following its implementation.[14] Their results explain

[13] Firms that aggressively manage earnings by utilising accrual-based earnings management have higher risks of regulatory scrutiny (auditor litigation) and shareholder lawsuits (Dechow et al., 1996; DeFond and Subramanyam, 1998; Heninger, 2001).

[14] The collapse of companies such as Enron, WorldCom, and the auditing firm Arthur Andersen increased investors' concerns about the integrity of financial reporting. The Sarbanes-Oxley Act was issued by the Securities Exchange Committee on 30th July 2002 after the big accounting scandals in the US to remedy corporate governance failures that had allowed the scandals to occur.

decisions in terms of the restricted ability to manipulate accrual accounting. Second, the firm may be restricted in its ability to manipulate accruals. Real earnings management, in contrast, is more flexible[15], since its activities can be managed all through the fiscal year (Roychowdhury, 2006; Gunny, 2010).

Real earnings management is associated with actions taken by managers to manipulate the timing or structure of an operation, investment, and/or financial transaction, usually in an attempt to impact upon the accounting system's output. That is why prior literature has often focused on analysing managerial discretion in relation to a number of actions. These include reduction in expenditure on research and development (R&D), advertising expenses, selling, general and administrative (SG&A) activities, and boosting sales by offering greater price discounts or more lenient credit terms. Other actions include timing the sales of fixed assets to report profit, and overproduction of inventory to report lower cost of goods sold expense to enhance current-period earnings (e.g., Baber et al., 1991; Dechow and Sloan, 1991; Bartov, 1993; Bushee, 1998; Cheng, 2004; Roychowdhury, 2006; Gunny, 2010; Sohn, 2016). Although both types of earnings management are associated with the managers' endeavours to manipulate their earnings, they differ in that one type influences the operations (with direct effects on cash flows, whereas the other has no effect whatsoever on operation activities.

given that the purpose of SOX is "to protect investors by improving the accuracy and reliability of corporate disclosures."

[15] Cheng (2004) finds that firms which manage earnings upward through accrual-based earnings management with less accounting flexibility are more likely to miss their own analysts' earnings forecasts consensus as real earnings management becomes relatively less costly (Ewert and Wagenhofer, 2005; Zang, 2012).

Further, Graham et al. (2005) find strong evidence that CEO firms choose real earnings management instead of accrual earnings management to avoid the scrutiny of regulators and thus to improve accounting appearances. Further, some economists (Cohen and Zarowin, 2010; Chi et al., 2011; Zang, 2012) examine the trade-off between real and accrual-based earnings management for firms using a high-quality auditor. Cohen and Zarowin (2010) document a trade-off between real and accrual-based earnings management for seasoned equity offering firms, and find that SEO firms that are audited by high-quality auditors (Big N audit) are more likely to engage in real earnings management around the time of seasoned equity offerings (SEO) because their ability to manipulate accrual-based earnings management is constrained. Similarly, Chi et al. (2011) document a trade-off between real and accrual-based earnings management for firms that have strong incentives to inflate earnings in order to meet or just beat earnings benchmarks. They find that the probability of these firms to employ real earnings management increases when they are audited by high-quality auditors to avoid monitoring of accrual-based earnings management; and they also show a negative association between accrual-based earnings management and Big N auditors.

Furthermore, Sohn (2016) examines the effect of accounting comparability on AEM and REM and finds that, when their firm's accounting is more comparable with that of other firms, AEM decreases but REM increases. Conversely, Zang (2012) does not find a trade-off between real and accrual-based earnings management around earnings benchmarks, and finds that managers use the two common types of earnings management as substitutes in managing earnings. In

other words, she does not find a positive association between real earnings management and Big N auditors.

Furthermore, accrual-based earnings management is constrained by the ability that managers have to manage earnings upward by business and accrual manipulation in previous years (Barton and Simko, 2002). Moreover, managers cannot be sure about the accounting methods sanctioned by their auditors, since accruals management occurs at the end of the fiscal year (or quarter). Unlike operating decisions, accounting choices are not controlled by the managers, but by the auditors. Conversely, since accrual earnings management occurs after the end of the fiscal year, when earnings transparency is most necessary, it might be a better option than real earnings management, which takes place before the end of the fiscal year. In addition, accrual-based earnings management is more costly in the short term, whereas real earnings management affects a firm's cash flows, which has negative consequences on a firm's operating performance and stock return performance in the long term (Graham et al., 2005; Cohen and Zarowin, 2010; Kothari et al., 2016).

3.5 Earnings Management Motivations

In order to achieve a good stock market performance and financial position, managers are incentivised to manage earnings based on accounting numbers not only to maximise the value of firms but also to extract private benefit (Healy and Wahlen, 1999). However, an enormous body of literature that explains the association between earnings management and different motivations. In turn, this

association may influence the earnings management choices of firms. According to Healy and Wahlen (1999), the three reasons to motivate earnings management are:

(1) Capital market incentives such as meeting or beating important earnings benchmarks, e.g., report positive profit, avoiding earnings decrease and avoiding negative earnings surprises (Burgstahler and Dichev, 1997; Degeorge, et al., 1999; Dechow and Dichev, 2002; Graham et al., 2005), and manipulating earnings around specific stock market situations such as an initial public offering (IPO) or a seasoned equity offering (SEO) (Rangan, 1998; Teoh et al., 1998a, 1998b).
(2) Contractual incentives such as meeting performance-based compensation targets, or to avoid debt covenant violations (DeFond and Jiambalvo, 1994; Sweeney, 1994; Cheng and Warfield, 2005; Bergstresser and Philippon, 2006).
(3) Political cost and regulatory incentives (Jones, 1991; Hang and Wang, 1998; Efendi et al., 2014).

There is, however, no crucial evidence on the best activities of earnings management to meet/beat a particular goal over others. In the following sub-sections, I review and discuss these incentives issues.

3.5.1 Capital Market Motivations

3.5.1.1 Earnings Benchmarks

Prior literature documents three important earnings management benchmarks that managers employ in their choice to meet or beat benchmarks: (1) reporting positive

profit (Roychowdhury, 2006; Osma, 2008); (2) avoiding earnings decrease (Burgstahler and Dichev, 1997); and (3) avoid reporting negative surprises (Dechow et al., 2003; Brown and Caylor, 2005; Graham et al., 2005).

In terms of stock market motivation, managers manipulate earnings to report positive profits and avoid negative earnings surprises. Burgstahler and Dichev (1997) find that using earnings through accrual accounting and cash flows from operations to report positive profit and avoid earnings decline. More specifically, they find that more than half of firms manage earnings to report positive net income or to raise small earnings. Degeorge et al. (1999) present similar evidence on earnings management manipulation to meet earnings benchmarks and find that managers may report positive profit but, once profitability is reached, they attempt to meet analysts' consensus earnings forecasts. Roychowdhury (2006) also supports the findings from Burgstahler and Dichev's (1997) study. Based on a sample of 4,252 firms from 36 industries, he finds that managers in US firms manage earnings upward by using price discount and more lenient credit terms to achieve a number of outcomes. These include temporarily boost current sales, reduce/cut discretionary expenditures and increase production to report lower cost of goods sold to meet/beat two earnings benchmarks: analysts' consensus earnings forecasts, and report positive profit.

Furthermore, firms can manipulate their real earnings management activities depending on whether the need is to meet/beat analysts' consensus earnings forecasts. For instance, R&D expenditures are not capitalised but usually classed as expenses. However, firms that capitalise R&D spending do not cut R&D expenditures. One British Pound spent on R&D means one British Pound less in

reported earnings. When managers are under pressure to meet/beat analysts' consensus earnings forecasts, they may cut R&D expenses spending to boost current earnings. Osma and Young (2009) examine the relation between two earnings benchmarks: positive earnings and earnings growth and change in R&D expenses. Using a sample of 700 UK firms' capitalisers and expensers over the period 1989-2002, they find evidence that the probability of subsequent cutting of current R&D spending increases when firms fail to report positive profit and earnings growth. They also find evidence that managers in UK firms cut strategic investment, such as current R&D investments to meet earnings targets. In a recent study, Mindak et al. (2016) examine whether firms manage earnings upward or downward to beat three important earnings benchmarks; namely zero earnings, last year's earnings, and analysts' forecast. They find that firms that meet or just beat important benchmarks are managing earnings upward.

3.5.1.2 Initial Public Offerings (IPOs)

Most empirical research supports the view that firms on average opportunistically manage up earnings before or during a specific stock market situation, such as an initial public offering. This evidences that IPO firms manipulate earnings upward on both real earnings management and accrual earnings management in order to increase the IPO stock price (Ritter, 1991; Aharony et al., 1993; Friedlan, 1994; Teoh et al., 1998b; DuCharme et al., 2001; Roosenboom et al., 2003; Morsfield and Tan, 2006). Teoh et al. (1998b) find evidence that US IPO firms – on average – opportunistically manage up earnings by utilising income-increasing accrual-based earnings management during the year of IPOs. However, IPO firms with high levels of accrual earnings management significantly underperform in the market for three

years following the IPO and thus lead to misled investors during IPOs by earnings management. Furthermore, Morsfield and Tan (2006) who examine the effect of participation of venture capitalists on earnings management by IPO firms, find evidence consistent with Teoh et al. (1998b); they also show that utilised earnings management (discretionary accruals) of IPO firms that are backed by venture capitalists manage earnings less than other IPO firms.

DuCharme et al. (2001) examine earnings management and subsequent performance of IPO firms. They show that abnormal accrual earnings management during the IPO year is negatively related to post-IPO stock returns and is positively associated with initial firm's value. Roosenbooma (2003) finds that managers of IPO firms manage accrual earnings management aggressively in order to increase the share price of IPO in the first year after the IPO but not in the years before the IPOs. Further, they find evidence that IPO firms with high levels of accrual earnings management experience significantly negative stock performance for three years following the IPO.

Some research interprets high levels of earnings management as aggressive, pernicious earnings management. A different perspective exists against opportunistic earnings management around IPOs and there is empirical evidence to support this view (Ball and Shivakumarb, 2006; Fan, 2007; Armstrong et al., 2009). Fan (2007) examines the interaction between earnings management and owners' retention of shares and finds that discretionary accruals are the highest in the IPO year. His finding shows a positive correlation between discretionary accruals in the IPO year with future earnings leads him to conclude that accruals are a credible signal from high-quality IPO firms. His finding also provides further support that

earnings and owners' retention of shares are positively priced in valuing an IPO firm.

Ball and Shivakumarb (2006) study earnings quality around the time of IPO in the UK and they find that UK IPO firms begin reporting more conservatively prior to IPO. In addition, they find no evidence that managers in UK IPOs firms opportunistically inflate earnings prior to IPO. Moreover, Armstrong et al. (2009) examine the magnitude of discretionary accruals around IPOs and find no evidence of a relationship between accruals manipulation and the four incentives for managers to manipulate earnings (e.g., IPO issue price, post-IPO stock return, insider trading, and CEO compensation). Specifically, they attribute negative correlation between accrual earnings management and the year of IPO issue price and post-IPO stock return performance to cash-flow mispricing. Further, Alhadab et al. (2016) examine REM and AEM during the year of IPOs in both UK markets (Main Market and Alternative Investment Market (AIM)) and find that IPO firms engage in REM during the year of IPOs. Specifically, IPO firms on the AIM manage earnings upward through manipulating their sales and accrual earnings management, and engage in lower levels of discretionary expenses linked to IPO firms on the Main Market.

3.5.1.3 Seasoned Equity Offerings (SEOs)

A large body of research has presented evidence that firms engage in income-increasing earnings management activities to enhance reported earnings before issuing stocks (SEO) (Rangan, 1998; Teoh et al., 1998a; Yoon and Miller, 2002; Lee and Masulis, 2009). For example, Rangan (1998) and Teoh et al. (1998a)

examine the relation between discretionary accruals as a proxy earnings management and the performance of seasoned equity offering; they find that US firms make SEOs manage earnings upwards in the quarter of, and the quarter after, the SEO to meet the threshold of stocks offering. Specifically, they provide evidence that discretionary accruals grow before the offering, peak in the offering year, and decline subsequently, resulting in earnings increasing before the offering and being highest in the SEO year and declining afterwards. Further, they also find evidence that earnings management (e.g., firms with a high level of accrual earnings management) which takes place during offer years is negatively associated with post-SEO stock market performance.

Further, Lee and Masulis (2009) investigate the effect of accounting information quality (measured by discretionary accruals calculated using the Modified Jones Model) on SEO underwriting fees. Based on a sample of 963 US SEOs over the period 1990-2002, Lee and Masulis (2009) provide evidence suggesting that US firms aggressively manage earnings upward through income-increasing discretionary accruals in the year prior to the equity offering (SEOs). Further, they provide evidence that a firm with poor accounting information quality is associated with higher flotation costs in terms of (1) larger underwriting fees, (2) larger negative SEO announcement effects, and (3) a higher probability of SEO withdrawals.

Earlier literature has focused on discretionary accruals, total accrual and specific items of accrual-based manipulation during the year of SEOs (e.g., Teoh et al., 1998a; Ragan, 1998; Shivakumar, 2000; DuCharme et al., 2004; Marquardt and Wiedman, 2004). However, managers also have the option to increase reported

earnings through real earnings management activities before issuing stocks (Cohen and Zarowin, 2010; Kothari et al., 2016). Cohen and Zarowin (2010) and Kothari et al. (2016) present new evidence that managers of SEO firms engage in both income-increasing real-based and accrual-based earnings management manipulations during the year of issuing stocks (SEO). Further, they find that the SEO firms that manipulate earnings in both income-increasing real earnings management activities and accrual earnings management have poor operating performance and stock return performance in the post-offering period while the decline assigned to real earnings management is greater than that assigned to accrual earnings management.

3.5.2 Contracting Motivations

The empirical studies on the contractual motives for earnings management focus on two important contracts affecting firms' discretion. These are compensation contracts of the firm's executive and lending contracts of the firm, and they are created to reduce potential agency problems. Compensation contracts of a firm's executive typically consist of base salary and earnings based-compensation deal with the conflicts between managers and shareholders of a firm. Further, compensation contracts of a firm's executive include incentives that encourage managers to maximise the firm's value (Smith and Watts, 1982). Lending contracts are concerned about the potential conflicts between shareholders and debt holders, and are written to protect debtholders' rights.

3.5.2.1 Management Compensation Contracts

Under the opportunistic perspective, managers exercise their accounting discretion not to maximise the value of the firm but to transfer wealth and make themselves better off at the expense of other contracting parties by selecting reporting methods and estimates that do not accurately reflect their firms' underlying economics (Watts and Zimmerman, 1990; Christie and Zimmerman, 1994; Healy and Wahlen, 1999). However, under the bonus-maximisation hypothesis, Healy (1985) shows that managers utilise earnings management (e.g., accrual-based earnings management) to maximise the value of their bonuses award under the firm's compensation plans. Consistent with this view, previous studies find evidence that performance-based compensation motivates managers to manage up earnings utilising earnings management activities (e.g., Cheng and Warfield, 2005; Bergstresser and Philippon, 2006; Efendi et al., 2007), and other studies find a decline in shareholders' wealth (e.g., Cohen and Zarowin, 2010; Kothari et al., 2016).

Some studies examine the effects of CEOs' equity incentives on the earnings management to meet/beat important earnings benchmarks and income smoothing. Cheng and Warfield (2005) examine the relation between CEOs' equity incentives derived from stock-option-based compensation such as option grant and earnings management to meet or beat analysts' earnings forecasts that not only reduce agency cost but also motivate managers. Based on a US sample over the period 1993-2000, Cheng and Warfield (2005) find that US firms with high equity incentives manage up earnings using accrual-based earnings management to meet or beat analyst consensus forecasts. They also find a negative relationship between

equity incentives and strong positive earnings surprise (indicative of income smoothing). These results are consistent with CEOs' firms that manage earning upward to increase stock price to sell their own shares by meeting/beating the analyst target when their share price could be damaged by failing to value option pay-outs.

Similarly, Bergstresser and Philippon (2006) find evidence that US firms' equity incentives of CEOs derived from stock-based compensation (option) are significantly positively associated with management utilising accrual-based earnings management activities and sell more shares during the years of higher accrual manipulation. However, Johnson et al. (2005) provide evidence that only firms with unrestricted stock holdings are positively associated with the occurrence of accounting fraud – at the same time they report that fraud firms do not achieve greater incentives from the stock option grants or restricted stock. Further, Erickson et al. (2006) and Armstrong et al. (2010) examine whether higher levels of equity-based incentives (e.g., compensation) are linked to earnings management, and find evidence that equity-based incentives of CEOs are not associated with accounting fraud.

The information asymmetry that exists between managers and principles (e.g., shareholders) affords managers opportunities to take actions to increase their own wealth at the cost of principles' wealth. Many studies of earnings management have documented real earnings management as managers' choices that deviate from optimal business decisions to increase firms' current earnings but harm firms' future value. Dechow and Sloan (1991) examine the association between the abnormal real earnings management through reduction of R&D expenses and CEOs'

performance-based compensation. They find evidence that CEOs in their final years of office reduced R&D spending to improve short-term earnings performance.

Given that Chief Financial Officers (CFOs) are likely to be in a position to strongly influence accounting choices, a number of recent studies examine whether earnings management is associated with equity incentives of CFOs. Jiang et al. (2010) find evidence that equity incentives of CFOs have a greater impact than equity incentives of CEO in determining earnings management, measured by accrual-based management and the likelihood of beating analysts' forecasts. On the other hand, CFOs may become involved in material accounting manipulations because of pressure from their powerful CEOs.

Further insights into the extent to which US CFOs are implicated in earnings management are provided by Feng et al. (2011) who examine the reasons associated with CFOs becoming involved with non-GAAP accounting manipulation. They find that the CFOs of manipulation firms have similar equity incentives compared to the CFOs of control firms (e.g., non-manipulating firms), but that the CEOs of manipulating firms have greater equity incentives and more power than the CEOs of control firms. Thus, Feng et al. (2011) suggest that CFOs mainly yield to pressure from CEOs motivated by equity incentives to engage in material accounting manipulation.

3.5.2.2 Lending Contracts

Since violation of debt covenants is costly, debt contracts that define a default in terms of accounting numbers may incentivise firms' managers to engage in

earnings management where a firm is close to violating a debt covenant; and thus reduce the probability of a default (Watts and Zimmerman, 1986).[16]

A number of studies have shown how avoiding the violation of debt becomes a motivation for firms to utilise accrual-based earnings management, and present evidence that firms engage in accrual-based earnings management in order to avoid violation of debts covenants (e.g., DeFond and Jiambalvo, 1994; Sweeney, 1994; Dichev and Skinner, 2002; HassabElnaby et al., 2007).

Sweeney (1994) investigates accounting policy choice in a sample of 130 US firms reporting covenant violation in annual report during the period 1980 to 1989. She provides evidence that in firms with larger debt-to-equity ratio managers are more likely to use income-increasing earnings management techniques in the year prior to covenant violations in order to mitigate the unexpectedly high default costs and improve their bargaining position; this is consistent with the debt covenant hypothesis. Specifically, she contends that managers may manage up earnings through earnings management techniques while in technical default to resolve the default, if they have sufficient accounting flexibility that they lacked before entering the technical default and imposed cost by lenders. By using a large sample of US firms, Dichev and Skinner (2000) find evidence that the closeness of managers in US firms to debt covenants use income-increasing accrual-based earnings management to avoid technical default of debt covenant. Further, they also provide evidence that violations of debt covenants are not necessarily associated with financial distress.

[16] Technical defaults occur when the borrower has failed to remain in compliance with a loan covenant, and do not imply financial distress.

DeFond and Jiambalvo (1994) find similar evidence to that reported by Sweeney (1994). They examine the association between debt covenants' violation and firms' accrual earnings management in a sample of 94 listed firms that report a debt covenants violation in their annual reports during the period 1985 to 1988. This is after controlling for audit going-concern qualifications and management change findings in the year of violation and in the year prior, abnormal working capital accruals and abnormal total accruals were significantly positive. In addition, HassabElnaby et al. (2007) report that firm continue to manage up earnings even after technical default. Moreover, other studies do not find evidence to document earnings management surrounding technical default (Healy and Palepu, 1990; DeAngelo et al., 1994).

Earnings management and debt contracts studies focus on accrual earnings management but do not address whether firms engage in higher levels of real earnings management to avoid debt covenant violations. By using a sample of 653 firm-year observations over the period 1987-1989, Bartov (1993) finds evidence that firms time their sales of long-term assets as tools of real earnings management activities by managing earnings upward to avoid debt covenant violation. Recently, Roychowdury (2006) finds that firms increase reported earnings by engaging in real earnings management activities and thus avoid covenant violation.

Further, Kim et al. (2011) examine the relationship between closeness to net worth covenant slack and a firm's real earnings management. They find that firms engage in greater real activities manipulation when debt covenants slack is tighter. They also find when a firm's ability to re-negotiate the debt covenant technical default is

restricted; it is more likely to manage earnings upward through real earnings management activities in order to avoid violation of debt covenants.

More recently, Franz et al. (2014) examine both real and accrual earnings management using a US sample consisting of 2,195 loans over the period 1992-2007. They find that firms close to violation or in technical default engage in higher levels of total earnings management (e.g., accrual and real earnings management together) than other firms do with least incentive from debt covenants (e.g., firms distant from violation). Although firms with stronger debt covenant incentives (e.g., firms close to violating covenants or firms in technical defaults incentives) are significantly more likely to use both accrual-based earnings management and real earnings management, they tend to use real earnings management more than accrual-based earnings management.

In summary, studies to date indicate that accrual and real earnings management when they are close to violation or in technical default of their debt covenants firms' earnings management generate the incentive to manage earnings upward and thus to mitigate the costs of technical default or to avoid technical defaults of their debt covenants. Moreover, these studies suggest that compensation and lending contracts induce at least some firms to engage in higher levels of earnings management activities to increase bonus awards, improve job security, and mitigate potential violation of debt covenants.

3.5.3 Political Cost and Regulatory Motivations

When earnings of specific companies are likely to be influenced by governmental intervention, managers have an incentive to adjust their earnings to avoid,

encourage or influence governmental interference. This influence could be indirect because earnings seem to be "excessive" (potential future regulation), or directly through existing regulation (Watts and Zimmerman, 1978). Based on the "political-cost hypothesis", Watts and Zimmerman (1986, 1990) show that, during periods of heightened political cost, motor carrier firms engage in income-decreasing earnings management when faced with potential industry deregulation.

Jones (1991) and Cahan (1992) show that firms have negative abnormal accruals during periods of investigation by the US International Trade Commission (ITC) or the US Federal Trade Commission (FTC), respectively. By examining a sample of 23 US firms, Jones (1991) observes income-decreasing earnings management during import relief investigations to obtain favourable regulation (import relief - e.g., tariff increases, quota reductions, marketing agreements, and/or federal adjustment assistance). Cahan (1992) and Gill-de-Albornoz and Illueca (2005) show that managers in firms investigated for anti-trust violations engage in income-decreasing earnings by utilising accrual manipulation during periods of heightened political costs, implying that such firms seek to avoid non-favourable regulation.

In terms of industry regulations and deregulation, Key (1997) and Cho and Sachs (2012) find similar results within the US cable and US motor carrier industries. Focusing on the period of Congressional scrutiny (1989-1991), Key (1997) examines whether the US cable television (TV) industry engages in income decreasing using accrual-based earnings management in order to avoid congressional scrutiny and potential regulations, and shows that the US cable TV industry has negative abnormal accruals during the congressional scrutiny period of 1989-1991. Furthermore, Cho and Sachs (2012) find that US motor carriers

manage earnings downward during the political-cost deregulation period of 1975-1979 by using Dechow et al.'s (1995) accruals model in an effort to avoid deregulation.

Further, Hang and Wang (1998) assess the situation during the 1990 Persian Gulf Crisis by examining a sample of 76 oil and gas firms. They find evidence that oil firms during this period were motivated to decrease their reported earnings for the third and fourth quarters of the fiscal year by engaging in income-decreasing accrual accounting in order to avoid political costs generated by potential adverse political actions such as regulations, anti-trust and government. Furthermore, Monem (2003) hypothesises that, during the period from June 1985 to May 1988, Australian gold-mining firms are expected to engage in downward earnings management (accrual-based earnings management) in order to avoid political costs that will be imposed on firms reporting high profits.

3.6 Empirical Evidence of Real Earnings Management

The high-quality disclosure system is defined as "information about the reporting entity that is useful to present and potential equity investors, lenders and other creditors in making decisions in their capacity as capital providers" (IASB, 2008). The quality of the disclosure system and financial reporting is of vital importance not only to make capital markets more efficient and manage their liquidity level (Levitt, 1997, 1998), but also to support the elimination of information asymmetry and agency problems that could emerge between managers and stakeholders (Core, 2001; Heal and Palepu, 2001). As reported in the literature managers are more likely to utilise earnings management to serve their personal interests if there are

higher levels of information asymmetry and agency problems between insiders (managers) and outsiders (shareholders) (Jensen and Meckling, 1976; Watts and Zimmerman, 1986; Trueman and Titman, 1988; Schipper, 1989; Dechow and Skinner, 2000).

A higher level of information asymmetry suggests that managers are more cognisant of the firm's current and future operation than outsiders are. This makes it easier for them to manipulate reported earnings by engaging in earnings management, particularly if they have strong incentives. For example, meet or just beat important earnings benchmarks (to report positive net income – that is, report earnings that are above zero; to maintain recent performance – that is, make at least last year's earnings; and to avoid reporting negative surprises – that is, meet analysts' expectations, particularly the analysts' consensus earnings forecast), debt covenants, and executive compensation.

Real earnings management began to attract growing research attention following the studies of Graham et al. (2005) and Roychowdhury (2006), with particular focus on the effects of real earnings management in the long term. However, firms are found to manage earnings upward through manipulation of the following real earnings management activities:

- Discretionary expenditures, including research and development (R&D), advertising expenses and selling, general and administrative expenses (SG&A)
- Securitisation
- Stock repurchases
- Sales of long-term assets
- Derivative hedging and debt-equity swaps

- Production, inventory and sales
- Structuring of business transactions to take advantage of alternative accounting choices

3.6.1 Manipulation of Discretionary Expenditures including Research and Development (R&D)

Research and development expenditures play a significant part in earnings management, and they have been analysed extensively within prior studies. Under the Statement of Financial Accounting Standards (SFAS) No.2, October 1973, R&D expenditures are expenses immediately, rather than capitalised, and managers could adjust the R&D expenditures to meet their earnings targets. The managerial discretion over R&D expenditures represents the main concern of the majority of these papers (Baber et al., 1991; Dechow and Sloan, 1991; Bange and De Bondt, 1998; Bushee, 1998; Cheng, 2004; Gunny, 2005).

Baber et al. (1991) examine a sample of 438 US industrial firms, with 4,818 firm-year observations over the period 1977-1987 and find that US industrial companies ordinarily reduce their R&D expenditures when spending, thereby jeopardising their ability to post positive earnings or augment their earnings. Such a reduction in R&D expenditure cannot be attributed to disparities in investment opportunities. Dechow and Sloan (1991) examine a sample of 405 US manufacturing firms with large R&D spending over the period 1974-1988 and illustrate that, as their tenure draws to an end, CEOs with earnings-based incentives tend to reduce R&D costs. This implies that managers are driven by earnings-based incentives to enhance performance in the short term by cutting back on discretionary expenditures (advertising and SG&A spending, for example, along with R&D). Bushee (1998)

examines a US sample of 13,944 firm-year observations over the period 1983-1994 and finds that institutional ownership reduces management's incentives to reduce R&D spending to avoid an earnings decline.

Bange and De Bondt (1998) examine a sample of 100 US firms with large R&D expenditures over the period 1977-1986, and provide evidence that CEO stock ownership and large institutional investors also mitigate opportunistic R&D reductions. Using a sample of 160 US firms over the period 1984-1997, Cheng (2004) investigates whether executive compensation committees respond to opportunistic reduction in R&D expenditures. She finds a significant positive association between change in R&D and changes in CEO annual compensation that discourage CEOs from reducing R&D when they approach retirement and when the firm faces small loss or decline in earnings. Her finding indicates that compensation committees understand and deter opportunistic manipulation of R&D spending.

In contrast, Shon and Yan (2015) examine a US sample of 19,944 firm-quarters observations to establish whether they either meet or beat earnings benchmarks over the period 1989-2011. They find that firms reported earnings downward (upward) by reduction of R&D expenditures in the fourth quarter. They interpret this result as consistent with the relative cost of real activities manipulation decreasing in the fourth quarter while the cost of accruals management increases as a result of annual audit.

Oswald and Zarowin (2007) investigate the extent to which the ability of UK firms to meet their earnings targets is affected by their attitude to R&D expenditures. Their findings reveal that the typical earnings management practice employed by

UK listed firms is to reduce the amount of R&D expenditure. It is worth noting, however, that companies that capitalise their R&D expenditure avoid reducing said expenditure.[17] In fact, they increase their earnings through accruals – essentially reducing the R&D expenditure by capitalising a larger proportion of that expenditure. Such findings indicate that managers resort to real earnings management involving greater costs if accruals management is limited by more stringent accounting regulations.

Moreover, Osma (2008) examines a sample of 3,438 UK firm-year observations for the decade between 1990 and 2002 and finds that UK listed firms manipulate reported earnings by cutting R&D expenses to meet earnings benchmarks. Specifically, he finds that board independence reduces the probability that a firm will cut R&D spending as a result of previous period disappointments, or to push the earnings into meeting current-period targets. Dinh et al. (2016) investigate how firms that beat earnings benchmarks capitalise on R&D expenditure under IFRS (e.g., analysts' forecasted earnings and last year's earnings). They find a negative association between market values and capitalised R&D for firms that are likely to employ capitalisation to beat benchmarks.

[17] Oswald and Zarowin (2007, pp. 709-710) state that UK firms have the option to expense or capitalise R&D expenditures subject to certain restrictions. "UK GAAP permits, but does not require, the capitalization and subsequent amortization of development expenditures if five conditions are met: (1) there is a clearly defined project; (2) the related expenditure is separately identifiable; (3) the outcome of the project is examined for its technical feasibility and its ultimate commercial viability considered in light of factors such as likely market conditions (including competing products), public opinion, and consumer and environmental legislation; (4) the aggregate of deferred development costs, any further development costs, and related production, selling and administrative costs is reasonably expected to be exceeded by related future sales or other revenues; and (5) adequate resources exist, or are reasonably expected to be available, to enable the project to be completed and to provide any consequential increases in working capital (Statement of Standard Accounting Practice (SSAP) No. 13, 1989). Any expenditures on research (pure or applied) must be expensed in the period incurred. In summary, the five conditions are intended to ensure that an asset is indeed created by the R&D expenditures."

3.6.2 Earnings Management via Securitisation

Another example of a type of real earnings management activity is the timing of transactions. Dechow and Shakespeare (2009, p. 99) define securitisations as:

> "a form of financing that has several advantages over traditional bank financing. For example, firm no longer has to wait for customers to pay to obtain cash flows, and they often can obtain these cash flows at lower interest rates than required from a traditional bank."

Dechow and Shakespeare (2009) investigate earnings management associated with gains from assets securitisations and examine the timing decisions of firms that used a 'gain on sale' method of recording securitisation transactions. Under this method, assets such as accounts receivable are taken off the books and their place is taken by the cash that a retained asset represents in the firm's claims to future cash flows. In order to balance the accounts, a gain or loss is calculated, but usually a gain is recorded (Dechow and Shakespeare, 2009). Dechow and Shakespeare (2009) focus on two common earnings benchmarks, reporting a profit and reporting an increase over last year's earnings, and explain that firms that report gains sufficient to beat the benchmarks are more likely to engage in securitisation transactions. They find that most of the gains from securitisation were clustered in the third month of the quarter (41%) and almost half of these occur in the last five days of the quarter. This indicates an attempt by management to use transactions to manage earnings (to achieve financial reporting goals).

3.6.3 Stock Repurchase as Tools of Earnings Management

In addition to R&D and securitisation manipulation, other types of real earnings management activities that have been explored include stock repurchase. Specifically, managers take advantage of the flexibility in controlling the time and scale of open market stock repurchase programmes and are not required to disclose details of their repurchase transaction to increase reported earnings opportunistically to meet the desired threshold. In contrast, financial economists confirm that firms buy back stock to signal managerial optimism (Vermaelen, 1981) or to reduce agency problems (Jensen, 1986; Grullon and Ikenberry, 2000).

The most common way in which US firms repurchase their stock is through an open market repurchase programme (Grullon and Ikenberry, 2000; Cook et al., 2003).[18] In addition, Hribar et al. (2006) examine a sample of 26,480 US firm quarters with more than $10,000 stock repurchases over the period 1988-2001. They consider the effect of stock repurchases as a means to affect the earnings per share and meet the consensus analyst forecast. They observe that the market discounts this earnings management attempt. Such firms have a premium for beating expectations that is about 60% lower than the one for firms that do not use stock repurchase to make up the number. However, using the repurchase to avoid missing the analyst forecast appears to mitigate some of the negative stock price response.

Bens et al. (2003) find that firms repurchase their stock to mitigate the dilution effect of employee stock options on diluted earnings per share, and to achieve the desired rate of EPS growth. Specifically, they find that stock repurchases increase

[18] Grullon and Ikenberry (2005) note that "Open-market programs accounted for 94.3% of all repurchases announced during 1990s and 95.2% of the total dollar value of shares repurchased."

in years when options-related earnings per share dilution increase, and annual earning is below the level required to sustain past earnings per share growth rates.

3.6.4 Earnings Management via Sales of Profitable Assets

The timing of assets sales is a manager's choice, and because gains are reported on the income statement at the time of sale, the timing of asset sales could be used as a way to manage reported earnings. Bartov (1993) examines a sample of 653 US firm-year observations with income from asset sales reported as ordinary over the period 1987-1989 and finds evidence that managers time the sales of long-lived assets and investments (hereafter assets) in order to manipulate reported earnings. Specifically, he finds that manager increase reported earnings by utilising asset sales to smooth reported earnings and to avoid incurring debt covenant violations. Herrmann et al. (2003) examine a sample of 3,068 Japanese firm-year observations with March fiscal year-end over the period 1993-1997 and find evidence that Japanese firms manage earnings upward (downward) by selling long-term assets and stock investments when the operating income is below (above) management earnings forecasts. Generally, asset sales manipulation occurs during the fourth quarter (Bartov, 1993) as managers at this time are likely to know whether earnings will meet or miss the desired threshold and, therefore, they determine the volume and the time of these sales.

Furthermore, Black et al. (1998) examine 503 firm-year observations from Australia and New Zealand and 696 firm-year observations from the UK with income of sales of long-term assets and other necessary data items over the period 1985-1997. They investigate the use of fixed assets sales as earnings management

tools to increase earnings in three countries (Australia, New Zealand, and the UK) with different accounting rules. They find that financial reporting standards can influence specific earnings management behaviour. Firms in countries that allow revaluation of book value of long-term assets do not engage in earnings smoothing through assets sales. In other words, firms in Australia, New Zealand and the United Kingdom do not need to sell assets to increase equity. However, Whittred and Chan (1992) and Easton et al. (1993) find that Australian firms revalue assets in response to a need to mitigate reported debt-to-equity ratios.

3.6.5 Earnings Management via Financial Instruments, including Hedges and Debt-Equity Swap

Fluctuations in interest rates, foreign exchange rate, and commodity prices increase the volatility of firms' operating cash flow and earnings. Financial derivatives (future, option, and interest-rate swap) are popular tools to hedge away the uncertainty related to these factors. Barton (2001) finds that managers of Fortune 500 firms use financial derivatives to smooth earnings. Specifically, in his study, Barton analyses the trade-off between derivatives and discretionary accruals and finds a negative association between the magnitudes of derivatives positions and the amounts of discretionary accruals, after controlling for various incentives to smooth earnings through hedging and accruals management. Pincus and Rajgopal (2002) investigate whether oil and gas firms reduce the volatility of their cash flows and smooth earnings by hedging their exposure to oil and gas price risks. Specifically, they trade-off between abnormal accruals and hedging to smooth earnings, where the firm makes hedging decisions and accruals manipulation decisions in a sequential order. They first determine the extent of hedging and then,

particularly in the fourth quarter, manage residuals earnings volatility with abnormal accruals.

In addition to hedging with derivatives, prior literature documents evidence on earnings management through debt-equity swap. There are, however, examples that suggest that the market does not understand earnings management even when disclosures are made. Hand (1989) reports the use of debt-equity swaps to smooth earnings and to relax potentially binding sinking-fund constraints. Hand (1990) examines how the market responds to the announcement of earnings in the quarter in which the swap took place. If the market sees through earnings management, no reaction to the gains on the swap should take place because of the prior announcement of the swap. Hand (1990) shows that the market does not absorb all the implications of swaps since there is a favourable reaction to increases in earnings that result from swaps.

3.6.6 Earnings Management via Overproduction

To manage earnings upward, managers can manipulate cost of goods sold expenses in any period by overproducing to spread fixed overhead costs over a larger number of units as long as the reduction in per-unit cost is not offset by inventory holding costs, or any increase in managerial cost in the current period. Thomas and Zhang (2002), Roychowdhury (2006), Gunny (2010) and Zang (2012) find evidence that managers' overproduction decreases cost of goods sold in an effort to avoid reporting losses.

3.6.7 Earnings Management via Structuring of Business Transaction

Other types of real earnings management activities that have been explored include structuring of business transaction to take advantage of alternative accounting choice. Moreover, Dye (2002) describes such structuring of transactions as "classification manipulation". Several studies use various instances of structuring transactions and find that managers manipulate reported earnings (Comiskey and Mulford, 1986; Imhoff and Thomas, 1988; Matsunaga, 1995; Mittelstaedt et al., 1995; Ayers et al., 2002; Marquardt and Wiedman, 2005; Carter et al., 2007).

3.6.8 Other Real Earnings Management Activities Manipulation

It was only recently that an understanding of real earnings management's popularity as tools of earning management has been achieved and the bulk of earnings management results from manipulating real operating activities. In a survey of over 400 US corporate executives, Graham et al. (2005) focus on the common use of real earnings management and reveal that managers displayed a preference for dealing with reported earnings through real earnings management rather than through accruals manipulation. The real earnings management activities differ considerably from their accruals-centred counterparts, since they have a direct impact on cash flows. Graham et al. (2005) demonstrate that managers take real economic actions to maintain accounting appearances. In particular, 80% of survey participants reported that they would decrease discretionary spending on R&D, advertising, and maintenance to meet an earnings target. More than half (55.3%) stated that they would delay starting a new project to meet an earnings target, even if such a delay was detrimental to the firm's value. However, prior

investigation of real earnings management activities has focused primarily on opportunistic reductions in research and development expenditures – most likely because research and development expenses is usually disclosed separately in the financial statement of publicly traded companies, whereas expenditures on advertising and travel are aggregated in selling, general, and administrative expenses.

The real earnings management activities, along with their capital consequences for important earnings targets, including zero earnings, last year's earnings, and consensus analysts' forecast, are investigated by several recent studies (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Gunny, 2010; Zang, 2012).

Real earnings management is management actions that deviate from business practice, undertaken with the primary objective to mislead certain stakeholders into believing that earnings benchmarks have been met in the normal course of operations (Roychowdhury, 2006). Roychowdhury (2006) focuses on the zero earnings threshold and scrutinised yearly data, finding evidence that suggested firms were avoiding disclosure of losses. Following this discovery, he provides a comprehensive overview of real earnings management of operating activities. Specifically, he develops empirical methods to measure real earnings management from a large sample, centred around the zero earning thresholds and honing three real earnings management activities:

(1) Manipulating sales (sales-based manipulation) by accelerating timing of sales, carried out via price discounts or more lenient credit terms. Such an approach

would result in higher reported earnings, but would reduce cash income in the short term;

(2) Cutting; reduction in the amount of discretionary expense in advertising, research and development (R&D) or selling, general and administrative expenses (SG&A), with the ultimate goal of increasing margins. Such a reduction is more common when the discretionary expenses focused upon fail to produce instant income and revenues. Despite this, a reduced level of discretionary expenses would lead to a higher contemporaneous cash flow; and

(3) Reduction in the costs of goods sold and greater operating margins as a result of overproduction determining more allocation to overhead inventory and less to the cost of goods sold.

In line with Roychowdhury's definition, the survey findings of Graham et al. (2005) reveal three outcomes. (a) Financial executives prioritised fulfilling earnings targets, like zero earnings and last year's earnings; (b) Despite the potential negative effect on the firm's value in the long term; executives acknowledged their willingness to manipulate their real earnings management activities in order to meet these targets. (c) They confirm that managers attend to quarterly performance indicators and benchmarks.

Gunny (2010) builds on the models in Roychowdhury (2006) and modifies them slightly to develop other real earnings management measures. She identifies four types of real earnings management subject to manipulation mentioned in previous studies. These are (1) reducing the amount of discretionary R&D expenditure; (2) reducing the amount of discretionary SG&A expenditures; (3) timing of the sale of fixed assets for the reporting of gained assets; and (4) overproduction to report a

less significant cost of goods sold. Gunny (2010) examines a sample of 23,308 firm-year observations during 1988-2000, and finds evidence that US firms manage earnings upward by using four types of real earnings management activities to just meet earnings benchmarks by focusing on two earnings benchmarks (last year's earnings and zero earnings benchmarks).[19]

Prior large-sample studies generally aggregate annual advertising expenses together with other discretionary expenses such as research and development and maintenance or include them as part of selling and general expenses (Roychowdhury, 2006; Gunny, 2010; Zang, 2012).[20] Cohen et al. (2010) study real earnings management using a different measure by focusing on monthly advertising expenditures by media outlets, using a sample of 1,156 US firms covering 41,960 monthly observations over the period 2001 through 2006. They focus on three earnings benchmarks: (1) zero earnings, (2) change in earnings relative to the same quarter in the previous year, and (3) analysts' forecast errors. They find that managers, on average, reduce advertising spending to achieve financial reporting objectives, such as avoiding reporting a loss and avoiding earnings decreases. They further report that firms in the late stages of the life cycle increase advertising to meet earnings benchmarks. They also find some evidence that firms increase

[19] Gunny (2010, p. 863) does not address the third earnings benchmark analysts' forecast for two reasons as mentioned. Firstly, "real earnings management must take place before the end of the year and managers are unlikely to know what the analysts' forecast of earnings will be prior to the earnings announcement." Secondly, Matsumoto (2002) "examines the mechanism managers use to avoid missing analysts' forecasts and find evidence consistent with forecast guidance dominating accruals manipulation as a mechanism for avoiding negative surprise. Therefore, it is unclear whether using firms that just meet the analysts' forecast would increase the power of correctly identifying real earnings management."

[20] Cohen et al. (2010) provide new and direct evidence that advertising expenses is used as a tool of real earnings management. Moreover, Cohen et al. (2010, p. 809) assert that, "Compared with R&D, advertising might have a more immediate impact on sales, leading to the possibility that managers may increase advertising to generate a positive short-term response in revenues and earnings."

advertising in the third month of the fiscal quarter and in the fourth quarter to beat prior year's earnings.

Managers of both for-profit and non-profit organisations have incentives to increase income when it is below zero to avoid negative net income because of contractual and reputation pressures, and also to decrease income when it is high to avoid scrutiny regulatory and from third-party payers. Prior studies find that non-profit hospitals manage earnings to report income-increasing earnings (Leone and Van Horn, 2005; Eldenburg et al., 2011). Eldenburg et al. (2011) examine real operating decisions in a sample of all California non-profit hospitals consisting of 95 hospitals over the period 1998-2003. They use benchmarks of zero operating income to provide evidence consistent with management of expenditures associated with non-operating and non-revenue-generating activities that non-profit hospital managers manipulate real activity to achieve positive income.[21] In contrast, Leone and Van Horn (2005) use benchmarks of zero operating income to provide evidence that non-profit hospital managers manipulate accruals to achieve positive income (manage earnings). However, non-profit hospital managers also have compensation and reputational incentives that agency theory predicts would lead them to report higher earnings. Therefore, managers face competing objectives between satisfying the expectations of external stakeholders and maximising their personal utility in the short run (Vansant, 2015).

Badertscher (2011) investigates the earnings management choices of managers seeking to maintain overvalued stock prices. The motivation to manage earnings in

[21] Eldenburg et al. (2011) define the types of expenditures as core versus noncore and operating versus non-operating activities.

the case of an overvalued stock is based on the work of Jensen (2005).[22] Badertscher (2011) examines overvaluation as an incentive of earnings management using a sample of large US firms (5,844 firms) over the period 1994-2008. He finds that, during the sustained period of overvaluation, managers must employ accrual-based earnings management in the early years, real earnings management in the later years, and non-GAAP earnings management only when no other option is available. He argues that managers selected earnings approaches based on the length of time of the overvaluation, and claimed that the length of time that things have been overvalued is vital in the managers' selection of earnings management activities, but he avoids using relative costliness to model the trade-off between real earnings management and accrual-based earnings management.[23] In addition, examining the relation between equity overvaluation and earnings management in a sample of US firm-year observations over the period 1964-2003, Chi and Gupta (2009) find that equity overvaluation leads to more income-increasing earnings management and intensifies accrual-based earnings management.

Recent studies examine the impacts of the costs of accrual-based earnings management and real earnings management on the choice of earnings management strategies. Ewert and Wagenhofer (2005) argue that accounting standards only restrict accrual-based earnings management but not real earnings management.

[22] According to the agency theory of overvalued equity (Jensen, 2005), when a firm's shares become overvalued, managers act to prolong the overvaluation using various tools, including income-increasing earnings management and at the same time, sell their shares to benefit from overvaluation. He predicts that overvaluation leads managers to engage in earnings management in an effort to sustain the firm's overvalued stock price.

[23] Badertscher (2011) classifies earnings management choices as (1) Real Transaction Management (RTM); (2) Within-GAAP Accruals Management (AM); and (3) Non-GAAP Earnings Management (NonGAAP).

Consistent with this view, Cohen et al. (2008) study the real earnings management from another perspective by using a sample of US firm-year observations (8,157 firms) over the period 1987-2005. They investigate the prevalence of both accrual-based earnings management and real earnings management activities in the period leading to the passage of Sarbanes-Oxley (SOX) and in the period following the passage of SOX. They focus on three important benchmarks of earnings management – zero earnings, last year's earnings, and consensus analysts' forecast – and show that, on average, accrual-based earnings management declines, but that the managers tend to manage real earnings management, after the passage of the SOX. They focus on one cost of accrual-based earnings management – namely the heightened post-SOX scrutiny of accounting practice – and its impact on the levels of real and accrual earnings management. Graham et al. (2005), Cohen and Zarowin (2008) and Zang (2012) validate the argument that the Sarbanes-Oxley Act has made accrual-based earnings management more costly and, therefore, that firms have switched from accruals to real earnings management after the passage of SOX.

The most crucial finding pertained to the consequences of accruals earnings management by comparison to those of real earnings management activities. In their paper, Cohen and Zarowin (2010) extend extant research investigating how firms use accrual-based and real earnings management activities around seasoned equity offerings (SEOs). They examine the effect of each of the three types of real earnings management method applied in Roychowdhury (2006) around the firms with strong incentives to manage earnings upward; i.e. firms that issue seasoned equities, using a US SEO sample consisting of 1,511 offers over the period 1987-2006. They find that, after examining a variety of accrual-based earnings

management costs, SEO firms engage in greater levels of real earnings management activities in the year of the SEO to avoid SEO under-pricing. Specifically, and in addition to accruals manipulation, they find that SEO firms exhibit higher levels of abnormal cash flows from operations, abnormal discretionary expenses, and abnormal production costs. In addition, Chi et al. (2011) examine the trade-off between real earnings management activities and accrual-based earnings management for firms with strong incentives to manage earnings upward in order to meet or just beat earnings benchmarks or to support seasoned equity offerings, focusing on a sample of 925 US firm-year observations over the period 2001- 2008. They find that firms (e.g., firms that meet or just beat earnings benchmarks and firms that issue seasoned equity offerings) are associated with greater levels of real earnings management.

McInnis and Collins (2011) examine whether managers in US firms shift from accrual-based earnings management to real earnings management when analysts provide operating cash flow forecasts for their firm and find that, following the provision of cash flow forecasts which make accrual-based manipulation more detectable, there is an increase in real activities manipulation. Their reasoning is straightforward: Since cash flow and earnings forecasts implicitly provide accrual forecasts, accrual-based manipulations become more visible. Hence, managers replace accrual-based earnings management with more costly, but less transparent real earnings management. Their analysis confirms that the presence of cash flow estimates improves the quality of accruals and decreases the probability of achieving analyst expectations.

Building on prior research on the trade-off between real earnings management and accrual-based earnings management, and introducing new variables, Zang (2012) uses a large sample of US firms over the period 1987-2008 to explain the costs associated with real earnings management and accrual-based earnings management. She investigates a sample of suspect firms just beating/meeting important earnings benchmarks – around zero earnings; last year's earnings; the consensus analysts' forecast; and management forecasts – and therefore most likely to engage in earnings management.[24] She finds proof that manager relied on resultant costs to trade-off real earnings management and accrual-based earnings management and that they used the level of accomplished real earnings management to adjust the level of accrual-based earnings management. She also finds evidence that managers engage in real activities-based manipulation throughout the fiscal year and then accrual-based earnings management is adjusted at the end of the fiscal year by the unrealised amount of real activities to meet the desired threshold. Her results show that real earnings management positively correlates with the costs of accrual manipulation, and that accrual and real manipulations are negatively correlated. These results led her to surmise that managers generally used real earnings management and accrual-based earnings management interchangeably, with a tendency to prioritise real earnings management decisions over accrual-based earnings management.

[24] Zang (2012) points out that research by several scholars (Beatty et al., 1995; Hunt et al., 1996; Gaver and Paterson, 1999; Barton, 2001; Pincus and Rajgopal, 2002; Cohen et al., 2008; Cohen and Zarowin, 2010) does not consider the timing of the two types of earnings management (does not consider the sequential decision process as an alternative process). Zang (2012) addresses this issue using a Hausman test and finds the earnings management actions are sequential: real activities precede accruals management; and accruals are partially determined by real activities management.

3.6.9 Critical Evaluation of Relevant Literature of First Essay

In conclusion, Pioneering studies examining the REM are fronted by Roychowdhury (2006), and followed mainly by Cohen et al. (2008), Gunny (2010), Badertscher (2011), Chi et al. (2011), Zang (2012) and Kothari et al. (2016) in the US context. In the UK, only a few studies examine REM; these are Oswald and Zarowin (2007), Osma (2008), Athanasakou et al. (2009) and Athanasakou et al. (2011).

Roychowdhury (2006) is the first to examine and develop the three types of REM applying one benchmark only; that is, firms that are most likely to meet or beat zero earnings. Moreover, in his model, Roychowdhury uses production costs instead of costs of goods sold to detect abnormal production costs; and he controls for significant variations in earnings management by adding three control variables (firm size, firm performance, and firm growth). However, his study does not address the other benchmarks – last year's earnings and management analysts' forecast. As a result, his work does not deliver a complete understanding of the importance of meeting earnings targets, the extent of earnings management through real activities, and the long-term effects of real activities manipulation; instead, his study is limited to only documenting the existence of REM with no consideration given to the timing of real activities manipulation over the year. Further, Roychowdhury's (2006) findings are limited to the US context and are not compared to other contexts such as the UK. Such a comparison may evidence that the legal framework of a specific country has an impact on earnings management. Enomoto et al. (2015) suggest the need to explore and compare the study context with other developed markets, which would lead to a more complete understanding

of the importance of meeting earnings targets, the extent of earnings management through real activities, and the long-term effects of real activities manipulation.

Gunny (2010) builds slightly on Roychowdhury's (2006) model to develop other real earnings management measures. She mainly investigates four real earnings management types that can be subject to manipulation. These are reducing discretionary R&D expenditure levels; reducing discretionary SG&A expenditure levels; timing the sale of fixed assets for the reporting of gained assets; and overproduction costs. She also focuses on two important earnings benchmarks – zero earnings and last year's earnings. Gunny (2010) does not consider the other types of real earnings management such as sales-based manipulation. Similar to Roychowdhury's (2006) study, her study is limited to the US context. More significantly, she does not address the impact of the SOX act on REM although her study covers the period when SOX was implemented.

Applying the US data, Zang (2012) contributes to the REM literature significantly by introducing a new variable related to the costs associated with real and accrual earnings management. She only examines two types of real earnings management activities; these are discretionary expenditures and overproduction costs. Considering the timing of the two types of earnings management, she finding out that overproduction decreases costs of goods sold in an effort to avoid reporting losses. Even though she contributes to the literature by providing evidence on the trade-off decisions between REM and AEM, she also ignores the SOX implementation in her sample, similar to Gunny. Again, neither Gunny nor Zang provide answers to the importance of the legal environment in affecting the REM.

In a different environment, in the UK context, Oswald and Zarowin (2007) shed light on the extent to which the attitude of UK firms to R&D expenditure (capitalisation of R&D expenditures) impacts on their ability to meet earnings targets. An important feature of their study is the tests they use. They apply a two-equation system to control for the endogeneity of the R&D accounting choice (e.g., self-selection). Nevertheless, their study only addresses one type of earnings management (R&D accounting choice) to meet earnings targets, which in return does not provide suggestions for policy makers and regulators. The following reasons limit the results and make them irrelevant. The first reason is that the applied tests are limited to three industries over the period 1990-1999. The second reason refers to the fact that the model of capitalisation prediction is imperfect in that it may not have captured all existing predictability. The third reason is that the length and extracting of the sample is restricted to a three-year period, which does not capture all benefits of R&D that require a longer period, and finally in their sample, they only include active and dead files in the tests without any consideration for the timing, and the missing data.

Within the same context, Osma (2008) only examines one type of real earnings management activities (e.g., reducing/cutting discretionary expenses, such as R&D) to meet earnings benchmarks (last year's earnings) in order to avoid reporting losses. In spite of this limitation, Osma (2008) is among the first to focus on the UK environment rather than the US with a reasonable sample size. Nevertheless, his study lacks the following contributions: (1) it could explore more aspects such as the impact of differences in industries' (2) it could compare additional developed

economies with different settings; and (3) it could extend the sample period which offers a good opportunity to examine the effects of the adoption of IFRSs.

In line with Oswald and Zarowin (2007) and Osma (2008), Athanasakou et al. (2009) focus mainly on the UK firms' earnings management, as to whether they engage in EM (abnormal accruals and classification shifting), to ensure that their reported earnings meet analysts' earnings expectation. Although their study does not address the importance of REM as a type of EM tools, it does nevertheless offer valuable documentation about the UK context: that is, large UK firms shift classification of core expenses to non-recurring items in order to meet analysts' forecast expectations to avoid negative earnings surprise. Unluckily, their study does not assess investors' abilities to detect classification-shifting attempts, or address the effect of large audit firms over the UK context.

In a later study, Athanasakou et al. (2011) build on Athanasakou et al.'s (2009) results and limitations. They focus on how UK firms utilise real earnings management, accruals earnings management and classification shifting to meet expectations of analysts focusing only on firms that just meet or beat analysts' forecasts. Moreover, they build upon Roychowdhury's and Gunny's models by exploring four types of real earnings management; these are cutting R&D, cutting SG&A expenses, overproducing, and sales-based manipulation. They find evidence that UK firms are more likely to use earnings forecast guidance and classification shifting to non-recurring items to meet analysts' expectations than to manage accruals or real transactions to meet analysts' forecast expectations. Athanasakou et al.'s (2011) findings are not consistent with prior literature that firms manage up earnings to meet analysts' forecasts by utilising more real earnings management.

Moreover, it would worth extending the sample period to know the effects of IFRSs on market responses. They also do not consider the other incentives of REM such as zero earnings, last year's earnings, and managing earnings upward in order to evaluate the firm's performance and its financial position.

Moreover, recent literature presents different incentives for managers to engage in real and accrual-based earnings management such as SEOs and IPOs, but researchers do not consider the other capital market motivations as incentives for managers to manage earnings upward in order to evaluate the firm's performance and its financial position (avoid negative earnings surprises). For instance, Cohen and Zarowin (2010) and Kothari et al. (2016) examine the trade-off between real and accrual-based earnings management for US firms around SEOs. Wongsunwai (2013) examines the effect of external monitoring (venture capitalist) for US firms around IPOs through real and accrual-based earnings management. In the UK context, Alhadab et al. (2015) examine the relationship between real and accrual-based earnings management for UK firms around IPOs, focusing only on two real earnings management activities. These are sales manipulation and reducing discretionary expenses.

From the above discussion, despite examination of the UK context in the recent literature, there is still a variation in the evidence documented regarding the REM. A gap remains about the incomplete assessment of whether UK firms engage in real earnings management activities to meet or just beat important earnings benchmarks, such as zero earnings and prior year's earnings. These issues need to be explored together instead of addressing each component individually to capture

the total effect on the REM. This would lead to a comprehensive and complete understanding for the effect of the REM incentives.

3.7 Consequences of Real Earnings Management Activities to Meet or Just Beat Earnings Benchmarks on Subsequent Operating Performance

Firms can manage upward earnings by utilising real and accrual-based earnings management (Schipper, 1989; Healy and Wahlen, 1999; Graham et al., 2005). However, the direct effect on future performance from income-increasing accrual-based earnings management is straightforward: one additional Great Britain Pound (GBP) of net income recognised in the current period results in one GBP of net income sacrificed in the future. The direct impact on future performance from income-increasing real earnings management is less observable because firms may incur additional costs (e.g., holding costs when excess inventory is produced) and forgo benefits (e.g., forfeited future revenues when advertising is reduced). Empirical evidence tends to suggest that performance levels in the future will be lower in high levels of real earnings management. In this regard, in their study of real earnings management and accrual based-earnings management on future performance at the time of seasoned equity offering (SEO), Cohen and Zarowin (2010) provide the most pertinent example. They prove that a negative correlation exists between the future changes in return on assets (ROA). Other evidence from prior papers, however, contends that real earnings management affects the future performance of firms differently (Gunny, 2010).

Since all real earnings management activities lead to higher net income in the current period, these activities will inevitably have some consequence. However,

empirical results are mixed. Conflicting empirical results regarding the positive or negative influence of real earnings management on performance have led to opposing explanations regarding the reasons the managers adopt real earnings management.

3.7.1 Future Performance through the Opportunistic Earnings Management Argument

An important question is whether such deviations from the normal business strategy due to real earnings management are on average so severe as to have a significant negative impact on firms' future performances. The extant literature evidences that when firms' real earnings management manage-up earnings to meet/beat important earnings benchmarks, this reduces the firm's value, which will harm the firm's future performance (value destroying).

Bens et al. (2002, 2003) find firms that manipulate earnings shift capital away from real investment to stock repurchases by reducing R&D experience a marginally negative impact on future operating performance. Gunny (2005) finds a negative relation between subsequent future operating performance and all four types of real earnings management activities. Further, she identifies firms engaged in real earnings management activities as those with both abnormal operating activities and high net operating assets, and finds that firms engaged in real earnings management activities face an economically significant decline in subsequent earnings and cash flow. Other studies also find that firms – whether they engage in real earnings management activities or not – with high net operating assets experience a significant negative impact on subsequent operating performance (Barton and Simko, 2002; Hirshleifer et al., 2004).

Graham et al. (2005) document that chief financial officers (CFOs) are willing to manipulate real earnings management activities in order to meet analyst earnings expectations, even if such manipulations would decrease long-term firm value.[25] The survey CEOs and CFOs acknowledge that they face a trade-off between meeting short-term earnings targets and making long-term optimal business decisions.[26] Further, they argue that 80% of the participants would like to adopt real earnings management to achieve short-term earnings targets. On the extent to which managers sacrifice real resources to manage earnings, Graham et al. (2005) show that, more than 55% of the managers forfeit positive net present value (NPV) investment projects to meet analyst earnings forecasts. Other research on myopic behaviour and real earnings management confirms Graham and colleagues' survey evidence suggesting that managers engage in myopic behaviour to meet/beat earnings benchmarks, which is costly and directly harmful to a firm's future operation (Baber et al., 1991; Bhojraj and Libby, 2005; Ewert and Wagenhofer, 2005; Roychowdhury, 2006; Bhojraj et al., 2009). However, Jensen (2005, p. 8) refers this behaviour in part to the agency theory of overvalued equity, noting that

> "when numbers are manipulated to tell the market what they want to hear (or what managers want them to hear) rather than the true status of the firm…and when real operating decisions that would maximize value are compromised to meet market expectations, real long-term value is being destroyed."

[25] Graham et al. (2005) find that CFOs prefer to manage earnings via economic actions such as postpone or eliminate hiring, R&D, advertising, or even investment rather than within-GAAP accounting choices.

[26] The primary incentives for managers to meet short-term objectives are stock prices and career and reputation concerns (Graham et al., 2005).

Moreover, Zhang (2008) examines a sample of 59,011 observations during the period 1993 to 2005 and finds evidence that US firms which meet analysts' cash flow forecast engage in higher real earnings management activities through discretionary expenditures, production, and sales to inflate earnings. In other words, firms have incentives to manipulate real earnings management opportunistically to meet analysts' cash flow forecast. Further, they find evidence that REM firms experience deterioration in subsequent operating performance. Furthermore, Bhojraj et al. (2009) show that firms that beat analyst forecasts have negative operating future performance and stock market performance in the subsequent three years in terms of return on assets, Buy-and-Hold Abnormal Returns (BHARs), and Cumulative Abnormal Returns (CARs). This is compared to firms that miss analyst forecasts without earnings management, through either real earnings management activities (e.g., R&D and advertising expenditures) or accrual-based earnings management. In addition, firms that beat analyst forecasts are willing to achieve short-term earnings targets that may lead to positive short-term stock returns.

In a similar study to that of Zhang (2008), Using a sample of all US firms containing 13,291 observations (1,597 firms) over the period 1988-2007, Leggett et al. (2009) examine whether firm-years that manipulated earnings upward engage in real earnings management and whether it is associated with subsequent performance. The authors find evidence that firm-years manage earnings upward through real earnings management to meet/beat earnings benchmark. In addition, they find strong evidence that firms that engage in real earnings management through discretionary expenditures are negatively associated with lower subsequent future performance in terms of both return on assets and cash flows from operations than

non-REM firms meeting/beating earnings benchmarks. Mizik (2010) finds that firms which, manage earnings upward by engaging in myopic real earnings management activities through reducing marketing and R&D spending experience a greater negative impact on future stock returns and future financial performance.

The notion that real earnings management is value-destroying is consistent with investor perceptions in a recent survey, De Jong et al. (2014) find that analysts perceive that meeting earnings benchmarks and smoothing earnings enhances investor perception of firm future performance and that all earnings management actions to meet earnings benchmarks, excluding share repurchases, are have the potential to be value-destroying.

Vorst (2016) examines the impact of real earnings management through discretionary investment cuts on long-term operating performance. He shows that, on average, firm-years with real activities manipulation (e.g., a reversal of an abnormal cut in discretionary investment) are associated with lower long-term operating performance (reduced long-term operating performance). However, he finds that such results vary significantly depending on the various incentives offered to engage in real earnings management, as well as other factors that affect its associated costs and benefits.

Based on a large sample of US firms over the period 1994-2009, Francis et al. (2016) examine whether firms that utilised real earnings management to manage earnings upward to meet earnings benchmarks (zero benchmarks and last year's benchmarks) are associated with subsequent stock price risk, which is due to stock being mispriced under REM. They find that prior real earnings management has a positive association with stock price crash in the subsequent period. This result suggests that

managers utilised real earnings management activities to hide negative information but not positive information. In addition, they find that the impact of real earnings management on stock return-crash risk increases after SOX 2002.

Given that previous research on the consequences of real earnings management pays little attention in the bond market, using 1,934 US bonds issues from 1993 to 2009, Ge and Kim (2014) examine the relation between the cost of new corporate bond issues and the level of real earnings management. They investigate three types of real earnings management – sales-based manipulation, overproduction-based manipulation, and discretionary expenditures-based manipulation. They find that real earnings management activities through overproduction causes credit rating to decline, and their results also show that overproduction and sales-based manipulation increase the cost of borrowing money from the bond market (overproduction and sales-based manipulation are associated with higher bond yield spreads).

Similarly, Kim and Sohn (2013) examine the impacts of real earnings management on cost of equity. They find a positive association between US firms that utilised real earnings management to just meet or beat an earnings target and the implied cost of equity even after controlling for the effects of accrual-based earnings management. They also find that this association is stronger for the subset of firms (e.g., firms that just meet/beat an earnings target) with higher incentives to manage earnings opportunistically. They argue that real earnings management increases a firm's risk and, therefore, capital providers require a higher rate of return because of this increased risk so for the firms that utilised real earnings management, the higher cost of equity capital they have to bear.

Apart from future performance, several studies examine other effects of real activities manipulation. IPO firms have very strong incentives to manipulate reported earnings upward at the end of the IPO year to maintain high stock prices. However, prior literature has found that IPO firms manage up earnings using real and accrual earnings management during the IPO year. Wongsunwai (2013) examines the effect of venture capitalist (VC) quality on earnings management in firms' initial public offerings (IPOs) through real and accrual earnings management. He finds that IPO firms manage earnings around the IPO year and that IPO firms backed by higher-quality VCs generally exhibit higher performance; thus, they have lower real and accrual-based manipulation on average. Similarly, because in general firms with higher levels of real earnings management have smaller profits, they are less likely to survive in subsequent periods compared to the more profitable ones, which could explain the results in Alhadab et al. (2015).

Furthermore, Alhadab et al. (2015) analyse the relationship between real and accrual earnings management and IPO failure risk based on a sample of 570 UK IPO firms (public) over the period 1998–2008. They additionally find that UK IPO firms that manage up earnings during the IPO year, either through real earnings management activities or accrual-based earnings management, have a higher probability of IPO failure and lower survival rates in subsequent periods.

Mizik and Jacobson (2008), Cohen and Zarowin (2010), and Kothari et al. (2016) examine managers' accounting choice of real earnings management versus accrual-based earnings management at the time of seasoned equity offering (SEO) and find that financial markets overvalue firms engaging in income-increasing earnings at the time of issuing seasoned equity offerings (SEOs). They find that this mis-

valuation (e.g., overvaluation) has a closer link to real earnings management activities rather than to accrual-based manipulation. Their findings indicate that firms engaging in income-increasing real earnings management at the time of issuing SEOs have a negative future operating performance in the post-offering period than other firms that engage accrual-based earnings management.

3.7.2 Future Performance through Signalling Earnings Management Argument

Manipulation of operating activities to affect reported earnings deviates from normal operational practices and thus potentially leads to a decline in subsequent operating performance (Roychowdhury, 2006). However, real earnings management may not necessarily have a significant negative on firms' future operations, signalling an argument that claims that managers have better information about firms' future market and growth potential. They engage in real earnings management because it is a way to signal firms' future value.

The findings in existing research present different views of the relation between real earnings management activities and future operating performance. Focusing on two common earnings benchmarks (e.g., zero earnings and last year's earnings), Gunny (2010) examines the association between income-increasing real earnings management and future performance (measured by industry adjusted return on assets and cash flow from operations) on a sample of 23,308 firm-year observations during the period 1988-2002.[27] She finds evidence that US firms that managing earnings upward in order to meet/beat earnings benchmarks achieve a more positive

[27] Gunny (2010) uses indicator variables and classifies real earnings management firms in the most extreme quintile of abnormal real earnings management activities.

impact on the client's cash flow and subsequent operating performance than other firms do in the absence of just meeting/beating earnings benchmarks or managing earnings upward through real earnings management. This supports the signalling argument that firms use real earnings management to signal good future performance.

Zhao et al. (2012) support Gunny's (2010) findings; they examine whether takeover protection mitigates real earnings management and whether it is associated with subsequent future performance, focusing on two common earnings benchmarks (e.g., zero earnings and previous year's earnings) by using a sample of 7,966 US firm-year observations over the period 1995-2008. Zhao et al. (2012) find evidence that managers are generally willing to manage earnings upward through real earnings management (e.g., discretionary expenditures, production, and sales) to meet/beat earnings benchmarks.[28] In addition, they find a negative relation between the abnormal real earnings management and future performance in the absence of just meeting/beating earnings benchmarks, but firm-years with abnormal real earnings management that intend to just meet/beat earnings benchmarks are associated with higher future performance. Further, by taking the two conflict effects of abnormal real earnings management on subsequent future operating performance for firms who just meet/beat earnings benchmarks and firms that miss

[28] To capture the overall level of real earnings management, Zhao et al. (2012) aggregate these individual measures of real earnings management into two comprehensive metrics. The first measure aggregates abnormal production costs and abnormal discretionary expenditures, and for the second one aggregate all individual measures into one measure (e.g., abnormal cash flows from operations, abnormal discretionary expenditures, and abnormal production costs). The higher value of these measures, the more likely it is that the firm is engaging in real earnings management activities.

the earnings benchmarks, Zhao et al. (2012) suggest that real earnings management is consistent with signalling better performance.

Using a sample of 10,553 US firm-fourth-quarter observations over the period 1988-2008, Chen et al. (2010) find that firms meeting/beating analyst forecasts using income-increasing real earnings management. They find also firms that doing so without earnings management (e.g., real earnings management and accrual-based earnings management) achieve significantly better future operating performance than firms missing analysts' expectations by taking return on assets (ROA) or change in return on assets as measurers of future firm performance. Further, their findings are consistent with those of Gunny (2010) and Zhao et al. (2012), which suggest that used-only real earnings management offers positive signalling effects about future firm performance than firms that used only accrual-based earnings management.

Taylor and Xu (2010) use a matched sample analysis of consequences of real earnings management based on 18,267 firm-year observations over the period 1988-2003 examine whether firm-year is involved in real earnings management activities to meet/beat zero earnings (e.g., avoid reporting losses) and whether analysts forecast is associated with subsequent operating performance. They find that US firms with high abnormal production costs or/and low abnormal discretionary expenditures do not experience, on average, a more significant decline in firms' subsequent operating performance in terms of ROA, CFOA (cash flows from operations on assets) and size adjusted returns (SAR) than control firms do when matched by industry, year and abnormal accrual-based earnings management. Moreover, previous papers have observed good future performance

among firms, which manipulated earnings to meet/beat the analysts' forecasts (Bartov et al., 2002; Koh et al., 2007; Roychowdhury, 2006).[29]

3.7.3 Critical Evaluation of Relevant Literature of Second Essay

In conclusion, Gunny (2010), Chen et al. (2010) and Zhao et al. (2012) examine the impacts of REM activities on firms' future performance and their findings are mixed (positive or/and negative impacts on firms' future performance). In her 2010 study on a US sample, Gunny employs real earnings management activities as the indicator variable equal to one if the residuals from R&D, SG&A and production models fall within the lowest (highest) quintile; otherwise zero is recorded. Furthermore, Chen et al. (2010) and Zhao et al. (2012) use indicator variables for real earnings management firms rather than examining the magnitude of real earnings management. Chen et al.'s (2010) sample depends on firm-quarter observations rather than firm-year observations.

In addition to the above studies, Leggett et al. (2009) assess the effect of real earnings management through one type of discretionary expenditure on subsequent operating performance in US firms to meet earnings benchmarks. In a similar study to that of Leggett et al. (2009), Vorst (2016) also examines the consequence of real earnings management through discretionary investment cuts on long-term operating performance. However, the authors do not address the other types of real earnings management that managers could engage to manage earnings upward,

[29] Tan and Jamal (2006) suggest that managers manipulate operating activities by reducing the level of accounting discretion (e.g., reduce their investments in R&D, and increase those in advertising) to communicate their firm's superior earnings prospects to investors and they attain costs and benefits of real earnings management that allow the firm to do better in future performance (signalling mechanism). In addition, managers may also manipulate earnings to extract personal benefits.

such as production costs and sales based-manipulation. Moreover, Taylor and Xu (2010) examine the consequences of real earnings management on operating performance by focusing on two types of real earnings management – overproduction and discretionary expenditures – among firms that are more likely to manage earnings upward to meet or just beat zero earnings and management forecast. In addition, Taylor and Xu (2010), Leggett et al. (2009) and Vorst (2016) do not address the other types of real earnings management around the firm meeting last year's earnings, such as sales manipulation. This would have provided a comprehensive overview of real earnings management of operational activities; that managers might not only engage in one type of real earnings management.

Although the studies described above attempt to identify earnings management, they have not measured the impact of real earnings management on firms' subsequent operating performance in terms of its magnitude in order to capture the general level of real earnings management activities on firms' future operating performance. Further, although the above studies also focus on cross-sectional dependence, they do not examine the issues created by the presence of both cross-sectional and time-series dependencies. Therefore, this study uses the Newey-West standard errors corrected Fama-Macbeth statistic to respond to this requirement to ensure robust results by correcting for potential bias and inconsistency issues in the estimates, and overcoming problems of heteroscedasticity.

Several studies examine the other effects of real earnings management on future performance, but not in their main analysis. For example, around firms that beat analysts' earnings forecasts (Graham et al., 2005; Roychowdhury, 2006; Zhang, 2008; Bhojraj et al., 2009); at the time of seasoned equity offering (Mizik and

Jacobson, 2008; Cohen and Zarowin, 2010; Kothari et al., 2016); during the IPO year (Wongsunwai, 2013; Alhadab et al., 2015). The above studies do not address the other incentives of earnings management such as zero earnings and last year's earnings on firm's future operating performance. Earnings benchmarks are viewed as important reference points that many users of financial information have employed to evaluate the firm's performance and its financial position. In addition, firm-years with earnings on or just above benchmarks may still have incentives to manage earnings upwards. Therefore, concentrating on these firm-years not only increases the power of the tests, but also allows to better examining real earnings management – that is, earnings-target-oriented manipulation of real activities (Roychowdhury, 2006; Zang, 2012; Zhao et al., 2012).

3.8 Summary

This chapter has clarified the concept of earnings management. Earnings management has attracted a range of definitions; these were discussed, and I explored the factors that motivate managers to apply earnings management. This chapter also summarised the developing body of research on earnings management. A particular focus of the literature review was real earnings management around firms that are more likely to manipulate earnings to meet/beat important earnings benchmarks. As stated earlier, important earnings benchmarks include the benchmarks of earnings levels (report earnings just above zero) and make the previous year's earnings.

As this chapter has shown, real earnings management studies are largely US-based (Roychowdhury, 2006; Cohen et al., 2008; Gunny, 2010; Cohen and Zarowin, 2010

and Zang, 2012 among others), while only a few have provided empirical evidence for UK cases (Zarowin and Oswald, 2007; Osma, 2008; Athanasakou et al., 2011). By incorporating the discussion on REM measurements in the UK and taking into account the lack of research on the real earnings management activities outside the US, this research is the first to examine the real earnings management activities through three types of real earnings manipulation to meet or just beat earnings benchmarks, in the UK context. This chapter has also reviewed the literature on the association between real earnings management and firm future performance. Further, among those REM studies, there are two directions of thought. The first is the opportunistic earnings management argument and the second is the signalling earnings management argument.

The results of the majority of studies referred to in this thesis reveal conflicting evidence of the consequences of real earnings management. Graham et al. (2005); Roychowdhury (2006), Bhojraj et al. (2009), Leggett et al. (2009), Cohen and Zarowin (2010), Kothari et al. (2016) and Vorst (2016) report evidence to support the *opportunistic earnings management* argument; that REM firms experience decline in subsequent operating performance. On the other hand, Chen et al. (2010), Gunny (2010), Taylor and Xu (2010) and Zhao (2012) provide evidence to support the *signalling earnings management* argument; that is a positive association between REM and subsequent operating performance. These conflicting findings confirm the importance of investigating the effect of REM on firms' future operating performance in the UK where institutional environments and accounting greatly differ from the contexts investigated in previous studies. A review of the

previous literature shows that attention regarding the impacts of real earnings management on firm's future performance is lacking in the UK environment.

Overall, one of the objectives of this thesis is to investigate whether UK firms that manipulate operating activities to meet earnings benchmarks realise an impact on future financial performance or not. Thus, this study's findings develop our understanding of the process through which management evaluates the costs and benefits of real earnings management in different environments.

More specifically, previous studies use real earnings management activities on firms' subsequent operating performance as indicator variables; this study is the first to use the absolute value of each measure of REM to capture the general level of real earnings management activities on future operating performance. In addition, previous methodological work on the consequences of earnings management focuses on cross-sectional dependence (e.g., Gunny, 2010; Chen et al., 2010; Zhao et al., 2012); however, no studies have critically assessed the problems created by the existence of both cross-sectional and time-series dependencies. The Newey-West standard errors corrected Fama-Macbeth statistic is designed to address concerns about cross-sectional correlation in the data. Thus, robustness of the results is ensured by correcting for potential bias and inconsistency issues in the estimates and overcoming heteroscedasticity problems.

Chapter Four
Research Hypotheses and Methodology

4.1 Introduction

The primary objective of this study is to examine whether managers in the UK utilise earnings management through three types of real earnings management to meet or just beat important earnings benchmarks – namely, zero earnings and last year's earnings using a sample of firms listed on the London Stock Exchange for the period 2009-2013. The data analysis and statistical methods employed to achieve the study objectives are also explicated. Accordingly, the chapter is structured as follows: formulation of the research hypotheses based on theoretical and empirical literature is discussed in section two. Section three describes the sample selection and data collection sources. Sections four, five and six explain the research methodology employed to empirically test the hypothesis. Finally, section seven summarises the chapter.

4.2 Hypotheses Development

Babbie (2005, p. 42) defines a hypothesis as

> "…A specified testable expectation about empirical reality that follows from a more general proposition; more generally an expectation about the nature of things derived from a theory. It is a statement of something that ought to be observed in the real world if the theory is correct."

A hypothesis is formulated to fill the gap between the more abstractly stated research problem and purpose and the detailed design for analysis and data collection. Moreover, a hypothesis is a formal statement of the estimated relationship between two or more variables in a specified population and it interprets the research problem and purpose into a clear justification for or prediction of the estimated results of the study.

4.2.1 Hypotheses Development of the First Empirical

Financial statements are a major source of information, the possibility of opportunistic behaviour increases, particularly when managers use reporting discretion opportunistically to achieve certain objectives (Watts and Zimmerman, 1986, 1990; Subramanyam, 1996), thus serving their own interests at the expense of others. In addition, under the assumptions of transaction cost theory, firms that are reporting a loss (or an earning decrease) carry significantly higher costs in transactions with stakeholders than if the firm had reported a profit (earnings increase). As a result, these assumptions infer incentives to avoid reporting earnings decreases and losses to decrease the cost imposed on the firm in transaction with stakeholders (Burgstahler and Dichev, 1997). [30] Empirical research provides evidence that these incentives (e.g., maximize their own utility) increase when earnings are close to benchmarks which are considered as crucial points by stakeholders and investors. Thus, managers are suspected of managing earnings upward to avoid falling short of important earnings benchmarks. For example, Burgstahler and Dichev (1997) find evidence that firms manage earnings

[30] For a details description of transaction cost explanation, see chapter two, section 2.3.3.

opportunistically to meet certain benchmarks (e.g., zero earnings and last year's earnings).

The literature provide evidence that firms managing earnings to meet or beat important earnings benchmarks: to meet or beat zero earnings (avoiding a loss), to meet or beat the last year's earnings (avoiding an earnings decline), and to meet or beat the analysts' forecasts (avoiding a negative earnings surprise).[31] Researchers (Hayn, 1995; Degeorge et al., 1999; Peasnell et al., 2001; Bartov et al., 2002; Jacob and Jorgensen, 2007) suggest that firm years with earnings right at or just above benchmarks are likely to manage earnings to meet these important benchmarks through upward earnings management. In addition, several studies also show that firms have a range of methods to manage earnings to meet these benchmarks. For example, Bartov (1993) finds that firms with negative earnings changes report higher profits from assets sales, suggesting that the profits are used to blunt the bad earnings news. Dechow and Sloan (1991) find that executives near the end of their tenure reduce R&D expenditures to increase short-term earnings. In related studies, Baber et al. (1991) and Bushee (1998) report evidence consistent with firms reducing R&D expenditure to meet earnings benchmarks such as positive earnings or previous year's earnings. Graham et al. (2005) report that 80% of the CFOs are willing to cut their discretionary spending on R&D, advertising, and maintenance to meet short-term earnings targets.

Recent related studies – theoretical and empirical – have found evidence that managers engage extensively in real earnings management activities to meet various targets and provide confidence in the construct validity of these types of

[31] Due to data access limitations, this study does not explore the third threshold: "analysts' forecast".

real earnings management around important earnings benchmarks (e.g., Ewert and Wagenhofer, 2005; Roychowdhury, 2006; Cohen et al., 2008; Gunny, 2010; Zang, 2012). First, firms can adopt real earnings management through the acceleration of sales. The acceleration of sales can be achieved utilising price discounts and lenient credit terms, with the intention to persuade more customers. By introducing price discounts firms can accelerate their sales from the next year to the current year. However, the increase in sales is only a temporary situation. When the old prices are re-enacted, the situation will reverse. The price discounts will boost total earnings in the current period but will also lead to lower margins. This would subsequently lead to a situation where production costs relative to sales will be abnormally high (Roychowdhury, 2006).

Moreover, firms can decide to alter the levels of discretionary expenditures such as advertising, R&D, and selling, general and administrative (SG&A) expenses (Roychowdhury, 2006). By reducing/cutting these expenses, firms can increase their current period earnings; which subsequently leads to an increase in the current period cash flows when these expenses are paid in cash. However, there is a risk that this may negatively affect the cash flows in the future (Roychowdhury, 2006).

Finally, firms can lower their costs of goods sold through an increase of their productions. By increasing their production more than normal, firms can spread the fixed overhead costs over more units. This would subsequently decrease the fixed cost per unit. However, due to overproduction, firms might contract additional holding costs, and therefore cash flows from operations are lower than the normal sales levels (Roychowdhury, 2006).

Most previous studies in this field examine US firms, while a few have provided empirical evidence for UK cases. Zarowin and Oswald (2005) and Osma (2008) find that UK listed firms manipulate reported earnings by cutting R&D expenses to meet earnings benchmarks. Further, Athanasakou et al. (2009) and Athanasakou et al. (2011) find that UK firms engage in earnings management to meet only one of the important earnings benchmarks; namely, analyst earnings expectations. However, the current study examines whether UK firms reflect that managers who have incentives manage reported earnings around zero earnings and last year's earnings by using three types of real earnings management.[32] Therefore, firms that manage earnings upwards are likely to have at least one of these characteristics – unusually low cash flows from operations, and/or unusually low discretionary expenses, and/or unusually high production costs. The three hypotheses, stated in alternate form, follow:[33]

HYPOTHESIS 1a. *UK firms that just meet/beat earnings benchmarks around zero earnings are more likely to engage in real earnings management.*

HYPOTHESIS 1b. *UK firms that just meet/beat earnings benchmarks around last year's zero are more likely to engage in real earnings management.*

HYPOTHESIS 2a. *UK firms that just meet/beat earnings benchmarks around zero earnings are more likely to engage in real earnings management.*

[32] Roychowdhury (2006) defines firms that just meet/beat earning benchmarks around zero earnings threshold as firm-years with earnings before extraordinary items over lagged assets between 0 and 0.005 as "suspect firm-years" (Suspect_zero). Gunny (2010) defines firm-years observation suspect just beating/meeting the last year's earning as firm-years with change in net income before extraordinary items from last year between 0 and 0.01 as "suspect firm-years" (Suspect_last).

[33] It is worth noting that Hypotheses H1a, H2a, H2b, H3a and H3b are not new to the literature and have already been addressed by prior research based on US firms, e.g., Roychowdhury (2006), Gunny (2010) and Zang (2012). However, it is necessary to examine such hypotheses in the thesis to prove consistency with prior literature and check the applicability of the data in the UK.

HYPOTHESIS 2b. *UK firms that just meet/beat earnings benchmarks around last year's earnings are more likely to engage in real earnings management.*

HYPOTHESIS 3a. *UK firms that just meet/beat earnings benchmarks around zero earnings are more likely to engage in real earnings management.*

HYPOTHESIS 3b. *UK firms that just meet/beat earnings benchmarks around last year's earnings are more likely to engage in real earnings management.*

4.2.2 Hypotheses Development of the Second Empirical

Under the agency theory perspectives, the net effect of earnings management on a firm's value depends on whether managers manipulate earnings mainly to serve their own interest (opportunistic earnings management) and thus mislead investors on their assessments of firms' performance (Healy and Palepu, 1993; Subramanyam, 1996; DeFond and Park, 1997). On the other hand, due to information asymmetry, investors usually do not have as much information as the managers. Therefore, managers may use earnings to communicate their private information on firms' future performances and thus improve earnings' informativeness by providing more timely measures of a firms' future performance (Demski, 1998; Kothari, 2001; Sankar and Subramanyam, 2001). In addition, if managers sacrifice short-term value to manipulate earnings to signal their firms' future performance (signalling earnings management), and the market recognizes the information in the signal, the benefits may offset the costs and eventually increase a firm's value and thus protect its long-term value.

Conflicting empirical results regarding the positive or negative influence of real earnings management on performance have generated opposing explanations

regarding the reasons the managers adopt real earnings management. A negative correlation between real earnings management activities and the subsequent operating performance of firms, which suggests the opportunistic mechanism, may affect the assumption of real earnings management. Empirical evidence generally indicates that income-increasing real earnings management leads to a decline in subsequent earnings and cash flow. In the US firms, Bens et al. (2002, 2003) find that earnings manipulation using stock repurchases has a marginally negative impact on future operating performance. Gunny (2005) investigates the consequences of real earnings management (cutting/reducing R&D and SG&A expenditures, offering price discount to boost sales, and recognising gains from sales of long-term assets) on subsequent operating performance, and finds that US firms that engaged in real earnings management experience a negative decline on subsequent operating performance.

Bhojraj et al. (2009) show that firms that beat analyst forecasts experience a significant negative decline in operating future performance and stock market performance in the subsequent three years. Moreover, Zhang (2008) and Leggett et al. (2009) find that US firms that meet analysts' cash flow consequence and engage in real earnings management experience a negative impact on subsequent operating performance. Vorst (2016) finds that US firms that engage in real earnings management have a negative impact on long-term future performance.

Cohen and Zarowin (2010) and Kothari (2016) provide the most straightforward evidence; they examine the future consequences of real and accrual-based earnings management around the time of seasoned equity offerings (SEO) and show that

future change in return on assets (ROA) is negatively associated with firms engaging in high levels of real earnings management.

While positive correlation between real earnings management and the subsequent operating performance of firms suggests that, the signalling mechanism may affect the adoption of real earnings management. Roychowdhury (2006) and Taylor and Xu (2010) find no decline in subsequent operating performance for real earnings management firms using manipulation of discretionary expenditures, production, and sales to meet analysts' forecasts of the US firms. Prior studies document that firms that manage earnings to meet analyst earnings forecast tend to demonstrate good future operating performance (Bartov et al., 2002; Koh et al., 2007). Gunny (2010) shows that conducting real earnings management simply to meet earnings thresholds is positively related with subsequent operating performance, and that firms reducing/cutting R&D expenditures or selling, general and administrative expenses just to meet/beat earnings thresholds have higher subsequent industry adjust return on assets and cash flow from operations (CFO). Chen et al. (2010) examine how the effect of accrual-based earnings management is negative on performance, whereas the effect of real earnings management is positive on performance.

To the best of my knowledge, no study has depicted the relationship between the three types of real earnings management to meet or just beat important earnings benchmarks (zero earnings and last year's earnings) and future operating performance in UK firms. Most prior studies in this field are US-based, and there is no empirical evidence for UK context. In addition, most academic studies attempt to identify earnings management, but they have not measured real earnings

management on firms' subsequent operating performance in terms of its magnitude. Gunny (2010) uses indicator variables, and classifies real earnings management firms as those firms in the extreme quintile of abnormal real earnings management. This study is timely in that it addresses this gap by examining the relation between the magnitudes of real earnings management activities measurements and UK firms' future operating performance in order to capture the general level of real earnings management activities on future operating performance.

From the above empirical literature, since all earnings manipulation activities lead to higher income in the current period, there would be some consequences of these activities and it can be either opportunistic or signalling choices of managers and thus the results are mixed. However, if firms tend to manage earnings for opportunistic reasons and manipulate their operating activities on a regular basis, their operating performances are likely to deteriorate in the future. On the other hand, manipulations of operating activities are less likely to significantly affect the operations of firms that are in strong financial and market positions and intend to use earnings to communicate favourable private information about future performance. Compared to other firms, firms' just meeting/beating important earnings benchmarks around zero earnings and last year's earnings have higher incentives to engage in real earnings management manipulation are expected to experience a negative (positive) effects on firms' future performance. By taking three measures of real earnings management around firms to meet or just to beat zero earnings and last year's earnings and industry adjusted return on assets as measures of financial operating performance I hypothesise that:

HYPOTHESIS 4. *There is an association between UK firms that manipulate their sales, discretionary expenses and production to meet or just beat earnings benchmarks (e.g., zero earnings and last year's earnings) and future operating performance.*

HYPOTHESIS 5. *There is an association between UK firms that manipulate their sales, discretionary expenses and production in absence of meeting/beating earnings benchmarks and future operating performance.*

4.3 Sample Selection and Data Sources

The dataset of this study can be classified into two categories of data: Firstly, financial and market data were extracted from *Datastream* and *Worldscope* databases[34] for all firms listed on the London Stock Exchange (LSE) from the fiscal years 2009 and 2013.[35] The sample period starts with 2009 because managers could have been incentivised to manipulate earnings to avoid the negative effects of the financial crisis. The sample period ends in 2013, is the most recent fiscal year-end with available subsequent year data. The sample is extended to 2014 because of the requirement for data to measure a firm's operating performance for one subsequent year. Secondly, classifications of industry; data on the industry classification were initially based on international standard industrial classification (ISIC).[36] Since the distributions of the firms across the industry classifications was highly unbalanced

[34] This database is provided by Thomson Reuters and the version is used here is Thomson *Datastream* Advance for Office (AFO) which covers time-series, statistics, and company accounts data. The *Datastream* database is used to collect the stock price (return) and basic information of the firms, while the *Worldscope* database is used to obtain all required financial data for the sample.
[35] To increase the sample size, this study does not restrict the sample to the firms with December fiscal year-end.
[36] Standard Industrial Classification (SIC) codes are four-digit numerical codes assigned by the US government to business establishments to identify the primary business of the establishment. The SIC system arrays the economy into 11 divisions, that are divided into 83 2-digit major groups, that are further subdivided into 416 3-digit industry groups, and finally disaggregated into 1005 4-digit industries.

between the large numbers of economics activities, the industries were then summarised based on international standard industrial classification. Figure 4.1 presents the distribution of the sample firms according to this classification.

Table 4.1 sets out all sample selection criteria to estimate real earnings management. The initial sample has 6,831 firm-year observations with sufficient *Datastream* and *Worldscope* data for calculating real earnings management proxies over the sample period of 2009 to 2013. Matsumoto (2002) argues that firms in the financial, banking, and utilities industries have regulations and incentives in terms of earnings management that differ from those of firms in other industries. Consistent with prior research (Burgstahler and Dichev, 1997; Roychowdhury, 2006; Cohen et al., 2008; Gunny, 2010; Zang, 2012), firms in the financial institutions, banks, communication (SIC 6000-7000), transportation and utility industries (SIC 4400-5000) were eliminated from the sample. This is because they operate in highly regulated industries with accounting rules that differ to those in other industries. In addition, to improve the comparability of results among sample firms, which gives me 5,230 firm-year observations.

Following prior research (e.g., Kothari et al., 2005; Roychowdhury, 2006; Gunny, 2010; Zang, 2012), for real earnings management proxies I require firm-year data with at least 15 observations for each 2-digit SIC industry in a particular year in order to estimate real earnings management [37]. Since I base the earnings management measure on cross-sectional regression using industry-year information, I exclude firm-year in industries with less than 15 observations from

[37] Industry is defined as division by its 2-digit SIC (Standard Industrial Classification) code.

the sample. After this step, the sample is reduced to 5,029 firm-year observations.[38] I exclude firms without sufficient data to calculate the proxies of real earnings management, and firm-year observations with missing data. This requirement further reduces the sample to 4,498 firm-year observations. I further eliminate firms with negative sales number or where the total assets value is zero or not reported.[39] All variables and continuous variables are winsorized at the top and bottom 1% of their distributions to avoid the influence of outliers (Tabachnick and Fidell, 2007; Gunny, 2010; Zang, 2012).[40] Finally, I have 4,487 firm-years and 930 firms over the period of 2009 to 2013; this is the full sample that I use to test the hypotheses as reported in Table 4.2, which includes six divisions, and 49 industries (major group).

My tests proceed based on the firms that just meet or beat earnings benchmarks under the assumption that those firms are more likely to have incentives to manipulate earnings by utilising real earnings management activities. Specifically, I focus on the two common groups of firms that are well identified by the previous studies as the firms with strong incentives to manage earnings. These are (1) firms that meet or just beat zero earnings – that is, report positive net income and (2)

[38] McNichols (2000, p. 324) notes that a time series approach of earnings management poses two problems. "First, one must exclude firms that do not have a sufficient data series in COMPUSTAT or other data sources. This leads to potentially smaller samples, and their representativeness remains open to question. Second, it is not clear that sample firms have no incentive to manage earnings in the estimation period, or that data are stationary over such a long period". However, the cross-sectional estimation approach of earnings management is used, which does not require a time-series for each firm.

[39] Datastream technicians note that "the negative sales may results from a data entry error or may actually denote a missing value."

[40] All continuous explanatory variables in the models are primarily based on annual changes and this introduces a potential issue when they denominator is very small. To minimise distortions from extreme values, the data are winsorized at 1% and 99% percentiles for each variables.

firms that meet or just beat last year's earnings – that is, maintain last year's performance (e.g., Roychowdhury, 2006; Gunny, 2010; Zang, 2012).

Table 4.1: Sample Selection Criteria for Real Earnings Management

Sample selection criteria	**Number of firms**	**Number of firm-year observations**
Firm-year observations have sufficient accounting data from *Datastream* and *Worldscope* over the period of 2009 to 2013 for real earnings management calculation	1,510	6,831
***Less*:**		
Firms in the financial and utility industries (SIC 6000-7000 and SIC 4400-5000)	351	1,601
Industries with less than 15 firm-years observations in the same industry-year	56	201
Firms without sufficient data to calculate the proxies of REM	73	230
Missing data (e.g., data not available) and firms greater than 12 months, therefore it may seem as there is a "missing year"	97	301
Firms with negative sales numbers or where the total assets value is zero or missing	3	11
Full sample that I use for testing the hypotheses	930	4,487

Industry	2-Digit SIC Code	Industry Classification Sector	No. of Firm-Years
Metal Mining	10	Mining	973
Bituminous Coal and Lignite Mining	12		
Oil and Gas Extraction	13		
Mining and Quarrying of Nonmetallic Minerals, except Fuels	14		
Building Construction General Contractors	15	Construction	156
Heavy Construction	16		
Construction Special Trade Contractors	17		
Wholesale Trade-durable Goods	50	Wholesale Trade	112
Wholesale Trade-nondurable Goods	51		
Building Materials, Hardware	52	Retail Trade	325
General Merchandise Store	53		
Food Stores	54		
Automotive Dealers and Gasoline Service Stations	55		
Apparel and Accessory Stores	56		
Home Furniture and Furnishings	57		
Eating and Drinking Places	58		
Miscellaneous Retail	59		
Hotels, Rooming Houses, Camps	70	Services	1,469
Personal Services	72		
Business Services	73		
Automotive Repair, Services, and Parking	75		
Miscellaneous Repair services	76		
Motion Pictures	78		
Amusement and Recreation Services	79		
Health Services	80		
Educational Services	82		
Social Services	83		
Engineering, Accounting, Research, Management	87		
Miscellaneous Services	89		

Industry	2-Digit SIC Code	Industry Classification Sector	No. of Firm-Years
Food and Kindred Products	20	Manufacturing	1,452
Tobacco Products	21		
Textile Mill Products	22		
Apparel and other Finished Products	23		
Lumber and Wood Products, except Furniture	24		
Furniture and Fixtures	25		
Paper and Allied Products	26		
Printing, Publishing, and Allied Industries	27		
Chemicals and Allied Products	28		
Petroleum Refining and Related Industries	29		
Rubber and Miscellaneous Plastics Products	30		
Leather and Leather Products	31		
Stone, Clay, Glass, and Concrete Products	32		
Primary Metal Industries	33		
Fabricated Metal Products	34		
Industries and Commercial Machinery	35		
Electronic and other Electrical Equipment and Components	36		
Transportation Equipment	37		
Measuring, Analysing, and Controlling Instruments	38		
Miscellaneous Manufacturing Industries	39		

Figure 4.1: Industry Classification by 2-digit SIC Code Division

4.3.1 Descriptive Statistics of Final Sample by Industry and Year

Table 4.2 presents the sample distribution of firm-year observations by SIC division grouping and by time, and Panel A presents the sample structure by industry. I show the industry distribution of the final sample by presenting the number of observations and percentage for each industry (division), which consists of 930 firms from 49 industries. In addition, the sample firms come from a variety of industries, and I focus on several divisions. The most heavily represented industries are in the divisions of manufacturing with 1,452 firms (32.36%, 2-digit SIC code 20-39), and 32.74% are in the division of services with 1,469 firms (2-digit SIC code 70-89). This is followed by the mining division (21.68%, SIC code 10-14), the retail trade division (7.24%, 2-digit SIC code 52-59), the division of construction (3.48%, 2-digit SIC code 14-17), and the division of wholesale trade (2.5%, 2-digit SIC code 50-51). Table 4.2, Panel B shows the time series distribution of the firms' sample over the period of 2009 to 2013. However, there is no significant variation in the year-to-year numbers of the sample. All years – 2009, 2010, 2011, 2012 and 2013 – have similar percentages of numbers of firms by division (approximately 20%).

Table 4.2: Sample Description of Industry and Time Distribution for All Firms' Sample over the Period of 2009 to 2013

Panel A: Distribution of Firm-Year Observations by SIC Division

Division Group	SIC Division Group	Number of Industry Division Group	Number of Observations	Percentage of Sample	Cum. (%)
Mining	SIC 10 – SIC 14	4	973	21.68	21.68
Construction	SIC 15 – SIC 17	3	156	3.48	25.16
Manufacturing	SIC 20 – SIC 39	20	1,452	32.36	57.52
Wholesale trade	SIC 50 – SIC 51	2	112	2.50	60.02
Retail trade	SIC 52 – SIC 59	8	325	7.24	67.26
Services	SIC 70 – SIC 89	12	1,469	32.74	100.00
Total		49	4,487	100.00%	

Panel B: Time Distribution

Year	Frequency	Percent	Cum. (%)
2009	842	18.77	18.77
2010	878	19.57	38.33
2011	907	20.21	58.55
2012	930	20.73	79.27
2013	930	20.73	100.00
Total	4,487	100.00%	

4.4 Research Methods

4.4.1 Real Earnings Management Metrics

Firms can utilise three types of real earnings management activities to manage earnings upward: boosting the time of sales through increasing price discounts or more lenient credit facilities; cutting or reduction of discretionary expenses including research and development; advertising expenses; selling, general and administrative spending; and finally reducing the reported cost of goods sold through overproduction. These actions can affect a firm's cash flow from operations, discretionary expenses, and production costs, causing it to deviate from their normal business level. Specifically, both sales manipulation and overproduction generate abnormally high production costs relative to dollar sales, and reduction of discretionary expenses generates abnormally low discretionary expenses relative to sales (Roychowdhury, 2006). However, as reported in Roychowdhury (2006) the effect of these manipulation methods on cash flows from operations (CFO) is ambiguous. For example, given the sales level, both sales-based manipulation and overproduction have a negative impact on abnormal current-period CFO, whereas reduction of discretionary expenses has positive impact on abnormal current-period CFO. Therefore, the results based on the cash flows from operations measure should be interpreted with caution.

This study focuses on contexts in which the literature has shown that firms have strong incentives to manage earnings upward – i.e. firms that meet or just beat earnings benchmarks around zero earnings and last year's earnings. Also, this study follows prior research by using five measures to detect real earnings management

activities (e.g., Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Gunny, 2010; Badertscher, 2011; Zang, 2012; Cohen et al., 2016; Kothari et al., 2016) as these studies provide evidence of the validity of these measures. Specifically, this study uses the following five measures to detect real earnings management activities: (1) the abnormal levels of cash flows from operations (Ab_CFO), (2) abnormal discretionary expenses (Ab_DISEX), (3) abnormal production costs (Ab_PROD), (4) a combined measure of real earnings management (REM_1), and (5) a combined measure of real earnings management (REM_2). Therefore, the residuals from these estimation models represent measures of real earnings management activities.

4.4.1.1 The Normal Level of Cash Flows from Operations

The first measure for real earnings management activities is the abnormal cash flows from operations. To manage earnings upward, firms can utilise the real earnings management method through sales manipulations by accelerating the time of sales or generating unsustainable sales. Roychowdhury (2006) defines sales-based manipulation as managers' attempts at temporarily boosting sales during the year through offering price discounts and/or more lenient credit facilities. Hence, sales-based manipulation is expected to lead to lower current-period operating cash flows. Such price discounting and/or more lenient credit facilities will temporarily accelerate the firm's sales volume from the next year to the current year, assuming the margins are positive. However, the increase in sales is a temporary situation and any gains are likely to disappear once the firm reverts to the original prices (Roychowdhury, 2006).

In the first stage, I express (generate) the normal cash flows from operations as a linear function of sales revenue and change in sales revenue in the current period using the model developed by Dechow et al. (1998) as implemented in Roychowdhury (2006). Recent researchers such as Cohen et al. (2008), Badertscher (2011), and Cohen and Zarowin (2010) also apply the cash flows from operations model to estimate real earnings management. To estimate this model, I run the following cross-sectional regression for each industry and year for all firms listed on the London Stock Exchange (LSE)[41]; where each industry is defined as a division by its 2-digit Standard Industrial Classification (SIC) code:

$$\frac{CFO_{i,t}}{TA_{i,t-1}} = \alpha_0 + \beta_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2 * \left(\frac{SR_{i,t}}{TA_{i,t-1}}\right) + \beta_3 * \left(\frac{\Delta SR_{i,t}}{TA_{i,t-1}}\right) + \varepsilon_{i,t}, \qquad (4.1)$$

where

$CFO_{i,t}$ = is cash flows from operations for firm i in the year t, defined as cash flows from operations divided by lagged total assets;

$TA_{i,t-1}$ = is the total assets at the beginning of period t for firm i;

$SR_{i,t}$ = the sales revenue during period t for firm i;

$\Delta SR_{i,t}$ = $SR_{i,t} - SR_{i,t-1}$;

i = the firm; and

$\varepsilon_{i,t}$ = is the error term.

All variables are deflated by lagged total assets consistent with prior studies on earnings management (Christie, 1987; Easton and Sommers, 2003).[42]

[41] To take account of extreme values all variables are winsorized at 1% and 99%.

[42] Easton and Sommers (2003) document that there are several potential advantages of deflating by lagged assets. First, scale differences largely disappear. Second, risk differences tend to become smaller through time for a given company than across companies and third, biases in coefficients on leverage and size would be inconsequential without deflating. Moreover, Barth and Clinch (2009)

Second, the estimated coefficients $\alpha_0, \beta_1, \beta_2$, and β_3 from equation (4.1) are used to estimate normal cash flows from operations ($Normal\_CFO_{i,t}$) for all firms listed on the London Stock Exchange for each year and industry as follows:

$$Normal\_CFO_{i,t} = \hat{a}_0 + \hat{\beta}_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \hat{\beta}_2 * \left(\frac{SR_{i,t}}{TA_{i,t-1}}\right) + \hat{\beta}_3 * \left(\frac{\Delta SR_{i,t}}{TA_{i,t-1}}\right) \quad (4.2)$$

Third, for every firm on the LSE, the abnormal level of cash flows from operations ($Ab\_CFO_{i,t}$) is computed as actual cash flows from operations ($CFO_{i,t}/TA_{i,t-1}$) minus the normal level of cash flows from operations ($Normal\_CFO_{i,t}$) predicted from equation (4.2) as follows,

$$Ab\_CFO_{i,t} = \left(\frac{CFO_{i,t}}{TA_{i,t-1}}\right) - Normal\_CFO_{i,t} \quad (4.3)$$

4.4.1.2 The Normal Level of Discretionary Expenses

The second measure for real earnings management activities is the abnormal discretionary expenses. Prior research suggests that managers cut discretionary expenses in order to manage earnings. Graham et al. (2005) find that CFOs indicate a willingness to engage in real earnings management by delaying discretionary spending in areas of R&D, advertising, and maintenance in order to achieve an earnings target. Moreover, firms can decide to alter the level of discretionary

point out that using the data simulated to have scale effects and find that market capitalisation mitigates more effectively the scale effects than do the other potential deflators such as equity book value, lagged price, returns, lagged market capitalisation, lagged assets and lagged sales. This follows the approach of prior research (see. e.g., Roychowdhury, 2006; Cohen et al., 2008; Gunny, 2010; Zang, 2012) which points out that adding a scaled intercept, $1/TA_{i,t-1}$ to control for size is recommended, therefore avoiding artificial correlation between cash flow from operations and sales revenue that results from the differences in the total assets. Adding an unscaled intercept, α_0 for the normal levels of cash flows from operations, discretionary expenses, and production costs to ensure that the mean Ab_CFO, Ab_DISEX, and Ab_PROD for every industry-year are zero.

expenses such as advertising, R&D and selling, general and administrative expenses by reducing these expenses, firms can increase their current-period earnings. However, there is a risk that this may negatively affect the cash flow in the future (Roychowdhury, 2006).

I draw from Roychowdhury's (2006) work to measure managerial manipulation of discretionary expenses.[43] Later researchers such as Cohen et al. (2008), Cohen and Zarowin (2010), Badertscher (2011) and Zang (2012) also apply the discretionary expenses model to estimate real earnings management. The normal level of discretionary expenses can be expressed as a linear function of contemporaneous sales where:

$$\frac{DISEX_{i,t}}{TA_{i,t-1}} = \alpha_0 + \beta_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2 * \left(\frac{SR_{i,t}}{TA_{i,t-1}}\right) + \varepsilon_{i,t}, \quad (4.4)$$

Roychowdhury (2006) and Cohen and Zarowin (2010) mention, however, that estimating a normal level of discretionary expenses as a function of current sales in equation (4.4) can lead to problems if firms manage sales upwards to increase reported earnings during any year, and lower residuals from running a regression as specified in the equation (4.4).[44] To address this issue, following a number of researchers (Roychowdhury, 2006; Cohen et al., 2008; Badertscher, 2011; Zang, 2012), I model discretionary expenses as a linear function of lagged sales. I then estimate the following model to derive the normal levels of discretionary expenses

[43]Roychowdhury (2006) includes advertising expenses as a separate component of discretionary expenses. This study does not include advertising expenses separately since they are already included in the annual *Worldscope* data items for selling, general and administrative (WC101101).
[44] Roychowdhury (2006, p. 345) models discretionary expenses as a linear function of lagged sales because "if firms manage sales upward to increase reported earnings in any year, they can exhibit unusually low residuals from the regression using current sales in that year, even when they do not reduce discretionary expenses."

($Normal\_DISEX_{i,t}$) for all firms listed on the London Stock Exchange cross-sectionally for each industry and year as follows,

$$\frac{DISEX_{i,t}}{TA_{i,t-1}} = \alpha_0 + \beta_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2 * \left(\frac{SR_{i,t-1}}{TA_{i,t-1}}\right) + \varepsilon_{i,t}, \quad (4.5)$$

where

$DISEX_{i,t}$ = is the discretionary expenses that are defined as the sum of research and development (R&D), advertising, and selling, general and administrative expenses (SG&A) in year t for firm i[45];

$TA_{i,t-1}$ = is the total assets at the beginning of period t for firm i; and

$SR_{i,t-1}$ = is the sales revenue at the beginning of year t for firm i. Given that firms with higher sales generally have higher expenses, the coefficients on lagged sales should be positive.

For every firm on the LSE the abnormal level of discretionary expenses ($Ab\_DISEX_{i,t}$) is computed as the difference between the actual discretionary expenses ($DISEX_{i,t}/TA_{i,t-1}$) and the normal level of discretionary expenses ($Normal\_DISEX_{i,t}$) using the estimated coefficient from equation (4.5) as follows,

$$Ab\_DISEX_{i,t} = \left(\frac{DISEX_{i,t}}{TA_{i,t-1}}\right) - Normal\_DISEX_{i,t} \quad (4.6)$$

4.4.1.3 The Normal Level of Production Costs

The third measure of real earnings management activities is abnormally high inventory production, producing an excessive volume of units, the less fixed manufacturing overhead costs for each unit, and vice versa (Cohen et al., 2008). Thus, to manage earnings upward, managers can overproduce inventory during an

[45] As long as SG&A expenses are available, advertising expenses and R&D are set to zero if they are not available in the *Datastream* database.

accounting period in order to lower costs of goods sold by increasing their normal production and therefore report higher profit margin, if greater inventory holding costs or increases in marginal cost per unit in the current period are not offsetting realised cost savings (Gunny, 2010). However, high inventory holding costs in subsequent periods caused by surplus of inventories have negative impact on cash flows.

I draw from Roychowdhury's (2006) model to capture the amount of abnormal production costs (*Ab_PROD*). Subsequent studies, such as Cohen et al. (2008), Gunny (2010), Cohen and Zarowin (2010), Badertscher (2011), and Zang (2012), using the production costs model to estimate real earnings management, define the production costs as the sum of cost of goods sold and change in inventory during the year[46]. In addition, they provide further evidence that this measure captures real earnings management activities. Variables sales revenue ($SR_{i,t}/TA_{i,t-1}$), change in sales revenue ($\Delta SR_{i,t}/TA_{i,t-1}$), and lagged change in sales revenue ($\Delta SR_{i,t-1}/TA_{i,t-1}$) have been utilised to estimate the normal levels of production costs. The normal level of production costs can be expressed as a linear function of contemporaneous sales as:

$$\frac{PROD_{i,t}}{TA_{i,t-1}} = \alpha_0 + \beta_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2 * \left(\frac{SR_{i,t}}{TA_{i,t-1}}\right) + \beta_3 * \left(\frac{\Delta SR_{i,t}}{TA_{i,t-1}}\right) + \beta_4 * \left(\frac{\Delta SR_{i,t-1}}{TA_{i,t-1}}\right) + \varepsilon_{i,t,} \quad (4.7)$$

where

$PROD_{i,t}$ = is the sum of the cost of goods sold in year t for firm i and the change in inventory from $t-1$ to t;

[46] Roychowdhury (2006) points out that, in order to detect abnormal production costs, production costs instead of cost of goods sold are used for two reasons: using cost of goods sold may also measure at the same time accrual based-earnings management via inventory account, and secondly, it could be distorted by the company's inventory cost flow assumption (FIFO/LIFO).

$TA_{i,t-1}$ = is the total assets in firm-year $i, t-1$;

$SR_{i,t}$ = is the sales revenue in year t for firm i;

$\Delta SR_{i,t}$ = is the change in sales revenue from year $t-1$ to t; and

$\Delta SR_{i,t-1}$ = is the change in sales revenue at the beginning of year t for firm i.

The abnormal production costs (*Ab_PROD*) is computed as the difference between the actual values of production costs and the normal levels predicted from equation (4.7). Equation (4.7) is estimated as cross-sectional for each industry and year.

4.4.1.4 Aggregate Real Earnings Management Measures

In order to capture the total effects of real earnings management (REM), aggregate real activities manipulation is developed. Batrov and Cohen (2007), Cohen et al. (2008) and Badertscher (2011) use a variable of REM proxies as a single measure of real earnings management by summing the three standardised individual components; i.e. abnormal cash flows from operations, abnormal discretionary expenses, and abnormal production costs. Furthermore, Gunny (2010) computes a variable aggregate REM as the sum of the residuals from the R&D model, SG&A model, and production costs model multiplied by negative one.

In recent studies, Cohen and Zarowin (2010) and Zang (2012) develop and combine the three individual measures of real earnings management (abnormal cash flows from operations, abnormal discretionary expenses, and abnormal production costs) to compute an aggregate measure of real earnings management activities. By using the same metrics, they provide further evidence that these measures capture real earnings management. For the first measure, *REM_1* – and consistent with Cohen

and Zarowin (2010) and Zang (2012) – abnormal discretionary expenses and abnormal production cost are multiplied by negative one, and then aggregated as one measure.[47] A higher amount of this aggregate measure implies that suspect firm-years are more likely to be cutting discretionary expenses and overproduction to increase reported earnings. Thus,

$$REM\_1 = Ab\_DISEX * (-1) + Ab\_PROD \quad (4.8)$$

For the second measure, *REM_2* – again, consistent with Cohen and Zarowin (2010) and Zang (2012) – abnormal cash flows from operations and the abnormal discretionary expenses are multiplied by negative one and then aggregated into one measure. As for *REM_1*, I multiply it by negative one so that, the higher these amounts, the more likely it is that the firm is engaging in sales-based manipulation and cutting discretionary expenses to manage reported earnings upwards.[48] Thus,

$$REM\_2 = Ab\_CFO * (-1) + Ab\_DISEX * (-1) \quad (4.9)$$

Even though single REM proxies have different implications for earnings, aggregating these measures may dilute the empirical results.

[47] Following Cohen and Zarowin (2010) and Zang (2012), I do not multiply abnormal production costs by negative one because higher production costs are indicative of overproduction to reduce cost of goods sold. I do not combine abnormal production costs and abnormal cash flows from operations because the same activities that lead to abnormally high production costs also lead to abnormally low cash flow; thus, adding these two amounts lead to double counting REM.

[48] Following the approach of Cohen and Zarowin (2010) and Zang (2012) I multiply abnormal discretionary expense and abnormal cash flows from operations by (-1) so that positive values represent income increasing REM to allow all measures of real earnings management to have the same interpretation and consistency with other REM measures as the measure of production costs.

4.4.2 How to Achieve Measures of Real Earnings Management

Consistent with prior research, residuals from these estimation models represent measures of real earnings management activities (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Gunny, 2010; Zang, 2012). In the above equations, the abnormal cash flows from operations *(Ab_CFO)*, abnormal production costs *(Ab_PROD)* and abnormal discretionary expenses *(Ab_DISEX)* are computed as the difference between the actual values and the normal levels predicted from Equations (4.1), (4.5) and (4.7). Apparently, the higher values of these residuals indicate that firms engage in real earnings management activities to increase reported earnings by accelerating sales or generating unsustainable sales with price discounts and more lenient credit terms, and cutting discretionary expenses and overproduction of inventory.

4.4.3 Suspect Firms Just Meeting/Beating Important Earnings Benchmarks

Prior research suggests that firm-years with earnings right at or just above benchmarks are likely to manage earnings to meet these important benchmarks (Hayn, 1995; Burgstahler and Dichev, 1997; Degeorge et al., 1999; Peasnell et al., 2001; Bartov et al., 2002; Jacob and Jorgensen, 2007). Graham et al. (2005) also provide survey evidence that CFOs find the following earnings benchmarks are the most important: same quarter last year, analyst consensus forecast, zero earnings, and previous quarter earnings per share (EPS). Moreover, both theoretical and empirical studies find evidence that managers engage extensively in real earnings management activities and manage earnings based on three earnings benchmarks to meet various targets; these are zero earnings, last year's earnings, and

management forecasts (e.g., Ewert and Wagenhofer, 2005; Roychowdhury, 2006; Cohen et al., 2008; Gunny, 2010; Hansen, 2010; Zang, 2012).

Two common earnings targets, however, adopted by management are zero earnings and last year's earnings. Thus, I use the same assumption to identify firm-years suspected of managing earnings upward to meet/beat benchmarks targets that are consistent with the prior research. First, following Roychowdhury (2006), I identify suspect firms just beating/meeting the zero benchmarks as firm-years with net income before extraordinary items over lagged assets that lie in the interval 0 and 0.005 as real earnings management "suspect firm-years" ($Suspect\_zero$). Second, following Gunny (2010), I identify firm-year observations suspects just beating/meeting the last year's earning as firm-years with change in net income before extraordinary items from last year between 0 and 0.01 as "suspect firm-years" ($Suspect\_last$). I then create a dummy variable, "suspect firm-years" ($Suspect\_zero$ and $Suspect\_last$), with a value of one for these suspect firm-years, and zero otherwise.

4.5 Empirical Model of Suspect Firm-Years

The following regressions suggested by Roychowdhury (2006), similar to Gunny (2010) and Zang (2012) are run to examine whether suspect firm-years have incentives to manage reported earnings (e.g., firms are more likely to manipulate earnings) compared with non-suspect firm-years (e.g., firms are less likely to manipulate earnings). This study utilises unbalanced panel data including different

numbers of firms in every year. Therefore, I run Fama-MacBeth (1973) approach cross-sectionally for each of the five years from 2009-2013 to test the hypotheses.[49]

$$AREM_t = \beta_0 + \beta_1 * LnMVE_{t-1} + \beta_2 * MTB_{t-1} + \beta_3 * ROA_t + \beta_4 * Suspect\ firm - years_t + Year\ Indicators + \varepsilon_t, \quad (4.10)$$

where ($AREM$) refers to one of the five measures for abnormal real earnings management activities: the dependent variables abnormal cash flows from operations (*Ab_CFO*), abnormal production costs (*Ab_PROD*), abnormal discretionary expenses (*Ab_DISEX*), and aggregate measures of real earnings management; *REM_1* and *REM_2*. Each dependent variable in equation (4.10) will be run separately with a similar set of independent and control variables.

Based on prior research (e.g., Roychowdhury, 2006; Cohen and Zarowin, 2010; Zang, 2012), three control variables – firm size, firm performance, and firm growth – are added to the model that are to be associated with real earnings management to control for significant variations in earnings management that might include measurement errors that are correlated with these firm characteristics. The possible impact of a size effect is controlled for by adding the natural logarithm of market value ($LnMVE$) to the model. To control for firm performance, the return-on-assets (ROA) is added as a control variable calculated as the net income before extraordinary items divided by lagged total assets. In addition, in order to control for firm-specific growth opportunities, the model includes market-to-book ratio (MTB) is computed as the market value of equity (MVE) divided by the book value

[49] In his study, Roychowdhury (2006, p. 350) reports the means of the coefficients from 15 separate annual cross-sectional regressions across industry-years over the period from 1987 to 2001. Fama and MacBeth's approach is used to calculate *t*-statistics. In the estimation process, this study uses Fama and MacBeth's approach to increase the comparability of the results to prior research.

of common equity.[50] Furthermore, these three control variables are considered individually, along with the method of measurement for each variable. However, no prediction is made for the coefficient sign because the empirical evidence on these relations is mixed.

Suspect firm-years ($Suspect\_zero$ and $Suspect\_last$) are an indicator variable that equals 1 if firm-year just beats/meets one of the earnings benchmarks and 0 if it clearly misses or beats all the benchmarks.[51] In line with Roychowdhury's (2006) discussions, if suspect firm-years manage earnings upwards, their abnormal cash flows from operations and abnormal discretionary expenses should be lower; and abnormal production costs should be higher compared with the rest of the sample. Finally, consistent with Gunny (2010) and Zang (2012), equation (4.10) is run with a year ($Year\ Indicators$) as indicator to control for any general economic condition in each given year.

4.6 Empirical Model of Future Operating Performance

Real earnings management activities are achieved by influence output of accounting systems through operating activities with direct cash flow consequences (sales-based manipulation, discretionary expenses based-manipulation, and

[50] Furthermore, Roychowdhury (2006) provides evidence that managers of the suspect firm-years with high growth opportunities (market-to-book ratio, MTB) manipulated earnings by engaging in real earnings management. He shows that these firm-years have abnormal cash flows from operations and abnormal discretionary expenses that are lower, and abnormal production costs that are higher, on average, compared to the rest of the suspect firm-years.

[51] Durtschi and Easton (2005, 2009) provide evidence that the discontinuity around zero earnings as an artefact of the data also can be caused by the deflator because it is significantly smaller for firms just below zero than at zero. They point out that small profitable firms are, on average, more highly valued than small loss firms are. For my sample of UK suspect firm-years around zero earnings, total assets are not significant between suspect firm-years around zero earnings (1,861.28 £m) and non-suspect firm-years (1,396.56 £m) - see Table 5.1.

production costs-based manipulation). The consequences of real earnings management activities on subsequent future performance are two conflict effects.

The first conflict effect is that these activities destroy value for shareholders because such manipulation generally impairs the firm's longer-term cash flows. This means REM is negatively associated with subsequent future performance (e.g., Barton and Simko, 2002; Hirshleifer et al., 2004; Ewert and Wagenhofer, 2005; Graham et al., 2005; Gunny, 2005; Roychowdhury, 2006; Mizik and Jacobson, 2008; Bhojraj et al., 2009; Leggett et al., 2009; Cohen and Zarowin, 2010; Mizik, 2010; Wongsunwai, 2013; De Jong et al., 2014; Ge and Kim, 2014; Alhadab et al., 2015; Francis et al., 2016; Kothari et al., 2016; Vorst, 2016).

The second conflict effect conveys a signal of superior future performance to the market because real earnings management activities allow management to just beat/meet important benchmarks (i.e. zero benchmarks, last year's benchmarks) (e.g., Bartov et al., 2002; Koh et al., 2007; Roychowdhury, 2006; Chen et al., 2010; Gunny, 2010; Taylor and Xu, 2010; Zhao et al., 2012).

To analyse the consequences of real earnings management on future operating performance, the current study tests whether the two conflict effects of real earnings management activities of firms that just meet or beat important earnings benchmarks have an impact on subsequent future performance. Operating performance was measured with industry-adjusted return-on-assets (ROA) that is augmented with each real earnings management activities measures. The following regression model controls for determinants of subsequent operating performance and is similar to that used by Bens et al. (2002) and Gunny (2010). However, this model is estimated with pooled ordinary least squares (time series cross sectional)

regression relating future performance in $t+1$ to real earnings management activities as the dependent variables. Abnormal real earnings management measures ($AREM$) as independent variables, along with control variables, computed *t*-statistics using the Fama and MacBeth (1973) approach, and run cross-sectionally for each of the five years from 2009 to 2013 (Cohen and Zarowin, 2010).[52]

$$Adj\_ROA_{i,t+1} = \alpha_0 + \alpha_1 * LnMVE_{i,t} + a_2 * MTB_{i,t} + \alpha_3 * z\_score_{i,t-1} + a_4 * Adj\_ROA_{i,t} + a_5 * Loss_{i,t} + a_6 * Return_{i,t} + a_7 * AREM_{i,t} + a_8 * Suspect_{i,t} + a_9 * Suspect_{i,t} * AREM_{i,t} + a_{10} \sum Year\ dummies + IND + \varepsilon_{i,t} \quad (4.11)$$

Most academic studies attempt to identify earnings management, but do not provide evidence on its magnitude; this current study addresses this by examining the relation between the magnitude of real earnings management proxies and future performance. In this model, the dependent variable is one-year-ahead industry-adjusted financial performance return-on-assets (ROA), calculated as the differences between firm-specific ROA and median ROA for the same year and industry (2-digit SIC code), as a direct measure of the firm's longer-term cash flow.[53] $AREM$ refers to one of the five measures for abnormal real earnings

[52] The procedures of Fama-Macbeth are used as follow: in the first step, a time series standard error regression for each cross-sectional distribution of coefficients (e.g., firm- or portfolio-specific) is estimated. Then, in the second step, the final coefficients estimates are obtained by basing inferences on the mean and standard deviation of the resulting coefficients. In other words, Fama-MacBeth *t*-statistic based on mean and standard error of time-series of coefficients from cross-sectional regressions.

[53] Extensive literature depicts the different measures and proxies for financial performance of the firms. Broadly, these measures are divided into two categories: accounting-based measures and market-based measures (Margolis et al., 2007). Previous studies on future performance use return on assets (ROA), return on equity (ROE), earnings per shares (EPS), price-earnings (P/E), earnings before income and tax (EBIT) and net profit margin as measure of firm performance. To investigate the impact of real earnings management, previous studies (e.g., Rangan, 1998; Gunny, 2005; Mizik and Jacobson, 2008; Leggett et al., 2009, Gunny, 2010; Taylor and Xu, 2010) use return on assets (ROA), industry-adjusted return on assets, and industry-adjusted cash flows from operations (CFO) as measures for performance. Further, Cohen and Zarowin (2010) use change in return on assets as

management activities. The coefficients on $AREM$, captures the main effects of abnormal real earnings management activities on future performance. $Suspect$ as defined above is an indicator variable for suspect firm-years just beating/meeting important earnings benchmarks (zero benchmarks and last year's benchmarks). $Suspect * AREM$ is an interaction term which captures the incremental effects of abnormal real earnings management activities in the presence of just beating or meeting important earnings benchmarks. Finally, to capture the total "value-destroying" and "signalling" impacts of real earnings management activities, I test the sum of coefficient on abnormal real earnings management (a_7) and the coefficient on the interaction terms of firms in the presence of just meeting or beating earnings benchmarks (a_9).

4.6.1 Control Variables

This study examines the consequences of real earnings management activities on future performance with regression models that control for a more comprehensive list of factors that may affect operating performance. Prior research suggests several factors that affect future operating performance:

Size (LnMVE): is included in the regression model as the control variable and is defined as the natural logarithm of market capitalisation. Fama and French (1992) demonstrate that the market capitalisation provides an important representation of the future expectations of the firm. To further assess the association between real earnings management and future operating performance, earlier studies employ

a proxy for performance. Other studies use market-based measures (Tobin's Q) as proxy for performance.

firm size as the control variable (Gunny, 2005, 2010; Leggett et al., 2009; Chen et al., 2010; Taylor and Xu, 2010; Zhao et al., 2012; Chen et al., 2013).

Financial health (z_score): the essential goal for firms with poor financial health is to carry on their operations instead of manipulating their earnings. Graham et al. (2005) find that CEOs in firms with poor financial health first attempt to survive instead of manipulating their earnings. To capture the cost of real activities manipulation, Zang (2012) argues that the marginal cost of real earnings management is high if firms are in poor financial health. Further, Zang (2012) also finds that firms with higher values of z_score indicate a healthier financial condition (superior financial health) and lower cost associated with real activities manipulation. However, financial health of the firm has a positive relationship with financial performance; thus the coefficient on z_score should be positive. Following Zang (2012), the current study uses the bankruptcy prediction model developed by Altman (1968, 2000), which is represented here by the Altman z_score, to control for financial health of the firm. A higher z_score implies a firm's healthier financial condition and a lower z_score implies poorer financial condition of firms.[54]

The Altman z_score model is:

$$z\_score_{i,t-1} = 0.3 * (X1) + 1.0 * (X2) + 1.4 * (X3) + 1.2 * (X4) + 0.6 * (X5) \quad (4.12)$$

where

[54] Mackie-Mason (1990), Leggett et al. (2009), Gunny (2010) and, Taylor and Xu (2010) use different measures for the firm's financial health and calculate z_score of year (t) as: 3.3 * (Net income$_t$ / Total Assets$_{t-1}$) + 1.0 * (Sales$_t$ / Total Assets$_{t-1}$) + 1.4 * (Retained Earnings$_t$ / Total Assets$_{t-1}$) + 1.2 * (Working Capital$_t$ / Total Assets$_{t-1}$). However, Altman found that firms scoring below 1.8 in the "Distress Zones" will probably go into bankruptcy, while firms with scores above 3.0 in the "Safe Zones" are not likely to go bankrupt.

z_score represents the Altman (1986, 2000) distress score with which relative financial condition of the firm can be explained based on magnitude and sign, measured at the beginning of year t. X1 represents the net income before extraordinary items are added to the total assets ratio. X2 represents the total sales to the total assets ratio. X3 represents the retained earnings to the total assets ratio. X4 represents the working capital to the total assets ratio.[55] X5 represents the market value of equity to the total liabilities ratio.

Growth Opportunities (Market-To-Book ratio, MTB): Matsumoto (2002) and McNichols (2000) document that firms that are growing rapidly are more likely to be associated with earnings management. In addition, Skinner and Sloan (2002) point out that firm with growth prospects are more likely to be penalised in the market by the investors; therefore, managers of high-growth firms are more likely to have incentives to engage in more aggressive earnings management to avoid negative earnings. Consistent with previous research, growth opportunities are included in the regression models as a control variable to control for the life cycle of the firm. This is because Fama and French (1992) detect that growth opportunities are a direct signal of the relative future prospects of firms, and calculated as the ratio of market value of common equity divided by the book value of equity, or market-to-book. Prior studies measure growth opportunities of the firm as market value of common equity divided by book value of equity (e.g., Gunny, 2005, 2010; Leggett et al., 2009; Chen et al., 2010; Zhao et al., 2012).[56]

[55] Working capital represents the difference between a firm's current assets and current liabilities.
[56] Other studies use different ways to measure firm performance; return-on-assets, market-to-book value of equity, and sales growth. Kim et al. (2011) use market value of common equity plus the book value of debt divided by the total assets, and Thomsen and Pedersen (2000) also use different proxies to measure the growth as total sales in the current year minus total sales in the previous year

Prior research, however, suggests that large firms and firms with larger market value of common equity-to-book value of equity ratios, and firms with financial health and returns have better future performance, so the coefficients on these control variables are expected to be positive.

Current-period industry-adjusted financial profitability (Adj_ROA*)* – calculated as net income before extraordinary items scaled by lagged total assets minus median ROA for the same year and industry – is also included in the model as a control variable to control for the time-series properties (i.e. persistence) of performance. However, previous research demonstrates that there is a significant positive association between one-year-ahead earnings and past-period earnings (Sloan, 1996; Dechow et al., 2003; Kraft et al., 2007, Gunny, 2010; Taylor and Xu, 2010).

Return: Following Kothari and Sloan (1992) and Gunny (2010), to control for the association between stock performance and future net income, market-adjusted abnormal returns is a proxy for the firm's market performance. This is included in the regression models as a control variable, calculated as the difference between monthly buy-and-hold raw returns and the monthly market buy-and-hold return, compounded over 12 months of the fiscal year t.[57] In addition, Kothari and Sloan (1992) argue that a change in market price during a period reflects a revision in the market's expectations of future net incomes and achieved earnings during the year; thus, price changes are likely to be relevant in predicting earnings changes, and a

divided by lagged total sales and overall multiplied by 100%. Further, another possible proxy to measure growth, PE ratio calculated as market value per share divided by earnings per share, is not used, because the price-earnings ratio for firms with negative or close to zero net income are difficult to interpret (Roychowdhury, 2006).

[57] Consistent with Bens et al. (2002) this examination use the 12 months buy-and-hold stock return on the firm's ordinary shares. Gunny (2010, p. 877) computes size-adjusted abnormal returns as "the monthly buy and hold raw return minus the monthly buy and hold return on a size matched decile portfolio of firms compounded over 12 month of fiscal year (t)".

measure for market's earnings anticipation should be used.[58] Gunny (2010) finds a significant positive association between the one-year-ahead industry-adjusted financial performance (ROA) and the past-period market return.

Loss firm ($Loss$): Roychowdhury (2006) finds evidence that firms with higher net incomes are less likely to manage earnings and engage in real earnings management. $Loss$ is measured as indicator variable equal to one when net income before extraordinary items is negative, and zero otherwise, and included in the model because earnings are less persistent for firms with negative income. Finally, to control for fixed-year effects, this study includes year dummies in the regression model.

4.7 Summary

Based on the theoretical and empirical literature reviewed, most prior studies on real and accrual-based earnings management are US-based, and there is still a scarcity of empirical research on earnings management for UK cases. The two major hypothesis categories have been formulated in the following manner (1) UK firms that meet/beat important earnings benchmarks are more likely to engage real earnings management activities to achieve an earnings target, and (2) the consequences of the real earnings management activities on UK firms' future operating performance that meet/beat earnings benchmarks. This chapter also discusses the research methodology by highlighting the aim and objectives of the study. It describes the methods used in the study to detect real earnings management

[58] Furthermore, Kothari and Sloan (1992) use lagged market return in an attempt to mitigate timing and matching problems in earnings.

by using Roychowdhury's (2006) model, following which the regression model used to examine the consequences of real activities manipulation on firm future operating performance is examined. The sample selection criteria are explicated and the definitions of variables used in the study together with their *Datastream* code and *Worldscope* code are provided. The next chapters (chapters five and six) report the empirical results of testing the hypotheses developed in chapter four.

Chapter Five
Data Analysis and Empirical Test Results of First Essay

5.1 Introduction

This chapter presents the first set of empirical results. I test the research hypotheses 1, 2 and 3 using the abnormal real earnings management as a measure of manipulation and report the empirical results using both univariate and multivariate analyses. The main question to be answered is whether UK firms that meet or just beat important earnings benchmarks utilise real earnings management activities. This chapter is organised as follows. First, section two gives descriptive statistics of real earnings management activities of the whole sample. In section three, I discuss estimation of the normal level of cash flows from operations, discretionary expenditures, production costs, and accrual-based earnings management, while section four presents the summary statistics of abnormal real earnings management activities levels. Correlation coefficients of abnormal real and accrual earnings management are provided in section five. In sections six and seven I present the tests of regression assumptions and the empirical results of the multivariate analyses of firms that just meet/beat important earnings benchmarks (zero earnings and last year's earnings). Finally, section eight provides an overview of the results.

5.2 Descriptive Statistics of Real Earnings Management Activities

Table 5.1 (Panel A) presents descriptive statistics of the full sample, which includes 4,487 firm-year observations from 2009 to 2013 comparing suspect firm-years just beating/meeting zero earnings with the non-suspect firm-years. While Panel B provides summary statistics of the full sample, comparing suspect firm-years just beating/meeting last year's earnings with the non-suspect firm-years.

In Table 5.1 (Panel A), the mean market capitalisation of suspect firm-years, at around £606 million, is 43% of the mean for the rest of the sample, £1,391 million. Interestingly, mean total assets (£1.86 billion) of the suspect firm-years are not lower than the rest of the sample mean (£1.39 billion). This difference in total assets and market capitalisation values suggests that, on average, suspect firm-years have fewer growth opportunities than the rest of the sample, meaning that suspect firm-years have significantly lower mean ratio of market value of equity to book value of equity than the overall sample (1.37 and 2.77, respectively). However, the sample in Panel B is significantly larger at the 1% level in terms of total assets and market capitalisation (£2,286 million and £2,326 million, respectively) than the overall sample. $Suspect\_last$ firm-years have lower market capitalisation to the book value of common equity ratio, averaging around 0.532, than the rest of the sample, at 3.013. This suggests that suspect firm-years around last year's earnings that have fewer growth opportunities than the rest of sample tend to engage in real activities manipulation. Furthermore, the mean net income of $Suspect\_zero$ firm-years at around £4.8 million is 17% – significantly lower than the mean for the rest of the sample, which is £82 million at the 5% level. This indicates that suspect firm-years with lower profitability compared to the non-suspect firm-years are more

likely to engage in real earnings management. However, the mean net income of $Suspect\_last$ firm-years at around £141 million is 51% significantly higher compared to the mean of non-suspect firm-years, at £73 million.

Consistent with prior literature (e.g., Roychowdhury, 2006; Cohen et al., 2008; Gunny, 2010; Zang, 2012). The mean-scaled discretionary expenses of total assets on both suspect firm-years ($Suspect\_zero$ and $Suspect\_last$) (28% and 26%, respectively) are significantly lower than the means for the non-suspect firm-years (47% and 49%, respectively) at the 1% level. This confirms the second hypothesis (H2a and H2b) that suspect firm-years around zero earnings and last year's earnings with low discretionary expenses engage more in real activities manipulation, and that suspect firm-years have lower mean discretionary expenses as a percentage of assets. In contrast, mean production costs scaled by total assets of suspect firm-years around zero earnings have a higher mean although this is not significant compared with the rest of the sample (28% and 48%, respectively).

In addition, in Table 5.1 (Panel B) mean production costs scaled by total assets of suspect firm-years around last year's earnings have a significantly higher mean than the means for the non-suspect firm-years (82% and 59%, respectively) at the 1% level. This is consistent with the third hypothesis (H3b) that suspect firm-years that just beat/meet benchmarks around last year's earnings with high production costs engage in real activities manipulation. Moreover, suspect firm-years in Table 5.1 (Panels A and B) have significantly higher mean cash flow from operations as percentage of assets (2.6% and 6.5%, respectively) than the means for the non-suspect firm-years (-10.3% and -12.1%, respectively) at the 1% level.

Table 5.1: Descriptive Statistics of Suspect firm-years versus Non-Suspect firm-years

Panel A: Descriptive Statistic by Suspect_zero firm-years versus Non-Suspect_zero firm-years

Variable	Full Sample			Suspect _zero firm-years			Non-Suspect _zero firm-years			Difference in
	N	Mean	Median	N	Mean	Median	N	Mean	Median	Means (*t*-test)
MVE (£million)	4,487	1,325.136	39.302	73	606.457	33.765	3,484	1,391.233	42.049	-784.766* (-1.82)
MVE/BVE	4,487	2.654	1.574	73	1.377	0.969	3,484	2.768	1.609	-1.390** (2.37)
Total Assets (TA) (£million)	4,487	1,359.179	50.600	73	1,861.286	74.485	3,484	1,396.566	53.027	464.720 (0.524)
NI (£million)	4,487	77.742	0.582	73	4.863	0.177	3,484	82.696	0.842	-77.833*** (-6.820)
CFO/TA	4,487	-0.096	0.046	73	0.026	0.022	3,484	-0.103	0.047	0.129*** (4.454)
Production Costs/TA	4,487	0.624	0.379	73	0.706	0.414	3,484	0.622	0.379	0.083 (0.775)
Discretionary Expenses/TA	4,487	0.479	0.257	73	0.286	0.180	3,484	0.472	0.258	-0.186*** (-3.687)

(The table is continued the next page)

Panel B: Descriptive Statistic by Suspect_last firm-years versus Non-Suspect_last firm-years

Variable	Full Sample			Suspect _last firm-years			Non-Suspect _last firm-years			Difference in
	N	Mean	Median	N	Mean	Median	N	Mean	Median	Means (*t*-test)
MVE (£million)	4,487	1,325.136	39.302	393	2,326.074	151.570	3,164	1,257.010	37.515	-1,069.064*** (2.513)
MVE/BVE	4,487	2.654	1.574	393	0.532	1.730	3,164	3.013	1.578	-2.480 (-1.545)
Total Assets (TA) (£million)	4,487	1,359.179	50.600	393	2,286.091	191.474	3,164	1,296.800	44.825	989.291*** (2.616)
NI (£million)	4,487	77.742	0.582	393	141.584	7.616	3,164	73.586	0.478	67.997** (2.322)
CFO/TA	4,487	-0.096	0.046	393	0.065	0.072	3,164	-0.121	0.040	0.186*** (5.885)
Production Costs/TA	4,487	0.624	0.379	393	0.826	0.543	3,164	0.598	0.362	0.227*** (4.176)
Discretionary Expenses/TA	4,487	0.479	0.257	393	0.266	0.196	3,164	0.493	0.264	-0.227*** (-5.435)

*Significant at the 10% level. **Significant at the 5% level. *** Significant at the 1% level.
Note to Table 5.1: This full sample consists of 4,487 firm-years over the period of 2009–2013. $Suspect\_zero$ firm-years are the 71 firm-years with reported income before extraordinary items between 0% and 0.5% of lagged total assets in Panel A. $Suspect\_last$ firm-years are the 393 firm-years with reported change in net income before extraordinary items from the last year between 0% and 1% in Panel B. Differences in means (unequal variances) are tested using *t*-tests (in parentheses). The variables are defined in Appendix A.

5.3 Estimation of the Normal level of Cash Flows from Operations, Discretionary Expenditures, Production Costs, and Accrual-based Earnings Management

As discussed in the methodology chapter, the current study uses three types of real earnings management as a measure of earnings management where abnormal real earnings management are estimated using Roychowdhury's (2006) model.[59] In addition, the study also estimates the normal level of accrual-based earnings management as a measure of earnings management, where discretionary accruals are estimated using Kothari et al.'s (2005) model. The signs and the absolute value of the error terms can be used to evaluate the accrual-based earnings management. A positive sign of the error term indicates that accruals have been manipulated to increase the reported earnings, and a negative sign, otherwise, indicates that accruals have been manipulated to decrease the reported earnings. Since accruals reverse, the degree of the manipulation is manifested by the absolute value of the error terms.

Table 5.2 reports the estimation results of the regressions to estimate normal levels through models (4.1), (4.5) and (4.7), and Kothari et al.'s (2005) model to determine the abnormal level of cash flows from operations, discretionary expenses, production costs, and accrual-based earnings management. For every industry-based industry-year, the equations are estimated cross-sectionally over the period of 2009 to 2013. There are 930 firm-years available during the sample period for each estimation model. On average, each industry-year regression contains more

[59] Accrual-based earnings management is also examined to assess the accruals management behaviour of suspect observations.

than 125 observations. All variables are winsorized at the top and bottom 1% of their distributions to avoid the influence of outliers. The reported coefficients are the mean value of the coefficients across industry-years. The parametric test (*t*-statistic) is calculated using the standard error of the mean coefficients across industry-years (Fama and Macbeth, 1973).

Given that firms with higher sales generally have higher expenses, the coefficient in the real earnings management model on sales at the beginning of year t ($SR_{i,t-1}$) should be positive. The mean coefficient on ($SR_{i,t-1}$) is statistically significant and positive, similar to those reported in Roychowdhury (2006) and Zang (2012). However, all the mean coefficients of the three regressions (*Ab_CFO*; *Ab_DISEX*; *Ab_PROD*) are significantly different from zero and comparable to those reported in Roychowdhury (2006) and Zang (2012) with several exceptions. The mean coefficient on the model of abnormal production costs on sales change scaled by total assets at the beginning of year t ($\Delta SR_{i,t}/TA_{i,t-1}$) is insignificant with positive sign (0.0214) while the mean coefficients in Roychowdhury (2006) and Zang (2012) are significantly positive.

In addition, the mean coefficients of cash flows from operations on sales change scaled by the total assets at the beginning of year t ($\Delta SR_{i,t}/TA_{i,t-1}$) are insignificant with positive sign (0.0165). The estimated coefficients in the regressions of abnormal accruals are also similar to those reported in Kothari et al. (2005), with one exception. The mean coefficient ($1/TA_{i,t-1}$) is insignificant with positive sign (1.303). However, the difference in the model estimation table of real earnings management and accrual-based earnings management may come from the differences in the market.

Finally, the mean adjusted R^2 across industry-year is 39% for CFO model, 75% for the production costs model, 34% for the discretionary expenses model, and 44.5% for the accrual-based earnings management model. Therefore, it appears that these models (Roychowdhury, 2006 and Kothari et al., 2005) have reasonable to substantial explanatory power, and the mean adjusted R^2s are consistent with prior literature.

Table 5.2: Measurement of Real Activities Manipulation

Estimation of the Normal Level of Cash Flow from Operation, Discretionary Expenditures, Production Costs, and Accrual-based Earnings Management

Model 4.1: CFO $CFO_{i,t}/TA_{i,t-1}$		**Model 4.5: Discretionary** $DISEX_{i,t}/TA_{i,t-1}$		**Model 4.7: Production** $PROD_{i,t}/TA_{i,t-1}$		**Kothari et al.'s (2005) Model: Accruals** $Accurals_{i,t}/TA_{i,t-1}$	
Intercept	-0.0006 (-0.052)	**Intercept**	0.1798*** (7.032)	**Intercept**	-0.1207*** (-4.103)	**Intercept**	-0.0150*** (-3.097)
$1/TA_{i,t-1}$	-0.4191*** (-7.408)	$1/TA_{i,t-1}$	0.4285*** (4.344)	$1/TA_{i,t-1}$	0.1527* (1.867)	$1/TA_{i,t-1}$	0.1185 (1.303)
$SR_{i,t}/TA_{i,t-1}$	0.0679*** (3.934)	$SR_{i,t-1}/TA_{i,t-1}$	0.0997*** (7.222)	$SR_{i,t}/TA_{i,t-1}$	0.7709*** (31.731)	$(\Delta SR_{i,t} - \Delta AR_{i,t})/TA_{i,t-1}$	-0.0560* (-1.895)
$\Delta SR_{i,t}/TA_{i,t-1}$	0.0165 (0.612)			$\Delta SR_{i,t}/TA_{i,t-1}$	0.0214 (0.321)	$PPE_{i,t}/TA_{i,t-1}$	-0.0612*** (-4.307)
				$\Delta SR_{i,t-1}/TA_{i,t-1}$	-0.1057** (-2.032)	$ROA_{i,t-1}/TA_{i,t-1}$	0.3773*** (6.378)
No. of Industry-years (Industry-divisions)	24		24		18		24
Avg. No. of Obs.	147.80		126.46		142.20		138.85
No. of Obs.	3,547		3,035		2,559		3,332
Mean Adj. R^2	0.390		0.340		0.750		0.445

(The table is continued the next page)

Table 5.2 (Continued)

* Significant at the 10% level. **Significant at the 5% level. *** Significant at the 1% level.
Note to Table 5.2: The following (ordinary least squares) regressions are estimated cross-sectionally for each industry and year from 2009 to 2013. The reported coefficients are the mean value of the coefficients across the industry-years. *T*-statistics (in parentheses) calculated using the standard errors of the coefficients across industry-years (Fama and Macbeth, 1973). The adjusted R^2 and the number of observations is the mean across the industry-years. All variables in model (4.1), model (4.5), model (4.7), and Kothari et al.'s (2005) model are winsorized at the top and bottom 1% of their distributions to avoid the influence of outliers.

The dependent variables are cash flow from operations (CFO) divided by total assets at year $t-1$, discretionary expenditure (DISEX) divided by total assets at year $t-1$, production costs (PROD) divided by total assets at year $t-1$ and total accruals (TACC) divided by total assets at year $t-1$.

The Roychowdhury (2006) Model

Abnormal cash flows from operations are the difference between actual cash flows from operations and normal cash flows from operation, estimated as the deviations from the predicted values from the following industry-year regression from a sample of UK firms:

$$\frac{CFO_{i,t}}{TA_{i,t-1}} = \alpha_0 + \beta_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2 * \left(\frac{SR_{i,t}}{TA_{i,t-1}}\right) + \beta_3 * \left(\frac{\Delta SR_{i,t}}{TA_{i,t-1}}\right) + \varepsilon_{i,t},$$

where $CFO_{i,t}$ is cash flow from operations for firm i in the year t, defined as cash flow from operations divided by lagged total assets, $TA_{i,t-1}$ is the total assets at the beginning of period t for firm i, $SR_{i,t}$ is the sales revenue during period t for firm i, $\Delta SR_{i,t} = SR_{i,t} - SR_{i,t-1}$, i the firm, and $\varepsilon_{i,t}$ is the error term. Abnormal discretionary expenses are estimated as the deviations from the predicted values from the following industry-year regressions from a sample of UK firms:

$$\frac{DISEX_{i,t}}{TA_{i,t-1}} = \alpha_0 + \beta_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2 * \left(\frac{SR_{i,t-1}}{TA_{i,t-1}}\right) + \varepsilon_{i,t},$$

where $DISEX_{i,t}$ is the discretionary expenses which are defined as the sum of research and development (R&D), advertising, and selling, general and administrative expenses (SG&A) in year t for firm i. Abnormal production costs are the difference between actual production cost and the normal level of production costs, estimated as the deviation from the predicted values from the following industry-year regression from a sample of UK firms:

$$\frac{PROD_{i,t}}{TA_{i,t-1}} = \alpha_0 + \beta_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2 * \left(\frac{SR_{i,t}}{TA_{i,t-1}}\right) + \beta_3 * \left(\frac{\Delta SR_{i,t}}{TA_{i,t-1}}\right) + \beta_4 * \left(\frac{\Delta SR_{i,t-1}}{TA_{i,t-1}}\right) + \varepsilon_{i,t},$$

where $PROD_{i,t}$ is the sum of the cost of goods sold in year t for firm i and the change in inventory from $t-1$ to t, $\Delta SR_{i,t-1}$ is the change in sales revenue at the beginning of year t for firm i.

The Kothari et al. (2005) Model

Total accruals are the difference between total accruals and normal accruals, estimated according to the cash flow approach

$$\frac{Accurals_{i,t}}{TA_{i,t-1}} = \alpha_0 + \beta_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2 * \left(\frac{\Delta SR_{i,t} - \Delta AR_{i,t}}{TA_{i,t-1}}\right) + \beta_3 * \left(\frac{PPE_{i,t}}{TA_{i,t-1}}\right) + \beta_4 * ROA_{i,t-1} + \varepsilon_{i,t},$$

where $Accurals_{i,t}$ is total accruals defined as the differences between net income before extraordinary items and cash flows from operations for firm i in the year t, $PPE_{i,t}$ denotes the gross value of property, plant and equipment for firm i in the year t, $ROA_{i,t-1}$ is return on assets measured as net income before extraordinary items divided by total assets at the beginning of year t. The variables are defined in Appendix A.

5.4 Summary Statistics Abnormal Real Earnings Management Activities Levels

Table 5.3 shows descriptive statistics related to the residuals from the proxies of real earnings management and accrual-based earnings management containing mean, median, mean (25th Percentile), mean (75th Percentile), skewness and kurtosis for each model separately. Means of earnings management proxies are equal to zero indicating a good fit for a linear model because "The best fitting regression line is the one that makes the mean residual equal to zero" (Hayes, 2005, p. 282). Descriptive statistics of abnormal production costs, abnormal discretionary expenses and abnormal accruals are in general similar to the findings of prior research. For instance, Kothari et al. (2005) report mean abnormal accruals close to zero and Gunny (2010) reports zero mean of abnormal production costs and abnormal discretionary expenses. In contrast, I find that the means of both *REM_1* and *REM_2* are different from the zero (-0.012 and -0.001, respectively).

The impact of abnormal operating cash flows in the UK is similar to the case in the US. That is, median abnormal operating cash flows (*Ab_CFO*) in the UK is 0.026% of total assets, which is similar to that found in previous research in the US by Roychowdhury (2006) and Cohen et al. (2008). The median of abnormal discretionary expenses (*Ab_DISEX*) is negative -0.03% of total assets in all firms listed in the London Stock Exchange, indicating the cutting of discretionary expenses to inflate reported earnings, which is comparable to the findings of prior studies (e.g., Gunny, 2010; Zang, 2012). In contrast, I find the median of abnormal production costs (*Ab_PROD*) to be weakly negative (-0.0074) of total assets. This may be because overproduction to reduce cost of goods sold is only available to

firms in manufacturing industries (Roychowdhury, 2006)[60], which is consistent with the findings of prior studies (e.g., Roychowdhury, 2006; Gunny, 2010; Zang, 2012) (i.e. -0.035, -0.006 and -0.017, respectively). Furthermore, the medians of *REM_1* and *REM_2* proxies are both positive (0.018 and 0.022, respectively), meaning that the *REM_1* measure is consistent with the finding of prior studies (e.g., Zang, 2012).

Finally, Gujarati (2003) and Kennedy (2008) suggest that data can be normally distributed if standard skewness is within ±1.96 and standard kurtosis is ± 2 or ± 3. The skewness data for all the distributions are relatively close to zero, suggesting the distributions of the abnormal values are symmetrically distributed. The kurtosis data for all distributions suggest that the tail of the distribution is heavier than for a normal distribution, which is consistent with firms engaging in real activities manipulation through sales manipulation, discretionary expenses, and overproduction (Gunny, 2010), and also engaging in income-increasing accrual-based earnings.

[60] Note that both *Ab_CFO* and *Ab_DISEX* are the residuals from corresponding models multiplied by negative one. Thus, some descriptive statistics of these two measures are the opposite of those from prior studies.

Table 5.3: Summary Statistics for Abnormal Real Earnings Management Activities Levels

Variable	Mean	Median	Standard Deviation	25%	75%	Skewness	Kurtosis	No. of Obs.
Ab_CFO	0.0000	0.0262	0.2437	-0.0505	0.0973	-1.8877	20.2242	3,547
Ab _DISEX	0.0000	-0.0383	0.3627	-0.1917	0.0934	1.2667	15.5911	3,035
Ab _PROD	0.0000	-0.0074	0.3333	-0.1175	0.1302	0.7690	25.664	2,559
Ab _TACC	0.0000	-0.0006	0.1347	-0.0486	0.0466	0.4714	14.5453	3,332
Ab _CFO *-1	0.0000	-0.0262	0.2437	-0.0973	0.0505	1.8877	20.2242	3,547
Ab _DISEX *-1	0.0000	0.0383	0.3627	-0.0934	0.1917	-1.2667	15.5911	3,035
REM_1	-0.0125	0.0183	0.5530	-0.1897	0.2763	-1.1176	10.8922	2,173
REM_2	-0.0016	0.02292	0.3406	-0.1203	0.1669	-0.7840	11.3397	3,027

* Significant at the 10% level. **Significant at the 5% level. *** Significant at the 1% level.
Note to Table 5.3: This table reports properties of the abnormal level of various variables for 4,487 firm-years over the period 2009 to 2013. Reported are the mean, median, standard deviation, the 25th and 75th quintiles, skewness and kurtosis. To limit the influence of outliers, all continuous variables are winsorized at the top and bottom 1% of their distribution. The variables are defined in Appendix A.

5.5 Correlation Coefficients among Real and Accrual Earnings Management

This section presents the correlation coefficients of the regressions. Table 5.4 reports the Pearson product moment correlation coefficients (Upper Triangle) and the Spearman rank correlation coefficients (Lower Triangle) among the measures of both real earnings management and accrual earnings management for all firms listed in the London Stock Exchange in each industry and year over the period 2009 to 2013. The Pearson coefficient correlation is only appropriate when the sampling distribution is normal or when the sample is large (Field, 2009). This research qualifies as having a large sample and normal distribution (4,487 firm-year

observations) so the Pearson correlation is justified. Nevertheless, to be certain, I perform an additional Spearman correlation test.

Similar to prior research (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010) I find a significant positive correlation between abnormal discretionary accruals and abnormal cash flows from operations (Pearson 49% and Spearman 55%). This positive correlation can be explained by firms in the UK engaging in accrual-based earnings management and sales manipulation at the same time. The correlation coefficient between abnormal discretionary accruals and *REM_1*, *REM_2* is significantly positive (Pearson 15% and 32%, respectively). These significantly positive correlation coefficients between abnormal accruals and the aggregate proxies of real earnings management mean that firms engage in real activities manipulation as well accrual-based manipulation. This is consistent with the hypothesis that firms engage in both kinds of earnings management (Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012). Also consistent with the above interpretation, the correlation coefficient between abnormal discretionary accruals and abnormal production costs is significantly positive (21%, Pearson and 26%, Spearman) so firms in the UK engage in both abnormal discretionary accruals and increase the production to report earnings upward. In addition, the correlation between abnormal accruals and abnormal discretionary expenses is insignificant for the Pearson correlation coefficient (-0.01%, Pearson), and the Spearman correlation coefficient is insignificant (0.007%, Spearman).

Abnormal cash flows from operations, abnormal discretionary expenses, and abnormal production costs are positively associated with each other. Specifically, an analysis of the correlation among the real earnings management activities

proxies reveals that the correlation between abnormal production costs and abnormal discretionary expenses is significantly positive (Pearson 35% and Spearman 52%). This suggests that managers are using real activities manipulation that leads to abnormally high production costs that occur at the same time that they are reducing discretionary expenditures (Gunny, 2010; Zang, 2012).

There is a significant negative relationship between abnormal discretionary expenses and abnormal cash flows from operations (Pearson -43%, Spearman -17%); this shows that reduction of discretionary expenses frees up more cash flow for the firm. This result is consistent with prior research (e.g., Cohen et al., 2008; Cohen and Zarowin, 2010). In addition, the positive and significant correlation coefficient (34%, Pearson and 42%, Spearman) between abnormal cash flows from operations and abnormal production costs shows that (a) UK firms could engage in different real earnings management methods at the same time to trigger higher reported earnings, and (b) it has a negative effect on cash flow from operations.

The correlation coefficients between *REM_1* and abnormal discretionary expenses, and between *REM_1* and abnormal production costs are positive and statistically significant (Pearson 84%, 81%, respectively) and (Spearman 86%, 83%, respectively). This is because this aggregate measure of real earnings management (*REM_1*) is the sum of two proxies, suggesting that firms are engaging in real activities manipulation. They achieve this through producing more goods to decrease reported cost of goods sold that will lead to higher operating margins, and cutting of discretionary expenses, which is consistent with the findings in prior research (Zang, 2012).

In addition, a significant positive correlation exists between *REM_2* and abnormal cash flows from operations and between *REM_2* and abnormal discretionary expenses (Pearson 28%, 75%, respectively) and (Spearman 37%, 77%, respectively). This because the aggregate measure of real earnings management (*REM_2)* is also the sum of two proxies (denoted as abnormal cash flows from operations and abnormal discretionary expenses). This suggests that firms are using real activities manipulation to manage earnings upward by offering price discounts and reducing discretionary expenses.

Table 5.5 (Panel A and Panel B) shows the variance inflation factors (VIF) and tolerance coefficients of each independent variable. Multicollinearity defines whether a strong correlation exists between two or more predictors in the regression model (Hair et al., 1998; Gujarati, 2003; Kennedy, 2008; Field, 2009). The problem of multicollinearity appears when there is a perfect collinearity between two predictor variables, which makes it impossible to retrieve unique estimates, as the values of the variables are interchangeable. To identify whether there is multicollinearity in the variables of interest this research measures multicollinearity through the VIF of STATA Software. However, for all three types of real activities manipulation and discretionary accruals proxies, the outputs of the VIF are all less than 1.20, suggesting that there is no multicollinearity between the various variables.[61]

Related to the VIF – as suggested by Field (2009) – is the tolerance statistic, which is calculated by 1/VIF. The guideline regarding the tolerance statistic is that serious

[61] Higher VIFs are indicative of collinearity problems. Greene (2000, p. 255-256) states, "As a rule of thumb, for standardized data a VIF > 10 indicates harmful collinearity."

problems of multicollinearity emerge when the tolerance statistic is below 0.1, and concerns are also justified when it is below 0.2. Similar to the VIF, the tolerance statistic does not present results that would justify any concerns, as the tolerance levels all appear to be over 0.2. To conclude based on the collinearity statistics, the variables of this research do not appear to demonstrate multicollinearity that justifies their use herein.

Table 5.4: Pearson and Spearman Correlations Coefficients among Abnormal Real and Accruals Earnings Management.

Variable	Abnormal Accruals	Abnormal Cash Flows from Operations	Abnormal Discretionary Expenses	Abnormal Production Costs	REM_1	REM_2
Abnormal Accruals	**1.0000**	0.5511***	0.0007	0.2595***	0.1498***	0.3021***
Abnormal Cash Flows from Operations	0.4922***	**1.0000**	-0.1713***	0.4203***	0.1392***	0.3705***
Abnormal Discretionary Expenses	-0.0197	-0.4293***	**1.0000**	0.5208***	0.8607***	0.7706***
Abnormal Production Costs	0.2189***	0.3383***	0.3558***	**1.0000**	0.8296***	0.7360***
REM_1	0.1483***	-0.0554***	0.8365***	0.8097***	**1.0000**	0.8776***
REM_2	0.3195***	0.2752***	0.7502***	0.6391***	0.8508***	**1.0000**

* Significant at the 10% level. **Significant at the 5% level. *** Significant at the 1% level.
Table 5.4 shows the Pearson correlations (Upper Triangle) and Spearman correlations (Lower Triangle) table for the sample of 4,487 firm-years over the period 2009 to 2013 between all residual variables as follows: abnormal accrual-based earnings management is estimated residuals using Kothari et al.'s (2005) model. Abnormal cash flows from operations, abnormal discretionary expenses, and abnormal production costs are estimated residuals using models developed by Dechow et al. (1998) and as implemented by Roychowdhury (2006). The first aggregate measure of real earnings management (*REM_1*) is the sum of abnormal production costs and abnormal discretionary expenses multiplied by negative one. The second aggregate measure of real earnings management (*REM_2*) is the sum of abnormal cash flows from operations multiplied by negative one and discretionary expenses multiplied by negative one. Both abnormal cash flows and abnormal discretionary expenses are multiplied by (-1) to allow real and accrual earnings management measures to have the same interpretation.

Table 5.5: Variance Inflation Factors Test Results for Abnormal Earnings Management

Panel A: VIF Test Results for Abnormal Earnings Management around Firms that Meet/Beat Zero Earnings

VIF Test Results								
Zero Earnings								
Variable	**Ab_CFO**		**Ab_DISEX**		**Ab_PROD**		**Ab_TACC**	
	VIF	**1/VIF**	**VIF**	**1/VIF**	**VIF**	**1/VIF**	**VIF**	**1/VIF**
Size	1.15	0.869	1.16	0.862	1.16	0.862	1.14	0.877
MTB	1.15	0.869	1.16	0.862	1.15	0.869	1.14	0.877
ROA	1.04	0.961	1.05	0.952	1.04	0.961	1.05	0.952
Suspect_zero	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Mean VIF	1.09		1.09		1.09		1.08	

Panel B: VIF Test Results for Abnormal Earnings Management around Firms that Meet/Beat Last Year's Earnings

VIF Test Results								
Last Year's Earnings								
Variable	**Ab_CFO**		**Ab_DISEX**		**Ab_PROD**		**Ab_TACC**	
	VIF	**1/VIF**	**VIF**	**1/VIF**	**VIF**	**1/VIF**	**VIF**	**1/VIF**
Size	1.17	0.854	1.18	0.847	1.17	0.854	1.16	0.862
MTB	1.15	0.869	1.16	0.862	1.16	0.862	1.14	0.877
ROA	1.04	0.961	1.05	0.952	1.04	0.961	1.05	0.952
Suspect_last	1.03	0.970	1.03	0.970	1.03	0.970	1.03	0.970
Mean VIF	1.10		1.10		1.10		1.10	

Table 5.5 reports VIF test results around firms that meet/beat earnings benchmarks. The variables are defined in Appendix A.

5.6 Empirical Results on Hypotheses H1a, H2a, and H3a

Table 5.6 reports the results for suspect firm-years just beating/meeting zero earnings and last year's earnings from the estimation of model (4.10) by using five measures of abnormal real earnings management as dependent variables. The reported coefficients are the mean values of the coefficients from the five annual cross-sectional regressions over the period of 2009-2013 from the Fama and Macbeth approach. Because the error terms are likely to exhibit cross-sectional correlation and auto correlation, the *t*-statistics are used to calculate standard errors corrected for autocorrelation using the Newey-West procedure (Newey, 1987).

The mean coefficients on control variables in Table 5.6 are statistically significant, similar to those reported in previous studies, but with several exceptions. Table 5.6 (Panel A) reports the estimation results of model (4.10) and focuses on firms just beating or meeting zero earnings. I identify 73 suspect firm-years ($Suspect\_zero$) for the abnormal cash flows from operations (sales-based manipulation), abnormal discretionary expenses, and abnormal production costs samples. Specifically, to test H1a, the abnormal cash flows from operating activities measure is employed as the dependent variable as per Roychowdhury's (2006) model. The coefficient on $Suspect\_zero$ is positive (0.0260) and statistically significant at the 1% level (t = 5.50). The coefficient indicates that the mean abnormal cash flows from operations of suspect firm-years is larger by 2.60% of assets than the mean across the rest of the sample. This in turn indicates that UK firm-years just beating or meeting zero earnings ($Suspect\_zero$) have unusually high levels of boosting sales that will lead to lower cash flow from operations, such that the higher the residuals, the greater amount of boosting sales, and the greater increase in reporting earnings. In addition,

this result is consistent with findings in Roychowdhury's (2006) prediction that firm-years just beating or meeting zero earnings engage more in earnings management through sales-based manipulation (abnormal cash flows from operations). That is, boosting sales by offering more price discounts and more lenient credit facilities will report upward earnings in the current period, as well as lower cash flow in the current period.

The positive and statistically significant coefficient on suspect firm-years just beating or meeting zero earnings ($Suspect\_zero$) confirms H2a which predicts that UK firms that just meet/beat earning benchmarks around zero earnings are more likely to engage in real earnings management. Specifically, the coefficient on $Suspect\_zero$ is positive (0.0677) and significant at the 1% level (t = 2.54) in the abnormal discretionary expenses regression. The coefficient indicates that the mean abnormal discretionary expenses of suspect firm-years ($Suspect\_zero$) is larger by 6.77% of assets than the mean across the rest of the sample, such that the higher the residuals, the larger amount of cutting discretionary expenses, and the greater the increase in reported earnings. In addition, this result is consistent with findings in literature (Roychowdhury, 2006; Gunny, 2010; Zang, 2012) predicting that firm-years just beating or meeting zero earnings engage more in earnings management through discretionary expenses-based manipulation. That is, cutting discretionary expenses will increase reported earnings in the current period, as well as generate higher cash flow in the current period.

To test H3a, the third column in Table 5.6 (Panel A) shows the results from the estimation of model (4.10) using the abnormal production costs measure as the dependent variable. The results indicate that UK firm-years just beating or meeting

zero earnings ($Suspect\_zero$) have unusually higher levels of production costs-based manipulation than the rest of the sample. Specifically, the coefficient on $Suspect\_zero$ is positive (0.0547) and significant at the 1% level (t = 3.90) in the abnormal production costs regression. The coefficient indicates that the mean abnormal production costs of suspect firm-years ($Suspect\_zero$) are larger by 5.47% of assets than the mean across the rest of the sample, such that the higher the residuals, the larger the amount of inventory overproduction, and the greater the increase in reported earnings through reducing cost of goods sold. This result is consistent with findings in literature (Roychowdhury, 2006; Gunny, 2010; Zang, 2012) predicting that firm-years just beating or meeting zero earnings engage more in earnings management through overproduction.

In order to capture the total effects of real earnings management, the results in the last two columns in Table 5.6 (Panel A) show that the higher amount of these aggregate measures implies that suspect firm are more likely to be engaged in real earnings management activities to increase reported earnings. Further, the signs of the coefficients on $Suspect\_zero$ are positive for the *REM_1* and *REM_2* and significant at the 5% and 1% levels (t = 2.00 and 4.10, respectively). The coefficient indicates that the means of *REM_1* and *REM_2* of suspect firm-years ($Suspect\_zero$) are larger by (11.5% and 9.8%, respectively) of assets than the mean across the rest of the sample. This result is consistent with the finding in previous studies (Cohen and Zarowin, 2010; Zang, 2012) and evidences that managers in suspect firm-years just beating or meeting an earnings benchmark around zero earnings exhibit higher levels of both aggregate real earnings management measures by engaging in sales manipulation and reducing/cutting

discretionary expenses simultaneously than other suspect firms. The results further show that such managers also engage in overproducing products and reducing, cutting discretionary expenses at the same time.

In summary, the reported results in Table 5.6 (Panel A) are consistent with the hypothesis that UK suspect firm-years just beating/meeting zero earnings engage in sales-based manipulation, discretionary expenses-based manipulation, and a production cost-based manipulation to manage earnings upward. Further, they engage in sales manipulation and reducing, cutting discretionary expenses simultaneously; and also engage in overproducing products and reducing, cutting discretionary expenses at the same time. However, according to the opportunistic perspective and under the assumptions of transaction cost theory, the study findings reveal that UK firms engage in higher levels of abnormal real earnings management to meet or just beat important earnings benchmarks opportunistically.

Table 5.6: Comparison of Suspect Firm-Years Just Beating/Meeting Earnings Benchmarks with the Rest of the Sample

Panel A: Comparison of Suspect Firm-Years Just Beating/Meeting Zero Earnings with the Rest of the Sample

Variable	Ab_CFO	Ab_DISEX	Ab_PROD	Ab_TACC	REM_1	REM_2
Intercept	-0.1146*** (-7.01)	0.0950*** (3.55)	-0.2266*** (-14.75)	0.0788*** (7.18)	-0.1470*** (-2.95)	-0.0552* (-1.65)
LnMVE	0.0047*** (5.28)	-0.0029* (-1.85)	0.0123*** (12.05)	-0.0046*** (-6.98)	0.0095*** (3.20)	0.0033* (1.92)
MTB	-0.0001 (-0.13)	-0.0062** (-5.10)	-0.0052** (-2.37)	0.0021*** (5.39)	-0.0237*** (-5.15)	-0.0060*** (-8.56)
ROA	-0.3109*** (-18.29)	0.2635*** (12.24)	-0.2039*** (-9.19)	0.0116*** (6.59)	0.0638 (1.62)	-0.0300*** (-2.83)
Suspect_zero	**0.0260*** (5.50)**	**0.0677** (2.54)**	**0.0547*** (3.90)**	**0.0185*** (2.78)**	**0.1062** (2.00)**	**0.1025*** (4.10)**
Year Indicator	Yes	Yes	Yes	Yes	Yes	Yes
No. of Obs.	3,547	3,035	2,559	3,332	2,173	3,027
F-value	***	***	***	***	***	***

(The table is continued the next page)

Panel B: Comparison of Suspect Firm-Years Just Beating/Meeting Last Year's Earnings with the Rest of the Sample

Variable	Ab_CFO	Ab_DISEX	Ab_PROD	Ab_TACC	REM_1	REM_2
Intercept	-0.1121*** (-7.11)	0.1138*** (4.37)	-0.2134*** (-11.01)	0.0818*** (6.86)	-0.1216** (-2.39)	-0.0335 (-1.10)
LnMVE	0.0046*** (5.40)	-0.0043*** (-2.86)	0.0112*** (8.50)	-0.0048*** (-6.62)	0.0074** (2.46)	0.0020 (1.18)
MTB	-0.0001 (-0.13)	-0.0062*** (-5.03)	-0.0053** (-2.33)	0.0021*** (5.34)	-0.0125*** (-4.92)	-0.0060*** (-7.89)
ROA	-0.3106*** (-18.05)	0.2608*** (11.50)	-0.2075*** (-9.50)	0.0114*** (6.25)	0.0562 (1.39)	-0.0324*** (-3.10)
Suspect_last	**0.0037 (0.80)**	**0.0774*** (7.73)**	**0.0122*** (5.64)**	**0.0079*** (3.01)**	**0.0164*** (8.51)**	**0.0826*** (6.20)**
Year Indicator	Yes	Yes	Yes	Yes	Yes	Yes
No. Of Obs.	3,547	3,035	2,559	3,332	2,173	3,027
F-value	***	***	***	***	***	***

* Significant at the 10% level. **Significant at the 5% level. *** Significant at the 1% level.

Note to Table 5.6: This table reports the results of Fama-Macbeth regressions, over the period of five years from 2009 to 2013. The total sample includes 4,487 observations. The regressions being estimated are of the form:

$$AREM_t = \beta_0 + \beta_1 * LnMVE_{t-1} + \beta_2 * MTB_{t-1} + \beta_3 * ROA_t + \beta_4 * Suspect\ firm - years_t + Year\ Indicators + \varepsilon_t,$$

T-statistics are calculated using standard errors corrected for autocorrelation using the Newey-West procedure. They reported in parentheses. All variables are winsorized at the 1% and 99% levels. $AREM$ refers to one of the five measures for abnormal real earnings management activities: the dependent variables abnormal cash flows from operations (*Ab_CFO*), and abnormal production costs (*Ab_PROD*), abnormal discretionary expenses (*Ab_DISEX*). *REM_1* is the sum of *Ab_DISEX* multiplied by (-1) and *Ab_PROD*, and *REM_2* is the sum of *Ab_CFO* multiply by (-1) and *Ab_DISEX* multiplied by (-1). $Suspect\ firm - years$ is an indicator variable for suspect firm-years just beating/meeting important earnings benchmarks. Each panel reports the estimation results using a different definition of suspect firm-years as discussed below. Panel A reports results for suspects just beating/meeting the zero earnings, which are firm-years with earnings before extraordinary items over lagged assets between 0 and 0.005. Panel B reports results for suspects just beating/meeting last year's earnings, which are firm-years with the change in net income from the last year between 0 and 0.01. ROA is the net income before extraordinary items divided by lagged total assets. $LnMVE$ is the natural logarithm of market value of equity. MTB is the market-to-book ratio. All regressions include $Year\ Indicators$. Both abnormal cash flows and abnormal discretionary expenses are multiplied by (-1) to allow real and accrual earnings management measures to have the same interpretation. The variables are defined in Appendix A.

5.7 Empirical Results on Hypotheses H1b, H2b, and H3b

Table 5.6 (Panel B) presents the regression results in the next five columns using each of the five measures of real earnings management as dependent variables for suspect firm-years just beating/meeting last year's earnings from the estimation of model (4.10). I identify 393 suspect firm-years ($Suspect\_last$) for the abnormal cash flows from operations (sales-based manipulation), abnormal discretionary expenses, and abnormal production costs samples. The results show a significantly positive coefficient of 0.0774 (t = 7.73) on suspect firm-years ($Suspect\_last$) in the abnormal discretionary expenses regression. This confirms H2b that UK firms that just meet/beat earnings benchmarks around last year's earnings are more likely to engage in real earnings management to increase reported earnings. The higher level of abnormal discretionary expenses means a higher level of reduction/cutting discretionary expenses, and thus increased reported earnings. In addition, the results are consistent with the literature (Gunny, 2010; Zang, 2012) suggesting that firm-years around last year's earnings are more likely to be cutting discretionary expenses to report earnings upward.

Further, a positive coefficient of 0.0122 (t = 5.64) is found on $Suspect\_last$ in the abnormal production costs regression, suggesting that firm-years are more likely to engage in real earnings management activities through overproduction costs. This means that the higher the residuals are, the larger the amount of inventory overproduction is, and the greater increase there is in reported earnings through reducing the costs of goods sold. This result is consistent with the literature (Gunny, 2010; Zang, 2012) suggesting that firm-years around last year's earnings are more

likely to be increasing production to report earnings upward. However, this study does not find a significant and positive coefficient of 0.0037 (t = 0.80) on $Suspect\_last$ when the abnormal cash flows from operations (sales-based manipulation) is the dependent variable, suggesting that firm-years around last year's earnings are not associated with more actual real earnings management activities through sales-based manipulation.

Consistent with literature (Gunny, 2010; Zang, 2012), the results reported in the last two columns in Table 5.6 (Panel B) show a significant positive coefficient of 0.0164 (t = 8.51) and 0.0826 (t = 6.20) on $Suspect\_last$ in both aggregate measures of real earnings management *REM_1* and *REM_2*, respectively. This indicates that managers engage in sales manipulation and reducing, cutting discretionary expenses simultaneously than other suspect firms, and also engage in overproducing products and reducing, cutting discretionary expenses at the same time.

In summary, under opportunistic perspective of earnings management and transaction cost theory the results reveal that managers with firms that manage earnings upward utilise more real earnings management activities to achieve earnings benchmarks opportunistically. Further, they are also under pressure to opportunistically inflate cash flow; therefore, aggressive real earnings management reveals the management's opportunism in financial reporting (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012; Kothari et al., 2016; Vorst, 2016). In some other cases, managers may occasionally use real earnings management to cross the benchmark to signal the capital market firms' foresight about better future performance. However, the evidence that UK suspect

firm-years around last year's earnings that exhibit unusually lower discretionary expense and unusually high production costs are more likely to engage in real earnings management to manage earnings upwards confirms hypotheses H2b and H3b. This chapter presents new evidence that suspect firm-years around last year's earnings are not involved in managing earnings upwards via sales-based manipulation.

This chapter also provides new evidence that suspect firm-years manage earnings upwards via sales-based manipulation and discretionary-based manipulation simultaneously. Finally, managers in the firms that manage earnings upward to meet or just beat important benchmarks engage in income-increasing earnings management through accrual-based earnings management. Specifically, the coefficients on $Suspect\_zero$ and $Suspect\_last$ are positive (0.0185, 0.0079, respectively) and significant at the 1% level (t = 2.78, 3.01, respectively) in the abnormal accrual-based earnings management using Kothari et al.'s (2005) model.

5.8 Summary

This chapter presents the results of descriptive and multivariate analysis employed to investigate the research hypotheses. This chapter examines whether UK firms manage earnings upward by utilising real earnings management around zero earnings and last year's earnings. The findings contribute to the literature by providing the following evidence. First, this chapter presents evidence that UK suspect firm-years just beating/meeting zero earnings have lower abnormal cash flows from operations, lower discretionary expenses, higher production costs and higher levels of both aggregate measures of real earnings management, suggesting

that they take income-increasing actions. Second, I also present evidence that UK suspect firm-years around last year's earnings have unusually low discretionary expenditures and unusually high production costs, and unusually higher levels of both aggregate real earnings management measures, suggesting they take income-increasing actions. Moreover, I find new evidence that UK suspect firm-years around last year's earnings are not involved in managing earnings upwards via sales-based manipulation. Finally, managers in UK suspect firm-years beating/meeting important earnings benchmarks engage in income-increasing earnings management through accrual-based earnings management.

Overall, the evidence presented in this chapter contributes to the earnings management literature by showing that real and accrual earnings management are a key strategy/tool that managers utilise to reported income-increasing earnings. Further, the evidence confirms the recent accounting literature which reports that managers in the UK suspect firm-years manage earnings upward by utilising real and accrual earnings management to achieve their targets (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012; Kothari et al., 2016).

Chapter Six
Data Analysis and Empirical Test Results of Second Essay

6.1 Introduction

This chapter presents the second set of empirical results. I test the research hypotheses H4 and H5 using the industry-adjusted return on assets as a measure of firms' operating performance and report the empirical results using both univariate and multivariate analyses. In this chapter, I examine the effect of real earnings management activities to meet or just beat important earnings benchmarks (e.g., zero earnings and last year's earnings) on UK firms' subsequent operating performance. This chapter is organised as follows. First, section two gives the descriptive statistic of future operating performance of the whole sample. Correlation coefficients among all variables in the operating performance regression are discussed in section three. Sections four and five present the tests of regression assumptions and the empirical test results of the consequence of real earnings management activities to meet or just beat zero earnings and last year's earnings on firms' subsequent operating performance. In section six, I undertake supplemental analysis to determine and verify whether, and to what extent, the primary results are sensitive to changes in the dependent variable measurement defined as two-year-ahead industry-adjusted return on assets is undertaken in section six. Finally, section seven provides an overview of the results.

6.2 Descriptive Statistic of Future Operating Performance

Table 6.1 presents the descriptive statistics for the second empirical test for the impact of real earnings management activities on future operating performance for the dependent and independent variables for the full sample of firm-year observations covering the period of 2009 through 2013, which includes 4,487 firm-year observations. I extend the sample to 2014 because of the requirement for data to measure a firm's operating performance defined as one-year-ahead industry-adjusted return on assets. The mean of total assets is £1.05 billion, with a median of about £51 million and a standard deviation of £4.24 billion. The first and third quartiles of total assets range from £11 million to £308 million. The mean of the total sales is about £775 million with a median of about £31 million and standard deviation is £2.65 billion. The lower and upper quartiles of total sales range from £3 million to £270 million. The mean industry-adjusted return on assets (ROA) are -10.32% and -10.34% for the subsequent dependent variable (Adj_ROA_{t+1}) and independent variable current year (Adj_ROA). The median for both are, on average, zero, which is estimated because the variables are calculated by deducting the industry-year median from the firms' perceived return on assets.

The means of all three individual real earnings management measures are all zeroes. The median of *Ab_CFO* is 2.6% with a standard deviation of 24.37%; the median of *Ab_DISEX* is -3.8% with a standard deviation of 36.27%; and the median of *Ab_PROD* is -0.7% with a standard deviation of 33.33%. The two aggregate measures of real earnings management are still close to zeroes, but the medians are about 1% to 2% of the total assets higher than expected industry-year average, suggesting the usage of income-increasing real earnings management. Total

abnormal accrual-based earnings management has an average of zero and a median of -0.06% with standard deviation of 13.47%, meaning the average total abnormal accrual-based earnings management is about -0.06% of total assets, lower than the industry year average. The summary statistic shows low standard deviations regarding the *Ab_CFO*, *Ab_DISEX*, *Ab_PROD*, and *Ab_TACC* variables. These low standard deviations suggest that the means of these abnormal real and accrual earnings management are an accurate representation of the data.

The size is measured as the natural log of market value of common equity ($LnMVE$). The mean is 17.839 (about £55,819 millions of market value of equity), with a median of 17.486 (about £39,270 millions of market value of equity). The growth opportunities are measured as market value of common equity divided by book value of equity (MTB). The mean is 2.552, with a median of 1.574. This value is comparable to those in Leggett et al. (2009), Chen et al. (2010) and Zhao et al. (2012). The mean of z_score is 7.109, with a median of 2.753, above the cut-off point (1.80: Altman, 1986, 2000) of being a healthy firm. These values are comparable to those in Zang (2012). The average (median) 12 months buy-and hold-return is 8.7% (-1.4%). The independent variable ($Loss$) is measured as indicator variable equal to one when net income before extraordinary items is negative, and zero otherwise. The mean is 41.69%, with a median of zero and a standard deviation of 49.31%.

Table 6.1: Descriptive Statistic of Future Operating Performance

Variable	N	Mean	Median	Standard Deviation	Lower Quartile	Upper Quartile
Total Assets (£million)	4,487	1,054.736	50.600	4,242.953	11.095	308.261
Total Sales (£million)	4,485	774.418	30.660	2,647.411	2.900	269.323
Adj_ROA_{t+1}	4,410	-0.1032	0.0000	0.4125	-0.0987	0.0574
Adj_ROA	3,557	-0.1034	0.0000	0.4227	-0.0944	0.0556
Ab_CFO	3,547	0.0000	0.0262	0.2437	-0.0505	0.0973
Ab_DISEX	3,035	0.0000	-0.0383	0.3627	-0.1917	0.0934
Ab_PROD	2,559	0.0000	-0.0074	0.3333	-0.1175	0.1302
Ab_TACC	3,332	0.0000	-0.0006	0.1347	-0.0486	0.0466
REM_1	2,173	-0.0125	0.0183	0.5530	-0.1897	0.2763
REM_2	3,027	-0.0016	0.0229	0.3406	-0.1203	0.1669
Suspect_zero	4,487	0.0205	0.0000	0.1418	0.0000	0.0000
Suspect_last	4,487	0.1104	0.0000	0.3135	0.0000	0.0000
LnMVE	4,487	17.839	17.486	2.349	16.133	19.402
MTB	4,487	2.552	1.574	4.936	0.827	3.044
Return	4,336	0.087	-0.014	0.640	-0.244	0.246
Z_Score	3,483	7.109	2.753	20.349	1.546	4.937
Loss	4,487	0.4169	0.0000	0.4931	0.0000	1.0000

Note to Table 6.1: This table presents the descriptive statistics for the dependent, independent and control variables for the full sample of firm-year observations covering the period of 2009 through 2013, which includes 4,487 firm-year observations, from 930 firms. The sample is extended to 2014 because of the requirement for data to measure a firm's operating performance for one subsequent year. Reported are the mean, median, standard deviation, the lower quartile and higher quartile. To limit the influence of outliers, all continuous variables are winsorized at the top and bottom 1% of their distribution**.** The variables are defined in Appendix A.

6.3 Correlation Coefficients among Future Operating Performance

Table 6.2 provides information about the Pearson correlation coefficients of all variables in the future operating performance regressions for the entire sample of 4,487 firm-year observations from 930 firms. In Table 6.2, the main correlations of interest for H4 and H5 are the correlations between the magnitudes of current real

earnings management (measured by *Ab_CFO*, *Ab_DISEX*, *Ab_PROD*, *REM_1* and *REM_2*) and subsequent operating performance (Adj_ROA_{t+1}). The subsequent operating performance (Adj_ROA) is significantly negatively associated with three of the five real earnings management measures except *REM_1*, *Ab_DISEX*, indicating that the main effects of abnormal real earnings management activities on the firm in the absence of just beating or meeting important earnings benchmarks that they perform worse in the future or in signalling future performance. However, this reduces the firm's value which will harm the firm's future performance (value destroying), which is comparable to the findings of prior studies. Notable is the relation between one-year-ahead industry-adjusted operating performance and abnormal accrual-based earnings management. It appears that abnormal accrual-based earnings management is significantly negatively associated with subsequent operating performance, indicating that a firm's future performance will be harmed if earnings upward are managed through accrual-based earnings management.

Addressing the correlation coefficients above 0.60 specifically, the subsequent operating performance ($Adj\_ROA_{i,t+1}$) is significantly positive with current year adjusted return on assets (Pearson 66%, Spearman 70%), which is expected because of earnings persistence. The current and one-year-ahead industry-adjusted return on assets are significantly positively correlated with firm size (Pearson 33%, 30%, respectively and Spearman 43%, 46%, respectively). This is supports the assumption that firms have better current and future performance. The subsequent year's industry-adjusted returns on assets have a strong negative correlation with the firms that experience negative net income ($Loss$) although this is significant (Pearson -38% and Spearman -50%). Other control variables (MTB, $Return$, and

z_score) also not, or only negligibly correlated with subsequent operating performance (Pearson -10%, 2%, 0.03%, respectively and Spearman 13%, 19%, 12%, respectively), which suggests that there is no major problem of multicollinearity in the future operating performance model.

Finally, the correlation coefficients of real and accrual-based earnings management have been explained in the previous chapter and in more detail in chapter five section 5.5. All significant and insignificant coefficient correlations between the independent variable using future operating performance are relatively less than 55%, indicating that the multicollinearity should not be problematic in future operating performance regression. The mean variance inflation factors (VIF) for the independent variables used in regression analysis of subsequent operating performance of firms just meeting or beating zero earnings and last year's earnings. By using Roychowdhury's (2006) and Gunny's (2010) criteria to identify suspect firm-years, for all five measures of real earnings management, are all less than 2 suggesting that multicollinearity is not a concern in this study.

Table 6.2: Pearson and Spearman Correlations Coefficients among all Variables in the Operating Performance Regression

Variable	Adj_ROA_{t+1}	Adj_ROA	Suspect_ zero	Suspect_ last	Ab_CFO	Ab_DISEX	Ab_PROD	REM_1	REM_2	Ab_TACC	LnMVE	MTB	Return	z_score	Loss
Adj_ROA_{t+1}	**1.0000**	0.7020***	0.0339***	0.0898***	-0.4206***	0.1075***	-0.1603***	-0.0280	-0.1495***	-0.1374***	0.4349***	0.1325***	0.1898***	0.1209***	-0.4985***
Adj_ROA	0.6596***	**1.0000**	-0.391***	0.1069***	-0.4806***	0.1315***	-0.1719***	-0.0196	-0.1538***	0.0076	0.4623***	0.1433***	0.2483***	0.1355***	-0.7033***
Suspect_zero	0.0212	0.0295	**1.0000**	0.0059	0.0281	0.0459***	0.0194	0.0313	0.0513***	0.0435***	-0.0249	-0.0719***	-0.013	-0.0461***	-0.1188***
Suspect_last	0.0933***	0.0941***	0.0059	**1.0000**	-0.4029***	0.1318***	0.0570***	0.0985***	0.0872***	0.0194	0.1585***	0.0247	0.0812***	0.0311	-0.1776***
Ab_CFO	-0.3547***	-0.5290***	-0.0043	-0.0468***	**1.0000**	-0.1713***	0.4203***	0.1392***	0.3705***	0.5511***	-0.2043***	-0.1385***	-0.1662***	-0.-510***	0.3514***
Ab_DISEX	0.1487***	0.3395***	0.0403***	0.0934***	-0.4293***	**1.0000**	0.5208***	0.8607***	0.7706***	0.0007	0.0719***	-0.1336***	0.0102	-0.1121***	-0.1878***
Ab_PROD	-0.2091***	-0.2146*	0.0156	0.0432***	0.3383***	0.3558***	**1.0000**	0.8296***	0.7360***	0.2595***	-0.0084	0.1192***	-0.0141	-0.0434***	0.0339
REM_1	-0.0023	0.0865*	0.0323	0.0842***	-0.0554***	0.8365***	0.8097***	**1.0000**	0.8776***	0.1498***	0.0234	-0.1517***	-0.0204	-0.0922***	-0.0698***
REM_2	-0.0758***	-0.0073	0.0428***	0.0716***	0.2752***	0.7502***	0.6391***	0.8508***	**1.0000**	0.3021***	-0.0440***	-0.1673***	-0.0831***	-0.1126***	0.0305
Ab_TACC	-0.1173***	0.0043	0.0212	0.0073	0.4922***	-0.0197	0.2189***	0.1483***	0.3195***	**1.0000**	-0.0828***	-0.0442***	-0.0407***	-0.0057	-0.0068
LnMVE	0.3278***	0.3002***	-0.0271	0.1568***	-0.1230***	0.0395***	-0.0099	0.0203	-0.0274	-0.0510***	**1.0000**	0.3521***	0.2540***	0.1547***	-0.4275***
MTB	-0.1011***	-0.0781*	-0.0358***	-0.0092	0.0546***	-0.1047***	-0.0758***	-0.1177***	-0.0716***	0.0243	0.1363***	**1.0000**	0.2436***	0.3069***	-0.1013***
Return	0.0254	0.0500*	-0.0154	0.0423***	-0.0614***	-0.0546***	-0.0236	-0.0699***	-0.0995***	-0.0038	0.1205***	0.1068***	**1.0000**	0.0087	-0.2657***
z_score	-0.0034	0.0043	0.0264	-0.0195	0.0870***	-0.0717***	0.0574***	0.0036	-0.0146	0.0464***	0.0161	0.1500***	-0.0498***	**1.0000**	-0.0246
Loss	-0.3850***	-0.4784***	-0.1188***	-0.1776***	0.2972*	-0.1482***	0.0586***	-0.0369	0.0528***	-0.0223	-0.4228*	0.0130	-0.1028***	0.1906***	**1.0000**

Significant at 1%, 5%, and 10% level is indicated by *, **, and ***, respectively, based on two-tailed test.

Note to Table 6.2: The table shows Pearson and Spearman correlation coefficients of all variables in the future operating performance regression for the full sample of firm-year observations covering the period of 2009 through 2013, which includes 4,487 firm-years observations, from 930 firms. The sample is extended to 2014 because of the requirement for data to measure a firm's operating performance for one subsequent year. The five measures of real earnings management are as follow: Abnormal cash flows from operations; abnormal discretionary expenses; abnormal production costs; *REM_1*; *REM_2*. Both abnormal cash flows and abnormal discretionary expenses are multiplied by (-1) to allow real and accrual earnings management measures to have the same interpretation. To limit the influence of outliers, all continuous variables are winsorized at the top and bottom 1% of their distribution. The variables are defined in Appendix A.

6.4 Empirical Test Results of Consequences of Real Earnings Management Activities to Meet/Beat Zero Earnings on Subsequent Operating Performance

This study examines the magnitude of real earning management with which firms manage earnings upward to meet or beat important earnings benchmarks around zero earnings and last year's earnings in order to capture the general level of real earnings management activities on future operating performance. The results are presented in Table 6.3, which reports mean coefficients and Fama-MacBeth t-statistic from the annual cross-sectional regressions over the period 2009 to 2013. The sample is extended to 2014 because of the requirement for data to measure a firm's operating performance defined as one-year-ahead industry-adjusted return on assets. *T*-statistics are calculated using standard errors corrected for autocorrelation using the Newey-West procedure. Table 6.3 (Panel A) reports regression explaining the dependent variable (Adj_ROA_{t+1}) the firm's industry-adjusted return on assets over the subsequent one year using the proxies of the real earnings management methods.

The coefficients' estimate on current-period industry-adjusted financial profitability (Adj_ROA) is significantly different from zero and positive in each of the real earnings management methods. This is indicates that current-period industry-adjusted financial profitability is positively associated with future industry-adjusted ROA ($p<0.01$), which is consistent with the findings from prior empirical studies in the US (e.g., Leggett et al., 2009; Gunny, 2010).

Prior research suggests that large firms with larger market-to-book ratio and return have better future performance; thus the coefficients on $LnMVE$, MTB and $Return$

are expected to be positive. The coefficients estimate on $LnMVE$ is significantly different from zero and positive in each of the real earnings management methods, indicating that suspect firm-years to just beat or meet zero earnings have better future performance, which is consistent with the findings of Gunny (2010) and Leggett et al. (2009). The coefficients estimate on MTB is significantly different from zero and negative in each of the real earnings management methods. This indicates that growth firms underperform in the future, which is consistent with the findings of Gunny (2010). The coefficient estimates on $Loss$ in each of the earnings management methods of equation (4.11) are all significantly negatively associated with future performance ($p<0.01$). This is indicates that firms that engage in real earnings management activities in the absence of just beating/meeting important benchmarks (i.e. zero earnings) perform worse in the future or in signalling future performance than other firm-years. On the other hand, no coefficients on $Return$ significantly provide information about future performance, except the coefficient on *REM_2* that is significantly positively associated with future performance 0.00025 (t = 2.69) at 1% level.

The coefficients for year dummies and industry dummies are not presented in Table 6.3 (Panel A). All the years are significantly positively associated with the subsequent operating performance (Adj_ROA_{t+1}). All the 49 industries division groups are also significantly positively associated with the subsequent operating performance. The mean adjusted R^2 in future operating performance model is 51% for each of the abnormal cash flows from operations and the abnormal discretionary expenses, 53% for the abnormal production costs, and 50% for each of the aggregate measures of real earnings management *REM_1*, and *REM_2*. Therefore,

it appears that the models of future operating performance have reasonable to substantial explanatory power; and the mean adjusted R^2s are consistent with prior literature (Gunny, 2010).

Zang (2012) points out that firm with higher values of z_score indicate a healthier financial condition. In other words, future profitability will be more negatively affected by real earnings management activities when firms are in poor financial health, whereas coefficients on z_score are not significant in each of the real earnings management methods, except for the coefficient on aggregate measures of real earnings management *REM_2* which is positive and statistically significant at 0.00025 (t = 2.69). This finding is in line with prior empirical study (Gunny, 2010).

The first column of Table 6.3 (Panel A) reports a positive coefficient of 0.9004 (t = 2.55) at the 1% level on interaction term $Ab\_CFO * Suspect\_zero$ using industry-adjusted ROA in year t+1 as the performance measure. The coefficient indicates that one unit of an interaction term leads to 0.9004 units increase in industry-adjusted ROA in year t+1, which suggests that managers who engage in real earnings management to just meet/beat earnings benchmarks around zero earnings through sales-based manipulation have better subsequent performance than other firm-years. The results for the discretionary expenses sample are reported in the second column of Table 6.3 (Panel A) the coefficients on interaction term $Ab\_DISEX * Suspect\_zero$ are positive and statistically significant 0.4022 (t = 4.57) at the 1% level in the industry-adjusted ROA in year t+1 regression. This result is consistent with Gunny's (2010) findings and suggests that managers of $Suspect\_zero$ firm-years who engage in discretionary expenses-based manipulation have better subsequent performance than other firm-years and convey

a signal of superior future performance to the market. The positive and statistically significant coefficient on interaction term $Ab\_PROD * Suspect\_zero$ using industry-adjusted ROA in year t+1 as the performance measure associated with future performance ($p<0.01$) (which is consistent with Gunny's (2010) findings) suggests that managers of $Suspect\_zero$ firm-years who engage in production costs-based manipulation have better subsequent performance than other firm-years. They also convey a signal of superior future performance to the market.

Furthermore, in the last two columns of Table 6.3, Panel A reports the results from the estimation of (4.11) with aggregate REM measures. The average coefficients on the two aggregate real earnings measures, $REM\_1 * Suspect\_zero$, $REM\_2 *Suspect\_zero$, are positive and statistically significant at 0.2110 (t = 2.86) and 0.5407 (t = 4.30), respectively. Hence, these results indicating that managers of $Suspect\_zero$ firm-years who simultaneously engage in discretionary expenses-based manipulation and production costs-based manipulation, and sales-based manipulation and discretionary expenses-based manipulation have better subsequent operating performance. The results are similar to the individual measures; abnormal cash flows from operations, abnormal discretionary expenses, and abnormal production costs.

Regarding the joint signalling effect documented by Gunny in her 2010 study, she reports that firms that utilise real earnings management to meet or just beat important earnings benchmarks exhibit significantly better future performance than other real earnings management firms that miss the targets, jointly signalling to the market that these firms perform better. As shown in Panel A of Table 7.4, the coefficient on the independent term $AREM$, α_7 captures the main impacts on

abnormal real earnings management and the coefficient on the interaction term $Suspect\_zero * AREM$, α_9 captures the incremental impact of abnormal real earnings management activities in the presence of meeting or just beating earnings benchmarks. However, the results of the sum of α_7 and α_9, which captures the combined "value-destroying" and "signalling" impacts of real earnings management activities show that the term ($\alpha_7 + \alpha_9$) is significantly positive for three of five measures of real earnings management *Ab_DISEX*, *Ab_PROD*, and *REM_2* ($p<0.1$ or $p<0.01$). This indicates that firm-years to just beat or meet zero earnings who engage in real earnings management activities have better subsequent operating performance (have significantly higher industry-adjusted ROA) than other firm-years with abnormal real earnings management activities. This result is consistent with joint signalling; that is, engaging in real earnings management activities in the presence of meeting or just beating the important earnings benchmarks to signal superior future performance (e.g., Gunny, 2010; Zhao et al., 2012).[62]

Moreover, the results reported in Table 6.3 Panel A indicate that the main effects of abnormal real earnings management activities are all negative and significant ($p<0.01$). This is comparable to the findings of prior studies (Cohen and Zarowin, 2010; Roychowdhury, 2006). This suggests general value destroying of the

[62] Gunny (2010 p. 861) gives an example of how managers may utilise the joint signal - engaging in real earnings management activities in the presence of meeting or just beating the earnings benchmarks to convey future growth prospects. For example, "manager could choose to meet a benchmark by engaging in RM or miss the benchmark by not engaging in RM. Consistent with the signalling explanation, only managers confident in superior future performance will use the joint signal because they expect future earnings growth to outweigh the adverse impact of using RM and meeting the benchmark. Firms with relatively worse future performance are not likely to use the joint signal because investors will be disappointed when the firm experiences an impact on earnings from the costs of RM (i.e., forfeited future cash flows) and the cost of setting earnings expectations higher by meeting the benchmark in the prior period."

shareholders' effect of abnormal real earnings management activities in the absence of just beating or meeting important benchmarks. In other words, firms that do not just beat or meet the zero earnings but engage in real earnings management activities perform worse in the future or in signalling future performance than other firm-years.

In summary, the results of Table 6.3 (Panel A) show that, overall, managers engage in real earnings management activities to meet or just beat zero earnings by using sales-based manipulation, cutting discretionary expenses, and producing more product units and the aggregate real earnings measures *REM_1* and *REM_2*. This suggests that using real earnings management activities to just beat or meet zero earnings is not opportunistic, but consistent with attaining benefits that allow the firm to perform better in the future or signal future performance (also convey a signal of superior future performance to the market). In addition, these results are consistent with the findings in previous empirical studies. Gunny (2010) and Zang (2012) examine the consequences of real earnings management activities, and find that suspect firm-years just beating or meeting important benchmarks that engage in real earnings management activities perform better in the future or signal future performance than firms that do not engage in real earnings management activities and miss or just meet earnings benchmarks.

6.5 Empirical Test Results of Consequences of Real Earnings Management Activities to Meet/Beat Last Year's Earnings on Subsequent Operating Performance

Table 6.3 Panel B reports regression explaining the dependent variable subsequent operating performance (Adj_ROA_{t+1}) of firms just meeting or beating last year's earnings. It uses Gunny's (2010) criteria to identify suspect firm-years using the proxies of the real earnings management methods.

The signs and significance of the control variables are consistent with the results from prior studies (e.g., Leggett et al., 2009; Chen et al., 2010; Gunny, 2010; Taylor and Xu, 2010; and Zhao et al., 2012) with just a few exceptions. For instance, current-year industry-adjusted ROA is statistically positively associated with future industry-adjusted ROA in each of the five real earnings management measures at the 0.01 significance level. $LnMVE$ is a market measure of equity, all coefficients of $LnMVE$ are positive, and all the five coefficients are statistically significant at the 0.01 significance level with subsequent operating performance in each of real earnings management methods, representing that firms have better performance. Market-to-Book is also a market measure of growth, and all the five coefficients in each of the real earnings management methods are statistically negatively significant at the 0.01 significance level with future operating performance, representing that growth firms underperform in the future. The coefficient estimates on $Loss$ in each of the real earnings management methods of equation (4.11) are all significantly negatively associated with future performance ($p<0.01$), whereas coefficients on $Return$ and z_score are, overall, not providing any significant information about possible future performance.

The three interaction term ($Ab\_CFO * Suspect\_last$, $Ab\_DISEX * Suspect\_last$, and $Ab\_PROD * Suspect\_last$) are all significantly positively associated with future operating performance at the 0.01 significance level, which is consistent with Gunny's (2010) and Zhao et al.'s (2012) findings; this suggests that abnormal real earnings management intended to meet or just beat last year's earnings and also transmit a signal of superior future performance to the market. Moreover, in the last two columns of Table 6.3, Panel B reports that the results from the estimation of (4.11) with aggregate REM measures, and the average coefficients on the two aggregate real earnings measures, $REM\_1 * Suspect\_last$, $REM\_2 * Suspect\_last$, are positive and statistically significant at 0.1487 (t = 3.10) and 0.3434 (t = 4.99), respectively. Hence, these results confirm that managers of suspect firm-years to meet or just beat last year's earnings who simultaneously engage in discretionary expenses-based manipulation and production costs-based manipulation, and sales-based manipulation and discretionary expenses-based manipulation have better subsequent operating performance. The results are similar to the individual measures; abnormal cash flows from operations, abnormal discretionary expenses, and abnormal production costs.

The first column of Table 6.3 Panel B reports a positive coefficient of 0.6224 (t = 2.79) at the level 1 % on interaction term $Ab\_CFO * Suspect\_last$, which suggests that firms do not manipulate operating activities thorough sales-based manipulation to meet/beat last year's earnings experience better subsequent operating performance. Furthermore, the results reported in Table 6.3 Panel B show that the main effects of abnormal real earnings management activities are all negative and significant at the 0.01 significance level, which is comparable to the findings of

prior studies (Gunny, 2010; Zhao et al., 2012). These results suggest a general value destroying of shareholders' effect of abnormal real earnings management activities in the absence of just beating or meeting important benchmarks. In other words, firms that do not sustain recent performance – that is, just beat or meet the last year's earnings – but engage in real earnings management activities perform worse in the future or in signalling future performance than other firm-years.

The results of the sum of the coefficients $Suspect\_last * AREM$, α_9 and $AREM$, α_7 is significantly positive for one of five measures of real earnings management *Ab_PROD* analyses at the 0.05 significance level. This indicates that firm-years to just beat or meet last year's earnings that engage in real earnings management activities have better subsequent operating performance than other firm-years with abnormal real earnings management activities. In addition, in the case of *Ab_DISEX*, the sum of coefficients α_7 (-0.3381) and α_9 (0.1713) is -0.1668. The Wald test t-values of α_7 and α_9 are significantly negative at the 0.05 significance level (t = -2.18), indicating that firm-years that engage in real earnings management to just beat or meet last year's earnings perform worse in the future or in signalling future performance than other firm-years with abnormal real earnings management activities.

In summary, under the signalling theory the results of Table 6.3 (Panel B) also show that, overall, managers engage in real earnings management activities to meet or just beat last year's earnings by cutting discretionary expenses, and to produce more product units and the aggregate real earnings measures *REM_1* and *REM_2*. This suggests that using real earnings management activities to just beat or meet last year's earnings is not opportunistic, but consistent with attaining benefits that allow

the firm to perform better in the future or in signalling future performance (also conveys a signal of superior future performance to the market). In addition, these results are consistent with the finding in previous studies. Gunny (2010) and Zhao et al. (2012) examine the consequences of real earnings management activities. They find that suspect firm-years just beating or meeting last year's earnings that engage in real earnings management activities also perform better in the future or in signalling future performance than firms that do not engage in real earnings management activities and miss or just meet earnings benchmarks.

Table 6.3: Regression Analysis of Subsequent Operating Performance of Firms Just Meeting/Beating Earnings Benchmarks

Panel A: Regression Analysis of Subsequent Operating Performance of Firms Just Meeting/Beating Zero Earnings using Roychowdhury's (2006) Criteria to Identify Suspect Firm-Years of Real Earnings Management Activities

Dependent Variable = One-Year-Ahead Industry-Adjusted Return on Assets					
Independent Variables	**Ab_CFO**	**Ab_DISEX**	**Ab_PROD**	**REM_1**	**REM_2**
Intercept	-0.3781*** (-8.70)	-0.3168*** (-23.39)	-0.2965*** (-9.52)	-0.3733*** (-7.70)	-0.3596*** (-11.10)
Adj_ROA	0.5467*** (9.15)	0.5958*** (17.05)	0.6343*** (12.03)	0.5971*** (12.32)	0.5779*** (11.91)
LnMVE	0.0209*** (8.56)	0.0199*** (17.12)	0.0166*** (8.71)	0.0210*** (8.15)	0.0214*** (11.14)
MTB	-0.0057*** (-5.85)	-0.0073*** (-4.74)	-0.0041*** (-4.72)	-0.0059*** (-5.46)	-0.0077*** (-5.85)
Return	0.0021 (0.31)	-0.0037 (-0.67)	0.0032 (0.40)	-0.0024 (-0.34)	-0.0042 (-0.75)
z_score	0.0002 (1.03)	0.00004 (0.26)	-0.0003 (-1.06)	0.00002 (0.14)	0.00025*** (2.69)
Loss	-0.0288*** (-4.99)	-0.0500*** (-13.39)	-0.0325*** (-2.65)	-0.0356*** (-6.57)	-0.0377*** (-9.79)
Suspect_zero	-0.0311** (-2.06)	-0.0575*** (-5.17)	-0.0427*** (-6.68)	-0.0301** (-2.46)	-0.0546*** (-6.52)
AREM	**-0.2137*** (-8.54)**	**-0.3360*** (-4.85)**	**-0.1188* (-1.81)**	**-0.0864** (-3.08)**	**-0.2612*** (-5.61)**
Suspect_zero *AREM	**0.9004*** (2.55)**	**0.4022*** (4.57)**	**0.3418*** (16.24)**	**0.2110*** (2.86)**	**0.5407*** (4.30)**
Year	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes
No. of Observations	3,346	2,860	2,407	3,354	2,852
$\alpha_7 + \alpha_9$	0.8677	0.0662*	0.2230***	0.1246	0.2795*
Mean VIF	1.44	1.38	1.34	1.24	1.39
Adjusted R-Squared	0.5075	0.5086	0.5272	0.4994	0.5037
F-value	***	***	***	***	***

(The table is continued the next page)

Panel B: Regression Analysis of Subsequent Operating Performance of Firms Just Meeting/ Beating Last Year's Earnings using Gunny's (2010) Criteria to Identify Suspect Firm-Years of Real Earnings Management Activities

Dependent Variable = One-Year-Ahead Industry-Adjusted Return on Assets					
Independent Variables	**Ab_CFO**	**Ab_DISEX**	**Ab_PROD**	**REM_1**	**REM_2**
Intercept	-0.3819*** (-8.83)	-0.3160*** (-24.89)	-0.3002*** (-9.85)	-0.3772*** (-7.85)	-0.3607*** (-11.09)
Adj_ROA	0.5472*** (9.12)	0.5958*** (17.16)	0.6346*** (12.06)	0.5972*** (12.35)	0.5779*** (11.97)
LnMVE	0.0210*** (8.53)	0.0196*** (17.26)	0.0166*** (8.84)	0.0211*** (8.04)	0.0212*** (10.75)
MTB	-0.0057*** (-5.90)	-0.0072*** (-4.65)	-0.0041*** (-4.66)	-0.0059*** (-5.47)	-0.0077*** (-5.81)
Return	0.0020 (0.31)	-0.0034 (-0.63)	0.0031 (0.39)	-0.0027 (-0.39)	-0.0042 (-0.75)
z_score	0.0002 (1.02)	0.00004 (0.24)	-0.0003 (-1.07)	0.00002 (0.13)	0.00024*** (2.57)
Loss	-0.0273*** (-4.27)	-0.0469*** (-12.34)	-0.0298*** (-2.41)	-0.0331*** (-6.25)	-0.0347*** (-9.20)
Suspect_last	0.0024 (0.37)	0.0255*** (6.48)	0.0124*** (4.48)	0.0118 (1.61)	0.0192*** (2.83)
AREM	**-0.2124*** (-8.39)**	**-0.3381*** (-4.94)**	**-0.1187* (-1.80)**	**-0.0872** (-3.06)**	**-0.2623*** (-5.66)**
Suspect_last * AREM	**0.6224*** (2.79)**	**0.1713*** (2.78)**	**0.2013*** (5.53)**	**0.1487*** (3.10)**	**0.3434*** (4.99)**
Year	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes
No. of Observations	3,346	2,860	2,407	3,354	2,852
$\alpha_7 + \alpha_9$	0.4100	-0.1668**	0.0826**	0.0615	0.0811
Mean VIF	1.37	1.19	1.23	1.19	1.20
Adjusted R-Squared	0.5061	0.5088	0.5272	0.4995	0.5038
F-value	***	***	***	***	***

(The table is continued the next page)

Table 6.3 (continued)

*, **, and *** denote statistical significance of the coefficient at 10%, 5%, and 1% levels, respectively.
Note to Table 6.3: This table reports the results of Fama-Macbeth regressions; the total sample consists of 930 listed firms on the London Stock Exchange (4,487 firm-year observations) over the period 2009-2013. The sample is extended to 2014 because of the requirement for data to measure a firm's operating performance for one subsequent year.

The table contains the results of the following regressions:

$$Adj\_ROA_{i,t+1} = \alpha_0 + \alpha_1 * LnMVE_{i,t} + a_2 * MTB_{i,t} + \alpha_3 * z\_score_{i,t-1} + a_4 * Adj\_ROA_{i,t} + a_5 * Loss_{i,t} + a_6 * Return_{i,t} + a_7 * AREM_{i,t} + a_8 * Suspect_{i,t} + a_9 * Suspect_{i,t} * AREM_{i,t} + a_{10} \sum Year\ dummies + IND + \varepsilon_{i,t}$$

In this model, the dependent variable ($Adj\_ROA_{i,t+1}$) Industry-adjusted ROA equals the difference between firm-specific ROA and the median ROA for the same year and industry during year $t + 1$.

$AREM$, refers to one of the five measures for abnormal real earnings management activities: the independent variables abnormal cash flow from operations (*Ab_CFO*), abnormal production costs (*Ab_PROD*), abnormal discretionary expenses (*Ab_DISEX*), and the aggregate real earnings measures *REM_1* and *REM_2* capture the main effects of abnormal real earnings management activities on future performance.

$Suspect$ is an indicator variable for suspect firm-years just beating/meeting important earnings benchmarks. Each panel reports the estimation results using a different definition of suspect firm-years as discussed below. Panel A reports results for suspects just beating/meeting the zero earnings ($Suspect\_zero$), which are firm-years with earnings before extraordinary items over lagged assets between 0 and 0.005. Panel B reports results for suspects just beating/meeting last year's earnings ($Suspect\_last$), which are firm-years with the change in net income from the last year between 0 and 0.01. $Suspect * AREM$ is an interaction term and captures the incremental effects of abnormal real earnings management activities relative to in the presence of just beating or meeting important benchmarks. Six control variables - firm size, firm's current-period financial profitability, firm growth, firm loss, return and firm financial health - are added to the model. The possible impact of a size effect is controlled by adding the natural logarithm of market value ($LnMVE$) to the model. To control for firm performance, the return on assets (ROA) is added as a control variable calculated as the net income before extraordinary items divided by lagged total assets. In addition, in order to control for firm-specific growth opportunities the model includes market-to-book (MTB) computed as the market value of equity (MVE) divided by the book value of common equity. z_score measures the financial strength of the firm i at the beginning of year t, computed as: 0.3 * (Net income before extraordinary items/Total assets) + 1.0 * (Sales revenue/Total assets) + 1.4 * (Retained earnings/Total assets) + 1.2 * (Working Capital/Total assets) + 0.6 * (Market value of equity/Total liabilities). $Return$ to control for the association between stock performance and future net income, market-adjusted abnormal returns is a proxy for the firm's market performance, calculated as the difference between monthly buy-and-hold raw returns and the monthly market buy-and-hold return, compounded over 12 months of the fiscal year (t). $Loss$ is an indicator variable equal to one when net income before extraordinary items is negative, and zero otherwise. ROA is the net income before extraordinary items divided by lagged total assets. To be consistent with the dependent variable, all continuous independent variables are industry-adjusted. Industry and year are included as indicator variables in the model. For brevity, the coefficients on industry and year dummy variables are not presented. Note that *t*-statistics are calculated using standard errors corrected for autocorrelation using the Newey-West procedure. They are reported in parentheses. To limit the influence of outliers, all continuous variables are winsorized at the top and bottom 1% of their distribution.

6.6 Sensitivity Analysis

This section undertakes additional analysis to extend and verify the results on the subset of firms that meet earnings benchmarks through their use of real earnings management activities on subsequent operating performance. Section 6.6.1 examines the results' sensitivity to the period of industry-adjusted return on assets measured by utilising two-year-ahead industry-adjusted return on assets ($Adj\_ROA_{i,t+2}$) to proxy the dependent variable.

6.6.1 Two-Year-Ahead Industry-Adjusted Return on Assets

To determine if the impacts of real earnings management on future operating performance extend beyond one year, and because the future harmful net income outcomes may last longer than one year, the analysis shown in Table 6.4 Panel A and Panel B is replaced with the dependent variable. This dependent variable is the two-years-ahead industry-adjusted return on assets ($Adj\_ROA_{i,t+2}$) in the following adjustment of equation (4.11):

$$Adj\_ROA_{i,t+2} = \alpha_0 + \alpha_1 * LnMVE_{i,t} + a_2 * MTB_{i,t} + \alpha_3 * z\_score_{i,t-1} + a_4 * Adj\_ROA_{i,t} + a_5 * Loss_{i,t} + a_6 * Return_{i,t} + a_7 * AREM_{i,t} + a_8 * Suspect_{i,t} + a_9 * Suspect_{i,t} * AREM_{i,t} + a_{10} \sum Year\ dummies + IND + \varepsilon_{i,t} \quad (6.1)$$

Table 6.4 reports the coefficient estimates for equation (6.1) in Appendix B. The results, in general, are robust when using $Adj\_ROA_{i,t+2}$ as the future performance measure and consistent with the results from $Adj\_ROA_{i,t+1}$ in Table 6.3 (Panel A and Panel B). For example, four of the five interaction terms of suspect firm-years of all measures of real earnings management remain the same and all are

significantly positively associated with future operating performance in year two at the 0.01 significance level. The abnormal cash flows from operations that interacted with suspect firm-years ($Ab\_CFO * Suspect\_zero$, $Ab\_CFO * Suspect\_last$) are still significantly positive, where the significance levels drop from 1% to 5% and 10%, respectively. The significance levels also drop from 1% to 5% on the coefficient of abnormal discretionary expenses that interacted with suspect firm-years ($Ab\_DISEX * Suspect\_last$).

The main effects of all abnormal real earnings management activities remain the same and all are negative and significant with future operating performance in year two at the 0.01 significance level. In addition, the combined coefficients on the interaction terms of abnormal real earnings management ($Suspect * AREM$,α_9 and $AREM$, α_7), which represents the full impact of real earnings management on a firm's subsequent two-years operating performance are also positive and significant at the 0.01 significance level on abnormal production cost analysis in Panel A and Panel B. However, it is negative and statistically significant at the 0.05 significance level on abnormal discretionary expenses analysis in Panel B. Further, the other combined coefficients of $Suspect *AREM$, α_9 and $AREM$, α_7 are still the same sign but are no longer statistically significant.

Notable differences among the control variable are as follows. The coefficients of z_score (α_3) in Panel A and Panel B are still positive and mildly significant for the aggregate measure of real earnings management REM_2 (t = 1.61 and 1.56, respectively). The significance levels drop from 1% to 5% on the coefficients of $Loss$ firm in Panel B for abnormal cash flows from operations and abnormal production costs (t = -2.35 and -2.37, respectively). Finally, Table 6.6, Panel A and

Panel B, reports that adjusted R^2 dropped slightly to 48% in each of the real earnings management measures in the future operating performance model. Overall, the results of the regression analysis presented in Table 6.4 are consistent with the main finding in this study. They key finding is that suspect firm-years just beating or meeting important benchmarks that engage in real earnings management activities perform better in the future operating performance in year one as well as in year two than firms that miss or just meet earnings benchmarks.

6.7 Summary

This chapter examines the effect of real earnings management activities to meet or just beat zero earnings and last year's earnings on firms' subsequent operating performance. The findings contribute to the literature by providing the following evidence. First, this chapter presents evidence that UK suspect firm-years just beating/meeting zero earnings and last year's earnings that manipulate their sales, discretionary expenditures, and production have better subsequent operating performance than other firms have. Second, I also find that UK firm-years that miss the earnings benchmarks but engage in real earnings management manipulation experience worse future performance. Moreover, additional analysis is performed to investigate the sensitivity of the results on a subset of firms that met earnings benchmarks through utilising real earnings management activities on subsequent operating performance. I find that firms that meet earnings targets by engaging in real earnings management activities perform better in the subsequent operating performance in year two as well as in their performance in year one.

Chapter Seven
Conclusions

7.1 Introduction

This chapter summarises the findings of this thesis by providing a brief synopsis of the thesis chapters. First, section two provides a summary of the research including a brief review of the relevant literature, research hypotheses, data and methodology, and findings. The main research contributions to accounting literature, regulators, standard setters, and investors are discussed in sections three and four. Finally, section five presents research limitations and makes recommendation for future research.

7.2 Summary of Research Questions, Hypotheses and Major Findings

7.2.1 Manipulation of Real Earnings Management Activities

This section presents the key findings of the first essay, and answers the main research questions. These are derived from the formulated conclusions in the previous chapter. The main research question was:

Do UK firms engage in real earnings management activities; specifically operating activities such as sales, discretionary expenditures, and production to meet/beat important earnings benchmarks (e.g., zero earnings and last year's earnings)?

According to the opportunistic perspective of earnings management and transaction cost theory, the results of the first essay reveal that managers in UK suspect firm-years that manage earnings upward utilise more real earnings management activities to achieve earnings benchmarks opportunistically. However, based on a sample of London Stock Exchange-listed firms over the period 2009 to 2013, the first hypothesis (H1a and H2a) tests whether UK firms that just meet/beat earnings benchmarks around zero earnings and last year's earnings are more likely to engage in real earnings management. The Fama-Macbeth approach results for H1a and H1b show that UK firms that just beat or meet zero earnings engage more in real earnings management to achieve certain earnings targets. In addition, this result is consistent with findings in Roychowdhury's (2006) prediction that firm-years just beating or meeting zero earnings engage more in earnings management through sales-based manipulation (abnormal cash flows from operations). However, the results in Table 5.6 Panel B do not support H1b that suggests that UK firms around last year's earnings are not associated with more real earnings management activities through sales-based manipulation.

The second hypothesis (H2a and H2b) tests whether UK firms that just meet/beat earnings benchmarks around zero earnings and last year's earnings are more likely to engage in real earnings management. The results show that UK firms that meeting/beating zero earnings and last year's earnings engage more in real earnings management to achieve certain earnings targets. In addition, this result is consistent with findings in literature (Roychowdhury, 2006; Gunny, 2010; Zang, 2012) predicting that firm-years just beating or meeting earnings benchmarks engage more in earnings management through discretionary expenses-based manipulation.

That is, cutting/reducing discretionary expenses will increase reported earnings in the current period, as well as generate higher cash flow in the current period.

Evidence from the third hypothesis (H3a and H3b) shows that UK firms engage more in real earnings management through overproduction-based manipulation to meet/beat zero earnings and last year's earnings than other firms that miss earnings targets do. This result is consistent with findings in literature (Roychowdhury, 2006; Gunny, 2010; Zang, 2012) predicting that firm-years just beating or meeting zero earnings and last year's earnings engage more in earnings management through overproduction in order to achieve certain earnings targets.

Furthermore, in order to capture the total effects of real earnings management and the likelihood that firms might engage in more than one type of real earnings management activities, the present study combines the three individual measures to compute two comprehensive metrics of real earnings management activities. This result is consistent with the findings in previous studies (Cohen and Zarowin, 2010; Zang, 2012). It provides evidence that managers in UK firms just beating or meeting an earnings benchmark engage in sales manipulation and reducing/cutting discretionary expenses simultaneously and also engage in overproducing products and reducing/cutting discretionary expenses at the same time.

Finally, the current study also examines whether UK firms around zero earnings and last year's earnings engage in income-increasing earnings management by utilising accrual-based earnings management. The results are consistent with the findings in prior literature and provide evidence that managers in UK firms around zero earnings and last year's earnings also engage in income-increasing accrual-based earnings management and/or in real earnings management.

7.2.2 Consequences of Real Earnings Management on Firm's Future Performance

This section presents the key findings of the second essay, and answers the main research questions. These are derived from the formulated conclusions in the previous chapter. The main research question was:

Do manipulations of operating activities such as sales, discretionary expenditures, and production in presence of meeting/beating important earnings benchmarks have, on average, significant negative or positive consequences for UK firms' subsequent operating performances?

Graham et al. (2005) demonstrate that managers elect to apply real earnings management over accrual-based earnings management to manage earnings upward, without considering whether this action will diminish the firm's value in the long term. Following their findings, attention has turned to an analysis of real earnings management. As real earnings management increases as a practice, this has attracted a growing number of real earnings management (REM) papers (Roychowdhury, 2006; Xu et al., 2007; Cohen and Zarowin, 2010; Gunny, 2010; Zang, 2012; Cohen et al., 2016; Kothari et al., 2016). These REM studies follow two directions of thought. The first is the opportunistic earnings management argument that managers who employ real earnings management as opposed to normal business strategy to manage reported earnings are misleading investors in how they assess firms' performance (Healy and Palepu, 1993; DeFond and Park, 1997). Conversely, the second direction of thought is the signalling earnings management arguments. This asserts that firms employ real earnings management to signal future successful performance while distancing themselves from negative performance (Roychowdhury, 2006). Investors, however, are not generally as

informed as the managers are because of the information asymmetry that exists between insider and outsider investors. Subsequently, managers may use earnings to communicate the private information that they have on firms' future performance, thereby protect firms' long-term value. (Demski, 1998; Kothari, 2001; Sankar and Subramanyam, 2001; Arya et al., 2003; Louis and Robinson, 2005).

I extend the sample of London Stock Exchange-listed firms to 2014 because of the requirement for data to measure a firm's operating performance for one subsequent year following the sample period. The fourth hypothesis (H4) tests whether there is an association between UK firms that manipulate their sales, discretionary expenses and production to just meet/beat earnings benchmarks (e.g., zero earnings and last year's earnings) and future operating performance. Pooled ordinary least squares (time-series cross-sectional) regression results show that UK firms that manipulate their earnings to meet or beat zero earnings and last year's earnings are all significantly positively associated with future operating performance. This is consistent with Gunny's (2010) and Zhao et al.'s (2012) findings and suggests that abnormal real earnings management intended to meet or just beat zero earnings and last year's earnings and to also transmit a signal of superior future performance to the market. Moreover, the two aggregate REM measures are positive and statistically significantly associated with future operating performance. Hence, these results confirm that managers of suspect firm-years to meet or just beat zero earnings and last year's earnings who simultaneously engage in discretionary expenses-based manipulation and production costs-based manipulation, and sales-based manipulation and discretionary expenses-based manipulation realise better subsequent operating performance.

Furthermore, the results also show that UK firms that manipulate their earnings but miss or/and meet earnings targets are all negatively associated with future operating performance, which is comparable to the findings of prior studies (Gunny, 2010; Zhao et al., 2012). These results suggest a general value-destroying outcome of shareholders' effect of abnormal real earnings management activities in the absence of just beating or meeting important benchmarks. In other words, firms that do not sustain recent performance – that is, just beat or meet the last year's earnings – but engage in real earnings management activities perform worse in the future or in signalling future performance than other firm-years.

In summary, evidence from H4 suggests that in the presence of meeting/beating earnings benchmarks around zero earnings and last year's earnings, real earnings management signals firms' good future performance. Further, evidence from H5 suggests that real earnings management in the absence of meeting/beating earnings benchmarks around zero earnings and last year's earnings perform worse in the future; this reduces the firm's value, which will harm the firm's future performance (value destroying).

Finally, to determine if the impacts of real earnings management on subsequent operating performance extend beyond one year, additional tests are also performed. The results show that UK firms that meet/beat earnings benchmarks by engaging in real earnings management activities perform better in subsequent operating performance in year two as well as in their performance in year one. However, firms that miss earnings benchmarks but engage in real earnings management activities experience deterioration in subsequent operating performance in year two as well as in their performance in year one.

7.3 Research Contributions

This study contributes to the accounting literature in a number of ways. First, the study contributes on the extant empirical research on real earnings management (e.g., Graham et al., 2005; Roychowdhury, 2006; Cohen et al., 2008; Gunny, 2010; Badertscher, 2011; Chi et al., 2011; Zang, 2012; Kothari et al., 2016) by providing empirical evidence on real earnings management in the UK context which has not been examined before. Specifically, I examine whether UK firms that manage earnings upward utilise three types of real earnings management activities to meet or just beat earnings benchmarks. Furthermore, this study indicates exactly which types of real earnings management have been manipulated to meet or just beat zero earnings and last year's earnings. Thus, this study extends the existing knowledge to gain greater understanding in the UK market.

Second, this study is the first to consider real earnings management activities through sales-based manipulation around firms that sustain recent performance, such as making at least last year's earnings to provide a comprehensive overview of real earnings management around firms that are more likely to manage up earnings to meet or just beat earnings benchmarks. Prior research presents an incomplete picture of this association. For example, Gunny (2010) examines four types of real earnings management subject to manipulation; these are reducing the amount of discretionary R&D expenditure; reducing the amount of discretionary SG&A expenditure; timing of the sale of fixed assets for the reporting of gained assets; and overproduction costs. Further, Zang (2012) only examines two types of real earnings management activities, these being discretionary expenditures and overproduction costs. Thus, this study presents the first evidence on firms that

manipulate their earnings through sales-based manipulation to sustain recent performance, such as making at least last year's earnings.

Third, the current study contributes to the extant empirical research on the relationship between the real earnings management and future operating performance (e.g., Leggett et al., 2009; Gunny, 2010; Chen et al., 2010; Taylor and Xu, 2010; Zhao et al., 2012; Kothari et al., 2016; Vorst, 2016) by providing empirical evidence on the consequences of real earnings management in the UK context. While the previous empirical results are mixed, the results of this study show that UK firms utilizing real earnings management to meet or just beat earnings benchmarks does not necessarily cause significant negative consequences for firms' subsequent operations. The results of this study allow a more comprehensive understanding of the process through which management evaluates the costs and benefits of real earnings management.

Fourth, although most academic studies attempt to identify earnings management, they have not measured real earnings management on firms' subsequent operating performance in terms of its magnitude; this study is the first to use the absolute value of each measure to capture the general level of real earnings management activities on future operating performance. For example, Gunny (2010) examines a US sample and uses real earnings management activities as the indicator variable equal to one if the residual from R&D, SG&A, and production models is in the lowest (highest) quintile, zero otherwise. Chen et al. (2010) also use indicator variables for real earnings management firms rather than examining the magnitude of real earnings management. In contrast to the previous research (e.g., Gunny, 2010; Chen et al., 2010), this research considers avoiding the drawbacks of binning

continuous variable. That is, the potential loss of power and loss of precise average effect, that could arise by estimating means effect of the measures in the upper quantile rather than estimating the means effect of the whole observations (Harrell, 2015). The results of this study provide a better understanding of REM on future performance.

Finally, previous methodological work on the consequences of earnings management focuses on cross-sectional dependence (e.g., Gunny, 2010; Chen et al. 2010; Zhao et al., 2012) but does not examine the issues created by the presence of both cross-sectional and time-series dependences. The Fama-MacBeth procedure is designed to address concerns about cross-sectional correlation in the data (Fama and MacBeth, 1973). In this study, I use the Fama-MacBeth procedure as a method that corrects for dependence in one direction and typically assumes independence in the other (Gow et al., 2012). In addition, a potential problem with the pooled (time series-cross sectional) regression (Fama-Macbeth approach) is the possibility of within-firm autocorrelation (also called serial correlation) in addition to possible heteroscedasticity, which would bias the standard error in the model. To address this issue, the *t*-statistics are used to calculate standard errors corrected for autocorrelation in addition to possible heteroscedasticity using the Newey-West standard errors (Newey-West, 1987). Thus, the Newey-West standard errors corrected Fama-Macbeth statistic add values to the robustness of the results by correcting for potential bias and inconsistency issues in the estimates and overcoming heteroscedasticity problems.

7.4 Policy Implications

7.4.1 Regulatory and Standard Setters Implications

Management is a key source of accounting information for its shareholders, who should be kept up to date with the firm's activities and performance. Nevertheless, management is motivated by self-interest, and incentives may exist to manipulate the information released to reach an earnings targets; for example, through the manipulation of accruals and operating activities such as sales, discretionary expenditures, and production costs. The findings of this thesis present evidence that real transactions through the manipulation of operating activities that directly affect cash flows contribute to increase net income. Shareholders may be misled if accounting information that does not truthfully represent the financial position and performance of the firm is provided. If earnings manipulation is undertaken within the bounds of GAAP rules, it is considered earnings management; if it takes place without recourse to GAAP rules; it is considered accounting fraud (Dechow and Skinner, 2000). However, earnings management may not actually be considered fraudulent; rather it may be a signal of opportunistic behaviour by management.

Regulatory bodies such as the London Stock Exchange (LSE), the Financial Reporting Council in the UK (FRC) and the Securities Exchange Commission (SEC) should enhance the disclosure system and financial report quality in the capital market to ensure that accounting information remains honest, transparent and relevant. This is to mitigate against financial fraud and to reduce information

asymmetry and agency conflict between managers and shareholders.[63] In addition, the constraints on or scrutiny over accounting-based earnings management force managers to switch to real earnings management (Zang, 2012), which could burn the firms' economic values in the long run, and some of the real activities manipulation may be costly to investors. That is, tightened accounting regulation may not reduce the overall level of earnings management, because of managers' actions in substituting real activities for accrual manipulations. Thus, regulatory bodies may develop more effective enforcement mechanisms if they have sufficient knowledge about financial statement manipulation.[64]

The results of this suggest that managers' reporting incentives do affect the implementation of standards that allow for greater managerial discretion; subsequently they may be of interest to standard setters, who might reassess areas of high accounting discretion to restrict the possibility of earnings manipulations.

7.4.2 Practical Implications

This study has practical implications for firms that need to satisfy investors and existing shareholders. The findings of this thesis provide further evidence of the existence of earnings management through real activities manipulation and its impact on the firm's future performance. Primarily, the current study reveals that

[63] The nature of accounting standard introduces conflicts, which subsequently create additional agency concerns surrounding the free cash flow problems.

[64] There is an awareness among most managers that using accounting choice (e.g., accruals-based earnings management) to mislead stakeholders about their firm's real economic performance is unethical. In their survey, Bruns and Merchant (1990) demonstrate that managers view managing earnings through operating activities as more ethical than utilising accruals-based earnings management. Therefore, a main issue for today's regulators is to educate managers that adopting suboptimal business strategies such as operating activities with the purpose to achieve the desired level of net incomes is also deemed unethical.

managers are more likely to avoid opportunism and use their accounting discretion to convey their private information about the true value of the firm. Investors and existing shareholders may gain insights on the reliability of earnings figure when incentives for earnings management are strong and they should also consider real and accrual earnings management when they are making investments.

7.5 Research Limitations and Further Research

When drawing evidence-based conclusions, consideration should be paid to some limitations identified in this study. One limitation of this study is that I only investigated motivation for real earnings management, which is to meet/beat important earnings benchmarks such as avoiding report losses and sustaining recent profit performance was investigated in the present study. In reality, many other factors could drive earnings management such as compensation contract, avoiding violations of debt covenants, equity earnings, and smoothing earnings. The second limitation is a variety of factors that not investigated in this research can influence accrual earnings management and real earnings management in a number of ways: for example, audit quality, corporate governance or disclosure policies are less likely to engage in earnings management.

Another limitation with the present study is that it examines the manipulation of common business activities, such as sales, discretionary expenditures and production, but does not investigate other less common types of real earnings management, including stock repurchases. Finally, as this study focuses on UK data, due to data access limitations, I do not explore the factors that mentioned above, which are considered important areas in the earnings management literature.

This review implies that the field of earnings management remains open to continued academic investigation. However, it is more likely that new insights will be generated if the research questions addressed in this thesis are expanded. However, real earnings management literature (e.g., Roychowdhury, 2006; Cohen et al., 2008; Zang, 2012; Kothari et al., 2016) is only about upward real earnings management. The question for the future is to study whether real earnings management is adopted to manage earnings downward. In addition, from reconciling conflicting findings on the effect of earnings management on stock prices, these results call into question what the consequences of income-decreasing real earnings management on future earnings and stock price are. A suggestion for future research would be this type of real earnings management in context with audit quality. Furthermore, a future research direction could also consider earnings quality and earnings management in not-for-profit organisations in the UK, which accounting literature does not yet address.

Appendix A

Variables required for my analysis and corresponding *Datastream* and *Worldscope* Data Item

Variable Definitions[65]

TA (WC02999)	Total Assets.
SR (WC01001)	Sales Revenue.
IBEI (WC01551)	Income Before Extraordinary Items.
CFO (WC04860)	Cash Flows from Operations.
COGS (WC01051)	Cost of Goods Sold.
INV (WC02101)	Inventories.
Δ INV	The Change in Inventory of Firm i from year $t-1$ to year t.
Production Costs (PROD)	The Sum of Cost of Goods Sold and Change in Inventory of Firm i.
R&D (WC01201)	Research and Development Expenses.
ADV and SG&A (WC01101)	Advertising, and Selling, General and Administrative Expenses.
Discretionary Expenses (DISEX)	The sum of R&D, Advertising and Selling, General and Administrative Expenses (SG&A) of Firm i; as long as SG&A is available, advertising and R&D are set to zero if they are missing.
Ab_CFO	Abnormal Cash Flows from Operations, where Ab_CFO is measured by estimated residual from the regression equation (4.1). $\frac{CFO_{i,t}}{TA_{i,t-1}} = \alpha_0 + \beta_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2 * \left(\frac{SR_{i,t}}{TA_{i,t-1}}\right) + \beta_3 * \left(\frac{\Delta SR_{i,t}}{TA_{i,t-1}}\right) + \varepsilon_{i,t}$. Where $CFO_{i,t}$ is cash flow from operations for firm i in the year t, defined as cash flow from operations divided by lagged total assets; $TA_{i,t-1}$ is the total assets at the beginning of period t for firm i; $SR_{i,t}$ is the sales revenue during period t for firm i; $\Delta SR_{i,t} = SR_{i,t} - SR_{i,t-1}$, i is the firm; and $\varepsilon_{i,t}$ is the error term.

[65] Annual *Datastream* data items are in parentheses.

Ab_DISEX	Abnormal Discretionary Expenses, where Ab_DISEX is measured by estimated residual from the regression equation (4.5). $\frac{DISEX_{i,t}}{TA_{i,t-1}} = \alpha_0 + \beta_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2 * \left(\frac{SR_{i,t-1}}{TA_{i,t-1}}\right) + \varepsilon_{i,t}$. Where $DISEX_{i,t}$ is the discretionary expenses that are defined as the sum of research and development (R&D), advertising, and selling, general and administrative expenses (SG&A) in year t for firm i; $TA_{i,t-1}$ is the total assets at the beginning of period t for firm i; and $SR_{i,t-1}$ is the sales revenue at the beginning of year t for firm i.
Ab_PROD	Abnormal Production Costs, where Ab_PROD is measured by estimated residual from the regression equation (4.7). $\frac{PROD_{i,t}}{TA_{i,t-1}} = \alpha_0 + \beta_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2 * \left(\frac{SR_{i,t}}{TA_{i,t-1}}\right) + \beta_3 * \left(\frac{\Delta SR_{i,t}}{TA_{i,t-1}}\right) + \beta_4 * \left(\frac{\Delta SR_{i,t-1}}{TA_{i,t-1}}\right) + \varepsilon_{i,t}$. where $PROD_{i,t}$ is the sum of the cost of goods sold in year t for firm i and the change in inventory from $t-1$ to t; $TA_{i,t-1}$ is the total assets in firm-year $i, t-1$; $SR_{i,t}$ is the sales revenue in year t for firm i; $\Delta SR_{i,t}$ is the change in sales revenue from year $t-1$ to t; and $\Delta SR_{i,t-1}$ is the change in sales revenue at the beginning of year t for firm i.
Ab_TACC	Abnormal Total Accruals; where Ab_TACC is measured by estimated residuals from Kothari et al.'s (2005) model. $\frac{Accurals_{i,t}}{TA_{i,t-1}} = \alpha_0 + \beta_1 * \left(\frac{1}{TA_{i,t-1}}\right) + \beta_2 * \left(\frac{\Delta SR_{i,t} - \Delta AR_{i,t}}{TA_{i,t-1}}\right) + \beta_3 * \left(\frac{PPE_{i,t}}{TA_{i,t-1}}\right) + \beta_4 * ROA_{i,t-1} + \varepsilon_{i,t}$. Where $Accruals_{i,t}$ is total accruals defined as the differences between net income before extraordinary items and cash flows from operations for firm i in the year t, $PPE_{\mathrm{i,t}}$ denotes the gross value of property, plant and equipment for firm i in the year t, and $ROA_{i,t-1}$ is the return on assets measured as net income before extraordinary items divided by total assets at the beginning of year t.
REM_1	The sum of Ab_DISEX * (-1) and Ab_PROD; the higher the values of this aggregate measure, the more likely it is that the firm is engaging in real activities manipulation.
REM_2	The sum of Ab_CFO * (-1) and Ab_DISEX * (-1); the higher the values of this aggregate measure, the more likely it is that the firm is engaging in real activities manipulation.
ROA	Return on Assets; Income before extraordinary items scaled by lagged total assets.
MVE (WC08001)	The Market Value of Equity.
BVE (WC05476)	The Book Value of Common Equity.
Market-to-book (MTB)	The ratio of market value of equity-to-book value of equity of firm i, measured at the beginning of year t.
LnMVE	Logarithm of the market value of equity of firm i, measured at the beginning of year t.
Suspect	An indicator variable for suspect firm-years just beating/meeting important earnings benchmarks.

Suspect_zero	An indicator variable that is set equal to one if firm i's net income before extraordinary items scaled by lagged total assets is between 0 and 0.005, and is set equal to zero otherwise, based on Roychowdhury's (2006) criteria to identify suspect firm-years.
Suspect_last	An indicator variable that is set equal to one if firm i's change in net income before extraordinary items from the last year is between 0 and 0.01, and is set equal to zero otherwise, based on Gunny's (2006) criteria to identify suspect firm-years.

Appendix B

Table 6.4: Regression Analysis of Subsequent Operating Performance in Year Two of Firms Just Meeting/Beating Earnings Benchmarks

Panel A: Industry-Adjusted Return on Assets ($Adj\_ROA_{i,t+2}$) is a Proxy for Operating Performance of Firms that Meet or Just Beat Zero Earnings

Dependent Variable = Two-Year-Ahead Industry-Adjusted Return on Assets					
Independent Variables	**Ab_CFO**	**Ab_DISEX**	**Ab_PROD**	**REM_1**	**REM_2**
Intercept	-0.3928*** (-6.40)	-0.3315*** (-6.72)	-0.3185*** (-6.49)	-0.3895*** (-8.86)	-0.3716*** (-7.60)
Adj_ROA	0.5378*** (7.90)	0.5782*** (10.72)	0.6213*** (8.37)	0.5848*** (10.24)	0.5545*** (8.47)
LnMVE	0.0217*** (6.28)	0.0209*** (7.98)	0.0178*** (6.84)	0.0219*** (9.39)	0.0221*** (8.49)
MTB	-0.0059*** (-3.97)	-0.0076*** (-4.18)	-0.0045*** (-3.74)	-0.0064*** (-6.24)	-0.0079*** (-5.15)
Return	0.0011 (0.24)	-0.0044 (-0.46)	0.0021 (0.19)	-0.0020 (-0.23)	-0.0032 (-0.34)
z_score	0.0002 (0.89)	0.0000 (0.03)	-0.00023 (-0.81)	0.00005 (0.21)	0.00025 (1.61)
Loss	-0.0305*** (-2.46)	-0.0533*** (-3.89)	-0.0359*** (-2.56)	-0.0385*** (-3.06)	-0.0434*** (-5.00)
Suspect_zero	-0.0224** (-2.09)	-0.0591*** (-3.58)	-0.0377*** (-6.63)	-0.0223** (-2.40)	-0.0479*** (-5.00)
AREM	**-0.2119*** (-6.06)**	**-0.3666*** (-4.40)**	**-0.1066* (-1.76)**	**-0.1214** (-5.83)**	**-0.2728*** (-4.79)**
Suspect_zero * AREM	**0.6478** (2.03)**	**0.4489*** (4.60)**	**0.2820*** (10.23)**	**0.1819*** (2.58)**	**0.3919*** (4.08)**
Year	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes
No. of Observation	3,346	2,860	2,407	3,354	2,852
$\alpha_7 + \alpha_9$	0.4359	0.0823**	0.1754***	0.0605	0.1191
Mean VIF	1.52	1.48	1.33	1.25	1.56
Adjusted R-Squared	0.4805	0.4799	0.4855	0.4775	0.4679
F-value	***	***	***	***	***

(The table is continued on the next page)

Panel B: Industry-Adjusted Return on Assets ($Adj\_ROA_{i,t+2}$) is a Proxy for Operating Performance of Firms That Meet or Just Beat Last Year's Earnings

Dependent Variable = Two-Year-Ahead Industry-Adjusted Return on Assets					
Independent Variables	**Ab_CFO**	**Ab_DISEX**	**Ab_PROD**	**REM_1**	**REM_2**
Intercept	-0.3941*** (-6.51)	-0.3302*** (-12.28)	-0.3213*** (-6.56)	-0.3903*** (-5.87)	-0.3705*** (-7.58)
Adj_ROA	0.5383*** (7.88)	0.5958*** (10.78)	0.6216*** (8.41)	0.5850*** (10.29)	0.5546*** (8.51)
LnMVE	0.0217*** (6.24)	0.0205*** (7.81)	0.0178*** (6.82)	0.0218*** (6.13)	0.0219*** (8.34)
MTB	-0.0059*** (-3.97)	-0.0075*** (-4.13)	-0.0044*** (-3.72)	-0.0063*** (-3.70)	-0.0079*** (-5.11)
Return	0.0011 (0.13)	-0.0041 (-0.43)	0.0022 (0.20)	-0.0020 (-0.22)	-0.0031 (-0.32)
z_score	0.00021 (0.85)	0.00000029 (0.01)	-0.00024 (-0.82)	0.00004 (0.19)	0.00020 (1.56)
Loss	-0.0291** (-2.35)	-0.0499*** (-3.65)	-0.0333** (-2.37)	-0.0364*** (-3.20)	-0.0407*** (-4.50)
Suspect_last	0.0062 (0.41)	0.0277*** (5.39)	0.0119*** (2.64)	0.0140 (1.20)	0.0213*** (2.59)
AREM	**-0.2110*** (-6.04)**	**-0.3683*** (-4.46)**	**-0.1063* (-1.87)**	**-0.1219** (-5.85)**	**-0.2740*** (-4.77)**
Suspect_last * AREM	**0.4583* (1.96)**	**0.2730** (2.54)**	**0.1658*** (5.30)**	**0.1459*** (2.62)**	**0.2517*** (3.99)**
Year	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes
No. of Observations	3,346	2,860	2,407	3,354	2,852
$\alpha_7 + \alpha_9$	0.2473	-0.0953**	0.0595**	0.0240	-0.0223
Mean VIF	1.66	1.55	1.48	1.21	1.46
Adjusted R-Squared	0.4569	0.4775	0.4822	0.4850	0.4906
F-value	***	***	***	***	***

(The table is continued on the next page)

Table 6.4 (continued)

*, **, and *** denote statistical significance of the coefficient at 10%, 5%, and 1% levels, respectively. Note to Table 6.4: This table reports the results of Fama-Macbeth regressions; the total sample consists of 930 listed firms on the London Stock Exchange (4,487 firm-year observations) over the period 2009-2013. The sample is extended to 2015 because of the requirement for data to measure a firm's operating performance for two subsequent year.

The table contains the results of the following regressions:

$$Adj\_ROA_{i,t+2} = \alpha_0 + \alpha_1 * LnMVE_{i,t} + a_2 * MTB_{i,t} + \alpha_3 * z\_score_{i,t-1} + a_4 * Adj\_ROA_{i,t} + a_5 * Loss_{i,t} + a_6 * Return_{i,t} + a_7 * AREM_{i,t} + a_8 * Suspect_{i,t} + a_9 * Suspect_{i,t} * AREM_{i,t} + a_{10} \sum Year\ dummies + IND + \varepsilon_{i,t}$$

In this model, the dependent variable ($Adj\_ROA_{i,t+2}$) Industry-adjusted ROA equals the difference between firm-specific ROA and the median ROA for the same year and industry during year $t+2$.

$AREM_{i,t}$ refers to one of the five measures for abnormal real earnings management activities: the independent variables abnormal cash flow from operations (*Ab_CFO*), abnormal production costs (*Ab_PROD*), abnormal discretionary expenses (*Ab_DISEX*), and the aggregate real earnings measures *REM_1* and *REM_2*; capture the main effects of abnormal real earnings management activities on future performance.

$Suspect$ is an indicator variable for suspect firm-years just beating/meeting important earnings benchmarks. Each panel reports the estimation results using a different definition of suspect firm-years as discussed below. Panel A reports results for suspects just beating/meeting the zero earnings ($Suspect\_zero$), which are firm-years with earnings before extraordinary items over lagged assets between 0 and 0.005. Panel B reports results for suspects just beating/meeting last year's earnings ($Suspect\_last$), which are firm-years with the change in net income from the last year between 0 and 0.01. $Suspect * AREM$ is an interaction term and captures the incremental effects of abnormal real earnings management activities relative to in the presence of just beating or meeting important benchmarks. Six control variables - firm size, firm's current-period financial profitability, firm growth, firm loss, return and firm financial health - are added to the model. The possible impact of a size effect is controlled by adding the natural logarithm of market value ($LnMVE$) to the model. To control for firm performance, the return on assets (ROA) is added as a control variable calculated as the net income before extraordinary items divided by lagged total assets. In addition, in order to control for firm-specific growth opportunities the model includes market-to-book (MTB) computed as the market value of equity (MVE) divided by the book value of common equity. z_score measures the financial strength of the firm i at the beginning of year t, computed as: 0.3 * (Net income before extraordinary items/Total assets) + 1.0 * (Sales revenue/Total assets) + 1.4 * (Retained Earnings/Total assets) + 1.2 * (Working Capital/Total assets) + 0.6 * (Market value of equity/Total liabilities). $Return$to control for the association between stock performance and future net income, market-adjusted abnormal returns is a proxy for the firm's market performance, calculated as the difference between monthly buy-and-hold raw returns and the monthly market buy-and-hold return, compounded over 12 months of the fiscal year (t). $Loss$ is an indicator variable equal to one when net income before extraordinary items is negative, and zero otherwise. ROA is the net income before extraordinary items divided by lagged total assets. To be consistent with the dependent variable, all continuous independent variables are industry-adjusted. Industry and year are included as indicator variables in the model. For brevity, the coefficients on industry and year dummy variables are not presented. Note that *t*-statistics are calculated using standard errors corrected for autocorrelation using the Newey-West procedure. They are reported in parentheses. To limit the influence of outliers, all continuous variables are winsorized at the top and bottom 1% of their distribution.

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