IMPACT OF ACCRUAL AND REAL-BASED EARNINGS MANAGEMENT ON MARKET LIQUIDITY AND FINANCIAL PERFORMANCE FOR UK SEOS

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ABSTRACT

Purpose: This study investigates the impact of earnings management on financial performance and the market liquidity for a sample of UK seasoned equity offerings (SEOs) between 2000 and 2020. This study also examines the occurrence of earnings management activities and their impact on market liquidity and financial performance around crucial events such as IFRS, the financial crisis, and Brexit.

Design/methodology/approach: The sample consists of all UK SEOs, excluding financial industries, between the 1st of January 2000 and the 31st of December 2020. Univariate and multivariate analyses are conducted to examine the impact of earnings management on market liquidity and financial performance for UK SEOs. The study employs a cross-sectional version of the Jones model (Jones, 1991) adjusted by Kothari et al (2005) modifications to estimate discretionary accruals as a proxy for earnings management. To account for accrual-based earnings management activities, current accruals are used as a proxy. Also, total accruals are used as a robustness check. To detect real earnings management, three proxies measuring the abnormal levels of cash flow from operations, production costs, and discretionary expenditures will be used. Furthermore, an aggregate measure that combines the above three proxies is applied as a robustness check for real-based earnings management.

Findings: The results reveal a significant positive impact of real-based earnings management on market liquidity. In addition, our findings show that both accrual and real-based earnings management have a significant positive impact on financial performance. As a further analysis, the outcomes show that both accrual and real-based earnings management have a significant positive effect on market liquidity in post-Brexit. On the other hand, real earnings management has a significant positive impact on earnings management in the post-IFRS period. Moreover, both accrual and real-based earnings management have a positive significant effect on financial performance during the financial crisis.

Research limitations/implications: Few companies were dropped from the sample because of outliers, unavailable annual reports, and missing data for some variables.

Practical implications: The findings highlight the positive effects of accrual-and real-based earnings management. Thus, it is of interest to the investors, analysts, and traders who might benefit from the valuable information in building their investment decisions. The study confirms that earnings management behavior changes around crucial events such as International Financial Reporting Standards, the Global Financial Crisis, and Brexit. The paper's findings have significant implications for regulators and policymakers since firms may shift their earnings management strategies from accrual to real-based earnings management.

Originality/value: This study provides the first analysis in the UK to test for accrual and real-based earnings management by SEO firms. Furthermore, this paper conducts the first examination using an aggregate measure to investigate the impact of real earnings management on market liquidity and financial performance. Also, it examines the role of IFRS in enhancing the quality of financial reporting within the context of UK SEOs. Moreover, this research contributes to the literature by investigating the behavior of both types of earnings management around crucial events such as the financial crisis and Brexit.

Keywords: Accrual and Real-based Earnings management, Information Asymmetry, Agency Theory, Market liquidity, Financial performance, Seasoned Equity Offerings, IFRS, Financial Crisis, Brexit.

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Chapter One: Introduction

1.1 Introduction

This chapter introduces our research work, starting by stating the general background of the relationship between earnings management, market liquidity, and financial performance for a UK sample of Seasoned Equity Offerings (SEOs). The third part of this chapter tackles the purpose of the study. In the fourth section, we emphasize the originality of the research. Section five presents our major findings. The sixth section covers the contributions to the literature. Finally, the seventh section constitutes of the structure of the study.

1.2 General Background

Earnings management is one of the most common management practices revealed in financial statements. Stolowy and Breton (2003) define the management of financial statements as the exercise by managers of the discretion granted to them in accounting decisions or operation structuring, resulting in a modification of the enterprise's risk of wealth transfer. This definition focuses on the negative side of earnings management and does not reflect the long-term performance of the company. Accrual-based earnings management is the extensive financial reporting judgments made through financial statements to mislead investors about the firm’s financial performance (Kothari et al.,

2005). On the other hand, Roychowdhury (2006) describes real-based earnings management as the manipulation of the firm's operating activities to mislead financial reporting.

Several studies predict a relaionship between real earnings management and financial performance. In fact, the empirical research findings are mixed. Because all real earnings management result in higher levels of net income reported in the current period, performance in subsequent periods is likely to suffer from its consequences. According to the literature, real-based earnings management is a firm value-destructive activity that harms the company's future performance. On the other hand, existing literature, also shows that real-based earnings management do not always convey a negative signal. Gunny (2010) and Taylor & Xu (2010) provide evidence of a positive relationship between earnings management and better future performance. They show that firms manage their discretionary expenses to meet their target earnings without experiencing a subsequent deterioration in performance. It is argued, that earnings management is capable of conveying positive informational signals about firms' potential for growth and market share. This may indicate the future value of the firms involved (Al-Shattarat et al.,2018).

According to the agency theory, the principal cannot verify that the agent acts in the best interests of the principal in terms of executive decisions and reporting objectives.

Thus, managers decide for their benefit, rather than in the interest of the principal. the principal and the agent may prefer different actions due to the conflict of interest and different risk preferences (Eisenhardt, 1989; Alsharairi & Iqait, 2017). As a result, agency conflict arises when ownership and management are separated. In this case, managers decide for their benefit, rather than in the interest of the principal; which could lead them

engage in earnings management activities (Fuad & Wijanarto, 2017). Moreover, Ajina and Habib (2017) claim that market liquidity and information transparency are essential to creating an effective corporate governance system. They state that market liquidity depends on information transparency. Moreover, the authors suggest that raising additional funds becomes easier for the company as long as liquidity is maintained. Besides, this process requires fewer transaction costs and a shorter time interval between economic agents (Ajina and Habib, 2017). Similarly, Malofeeva (2018) states that some limitations prevent firms from intentionally misstating financial reporting data. The primary limitations are a developed system of corporate governance and control, a high audit and regulation of the firm's activities, and protection of shareholders' rights (Malofeeva, 2018).

The contradictory findings reported on the use of earnings management and its effects on performance result in opposing possible explanations for why people engage in earnings management. Earnings management could be interpreted as a managerial opportunity (such as Gunny, 2005; Mizik, 2010; Cupertino et al., 2016; Francis et al., 2016), or as a signal of value (such as Gunny, 2005; Taylor & Xu, 2010; Cupertino et al., 2016; Al Sharairi, 2020).

Also, Graham et al. (2005) state that managers prefer real earnings management activities rather than accrual-based ones. Furthermore, Roychowdhury (2006) shows that managers can avoid loss reporting via real-time activity manipulation. Moreover, the author finds that firms use various methods for real earnings management. They claim that managers avoid reporting financial losses by cutting down on discretionary expenses (known as research and development, advertising, and selling general and administrative expenses), overproducing, which permits lower levels of cost of goods sold, and increasing sales by

providing price discounts and more lenient credit terms to investors. These three methods allow firms to report higher operating margins than they actually have (Cohen & Zarowin, 2010). Also, a primary reason is that real earnings management is less detectable by auditors, regulators, and investors than accrual earnings management (Graham et al., 2005; Cohen and Zarowin, 2010; Zang, 2012).

Previous research (such as Ewert and Wagenhofer, 2005; and Cohen et al., 2008) reveals that a manager's preferred type of earnings management depends on regulations' strengths. Other studies (such as Graham et al., 2005; Zang, 2012) confirm that real and accrual earnings management levels vary with the firm's surrounding regulatory environment. International Financial Reporting Standards (IFRS) are "the most common accounting standards among over one hundred and forty countries worldwide" (Oz and Yelkenci, 2018, p. 24). The authors state that legal origins be unified to reduce deterioration in accounting information quality. Moreover, they deduce that adoption of IFRS on a global scale, in particular, would increase the importance of enforcement in an international context and create the need for a unified cross-country enforcement system.

Several studies examine the relationship between earnings management and market liquidity (AL-Jaifi, 2017; Abad et al.., 2018; Trang and Linh, 2020) and between EM and financial performance (Al-Shattarat et al., 2018; Alsharairi et al., 2020). For instance, throughout a sample of 2,020 yearly firm observations in Bursa Malaysia over the 2009–2012 period, Al-Jaifi (2017) investigated the relationship between earnings management and stock liquidity. The authors suggest that firms may manipulate earnings to convey private information in order to increase the information content of the earnings. This is

consistent with the signaling theory, which holds that information reported in financial reports sends signals about the financial situation's future prospects (D'Augusta et al., 2015; Al-Jaifi, 2017). Similarly, using a sample of French firms between 2008 and 2011, Ajina and Habib (2017) examine the relationship between EM and market liquidity. Their findings show that earnings management decreases agency costs and information asymmetry. Hence, Ajina and Habib (2017) claim that greater transparency allows investors to reduce the cost of their investment by component asymmetric information as a result of a lower spread. This is consistent with the findings of Ginglinger et al., 2013 and D'Augusta et al., 2015). Furthermore, Trang and Linh (2020) suggest that increased earnings management may lead to an increase in market liquidity. The authors state that investors are typically drawn to company earnings and tend to exercise these earnings, which creates an opportunity for investors in search of a quick and high return while ignoring the degree of earnings management.

Concerning the impact of earnings management on financial performance, Zhao et al. (2012) find that firms that meet benchmarks for managing earnings upward achieve better future performance than those that do not. This supports the signaling argument that managers engage in REM to signal better future performance to the capital market without impairing firms' value (Bartov et al., 2002; Taylor and Xu, 2010; Jiang et al., 2018). For instance, Jiang et al. (2018) investigate the impact of REM on future financial performance in an international setting using a large sample of companies between 2001 and 2015. They discover that REM has a positive impact on future firm performance. Furthermore, Chakroun and Ben Amar (2019) recently examined the impact of earnings management on

financial performance using a sample of 311 French companies from the CAC-all-Tradable index from 2010 to 2014. The authors confirm that the two opposing perspectives of EM are "opportunistic EM" and "signaling EM". Chakroun and Ben Amar (2019) show that each approach has a different impact on the firm's financial performance. They find that French firms that engage in EM may have negative financial performance in the future, which represents an opportunistic approach. On the other hand, Chakroun and Ben Amar (2019) claim that managers may strive to improve the informative content of accounting figures, allowing investors to more accurately value the company and develop investment portfolios. As a result, the authors argue that earnings management may improve a company's financial performance, which represents the signaling perspective of EM.

The extent of earnings management activities was examined before and after IFRS adoption by several researchers (such as Ewert and Wagenhofer, 2005; and Cohen et al., 2008). For instance, Ewert and Wagenhofer (2005) state tighter accounting standards create higher quality earnings. However, they clain that, in some circumstances, real earnings management increases as accounting standards increase. Moreover, Callao and Jarne (2010) show that firms that follow "loose" accounting standards engage in earnings management activities more than those in the pre-IFRS adoption period. Then, Chen et al. (2010) find that companies are motivated by IFRS to practice earnings management. Also, Chinese firms are switching to real-based earnings management as a substitute to reach their earnings targets. This incident could be attributed to the post-IFRS adoption period and the newly embraced high-quality standards (Ho, Liao, & Taylor, 2015).

1.3 Purpose of the Study

Theoretical background reveals that earnings management is crucial and reflects the value of firms. Several studies show that earnings management has a positive effect on future performance and market liquidity while others show the opposite. Hence, this research attempts to investigate the effect of both accrual and real-based earnings management activities on market liquidity and financial performance for UK SEO firms over the whole period. As a further analysis, we examine the behavior of EM before and after the adoption of International Financial Reporting Standards (IFRS) to observe whether there are any differences. We examine the change in engagement in levels of earnings management while taking into consideration the British industry and excluding the financial one, as well as splitting the time range into two periods. We tend to compare the impact of earnings management on market liquidity and financial performance during and after FC as well as pre- and post-Brexit. The comparison is to be made with the use of seven control variables. This research will contribute to the previous studies by answering the following research questions:

- How do accrual and real-based earnings management activities impact market liquidity for UK SEOs?
- How do accrual and real-based earnings management activities impact financial performance for UK SEOs?

We then delve deeper and present an additional part of the study which tackles the behavior of both accrual-and real-based earnings management around three specific crucial events (IFRS, FC, and Brexit) as further analysis. For instance, we examine if there is a difference in the engagement of accrual and real-based earnings management activities for UK SEOs before and after each of the above events. Additionally, we investigate whether there is a change in the impact of accrual and real-based earnings management activities on market liquidity and financial performance for UK SEOs after the occurrence of such events.

1.4 Originality of the Study

Little research covers the impact of both AEM and REM on market liquidity and financial performance in a single study. Our study is motivated by the conflicting evidence in the existing literature of the UK context. This study is based on theoretical and empirically related works by prior studies and research questions. To the best of our knowledge, this is the first study that examines the association between real earnings management, market liquidity, and financial performance for UK SEOs through the use of a new composite measure (AREM). Additionally, we investigate EM behavior around IFRS, FC, and Brexit to cover new findings that may be beneficial for UK companies that choose to undergo SEO. This research covers all non-financial SEO firms listed on the London Stock Exchange (LSE) for a period extended from January 1, 2000, to December 31, 2020. Thus, the originality of this study lies in the choice of the UK sample of SEOs listed on the LSE as a new field of study.

This study is inspired by the UK setting in two ways. First, the mandatory adoption of IFRS in 2005 is regarded as a significant regulatory change in the UK capital market. The cost-benefit analysis of IFRS adoption has been a hot topic in empirical research (Jeanjean and Stolowy, 2008; Doukakis, 2014; De George and Shivakumar, 2016; Oz and Yelkenci, 2018).

Second, the UK capital market provides an intriguing setting for evaluating upward earnings management through real-world activities for firms that meet or exceed earnings benchmarks. Previous research (Ball et al., 2000; Brown and Higgins, 2001) indicates that UK firms face less regulatory scrutiny than firms in other common law countries, such as the US, where managers are more likely to achieve target earnings by manipulating accruals or real activities to avoid reporting a loss or a decline in profit. The importance of the earnings management effect has gained great attention over the last decades.

1.5 Major Findings

This study investigates the impact of accrual-and real-based earnings management on the market liquidity and financial performance of UK SEOs for twenty years, from 1 January 2000 till 31 December 2020. The Quoted Bid-Ask spread (QBA) and the Bid-Ask spread (DIFFBA) are used as proxies for market liquidity, whereas ROE and ROA are used as the two proxies for financial performance. Our findings show that the accrual earnings management proxies, A_ CA and A_ TA, do not have a statistically significant impact on market liquidity. However, our findings support the significant positive role of REM in improving market liquidity, which is consistent with Al-Jaifi (2017), and Trang and Linh

(2020). These findings fall under the informational perspective of earnings management which considers earnings management beneficial for investors who are facing a lack of information. This improves the information in the market, attracts more traders, and increases market liquidity. . On the other hand, we support the significant positive impact of both AEM and REMon financial performance. We relate our findings to a number of factors. First, managers use REM to improve the firm's credibility and reputation, and thus its future performance (Gunny, 2010). They also manipulate their earnings to avoid a sudden drop in profits, which is bad news for investors and rating agencies (Al-Shattarat et al., 2018). Furthermore, the positive impact of REM on performance might be related to the institutional environment of the country. They demonstrate that REM is associated with positive financial performance in countries with strong institutional environments. Hence, we may deduce that the UK has a strong institutional environment that allows the positive effect of earnings management; which is consistent with Jiang et al.'s (2018) findings.

In addition, our findings show that the adoption of IFRS plays an important role in lowering AEM in the post-adoption period; however, an increase in REM is revealed. Hence, firm managers tend to engage in EM through one of the three REM methods as a substitute for AEM usage after the adoption of IFRS. This is consistent with prior studies that highlight the presence of a shift between AEM and REM in the post-IFRS phase. In addition, our results signal that REM might have a positive impact on financial performance.

Furthermore, we also analyze EM behavior as well as its impact on market liquidity and financial performance during and after the Global Financial Crisis (FC), as well as before and after the Brexit referendum. As a further result, SEOs in the UK tend to adopt more

REM manipulation strategies during a financial crisis. However, a decline in REM occurred in the post-financial crisis period. Moreover, our findings show that both accrual- and real-based earnings management have a positive and significant effect on financial performance during the financial crisis. In addition, the pre-and post-Brexit periods reveal that accrual and real earnings management do not affect financial performance as the coefficients of A_CA, A_TA, and AREM are insignificant in all models.

On the other hand, earnings management has no effect on market liquidity in pre- and post-IFRS and during and post-financial crisis. Our findings show that real earnings management has a positive impact on market liquidity in the pre-Brexit period. Moreover, both accrual and real earnings management show a significant positive effect on market liquidity post-Brexit. One reason for this is that the economic uncertainty shock, as a result of the Brexit referendum, forces UK SEO firms to manipulate their earnings to restore investors' confidence. After the recovery of the UK market in the years following the Global Financial Crisis (GFC) of 2008, it still reflected high uncertainty. This is related to the Brexit debate that the referendum result caused an extraordinary shock, undermining market confidence and likely reducing firms' returns, as well as their ability to fundraise, which is consistent with the findings of Wright et al. (2016). In addition, Kellard et al. (2020) find that there is a strong transmission of Brexit-related uncertainty (resulting in outcomes such as loss of investment, employment, productivity, and so on) to firms that are highly vulnerable in relation to Brexit.

1.6 Contributions to the Literature

This research has several contributions to the literature. First of all, this study extends the current debate on the impact of multiple earnings management methods around seasoned equity offerings. To the best of my knowledge, this is the first attempt to consider a composite measure of the three most commonly used methods of real earnings management to examine the impact of earnings management on market liquidity and financial performance for UK SEOs. In comparison to other studies that simply combine the abnormal levels of cash flow from operations, production costs, and discretionary expenditures (such as Roychowdhury, 2006; Cohen and Zarowin 2010), our approach is advantageous because our standardization process may alleviate concerns about adding variables with different distributions. Furthermore, this study is important in light of the recent trend of earnings management in public firms, which benefits the users of financial statements, particularly investors and traders. We show that both accrual and real-based earnings management can be informative rather than opportunistic in the context of seasoned equity offerings. These findings are consistent with previous papers (such as Gunny, 2010; Vorst, 2016). In addition, our findings are much more reliable than those of several previous studies because of our larger sample size and longer-term investigation.

This research contributes to the stream of accounting and finance literature that aims at studying the changes in earnings management behavior that have resulted from the adoption of IFRS, the Global Financial Crisis, and Brexit. For further analysis, we also investigate REM based on the theoretical relationship between REM and AEM. The results suggest that managers tend to apply REM where the legal environment constrains AEM and that the development of security markets increases the monitoring of managerial discretionary behaviors. This explains our findings of a substitution effect between AEM

and REM in the post-IFRS period. For regulators and governors, it implies that increasing scrutiny or constraints on accounting discretion do not eliminate earnings management activities entirely, but rather change managers' preferences for different earnings management strategies, such as real earnings management. This study shows a further evidence of the managers' preference of engaging in REM in the post-IFRS, which extends to the period of the Financial Crisis. This evidence is new and contributes to the on-going debate on how managers choose between AEM and REM during financially distressed periods.

It is worth mentioning that there is limited evidence on the relation between earnings management and the Brexit Referendum. Using the empirical results of our further analysis, this study sheds light on a relatively unexploited research arena related to the crucial events mentioned above.

1.7 Structure of the Study

The chapters of the thesis are organized as follows: The second chapter discusses the relevant literature about earnings management and their incentives. Section two primarily discusses the Agency Theory, which serves as the thesis's guiding principle and how it is associated with earnings management. Section three distinguishes between the two main types of earnings management: accrual- and real-based EM. Furthermore, section four introduces Seasoned Equity Offerings (SEOs) and provides previous studies on their relationship with earnings management. In addition, this section includes previous research

on the relationship between EM, market liquidity, and financial performance, in general. Furthermore, it addresses the behavior of accrual and real-based earnings management around certain major events.

Chapter three discusses the methodology used to analyze the retrieved data. Sections two, three, and four mainly tackle the philosophical dimension, the reasoning approach, and the strategy used in this study, respectively. Moreover, section five shows the development of the hypotheses. Section six explains accrual- and real-based EM proxies as well as the control variables' measurement. Also, the remaining sections of chapter three describe the empirical model, source of data, and sampling procedures. Descriptive statistics and multicollinearity analysis are covered in the fourth chapter. It discusses the major empirical findings and compares them to the proposed hypotheses. It also includes robustness checks to ensure that the results are unbiased. It also examines the earnings management behavior of UK SEOs, taking into account three events: IFRS adoption, financial crisis, and Brexit. Chapter five summarizes the whole results and shows the validity of the findings, limitations of the study, managerial implications, and avenues for future research.

Chapter Two: Literature Review

2.1 Introduction

Earnings management (EM) has been tackled in several research papers (Gunny 2005; Kothari et al., 2005; Roychowdhurry 2006). Managers have been encouraged by several incentives to implement different practices of earnings management. Earnings management has been detected in major corporate events such as IPOs, seasoned equity offerings (SEOs), mergers and acquisitions (M&As), and management buyouts. Various studies tackled the occurrence of earnings management around the time of the SEO announcement (Teoh et al., 1998a; DuCharme et al., 2004; Cohen and Zarowin, 2010; and Ibrahim et al., 2011). Moreover, the managerial opportunistic behavior led to the need for an empirical investigation on the use of earnings management techniques around offerings' dates. Consequently, SEOs were chosen as a primary setting for studying earnings management by focusing on two basic methods, accrual and real-based, around major reforms in corporate governance regimes worldwide. This chapter starts with a brief overview of earnings management and its incentives, followed by examining its relationship with agency theory. Section three provides an empirical research review that covers its approaches and consequences. Section four introduces seasoned equity offerings and their relationship with information asymmetry and earnings management. It also investigates the relationship between SEOs and market liquidity as well as financial performance. Section five and six discuss main studies that examine the impact of earnings management on market liquidity and financial performance, respectively. Section seven

explains the behavior of earnings management around major events. Section eight concludes.

2.2 Earnings Management

This section presents the definition and incentives of earnings management. It also introduces agency theory as a basic framework for EM and tackles the relationship between earnings management and agency theory.

2.2.1 Definition

Several studies (Beneish, 2001; Jiraporn et al., 2008; Dechow et al., 2010; Fabrizi & Parbonetti, 2017; Al-Shattarat et al., 2018) show that there are two main perspectives of earnings management: the opportunistic and the informational perspective. The first perspective describes earnings management as an opportunistic process that managers use to modify the results, also called the positive accounting theory. A study by Watts and Zimmerman (1986, p.2) states that, "the objective of accounting theory is to explain and predict accounting practices." Positive accounting theory driven by Watts and Zimmerman (1986) was the main motivation for major previous research on earnings management. They refer to EM as a manager's engagement in the manipulation of accounting information, with or without constraints to achieve a high firm value. Moreover, Davidson et al. (1988) define EM as "the strategy followed by a manager to report a desired level of earnings, taking into consideration the restrictions imposed by generally accepted accounting principles (GAAP)." Similarly, Healy & Wahlen (1998) and Beatty et al. (1999)

claim that EM is opportunistic and aims at manipulating the company's financial reports for the managers' benefit. This is consistent with other findings by Cornett et al. (2008) and Siregar et al. (2008), who confirm that EM is an opportunistic activity with the goal of maximizing management utility. This is consistent with a recent study by Joosten (2012) who concludes the same reasons behind implementing opportunistic EM.

On the other hand, the informational perspective considers that managerial manipulation of earnings is a method for providing investors with the manager's forecasts about the future of the firm (Ross, 1977). Ross (1977) and Brealey et al. (1977) show that firms' managers do not engage in opportunistic behavior. The authors state that instead, managers choose accounting values to provide investors with private information about the company. Similarly, Holthausen & Leftwich (1983) consider EM as an optical signal rather than an opportunistic approach. The authors claim that managerial discretion can be used as a method for signaling to the market. In other words, manipulation of accounting numbers assists the investors in determining the actual value of the firm and benefits from this information to build their portfolios. Also, Schipper (1989) defines earnings management as "disclosure management", in which accounting numbers are perceived as information. Under the informational perspective, Schipper (1989) claims that EM is a purposeful behavior of manipulating the financial reporting process for the managers' benefit. The author assumes that the actual values of the accounting numbers are not important attributes. Several studies (such as Holthausen, 1990; Healy & Palepu, 1993) show that EM improves the financial reporting of the company. These studies find that the level of information differs between managers and stakeholders which enables the managers to

predict future financial health and potential performance of the company. Consequently, disclosing this information allows investors to properly assess the firms' securities.

Healy & Palepu (1993, 1995) argue that managers tend to exercise EM to allow the flow of private information. This was empirically proved by Subramanyam (1996) which examines the relationship between the stock market and discretionary accruals (DA). First, Subramanyam (1996) hypothesizes that managerial discretion enhances the earning's ability to reflect economic value. Second, he states that a possible explanation could be attributed to the impact of the stock market on discretionary accruals. Consistent with prior studies, Healy & Wahlen (1999) indicate that firms manage earnings to window-dress financial statements before public securities' offerings. In addition, the authors state that firms implement EM to mislead their economic performance. Moreover, Gul et al. (2003) find there is another perspective for EM that adds value to shareholders, known as the "informational perspective". The authors show that EM allows investors to benefit from the privileged information to better assess the securities value of the firm.

Recently, Jiraporn et al. (2008) investigate whether earnings management is opportunistic or beneficial from an agency theory perspective. They indicate that EM allows managers to improve their communication processes. The authors also find evidence that, on average, the market relates value to discretionary accruals. Then, Scott (2009, p.403) sums all these definitions by mentioning that "Earnings management is the choice of accounting policies or actions that may affect earnings to achieve a specific objective". Additionally, recent literature defines earnings management as the managers' ways of manipulating financial results for their benefit (Caylor et al., 2015; Scott, 2015). Moreover, Campa and Camacho-Miñano (2015) find that firms respond to financial distress through engaging in EM

activities to reach a specific profits level and mislead investors concerning their current financial performance. This is consistent with previous studies such as Gunny (2010), Zhang (2011), and Cimini (2015). Similarly, Kothari et al. (2016) and Darmawan & Mardiati (2019) claim that both types of earnings management, accrual, and real-based earnings management, are used by managers to achieve high-profit levels. In addition, recent studies confirm the two opposite EM perspectives: the "opportunistic behavior" which refers to the maximization of managers' benefits, and the "informational behavior" of managers that improves the amount of private information to investors (Kothari et al., 2016; Leggett, 2016; Al-Shattarat et al., 2018).

2.2.2 Incentives of Earnings Management

According to Healy (1985), different reasons drive managers to implement multiple practices of earnings management. For instance, Healy (1985) and Holthausen, Larker, and Sloan (1995) find that managers manipulate their companies' earnings downwards whenever they reach the maximum level of their bonuses. Furthermore, DeAngelo (1986) and Perry & Williams (1994) find that firms report negative (income-decreasing) unexpected accruals prior to management buyouts. Whereas other studies indicate that firms report positive (income-increasing) unexpected accruals prior to certain corporate events such as SEOs (Teoh et al., 1998b), IPOs (Teoh et al., 1998a), and stock-financed acquisitions (Erickson & Wang, 1999). Several studies (such as Burgstahler and Dichev, 1998; Degeorge et al., 1999) examine the distribution of reported earnings to find out whether earnings management exists. They study corporate managers' behaviors around reporting losses or a decline in earnings. These studies indicate that firms' managers tend

to use EM as a tool to avoid reporting around the aforementioned incidents. In this regard, Teoh et al. (1998) examine whether earnings are opportunistic during IPOs. Consistent with Rao (1993), the authors find that several incentives encourage managers to engage in opportunistic EM activities. For instance, Teoh et al.(1998) state that information asymmetry, due to lack of media coverage of firms prior to going public, inhibits investors from properly assessing if accruals equal the fundamental values of the firm. Moreover, they find evidence that managers engage in opportunistic accrual management at the time of IPOs. They report that the median unexpected accruals during the offering year for IPO firms range from 4 to 5 percent of assets. In addition, Erickson & Wang (1999) find that acquiring firms tend to upwardly manage their earnings before the merger agreement. They show that managers engage in AEM in periods prior to mergers to increase the stock price.

Healy and Wahlen (1999) state that there are three general classifications of earnings management incentives: Capital market incentives, contractual incentives, and regulatory incentives. Several studies (Pauwels et al., 2004; Graham et al., 2005; Rodriguez-Perez and Van Hemmen, 2010) show that managers manipulate earnings in the current period because they are concerned about their financial performance. The authors claim that one of the primary factors for implementing EM is the pressure on managers to meet short-term good performance, which plays a role in contracting and firm valuation. Whereas recently, Valle Ruiz (2016) extends Campa and Camacho-Miñano's (2015) EM incentives classification into two groups: external and internal factors, in which external factors represent companies that can not directly govern their activities while internal factors refer to those that are directly governed by firms.

Internal Factors of Earnings Management

Dye (1988) and Trueman & Titman (1988) suggest that earnings management's aim is to influence the decisions of external capital providers. According to Dechow et al. (1996) and Jiambalvo (1996), managers have an incentive to manipulate accruals upward before stock issues. Capital market motivation, contractual motivation, and type of company are the internal factors that drive managers to engage in earnings management activities (La Porta et al., 1997;1998). For instance, Burgstahler and Dichev (1997) find that firms manage earnings upward to protect themselves from earnings decreases and losses. Likewise, Burgstahler & Eames (1998) and Kasznik (1999) results show that managers overstate earnings to meet financial analysts' forecasts. From this perspective, they find that managers take the aforementioned actions to avoid reporting earnings that are lower than those of analysts' forecasts. Several studies (Teoh et al., 1998 a, b; Erickson & Wang, 1999; Healy & Wahlen, 1999) show that managers engage in EM due to capital market incentives which in turn increase the earnings outcomes of the company. More specifically, Kasznik (1999) finds that managers tend to disclose optimistic information before SEO events to compensate for the high litigation risk. In addition, Dechow & Skinner (2000), Payne & Robb (2000), and Nagar et al. (2003) find that managers engage in EM when they have an incentive to meet the consensus forecasts. They show that when pre-managed earnings are lower than expected, managers choose income-increasing EM. On the other hand, managers use income-decreasing EM when pre-managed earnings exceed the forecast level.

Moving to contract motivations, Watts & Zimmerman (1990) state that compensation contracts between a firm and its stakeholders create incentives for earnings management practices. Despite the reasons for implementation, earnings management can result in

misleading financial statements and in turn, misallocation of resources (Healy & Wahlen, 1999). The authors claim that financial reporting is important to communicate with debt investors as well as investors' representatives of the board of directors. Moreover, Healy & Wahlen (1999) show that managers have the opportunity to alter disclosed financial reports and influence short-term stock price performance. From this perspective, they state that contractual motivation encourages managers to engage in earnings management activities through compensation and lending contracts. The incentives include bonuses and rewards specified in their compensation contracts which might lead to the occurrence of a possible future violation of debt covenants (Guidry et al., 1999). Business-unit managers in the bonus range with incentives to perform income-increasing discretionary accruals(DA), tend to manage earnings upward compared to business-unit managers who are not in the bonus range (Guidry et al., 1999). This is consistent with Healy's bonus-maximization hypothesis which demonstrates that managers choose to maximize their short-term bonuses through DAs.

According to Ball et al. (2000), EM can be revealed through timely loss recognition. The authors show that firms' managers should recognize huge losses on the spot rather than postponing and spreading their impact over several periods in various contexts through using EM methods. In this regard, Ball and Shivakumar (2005) find that timely loss recognition encourages managers to pursue their operating investments with ex-post negative NPVs. The authors' results show that the deferral of loss recognition allows managers to mitigate agency problems and in turn strengthens the efficiency of contracting between firms and managers. Consequently, they deduce that the economics of contracts

involving financial reporting reflects the asymmetry in demand for gain and loss accounting.

Also, Bartov et al. (2002) and Cheng & Warfield (2005) show that managers tend to have equity incentives such as stock-based compensation and stock ownership which allows them to increase their firms' shares value in the future. Moreover, Burns and Kedia (2006) examine CEO compensation contracts and compare their components. They find that stock options are associated with stronger incentives to misreport since it limits the downside risk of detecting this manipulation. Similarly, Ronen et al. (2006) show that managers have equity incentives to perform EM activities. The authors claim that EM lowers the firm's value and thus distorts the stock price due to the bias in accounting numbers. In the same sense, Othman and Zeghal (2006) study the factors that affect EM in Anglo-American and the Euro-Continental environments. They find that EM is linked to contractual debt and effective tax rates in the French context. Moreover, their study shows that EM is highly motivated by capital market incentives in the Canadian market. Specifically, Bergstresser & Philippon (2006) show that stock-based compensations are motivating incentives for managers to implement accrual earnings management (AEM).

External Factors of Earnings Management

Primary external factors that encourage EM are the following: institutional factors and the level of investor protection in a country, tax considerations, economic conditions, regulatory legislations, and bankruptcy considerations (La Porta et al., 1997,1998). According to La Porta et al. (1998), the extent of investor protection in a country varies

based on the institutional factors in that country and the legal framework of a country. Two types of regulations have been discussed in the earnings management literature: industry-specific regulation and antitrust regulation (Healy & Wahlen, 1999). Moreover, Healy & Wahlen (1999) state that regulatory monitoring such as having a minimum capital adequacy ratio (CAR) for the banking industry and meeting specific financial health conditions for the insurance one creates earnings management incentives. For instance, Beatty et al. (1995) and Collins et al. (1995) conduct extensive research on bank performance. They demonstrate that banks with low CAR tend to overstate loan provisions, understate loan write-offs, and recognize abnormal realized gains on securities portfolios. For example, Beatty et al., (1995) confirm that bank managers use accrual-based EM to meet specific benchmarks. For example, Leuz et al. (2003) examine investor protection and investigate its impact on managerial behavior. Their study on the relationship between investor protection and earnings management is based on financial accounting data of more than 8000 firms across 31 countries between 1990 and 1999. Their findings show that AEM decreases in countries with stronger investor protection. Moreover, Graham et al. (2005) show that public firms tend to have high incentives to implement real earnings management (REM) for the same purpose. This is because these firms are subject to capital market pressure (Graham et al., 2005). In the same sense, Enomoto et al. (2015) find that REM is a substitute for AEM in countries with strong investor protection.

Institutional characteristics have been investigated by several studies as incentive inducement for managers (such as Ball, 1998; Ball et al., 2000; Leuz et al., 2003). Most of the aforementioned studies base their findings on the positive relationship between information asymmetry and earnings management to compare publicly traded firms to

privately held ones. Several studies provide evidence on the impact of the legal framework on EM in different countries (Archambault & Archambault, 2003; Leuz et al., 2003; Soderstrom & Sun, 2007; Enomoto et al., 2015). For instance, Leuz et al. (2003) provide evidence that EM is more prevalent in countries characterized by weak legal enforcement and anti-director rights, which lead to high average block premiums. Graham et al. (2005) stated that managers tend to choose REM over AEM to avoid the risks imposed by strict regulators. Also, Ewert and Wagenhofer (2005) show that strict regulations lead to restrained AEM but induce REM. In line with previous literature, findings show that EM declines in countries where investor protection is advanced (Shen and Chih, 2005). In the same sense, Liu and Lu (2007) examine several proxies including the regulatory environment, institutional situation, and BOD. Their results indicate that there is a significant positive relationship between EM and corporate governance. This is consistent with previous studies such as Peasnell et al. (2000) and Klein (2002). In addition, Klein (2002) finds that there is a significant negative relationship between the presence of an audit committee and EM. Also, Imam and Malek (2007) examine the impact of ownership structure on both firm's performance and dividend policy. Their study covers a sample of 201 firms between 2001-2003. The findings show that corporate ownership has a significant positive effect on a firm's performance, but a negative effect on dividends policy. However, Siregar and Utama (2008) show that institutional ownership, size of the firm, and corporate governance does not affect the type of EM used. The authors use auditing quality, commission, and directors' independence as corporate governance variables. They find that there is no evidence of this relationship. Moreover, Man and Wong (2013) find that corporate governance practices can lower or even eliminate EM.

However, the extent of EM being implemented by a firm can be an obstacle to the effectiveness of these practices in protecting shareholders' interests. Recently, Cai et al. (2015) and Mohammad et al. (2016) show that audit committees assist existing internal governance practices in their monitoring functions and lower agency conflicts.

Tax incentives, in the presence of tax reform, are another factor for earnings manipulation (Amihud and Mendelson, 1991). Also, Edwards (1993) shows that taxes lead to low market liquidity, low stock value, and high cost of capital. According to Coppens and Peek (2005), there is evidence that firms have a tax incentive to manage earnings downwards, which leads to low corporate taxes. Moreover, Goncharov and Zimmerman (2006) find that tax considerations are an important driver of earnings management as companies manipulate earnings downwards to reduce their tax expenses. The authors' results are based on a study on Russian companies in the years 2001 and 2002. Furthermore, economic conditions can be an external factor that contributes to managers' decisions in whether to engage in manipulating income either upwardly or downwardly, depending on their financial situation (Goncharov and Zimmerman, 2006).

Similarly, Beneish et al. (2011) find that failing firms tend to execute fraudulent financial reporting in years prior to their bankruptcy in the last attempt to save themselves from the deteriorating financial conditions before being legally filed. For instance, Beneish et al. (2011) conduct a detailed study on a sample of 462 firms that experienced a technical default in the period 1983-1997. They show that there is evidence of upwards EM in the year preceding the default. Specifically, the findings prove that abnormal accruals increase the sample firms' ROA by an average of three percent in year -1. Moreover, they indicate that abnormal selling in year 1 is more likely to occur contemporaneously with earnings

management. Also, Moradi et al. (2012) show that there is a significant relationship between EM and its incentives such as tax, leverage, political matter, and equity-debt ratio. Previous literature (Smith et al., 2001; Saleh & Ahmed, 2005) shows that the economic situation of a country is an external incentive for EM. These studies claim that an economic crisis motivates managers to engage in downward EM practices. Saleh & Ahmed (2005) state that the Asian financial crisis had a negative impact on the financial situation of Malaysian companies. They indicate that distressed firms tend to manipulate their earnings downward to blame the economic recession. Also, the authors find evidence of significantly negative accruals during the debt negotiation periods. Similarly, Goncharov & Zimmerman (2006) and Cohen et al. (2008) find that regulations and legislations have an impact on the manager's choice of EM method while also showing that corporate tax rate modifications might encourage managers to engage in EM.

Several studies (such as Haw et al., 2004; Wysocki, 2004; Ewert & Wagenhofer, 2005) state that regulatory considerations and legislations have a strong impact on how managers decide to manage their firms' earnings. According to Chen & Yuan (2004) and Haw et al. (2005), firms are required to meet specific regulatory considerations such as thresholds to be qualified for IPOs, listing status, and rights issues or avoid trading restrictions. This obliges managers to engage in EM through discretionary accruals (DA). Several studies (such as Cohen et al., 2008; Ibrahim et al., 2011) state that regulatory considerations and legislations have a strong impact on how managers decide to manage their firm earnings. According to Barth et al. (2008), countries that adopt certain accounting standards such as the International Financial Reporting Standards (IFRS) / International Accounting Standards (IAS) tend to engage in less EM than others. In addition, the authors show that

accounting quality improves in different countries after the adoption of these accounting standards. Similarly, Cohen et al. (2008) and Cohen & Zarowin (2010) prove that U.S. managers use REM rather than AEM since the passage of the Sarbanes–Oxley (SOX) Act of 2002, which was considered a method to strengthen investor protection.

Recent literature confirms the importance of studying the impact of institutional factors such as laws, market mechanisms, and regulations on EM (Ibrahim et al., 2011; Liu et al., 2011; Wysocki, 2011). For instance, Liu et al. (2011) find that the quality of reported earnings significantly improved with the adoption of IFRS- convergent standards in China. They provide empirical evidence on the decrease of earnings smoothing associated with the standard conversion which was consistent with the findings of Daske et al., (2008). Furthermore, Ibrahim et al. (2011) show that managers practice income-increasing accrual and real-based earnings manipulation for SEOs in the year prior to the offering in the pre-SOX period. Consistent with Cohen and Lys (2008) and Zhao et al. (2012), Ibrahim et al. (2011) indicate that investors are shifting to REM post-SOX. Similarly, Ho et al. (2015) find that Chinese firms are less likely to engage in AEM in the post-IFRS period (2007-2011) but are more likely to engage in REM. The authors interpret the results by considering REM as a substitute mechanism that Chinese firms use when they are not able to manipulate accruals upwards after the adoption of IFRS. According to Zang (2012), high levels of tax expenses and strict institutional investor monitoring allow AEM practices. However, intense regulations and limited accounting flexibility encourage the usage of REM.

Moreover, Gordon et al. (2013) and Enomoto et al. (2015) provide evidence on the variation of earnings management systematically from one country to another, based on

their legal systems. More precisely, a strong legal environment is accompanied by no EM, however, a weak legal environment where there is no protection of investors is associated with increased earnings management activities. Furthermore, Enomoto et al. (2015) find that managers switch towards REM practices where the legal environment inhibits AEM. Similarly, the study of Francis et al. (2016) shows that the firms' choice of EM method is related to the legal environment surrounding it. Specifically, the findings show that the companies' decision to use REM varies with the strength of the country's legal environment. Baatour and Othman (2016) study the impact of the legal system on both types of EM in selected companies in the Middle East and North African (MENA). They show that managers choose to engage in EM through real activities under the impact of the legal system followed by their firm. Additionally, Fabrizi & Parbonetti (2017) study the impact of CEO's equity incentives, risk incentives, and career concerns on EM. Their sample consists of 1,088 US firms that are likely to have engaged in EM between 2003 and 2010. They find that firms that use REM to meet their benchmarks suffer from a low future market performance which opposes those that engage in AEM activities. According to Fabrizi & Parbonetti (2017), shareholders acknowledge that EM is associated with high costs and hence they avoid choosing earnings game strategies that rely heavily on real activities. Similarly, Oz & Yelkenci (2018) examine AEM and REM practices in a cross-country context. The study covers a sample of Morgan Stanley Capital International (MSCI) firms between 1997 and 2015. The findings show that an increase in enforcement in a common-law setting has a negative impact on total EM, with no sufficient evidence of a shift from AEM to REM. Moreover, the authors demonstrate a decline in AEM activities in code law countries that have adopted IFRS, which is consistent with Ho et al.'s (2015)

findings. Furthermore, Hoang & Joseph (2019) examine EM before and after the mandatory introduction of new corporate accounting regimes in Vietnam. The sample consists of the top-100 listed Vietnamese firms during pre-adoption (December 2012 to December 2013) and post-adoption (December 2015 to December 2016) periods of the new corporate accounting regime. The results show that this regime brings Vietnamese accounting standards closer to IFRS and indicates a decline in EM for Vietnamese-listed firms. Hence, they suggest that adopting such new regimes can improve the overall financial reporting quality. Recently, Li and Thibodeau (2019) find that meeting the investors' and financial analysts' expectations is one of the primary motivations for EM.

2.2.3 Earnings Management and Agency Theory

After the occurrence of major accounting scandals in the world such as Enron and WorldCom, great attention has been given to the opportunistic nature of earnings management. Consequently, agency theory has been classified as a basic framework for EM activities as it reflects the principal-agent relationship, which shows the conflict of interest between managers and shareholders (Jensen and Meckling, 1976; Gjesdal, 1981). Prior literature indicates that earnings management activities occur at the level of a "nexus of contracts" relationship between a manager (agent) and stockholders (principals). This relationship leads to agency costs as there is no inconsistency between the managers' decisions and the ones that might maximize the stockholders' wealth. Such a problem arises due to information asymmetry between the two parties of the contract (Eisenhardt, 1989) and in turn, motivates opportunism and moral hazard (Beatty and Harris, 1999).

Accordingly, managers decide to benefit from the missing or unclear information of the principals (Hendrikse, 2003). This is consistent with Jensen and Meckling (1976) who show that a disagreement between the managers of a firm and the stockholders is very likely to occur at this stage. For instance, managers engage in opportunistic earnings management practices for the shareholders' sake through financing and refinancing activities and contractual incentives that are known as capital market incentives. The most known types of incentives that are used to maximize the firm's value are compensation contracts and debt covenants (Beneish, 2001). Since managers have personal goals that contradict those of the shareholders, a conflict of interest has potential agency costs. Earnings management is considered as an agency cost if managers disclose financial reports that mislead shareholders about the correct economic view of the firm and cause them to take improper investment decisions (Jones, 1991; Dechow & Skinner, 2000).

In this sense, Davidson et al. (2004) suggest that earnings management is related to agency theory since the former can generate or impair agency costs. This is consistent with Beatty and Harris (1999) who show that agency costs and the latitude of EM are positively related. Hence, the authors consider corporate governance as a necessity to mitigate the occurrence of EM resulting from the nonalignment of interest between the upper management of the company and its shareholders. Moreover, Arnold and De Lange (2004) state that managers take decisions based on their benefits rather than those of the firms' owners. One of the examples of these decisions is the Enron financial scandal where managers had the incentives to serve their interests at the cost of stakeholders (Arnold and De Lange, 2004). In this context, Lemond (2005) indicates that non-discretionary accruals (NDA) are associated with high transparency as they reflect the underlying characteristics of the firm.

Whereas, discretionary accruals are guided by managerial discretion, which widens the price spread and costs of transactions. Jiraporn et al. (2008) state that the agency logic of corporate governance has been documented since the mid-1980s, where companies started to adopt the agency conceptualization of managers. They find that there is an inverse relationship between earnings management and agency costs.

Previous literature (Morck, Shleifer, & Vishny, 1988; Hermalin & Weisbach, 1991; Lang & Stulz, 1994; Yermack, 1996; and Jiraporn et al., 2008) has employed Tobin's q as a proxy for firm value. For instance, Jiraporn et al. (2008) use Tobin's Q as a measure of firm value and they empirically show that there is a positive relationship between earnings management and firm value. They state that whenever EM is opportunistic, a higher level of EM is associated with lower firm value. On the other hand, when EM is beneficial, a positive relationship exists between the extent of earnings management and firm value. According to Jiraporn et al. (2008), more asymmetric information is associated with a higher level of earnings management. Moreover, taking accruals as a measure of earnings management, Desai and Dharmapala (2009) show that EM might create opacity, which lowers the ability of shareholders to evaluate the real performance of the firm. In contrast, Walker (2013) claims that agency theory fails to explain how it is related to accounting concepts. Also, the author states that it is unclear how managers can benefit, for contracting purposes, through the relationship between the agency theory and shareholder funds. Recently, through a sample of 125 Egyptian listed cross-sectional firms, covering the period 2011-2017, Elzahaby (2021) examines the relationship between corporate governance quality and earnings quality. He finds that corporate governance quality has a significant positive relationship with earnings quality. He justifies this relationship by

showing that effective corporate governance procedures lower agency costs, enhance the quality of reported earnings, and monitor managers' opportunistic behaviour through EM activities. Moreover, Elzahaby (2021) suggests that using market-based performance measures to create management incentive contracts might reduce the conflict of interests between the agent and the principal, which decreases agency costs and thus increases contracting efficiency.

2.3 Earnings Management: Approaches and Methods

Prior studies provide evidence on the existence of managing earnings by firms, upwards using accruals around IPOs (Friedlan, 1994; Teoh et al., 1998b), SEOs (Teoh et al., 1998a; Rangan, 1998; Shivakumar, 2000), and M&As (Erikson and Wong, 1999) to manipulate the market price of their stock. There are two basic types of earnings management activities that have been used; accrual and real-based manipulations (Schipper, 1989; Healy and Wahlen, 1999; Dechow and Skinner, 2000). According to Dechow and Skinner (2000), both types of EM are not considered fraud. They are classified as favorable techniques used by managers of firms at the expense of the general interest. Consequently, it is important to differentiate between the two types of EM. Accrual-based manipulations are considered the primary earnings management tool used as a proxy in earlier research (Kothari, 2001; Ewert & Wagenhofer, 2005; Kothari et al., 2005). In the same sense, Roychowdhury (2006) defines AEM as the manager's decision to exercise discretion and manipulation of accounting choices and hence interfering in the financial reporting process. Moreover, Bradbury et al. (2006) find that EM does not necessarily reflect the real financial position of the company. In addition, the authors show that AEM misrepresents the firm's

underlying operating performance, however, does not necessarily include managing operations themselves.

On the other hand, Graham et al. (2005) conduct a detailed survey of more than 400 executives to determine factors that drive reported earnings and financial decisions. Their study is based on a large cross-section of firms.jea Moreover, they show that most earnings management is implemented through real earnings manipulation activities rather than accrual-based ones. This indicates that managers prefer choosing real economic actions such as delaying advertising expenses or showing a positive NPV project to achieve short-term EM benchmarks. However, Roychowdhury (2006) describes real-based earnings management as the manipulation of the firm's operating activities to mislead financial reporting. She documents that real-based EM activities refer to managers' manipulation of normal operational duties to envision a certain financial goal achievement for some stakeholders, which is consistent with Ewert and Wagenhofer (2005). Specifically, the author finds evidence of managers manipulating REM to avoid reporting annual losses. Consequently, REM causes a decline in firm value due to the actions taken in a certain period, which are reflected in the high earnings level (Roychowdhury, 2006). Consistently, Xu et al. (2007) define REM "as the deviation from normal operational activities to affect reported earnings".

Recent literature indicates that EM can be implemented through manipulation of accruals as well as real activities (Gunny 2010; Badertscher, 2011; Enomoto et al., 2012; Zang, 2012; Leggett et al., 2016; Khanh et al., 2019). Sellami (2015) claims that REM misrepresents the actual financial position and economic performance of companies and hence it has an impact on the companies' performance in the future. Additionally, Kothari

et al. (2016) state that accrual-based EM activities refer to managers' manipulation of accounting data, rather than daily operations. The authors examine the impact of both AEM and REM on SEO valuation through a sample of 3,353 seasoned equity offerings for 1970-2012. They find that AEM tends to mislead the market, which in turn has a positive effect on firm value. In line with previous literature, through a sample of listed Chinese firms, between 2007 and 2015, Li et al. (2020) examine the influence of financial distress on the choice of EM method and how internal control affects the relationship between financial distress and EM. They find that financially distressed firms practice more AEM and less REM. Furthermore, the results show that internal control tends to inhibit both types of EM.

2.3.1 Accrual-based Earnings Management

Previous literature (such as Teoh et al., 1998a; Dechow and Dichev, 2002) demonstrates that there are different measures for accrual quality. One measure concentrates on measuring the magnitude of accrual estimation error if a poor mismatch between accruals and cash flow recognition refers to a poor accrual quality. The other measure focuses on calculating the ratio of a firm's accruals to the value of its cash flow from operations, taking into consideration the magnitude of accruals (Leuz et al., 2003). Various studies (Healy, 1985; DeFond and Jiambalvo, 1994; Teoh et al., 1998a, b) test for discretionary accruals to examine the quality of the manipulated earnings by managers. For instance, Healy (1985) shows that discretionary accruals allow managers to manipulate earnings whereas non-discretionary accruals (NDA) refer to the expected level of accruals in the firm given that there is no earnings manipulation. He assumes that the DA component in a certain year equals the total accruals scaled by lagged total assets. According to White (1980), lagged

total assets mitigate heteroscedasticity in the residuals and controls for the firm size effect. Moreover, Healy (1985) expects that NDA equals zero since both components of accruals are unobservable. In line with Healy's study, DeAngelo (1986) assumes that NDA is constant, and all EM activities can be represented by total accruals. The author assumes that the DA component should be captured by the change in total accruals from the previous year to the current one while detecting EM. According to Kaplan (1989), the change in the level of NDA can be detected by assessing the impact of changes in the economic situation. However, both Healy (1985) and DeAngelo (1986) neglect the varying NDA, which leads to misclassification in accruals. Hence, EM is detected with an error. To overcome this limitation, Jones's (1991) linear regression approach to control the NDA components was developed. He introduces changes in sales control for NDA of current assets and liabilities as well as property, plant, and equipment (PP&E) for the non-discretionary component of depreciation expense. As a result, DA, the proxy for EM, is estimated as the residual from a regression of total accruals on non-discretionary determinants of accruals. As stated by Dechow, Sloan, & Sweeney (1995), the level of DA must be huge compared to earnings to be detected. The authors use a cross-sectional Modified Jones (1991) model, where changes in account receivables are deducted from the change in revenues. This allows analysts to avoid measurement error in case discretion is exercised through non-cash revenues such as account receivables.

Furthermore, Dechow et al. (1995, p.193) state that "the modified Jones (1991) has the highest power of testing earnings management". The authors find that a higher level of operating cash flows (OCFs) is associated with a lower level of DA. Subsequently, Kasznik (1999) introduces the change in OCFs into the modified Jones (1991) model. The majority

of studies on EM (such as Teoh et al., 1998a, b; Xie et al., 2003; Davidson et al., 2004 and others) choose DA as a proxy of earnings management. According to Teoh et al. (1998b), discretionary current accruals represent good estimators of consecutive three-year stock return performance. Moreover, Kasznik (1999) shows that firms with low earnings are associated with negative DAs while firms that have high earnings indicate positive DAs. Specifically, Palepu, Healy, and Bernard (2000) examine the factors of forecasting accuracy and suggest that forecasting or estimation error is one of the factors that lower accounting quality. In addition, Dechow & Skinner (2000) show that firm managers engage in EM through the manipulation of accruals to hide the firm's real performance.

Furthermore, Healy and Wahlen (1999) state that AEM experiences accrual reversal in the post-manipulation period. An increase in current profits generated through AEM results in a decline in profits in the following period. On the other hand, the decrease in profits at the same time results in an increase in profits in the following period. Dechow and Dichev (2002) state that accruals delay realized cash flows plus an estimation error. First, based on existing theory and economic intuition, Dechow and Dichev (2002) indicate that a higher magnitude of total accruals leads to more estimations and in turn estimation errors, hence lower accrual quality. Second, the authors discuss that the accrual quality decreases as the length of the operating cycle increases due to more estimations and estimation errors. Third, they show that a high standard deviation of both sales and cash flow from operations results in lower accrual quality. Moreover, Kothari et al. (2005) examine properties of discretionary accruals (DA) based on a performance-matched accruals model, which is based on using ROA as the matching variable. They add ROA to the Jones and modified

Jones models as an additional regressor which lowers misspecification problems associated with all discretionary accrual measures.

Dechow et al. (2010) find that AEM has no direct effect on cash flows, and hence, it might harm the future firm's value. These results are consistent with Healy and Wahlen's (1999) findings. In the same sense, Badertscher (2011) shows that firms tend to manage earnings through accruals before they choose opportunistic real activities due to their high costs. The study indicates that managers try to maintain overvaluation via accrual management then switch to REM. Unlike AEM, REM may have direct effects on both current and future cash flows (Kim & Sohn, 2013). Through a sample of 1,471 Thai firm observations throughout 2014-2017, Khunkaew et al. (2019) examine the relationship between accrual- and real-based earnings management. They find that AEM and REM are negatively related and firms consider them as substitutes. Recently, Cyril et al. (2020) provide evidence that managers implement both types of EM to achieve a specific earnings benchmark. This is consistent with Darmawan & Mardiati's (2019) findings which reveal two types of AEM such as delaying asset write-offs and under-provisioning of bad debt expenses.

2.3.2 Real-based Earnings Management

Plummer and Mest (2001) conduct a detailed study on the management of earnings components. The study is based on a sample of 1,700 firms regularly covered by the *Value Line Investment Survey* between 1971 and 1989. Their findings show that firms manage earnings upward through managing sales upward and operating expenses downward. They

do not find any evidence related to managing non-operating expenses or depreciation expenses to manipulate earnings. Various studies (such as Bruns and Merchant, 1990; Graham et al., 2005; Cohen et al. 2008; Cohen and Zarowin, 2010; Zang, 2012; Ho, Liao, & Taylor, 2015) provide different reasons for manipulating real earnings management rather than accrual-based ones. According to the survey done by Graham et al. (2005), the authors find that managers prefer real activities over accrual-based adjustments as tools to manage earnings. Real earnings management manipulates the firm's real business transactions by having a direct effect on its cash flows (Roychowdhury, 2006; Cohen and Zarowin 2010; Gunny, 2010). According to Roychowdhury (2006), firms use three methods for real earnings management to meet specific earnings thresholds: operating, investing, and financing decisions. manipulation of operating activities can be implemented to avoid reporting financial losses through cutting down discretionary expenses (mainly research and development, advertising, and selling general and administrative expenses). Moreover, real activities can also take place through overproducing to achieve lower levels of cost of goods sold and increasing sales by providing price discounts and more lenient credit terms to investors (Roychowdhury, 2006).

According to Graham et al. (2005), managers tend to lower discretionary expenses when they are most likely to miss their earnings target. This method increases its reported earnings during a specific period. Both Graham et al. (2005) and Roychowdhury (2006) show that managers of manufacturing companies choose overproduction as a method of EM which results in high-profit margins. Sales manipulation temporarily increases sale volume which leads to high earnings and a low current period cash flow. The second one

is related to managers that are manipulating earnings through sales of long-term assets and more investments in R&D. Third, manipulating earnings through financing decisions is related to implementing stock repurchases and stock options which affect earnings per share (Hribar et al., 2006). In addition, Roychowdhury (2006) states that models to distinguish normal levels or real activities from abnormal ones must be developed when timing or structuring an investment or financing transaction changes.

In the same context, other studies (such as Cohen et al. 2008; Cohen and Zarowin 2010; Ibrahim et al., 2011) confirm that the primary proxies of REM are the abnormal levels of cash flow from operations (CFO), production costs, and discretionary expenses. Although real-based methods are more expensive than accrual-based ones, managers prefer to use them since they are less likely to be detected (Ibrahim et al., 2011; Liu et al., 2011). For instance, REM is indistinguishable because it can occur during the fiscal year during the execution of real operations, rather than towards the end of the fiscal year after most of the real operations have been realized as in the case of accrual-based EM (Zang, 2012). Moreover, Zang (2012) suggests that the two types of EM are not perfect substitutes. These results are consistent with Matsuura (2008), who documents that managers consider the potential costs associated with their choice of EM method. Matsuura's (2008) findings conclu de that AEM and REM are complementary in income smoothing. Moreover, several studies (such as Kim and Sohn, 2013; Francis et al., 2016) claim that REM is not as subjected as accrual-based earnings management to the scrutiny and strict controls imposed by governors and auditors since it does not fall under the jurisdiction of any auditing system.

Previous literature examines REM practices as another method of EM implemented by companies (Cohen & Zarowin, 2010; Zang, 2012; Alhadab et al., 2015). Manowan & Lin (2013) state that manipulating earnings through REM is difficult to be detected by auditors compared to AEM. This result is also consistent with Cohen and Zarowin (2010) who show that AEM has no direct effect on cash flows and hence is more likely to attract the auditors' and regulators' attention. In the same sense, Tabassum et al. (2014) find that manufacturing companies in Pakistan practice more REM than AEM. Also, they show that these companies depend on the overproduction technique. Enomoto, Kimura, & Yamaguchi (2015) show that managers tend to engage in real earnings management rather than accrual-based earnings management in countries that have strong investor protection. The authors' results are based on 222,513 firm-year observations across 38 countries covering the period 1991 till 2010. Through a sample of M&A affairs occurring in Shanghai and Shenzhen A-share stock markets over 2008-2010, Zhang (2015) investigates the firms' intention to implement REM to increase earnings in the M&A announcement period. The author finds that acquiring firms practice REM to overstate earnings, which in turn increases market confidence.

Similarly, Dos Reis et al. (2015) examine earnings management through operating decisions of 289 companies listed on the BM & FBOVESPA. They particularly use panel data covering the years 2008-2013 in their estimated regression models. The study shows that Brazilian companies engage in REM activities to avoid disclosing losses. Moreover, Chan et al. (2015) and Sohn (2016) find that firms tend to shift from using AEM to REM. They show that AEM decreases whereas REM increases with the degree of a firm's accounting comparability with other companies. Their findings are consistent with

previous literature such as Badertscher (2011) who state that managers prefer practicing EM through accruals before engaging in opportunistic real activities. Furthermore, Kothari et al. (2016) conduct a detailed study on the role of EM via real activities versus accruals around SEOs. The study is based on a sample of 3,353 US SEOs between 1970 and 2012. Their findings suggest that firms prefer to engage in EM via real manipulation strategies to escape from the high scrutiny characterizing SEOs. Consistent with Graham et al. (2005) and Lindsay & Libby (2007), their findings show that managers prefer engaging in REM around SEOs because of its high opacity to the market, compared to AEM.

In the same sense, Haga et al. (2018) examine the REM activities in both private and public UK firms between 2008 and 2014. The findings show that public firms engage in more REM than private ones. Through a sample of Spanish non-financial listed firms, covering the period 2001 to 2008, Abad et al. (2018) examine the relationship between REM and information asymmetry in the equity market. They find that managers engage in high REM levels to meet the previous year's earnings. Moreover, through a sample of 708 company-year observations for public listed companies operating in the UK manufacturing sector, over the period 2010 and 2013, Sitanggang et al. (2019) examine whether audit quality is associated with real earnings management. They find partial evidence of a significant relationship between audit quality and REM. Moreover, the authors confirm that managers shift from AEM to REM when faced with high scrutiny from auditors and/or from more strict regulations. Through a sample of mergers of publicly traded US firms, including 1695 pure cash and 586 pure stock-for-stock acquisitions, announced between January 1990 and December 2013, Chang & Pan (2020) find that stock-for-stock acquirer firms engage in REM rather than AEM to increase their pre-merger earnings. They show that managers

choose REM at times of heightened scrutiny to avoid detection and meet their earnings benchmark.

2.4 Seasoned Equity Offerings

This section defines seasoned equity offerings and provides a summary of their types. A research review on the relationship between SEOs and information asymmetry as well as opportunistic earnings management is also presented in this section. Part four highlights the relationship between SEOs and market liquidity. Part five presents the relationship between SEOs and financial performance.

2.4.1 Definition

A seasoned equity offering (SEO), also known as a "Secondary Equity offering.", is defined as the issuing of new shares by an established firm whose securities are already traded in the secondary market (Abraham & Harrington, 2011). Referring to the views of Carlson et al. (2006, 2010), SEO is one of the methods to raise funds from external sources and meet long-term financial needs. Such issues signal new growth opportunities. SEOs take the form of private placements, public offerings, and rights issues. Private placements are the issuing of common stocks to well-informed investors such as large banks, mutual funds, pension funds, and insurance companies. However, public offerings are the issuing of new shares to the public and do not target a certain type of investor. Unlike public offerings, the private placement does not have to be registered with the Securities and

Exchange Commission (SEC). In right issues, current shareholders are permitted to own additional newly issued shares while maintaining the same ownership rights. Since shares are normally offered at a discount to the current market price, shareholders' rights are usually transferable, and selling them on the open market is allowable. Furthermore, underwriter services to conduct SEOs are similar to that of initial public offerings, except for the pricing of the new shares, which relies mainly on the market price of the outstanding shares (Carlson et al., 2010).

2.4.2 Seasoned Equity Offerings and Information Asymmetry

According to Myers and Majluf (1984) and Miller & Rock (1985), a fundamental theory shows a negative effect of SEO announcements on the stock price. They prove that this negative relationship is a result of the information asymmetry between investors and insiders due to stock overvaluation. Lang (1991) shows that information asymmetry results in the opacity of EM. The author finds that external investors suffer from the lack of availability of time-series data on earnings, which leads to a misunderstanding of the firm's performance. Moreover, Dierkens (1991) uses cross-sectional tests to find that there is a negative relationship between information asymmetry and price at the equity issue announcement.

In the same sense, Diamond and Verrecchia (1991) indicate that high-quality financial information reduces information asymmetries between informed and uninformed investors. Furthermore, through a sample of 1,247 US SEOs over the period between 1978 and 1983, Korajczyk et al. (1991) find that information asymmetry is high before earnings announcements and declines after it. The authors state that the perfect timing of an SEO

closely follows credible earnings releases since they deliver good news about the firm's valuation. Moreover, argue that managers will prefer issuing equity at a time when investors are most informed about the firm's quality, leading to a reduction in stock price post-SEO announcement. In the same sense, Richardson (2000) examines the relationship between earnings management and information asymmetry through a sample of US SEOs between 1986 and 1993. He finds a relation between income-increasing earnings management and greater information asymmetry. Additionally, Thomas (2002) finds that firms that have a higher degree of asymmetric information, engage in a greater level of earnings management practices, causing difficulty for shareholders to monitor managers. Based on the proposed asymmetric information-theoretical model, some studies indicate a downward stock price drift following SEOs. For example, Ritter (2003) reveals an unfavorable announcement effect for public offerings and rights issues. Similarly, Zhang (2006) finds that EM is highly associated with negative post-SEO returns in firms where information asymmetry exists between managers and external stakeholders.

2.4.3 Seasoned Equity Offerings and Opportunistic Earnings Management

Several studies investigate the relationship between earnings management and SEOs (Rangan, 1998; Teoh et al., 1998a; DuCharme et al., 2004; Cohen and Zarowin, 2010; and Ibrahim et al., 2011). Their findings show that managers have incentives to engage in opportunistic earnings management in the year prior to SEOs. The authors find that overvaluation at the time of an SEO leads to a wealth transfer from prospective shareholders to the firm and its current shareholders. Previous earnings management

studies (such as Teoh et al., 1998a; Shivakumar, 2000; Nagar et al., 2003; Mizik and Jacobson, 2007; and others) argue that firm managers engage in income-increasing manipulation before SEOs due to the presence of both opportunistic and incentive behavior. According to Frankel et al. (1995), managers of firms with a lot of accounting flexibility tend to provide the market with optimistic information before the SEO announcement. The authors state that these issue forecasts allow managers to meet or beat their forecasts by inflating accruals.

Moreover, Rangan (1998) claims that firms tend to report earnings upwardly in the years preceding the SEOs to raise the firm's stock price temporarily. He states that as soon as inflated pre-issue earnings are no longer attained, dissatisfied investors will devalue the firm, causing its stock price to decline accordingly. This is confirmed by other researchers such as Shivakumar (2000), who find evidence of overstated earnings before the issue of seasoned equity offerings. In addition, Ducharme et al. (2004), and Ching et al. (2006) reveal the occurrence of income-increasing earnings management around SEOs that are focused exclusively on accrual-based manipulations. The most common models used by these studies for estimating accrual management are the Jones (1991) and modified Jones (1995) models. In addition to the reporting evidence of earnings management activities at the time of SEOs, great attention was given to the strategies that firms conducted to manage their earnings before SEOs. Hribar and Collins (2002) discuss the existence of EM by SEO firms. They show that there are flaws in the models used to explain accruals in previous studies. Furthermore, Ducharme et al. (2004) find that opportunistic earnings management increases the growth rate temporarily, then reverses eventually. But aggressive issuers that

are associated with very poor post-offer stock price performance are subject to being sued by disappointed investors in later stages.

Through a sample of 1,040 US SEOs over 1989 and 2000, Kim & Park (2005) examine the relationship between pricing of seasoned equity offerings (SEOs) and earnings management (EM). They show that equity issuers engage in aggressive EM to increase their offer price and receive high proceeds from their offerings. Moreover, they find a significant relationship between SEO under-pricing and EM for issuers with high information asymmetry. However, Ching et al. (2006) find no significant relationship between pre-issue earnings management and long-run stock returns, signaling that investors are knowledgeable about possible earnings management activities before SEOs announcements. According to Ball and Shivakumar (2008), managers of firms that undergo SEO aim to increase stock valuations at the time of the announcement, but equity offerings are characterized by high levels of scrutiny. From this perspective, managers tend to implement EM through methods that are less likely to be detected by regulators, analysts, and even investors. Ronen & Yaari (2008) state that companies attract new investors to raise capital through SEOs. They claim that these companies could convince their potential shareholders to buy a certain number of shares by considering selling them at high prices. Hence, firms become able to manage earnings upward by increasing their stock price (Ronen & Yaari, 2008).

Furthermore, Cohen and Zarowin (2010) indicate that firms use both methods of earnings management activities in the years surrounding SEOs. Their findings show that choosing one of the two methods depends on their cost and the firm's ability to perform AEM. Although firms usually wait for their quarterly credible earnings releases to conduct their SEO issues, various firms tend to manipulate their earnings upward in the year preceding the offering to improve the price at which their firm's SEOs are sold to investors. This allows managers to overstate earnings before the issue, leading to a higher amount of SEO proceeds. Hence, SEO reflects a perfect context for studying myopic financial management as well as the market's financial reaction (Cohen and Zarowin, 2010). However, other major researchers (et al., 2005; Roychowdhury, 2006; Gunny, 2010) find that managers are engaging in real earnings management to meet specific earnings benchmarks. Through a sample of 1,871 US SEOs between 1990 and 2004, Ibrahim et al. (2011) examine the presence of REM and AEM around equity offerings and the impact of the SarbOx Act on this. Following Kothari et al. (2005), Ibrahim et al. (2011) adopt a performance-matching approach. They find that SEO firms engage in both accrual and real earnings manipulation in the year before the offering in the pre-SarbOx period. Also, the results indicate a shift to real account manipulation post-SarbOx. Specifically, they prove that SEO firms engage in income-increasing manipulation through DA and by increasing sales through more lenient credit terms.

Similarly, Kothari et al. (2016) confirm this point of view and state that SEOs are an excellent setting for estimating the capital market consequences of earnings inflation. They show that there is an upward stock valuation at the time of an SEO associated with future operating underperformance. Moreover, Kothari et al. (2016) provide evidence that

managers inflate earnings through REM at a higher frequency than AEM at the time of SEOs. Also, they find that managers' incentives towards EM are to maximize the amount of capital collected through the firm's SEO. Furthermore, Kim et al. (2018) interpret firms' REM around SEOs and stock return performance after the SEO announcement. The study covers non-financial companies listed on the Korean Stock Exchange (KSE) that conducted SEOs between 2001 and 2013. The authors find that these firms use both types of EM to adjust offering prices before the SEO announcement. Moreover, their findings show that Korean firms engage in less REM in quarters prior to their SEO to lower their reported earnings and protect the largest shareholders' wealth.

2.4.4 Seasoned Equity Offerings and Market Liquidity

Myers and Majluf (1984) document a negative market reaction to SEOs. The reason for the value decline can be classified into two broad categories. The first one suggests that SEOs have negative information about the current value of the firm which might be incorporated quickly or slowly. If the negative information is incorporated slowly, the firm depends on "timing" equity issues when its stock is overvalued to transfer wealth from new shareholders to the existing ones. The other view proposes that capital is not utilized in a value-maximizing behavior due to agency problems. Moreover, they state that the firm might be using its capital for agency spending rather than having valuable growth prospects. According to Amihud and Mendelson (1986), investors and managers consider liquidity a key factor for their investment decisions. Illiquid assets are associated with higher trading costs than liquid assets. This is expected to be compensated by delivering

higher returns to investors. Moreover, several studies show that information asymmetry and illiquidity can be detected through stock returns (Amihud and Mendelson 1986;1989). Based on a sample of 1,526 IPOs covering the period 1975 till 1984 than for size- and an industry-matched sample of seasoned firms, Ritter (1991) finds that IPOs report lower stock returns after the issue. The empirical evidence proves that firms' required rates of return significantly relate to several liquidity proxies, such as adverse selection costs (Brennan and Subrahmanyam, 1996), turnover rates (Datar et al., 1998), and spreads (Chalmers and Kadlec, 1998).

Based on previous studies (such as Slovin et al.,2000; Petersen and Plenborg, 2006; and Intintoli & Kahle, 2010), great concern was directed towards the relationship between SEO announcements and SEO issues. The market seems to react negatively to SEO announcements. Hence, most SEO lead to a price drop in the firm's stock. Walker and Yost (2008) examine the market reaction to SEOs in the year and two years following the SEO. The sample consists of 438 US firms that issued seasoned equity in the years 1997 and 2000. Their findings indicate that firms experience a decline in liquidity in the period following the SEO announcement. Moreover, the authors show that agency issues are related to the announcement of SEO.

2.4.5 Seasoned Equity Offerings and Financial Performance

Most of the theoretical literature (Loughran and Ritter, 1995; Teoh et al., 1998 a, b; Teoh, Wong, and Rao, 1998) examines the relationship between SEOs and the financial

performance of the issuing firms. According to the aforementioned, SEO firms tend to underperform the stock market in its post issuing phase compared to non-issuing firms. For instance, Teoh et al. (1998a) indicate that SEO firms suffer from poor financial performance in the post-issue period. The authors show that this unusual decline in financial performance is related to managing earnings upwards by firms in their pre-SEO phase. This is consistent with Loughran and Ritter (1997) who examine the post-issue operating performance of firms performing SEOs in the US capital market. The study covers a sample of all SEOs of operating companies between 1979 and 1989 on the NYSE, AMEX, and NASDAQ. The authors use the median ROA, profit margin, and operating income to assets ratios to measure financial performance. Loughran and Ritter's (1997) findings show that the operating performance of firms performing SEOs deteriorates in the post-issue period. Similarly, Teoh et al. (1998b) and Teoh, Wong, and Rao (1998) discover that firms with income-increasing abnormal accruals in the IPO year underperform the market significantly. Based on the previous literature (Bray et al., 2000; Slovin et al., 2000; Clarke et al., 2001), firms suffer from long-term underperformance of their stocks in the post SEO period.

In the same sense, Slovin et al. (2000) find that SEOs cause a shortfall in a firm's unobservable net cash flow from operations, which in turn represents one of the reasons behind the negative price reaction in the post-SEO period. According to Klein et al. (2002) and Corwin (2003), the issuers' stock prices decline post-SEO announcement due to the mispricing of investors. This reflects the investors' extrapolation of the pre-issue trend in operating performance. Moreover, the authors reveal that the timing proposition explains the poor long-run stock performance post-SEO period.

Similarly, Walker and Yost (2008) examine the relationship between SEOs and financial performance. They show that operating cash flow tends to decline in the two years following the SEO announcement. Additionally, Chen, Lin, & Wang (2010) and Intintoli & Kahle (2010) confirm this point of view and indicate this negative relationship between SEOs and financial performance. Specifically, the authors indicate that SEOs lead to a decline in the firm's unobservable net cash flow from operations. Firms that manage their earnings upward through REM experienced negative operating performance compared to their peers in the three years following the SEO announcement (Cohen and Zarowin, 2010). The authors show that firms that perform AEM at the time of the SEO experience a negative operating performance in the future, however, not as severe as those relying on REM.

Specifically, the findings of Cohen and Zarowin (2010) show that using REM to manipulate earnings results in a declining performance of the issuing companies in the following years of SEO. The authors find that SEOs have significant positive abnormal production costs, which causes a decline in the cost of goods sold in the offering year. Second, they find lower than expected discretionary expenses in the years prior to the offering as well as during the offering date. They also show that cash flows from operations are lower than expected in the years before and during the offering date. All these factors signal an abnormal increase in earnings through real account variations (Cohen and Zarowin, 2010).

A recent study by Kothari et al. (2016) shows that increased attention has been given to documenting earnings management activities around major corporate events such as seasoned equity offerings. They examine the relationship between both types of EM,

overvaluation, and the post-SEO market response. They find that managers' overvaluation of private information related to EM results in a post-SEO return underperformance.

2.5 Impact of Earnings Management on Market Liquidity

The existence of informational asymmetries is reflected through a wide bid-ask spread, which indicates high adverse selection and low market liquidity (Glosten and Milgrom, 1985). Their study findings show that adverse selection is reflected by a widening spread. However, the signaling through mechanisms of information leads to a low adverse selection component of the Bid-Ask (B_A) spread and hence low market liquidity. Furthermore, Diamond and Verrecchia (1991) show that financial information lowers the level of information asymmetries in the market. This leads to an increase in the investors' confidence in the company's securities and hence market liquidity increases. According to Jacoby et al. (2000), earnings management increases information asymmetry and in turn, impairs market liquidity. In the same sense, Healy & Palepu (2001) claim that the concept of market liquidity is highly related to informational transparency. Moreover, the authors show that financial reporting quality became a critical matter after various scandals have occurred (such as Enron, WorldCom, & Vivendi). Since the emergence of this topic as a point of interest, various reform measures have been taken into consideration such as the Sarbanes-Oxley Act in the United States, financial security law in France, the UK Higgs report, the Smith Report in 2003, and IFRS, which has been adjusted from 2005 accounting standards. These initiatives were created to achieve greater financial transparency and lower earnings manipulations to form a secure environment for investors. High quality of information allows investors to take the right decision when managing their portfolios. This

strengthens the confidence of investors in the company's securities and hence increases market liquidity (Arya et al., 2003; Petersen and Plenborg, 2006; and Al-Jaifi, 2017).

According to Healy & Palepu (2001), the extent of disclosure, represented by the volume of transactions, results in great transparency which improves market liquidity. They find that investors tend to be attracted to the high volume of market orders and in turn transaction costs decline while market liquidity improves. Moreover, Arya et al. (2003) find that EM can be informative as it communicates private information to the public. This improves the financial reporting quality of earnings. The authors show that a managed revenue stream can transfer more information than an unmanaged one. Their findings reveal that information is spread through people in decentralized organizations, which improves the level of transparency and in turn, increases market liquidity. According to Chung et al. (2009), firms that perform EM are associated with high agency costs and information asymmetry. Moreover, they find that aggressive EM lowers stock liquidity. The authors state that investors tend to widen the bid-ask spreads as a useful tool to protect themselves from firms that conduct aggressive earnings management

Through a sample of 37 firms listed on the Singapore Exchange and using a total of 1,565,343 observations, between October 4, 2002, and October 31, 2003, Charoenwong et al. (2011) examine the impact of corporate governance on the adverse selection component of the bid-ask spread of stocks. They show that the transparency of information lowers investor's cost of investment and adverse selection component which results in a lower Bid-ask spread.

Based on a large sample of NYSE companies between 1996 and 2001, Ascioglu et al. (2012) find that the level of earnings management weakens the quality of earnings reported

and disclosed to the public. They find that information asymmetry lowers the firms' shares liquidity level in the market. The authors' findings show that a high level of EM, reflected by the high value of abnormal accruals, results in low market liquidity. Furthermore, Ascioglu et al. (2012) indicate that both AEM and REM are associated with impaired liquidity. Bar-Yosef and Prencipe (2013) measured market liquidity by Bid-Ask (B_A) spread trading volume, which is consistent with Leuz and Verrecchia (2000). Based on a study on a sample of 161 French firms between 2008 and 2011, Ajina & Habib (2017) choose quoted and effective spreads as two liquidity proxies. They show that firms that engage in EM have a higher Bid-Ask spread than those that do not, which results in low market liquidity. Moreover, they state that EM weakens the quality of the financial information that is provided to the market and increases information asymmetry. Consequently, investors have a low level of trust and credibility in a specific company, which results in a decline in market liquidity (Ajina & Habib, 2017).

Through a sample of 505 Malaysian firms, over the period 2009-2012, Al-Jaifi (2017) examine the impact of ownership concentration and earnings management on stock market liquidity. They find that firms with a high level of ownership concentration negatively impact the stock market liquidity. Also, the authors show that firms engaging in high EM experience high market liquidity. Consistent with Jiraporn et al. (2008), Al-Jaifi (2017) suggests that firms engage in EM activities to enhance the informativeness of earnings by sending private information to the public. Moreover, through a sample of 299 observations of Tunisian companies listed on the stock exchange, over the period 2000 and 2012, Sayari & Omri (2017) interprets the impact of EM on market liquidity in the Tunisian context. The authors use B_A spread and DA, based on the modified Jones model, to investigate

the stock's liquidity. The study shows that there is a positive relationship between the B_A spread and EM of Tunisian firms. Moreover, Sayari & Omri (2017) conclude that liquidity providers suffer from high agency costs, which leads to a wider spread and in turn decreases market liquidity. Similarly, Abad et al. (2018) show that the Spanish market suffers from high EM levels, low accounting quality, and low stock market liquidity. Recently, through a sample of 170 firms listed on the Vietnam Stock Exchange, covering the period 2013 till 2016, Trang and Linh (2020) examine the impact of earnings management on market liquidity. They show that there is a positive relationship between earnings management level and equity liquidity. In addition to that, the authors discuss determinants of stock liquidity such as earnings management, firm size, daily stock returns, and daily trading dollar volume of stock. On the other hand, through a sample of 114 firms from the manufacturing sector of Pakistan, India, Australia, and Singapore, covering the period 2010 till 2018, Hunjra et al. (2020) investigate the effect of earnings management on stock market liquidity. They provide evidence that EM has a significant negative impact on stock market liquidity. Their findings show that EM increases information asymmetry between inside and outside stockholders of the company which creates uncertainty about the future cash flows of the company and in turn lowers stock market liquidity.

2.6 Impact of Earnings Management on Financial Performance

According to Fama (1978), firm value is one of the important indicators that the market can use for assessing a firm’s performance. If this value turns out to be positive, investors will be attracted to this firm, otherwise, they will not be interested to invest in the firm. The author states that firm value is related to the firm’s stock price. Therefore, high firm value

improves shareholders' wealth which in turn strengthens the survival of the firm. Teoh et al. (1998b) consider discretionary current accruals (DCA) as a good predictor of the three-year stock return performance in the post-announcement period. They find that DCA is one of the most important components subject to managerial manipulation which is interpreted as a factor for the underperformance in the post-issue period. Moreover, Teoh, Wong, & Rao (1998) show that firms that inflate their earnings through increasing abnormal accruals in the year of IPO suffer from a significant decline in their stock performance. Similarly, Teoh et al. (1998 a, b) find that SEO and IPO firms that tend to manage their earnings upwards in the pre-issuance period, experience an unexpected poor financial performance in post-announcement.

Several studies (Gunny, 2005; Gunny, 2010; Mizik, 2010; Taylor & Xu, 2010; Cupertino et al., 2016; Francis et al., 2016) point out that EM is related to the firms' financial performance. The results report conflicting findings on the use of REM and its effect on firms' performance. Gunny (2005) shows that REM is considered as managerial opportunism. The author provides evidence that this EM method has a negative impact on the firm's future performance. Moreover, Gunny (2005) considers REM as a signal of worse future financial performance to the company. Furthermore, Bhojraj et al. (2009) find that firms that manipulate their earnings, to meet or beat forecasts, through AEM or REM, suffer from a negative impact on their future ROA and stock price. Moreover, Li et al. (2008,2009) show that firms that engage in REM experience a significant negative effect on their future financial performance.

According to Kim et al. (2009), a company that chooses to manage earnings through real activities suffers from future value uncertainty compared to those that rely on accrual-based

activities management. Moreover, the authors show that earnings management negatively impacts financial performance from an opportunistic perspective. Thus, EM can impact the financial performance of the company in two ways based on whether EM is opportunistic or signaling (Cohen and Zarowin, 2010; Kothari et al., 2016; Debnath, 2017).

Following the opportunistic approach, previous studies show that EM harms financial performance (Mizik, 2010; Gill et al., 2010; Ardekani et al., 2012; De Jong et al., 2014; Tabassum et al., 2014; Vorst, 2016). Mizik (2010) analyses the effect of lowering marketing and R&D expenditures on equity returns. This effect is measured by Tobin Q. His empirical evidence suggests that there is a negative relationship between EM and the financial performance of a certain company. Furthermore, Ardekani et al. (2012) use accruals as a proxy to EM which is derived from the modified Jones model, and the average of abnormal returns as a proxy to the financial dimension. Their study covers Malaysian firms between 2004 and 2010. Their findings show that there is a negative correlation between EM and the financial performance of the company. This is consistent with Gill et al. (2010)'s work which results in similar findings while using ROA as a measure for the financial performance of the company. Similarly, De Jong et al. (2014) find that all types of EM deteriorate the value of the company except for the operation of the repurchase of the shares.

Similarly, Zhang (2015) shows that acquiring firms that tend to adopt REM underperform in the period following the M&A. More specifically, the study indicates that the specified firms suffer negative abnormal cash flows and abnormal discretionary expenses in the current period of M&A. Yet, these firms exhibit significant positive abnormal production costs in the same period. Moradi et al. (2015) show that REM has a negative impact on a

firm's financial performance. The authors' findings are consistent with that of Tabassum et al. (2014). Through a sample of companies listed on the Brazilian Securities, Commodities, and Futures Exchange (BM&FBOVESPA), covering the period 1989 to 2012, Cupertino et al. (2016) examine the impact of REM on the future performance of the selected companies. They provide evidence on the negative impact on the future performance of firms practicing REM. Specifically, they show that REM activities have a negative impact on a firm's ROA.

Furthermore, through a sample of 9987 firms from the Standard & Poor's Compustat database, covering the period from 1990 to 2013, Mellado-Cid et al. (2018) find that a firm's real activities manipulation level is inversely and significantly related to both its Tobin's Q and price-to-book ratio. Hence, the authors show that opportunistic EM negatively impacts the financial performance of a company. Recently, through a sample of 20 public companies under the Food, Beverage, and Tobacco (FBT) sector in the Philippine Stock Exchange (PSE), between 2013 and 2016, Abner & Ferrer (2018) examined the impact of EM on financial performance and firm value. They find that EM does not affect the firm's ROA and ROE. However, their findings show that EM through CFO has a negative and significant impact on earnings per share (EPS) as well as on the company's value (Tobin's Q). On the other hand, EM through DA has a positive impact on EPS.

On the other hand, several studies (such as Dechow et al., 1995; Gunny, 2010; Gunny and Zhang, 2014; Al-Shattarat et al., 2018; Jiang et al., 2018) rather find a positive impact of EM on the financial performance of a company. Dechow et al. (1995) examine the manipulation of discretionary accruals and their impact on financial performance. They

show that there is a positive relationship between DA and the financial analysts' forecasts. This impact represents the informational approach, which is based on the signaling theory. Under this perspective, managers tend to disclose the company's private information to signal their future expectations to investors (Subramanyam, 1996). Gunny (2010) finds that companies that use REM to meet the analysts' forecasts experience a higher operating performance over the following three years as compared to those that do not reach their expected returns. The author interprets the result using signaling theory, which considers REM as a positive signal to the market and hence offsets the adverse effect.

Similarly, Taylor & Xu (2010) examine whether real earnings management activities lead to a significant drop in firms' subsequent operating results. They show that companies engaging in REM operations do not suffer a significant drop in subsequent operating performance. Moreover, REM allows managers to breakthrough manage analyst earnings benchmarks and conduct practical operations more easily without affecting future performance. Furthermore, Gunny and Zhang (2014) confirm the positive impact of EM on the financial performance of a company. Through a large sample of companies between 2001and 2015, Jiang et al. (2018) study the impact of REM on future financial performance in an international setting. They find that REM positively affects future firm performance. Recently, Chakroun & Ben Amar (2019) selected a sample of 311 French companies that belong to the CAC-all-Tradable index, covering the period 2010 till 2014, to examine the impact of earnings management on financial performance. They use four main measures of financial performance: ROA, ROE, Tobin Q, and Marris ratio. They confirm that " opportunistic EM" and "signaling EM" are the two opposite perspectives of EM. They show that each approach can impact the firm's financial performance differently.

Consistent with Gunny's (2010) and Al-Shattarat et al. (2018), they find that French firms that engage in EM face a negative financial performance in the future. This impact is realized from an opportunistic perspective. Through a sample of US M&As that are announced between the 1st of January 1992 and the 31st of December 2017, Doukas & Zhang (2020) examine earnings smoothing and its impact on the future performance of acquiring firms._Their findings show that high-ability managers engage in earnings smoothing before the M&A announcement as a signaling method. Moreover, the authors suggest that managers tend to engage in earnings smoothing to better communicate their managerial information to investors and in turn mitigate information asymmetry. These results are consistent with the managerial response to asymmetric information theory, which states that managers perform earnings smoothing prior to M&A to increase the acquirer's future growth prospects through avoiding information asymmetry in a competitive executive market. They also indicate that these firms experience a significant positive abnormal return in the post-M&A period.

In the same sense, Alsharairi et al. (2020) examine the effect of real earnings management on firms' future profitability for the Jordanian industrial companies listed on the Amman Stock Exchange (ASE) over the period 2012- 2017. Following Roychowdhury (2006), the authors measure REM using abnormal sales and abnormal production as the two proxies in the regression analysis. They find that REM through abnormal sales has an insignificant effect on the firms' future profitability. On the other hand, the authors provide evidence that REM has a significant positive relationship through abnormal production and the firms' profitability. Furthermore, a recent study by Chang & Pan (2020) shows that REM, especially sales manipulation and overproduction methods, negatively affects the post-

merger operating performance of stock acquirers. More specifically, they find that the subsequent market underperformance results from REM rather than AEM. Through a sample of Nigerian firms, Cyril et al. (2020) studies the effect of earnings management on the financial performance of consumer goods firms. They show that EM does not impact the financial performance of the selected sample in Nigeria. For proper positioning of financial performance of consumer goods firms in Nigeria, Cyril et al. (2020) state that the liabilities of such firms must be reassessed.

2.7 The Behavior of Earnings Management around Major Events

Previous research suggests that firms manipulate their earnings around major corporate events such as seasoned equity offerings (SEOs), initial public offerings (IPOs), and management buyouts. For instance, studies show a great interest in the impact of major corporate or general reforms, especially International Financial Reporting Standards (IFRS) on earnings management levels (Daske et al., 2008; Jeanjean et al., 2008; Chen et al., 2010). A stream of literature sheds light on whether the adoption of IFRS is effective in enhancing transparency in terms of lowering EM. Doukakis (2014) examines the impact of the mandatory adoption of IFRS on earnings management (EM) levels through a sample of 15,206 observations from 22 European countries over the period 2000-2010. The study findings show that IFRS has no significant impact on either accrual or real-based EM. Through a sample of 205 Greek firms, over the period 2001-2008, Ferentinou et al. (2016) examine the relationship between AEM and REM before and after the mandatory adoption of IFRS. They find that a significant shift occurs from AEM to REM in the post-IFRS

period indicating a replacement of one form of earnings management with the other. Moreover, Al-Ghazzawi et al. (2016) investigate EM levels following IFRS adoption, in Jordan and Latin American countries, respectively. Their findings suggest that the adoption of international standards such as IFRS does not have an impact on EM in the selected countries. Also, Rathke et al. (2016) find that Latin American firms that adopted IFRS, have higher levels of EM than Anglo-Saxon and Continental European IFRS adopters. They relate their results to the possible impact of the cultural and economic characteristics of each country on the implementation of IFRS.

Similarly, Ayedh et al. (2019) examine the impact of IFRS on EM for 234 Malaysian listed companies, covering the period between 2004 and 2009. They find that IFRS adoption reduces EM practices during a financial crisis for Malaysian companies Moreover, the authors provide empirical evidence that Malaysian firms tend to implement income-decreasing EM during the crisis period (2008 and 2009) while they practice income-increasing EM in the pre-crisis period (2005 and 2006). This is consistent with the "big bath theory," which states that EM is more negative or less positive during the financial crisis period. In addition, Lakhal et al. (2020) study the effects of IFRS adoption and the financial crisis on the relationship between R & D and EM. Through a sample of French-listed companies from 2001 to 2012, the authors show that the adoption of IFRS plays a major role in decreasing EM in the presence of R&D disclosures. They find that the adoption of IFRS lowers managers' ability to engage in EM activities and, in turn enhances the accounting information quality. Furthermore, a worldwide growing consideration in the literature has been given attention to the impact of different corporate governance regulations and reforms, such as the UK Corporate Governance Code based on the Higgs

(2003) Report on EM. In this respect, the UK Higgs Report (2003) aims to reduce earnings management practices and enhance financial reporting quality and corporate reliability (Iqbal et al., 2010; Habbash et al., 2013a, b; Kassamany et al., 2017).

Through a UK sample of 197 acquirers between 1990 and 2009, Kassamany et al. (2017) investigate the occurrence of both accrual- and real-based earnings management in the period prior and post Higgs. Consistent with Botsari and Meeks (2008), the authors find that stock-financed acquirers tend to perform income-increasing pre-merger AEM in the full sample of years. However, their study findings indicate that cash bidders implement REM by lowering discretionary expenses to allow cash availability for the bid. Hence, they provide evidence that stock bidders engage in AEM more than cash bidders, mainly in the pre-Higgs period. Moreover, Kassamany et al. (2017) do not find a significant impact of the Higgs recommendations on EM in stock bidders in terms of reducing both AEM and REM in the post-Higgs period. Consistent with Zang (2012), the authors suggest that managers tend to shift into less costly EM strategies whenever the accrual-based ones are expensive.

Previous literature (Iatridis & Dimitras, 2013; Filip & Raffournier, 2014) shows that European companies tend to engage in low EM activities during the Great Financial Crisis (GFC). For example, Filip & Raffournier (2014) examine the relationship between a financial crisis and EM through a sample of European-listed firms from 16 countries over the 2006 and 2009 periods. They find that earnings management (in terms of magnitude) significantly decreased during the crisis years. This is consistent with Al-Ghazzawi et al.'s (2016) findings, which indicate a decline in EM practices during the crisis period for Jordanian companies. Through a sample of 232 Chinese firms over the period 2004–2009,

Xu & Ji (2016) examine both accrual and real-based earnings management behaviors during the Global Financial Crisis (GFC). They find that top Chinese-listed firms engage in both types of EM during the GFC. Moreover, Xu & Ji's (2016) findings show that several firm characteristics such as leverage, profitability, size, and growth affect EM behavior.

Similarly, Grimaldi (2019) examines the impact of the recent financial crisis on EM behavior for a sample of 89 non-financial listed Italian companies from 2005 to 2016. Their findings show that companies engage in the highest level of EM before the crisis and the least one during the crisis period. Moreover, he shows that manipulating companies tend to engage again in EM practices in the post-crisis period, however less than that of the pre-crisis period. This is consistent with the results of Filip & Raffournier (2014) who provide evidence on the decline of EM during the crisis years in most of the chosen countries.

Furthermore, Callao et al. (2020) examine the relationship between earnings management (EM) and both the European Union (EU) membership and the 2008 global financial crisis through 4,627 firms throughout 2002-2009. Their study covers four developing Eastern European countries: Hungary, the Czech Republic, Poland, and Slovakia. The authors show that the decline in EM in the period of EU accession is accompanied by an improvement in earnings quality. They confirm that companies from developing Eastern European countries have decreased their engagement in EM between 2003 and 2007. Callao et al. (2020) relate these results to the fact that new audit control procedures are associated with the EU requirements, which significantly reduces EU companies' opportunities for EM practices. Furthermore, the authors detect a significant increase in EM between 2008 and 2009. Moreover, Callao et al. (2020) show that managers tend to engage in EM practices

during a crisis due to the investors' pessimism about earnings expectations. Through a publicly listed US sample of 86,394 firm-year observations, over a 15-year sample period, Li et al. (2020) examine the behavior of REM around the 2007-2008 financial crisis. They find that firms suspected of REM tend to switch from implementing share repurchases to manipulating discretionary expenses during the crisis period due to fewer financial constraints.

Furthermore, Lakhal et al. (2020) find that there is a positive relationship between the financial crisis and EM. The authors explain this relationship through the fact that companies facing financial instability during an economic recession tend to manipulate earnings to better reflect their financial performance. They deduce that R&D disclosures and EM are negatively related. In addition, Lakhal et al. (2020) show that earnings management levels increase in the global financial crisis period. On the other hand, through a sample of 71 non-financial listed firms over 2005-2012, Al-Mughrabi (2020) examines the impact of the financial crisis on the EM behavior of Jordanian companies. He finds that the level of EM of these companies is not affected by the financial crisis. Moreover, he also finds that Jordanian nonfinancial sectors engage in a very small percentage of EM activities.

2.8 Conclusion

Various researchers concentrated on earnings management research by tackling their incentives, consequences, and multiple methods. There are internal and external incentives

that motivate managers to engage in EM. These incentives allow managers to achieve their earnings targets and personal benefits, as well as increase the value of the firm and attract potential investors. Most of the research in this area has been motivated by agency theory as a primary theory for guiding their earnings management findings. Earnings management activities occur at the level of a "nexus of contracts" relationship between a manager (agent) and stockholders (principles). This leads to agency costs as there is no consistency between the managers' decisions and the ones that might maximize the stockholders' welfare.

In addition, there was a great concern about understanding the strategies followed by firms to manage their earnings. A great number of earlier studies indicate that income-increasing earnings management activities around major corporate events are concentrated on accrual-based manipulations. On the other hand, recent studies show that managers prefer real earnings management activities over accrual-based ones. One of the primary reasons for manipulating real earnings rather than accrual-based ones is that real earnings management is less detectable by auditors, regulators, and investors than accrual earnings management.

Firms engage in different methods for real earnings management. For instance, managers seek to avoid reporting financial losses through cutting down on discretionary expenses (mainly research and development, advertising, and selling general and administrative expenses), permitting lower levels of costs of goods sold through overproducing, and increasing sales by providing price discounts and more lenient credit terms to investors. Previous literature shows that both AEM and REM occur around SEOs as well as other equity offering events. Accordingly, SEOs were considered as context-suitable settings for studying both capital market reactions and myopic financial management.

Market liquidity is one of the most tackled topics in previous research. For an effective corporate governance scheme, managers have to abide by rules that ensure the highest transparency of information disclosed to the public. This allows a better assessment of the companies' stock value and leads to low illiquidity risk. Existing literature on the analysis of EM and its impact on market liquidity yields contradictory results. EM tends to lower the quality of the financial information that is transferred to the market. This leads to high information asymmetry which in turn lowers investors' credibility and trust in a company's performance. Hence, market liquidity declines. The results of other previous studies consider that the quality of financial information disclosed to the public increases market liquidity. Strict regulations such as IFRS may lower managers' level of engagement in EM, increase investors' trust, and hence improve market liquidity. Existing literature reviews show that there are mixed results to the impact of EM on a firm's financial performance. The outcomes are classified based on two perspectives: the opportunistic and the informative. Studies that follow the opportunistic behavior of managers show a negative impact of EM on a company's financial performance. Several studies find that there is a negative impact of REM on the financial performance of the company as compared to AEM. However, other studies that reveal the informative behavior of managers find that EM has a rather positive impact on financial performance. Under this perspective, the authors in several studies interpret their results based on the signaling theory.

Detection of earnings manipulation has been realized after major reforms to corporate governance codes around the world. Various research showed that earnings management activities declined after IFRS, the U.S SOX Act, and SOX-like legislations, implying that the mandated reforms have achieved corporate reliability and accountability. Due to

reporting and disclosure flexibility, a whole range of socio-economics networks such as market analysts, investors, shareholders, and institutional investors were involved in the EM phenomenon.

Chapter Three: Research Methodology and Hypotheses Development

3.1 Introduction

This chapter explains the methodology used in answering the research questions of whether both accrual- and real-based earnings management have a positive impact on market liquidity and financial performance of UK SEOs. As a further analysis, the study is conducted in the periods preceding and following IFRS adoption, Financial Crisis, and Brexit. This chapter starts by highlighting the philosophical dimension of this research in section two. Section three discusses the reasoning approach of this thesis. The research strategy is discussed in section four. Section five introduces the development of the hypotheses. Section six includes the research methods and variables measurement. Section seven explains the empirical model of our study. Data sources are identified in section eight. Sampling procedures are explained in section nine. Section ten concludes.

3.2 Philosophical Dimension

The researcher's approach to knowledge development is referred to as research philosophy. This development and apprehension of knowledge are based on the researcher's assumptions about the sources and nature of that knowledge. Ontology and epistemology are two central assumptions that characterize philosophical approaches. Ontological assumptions are concerned with the "nature of reality" (Lincoln and Guba, 1985, p. 37) or the "study of being" (Crotty, 1998, p. 10) and raise questions about "how things are" and "how things work." This assumption, in other words, is concerned with the nature of "real existence" and "real action" (Denzin and Lincoln, 1998, p. 201).

There are two extreme positions on the ontological perspective spectrum: objective realism and subjective solipsism. While objective realism assumes the existence of a reality that is independent of human thoughts and beliefs, subjective solipsism sees "reality" as a projection of human imagination and asserts its non-existence outside of oneself; that is, "one's mind is one's world" (Morgan and Smircich, 1980, p. 494). Because objective realists believe in the existence of a world that predates humans, Morgan and Smircich (1980) believe that viable knowledge about a tangible reality can be obtained through sense observation and measurement. Given that the purpose of this study is to determine whether managerial propensity to manage earnings before SEOs is perceived as an external, independent reality that can be studied through data observation and the computation of measurable proxies. As a result, this study leans toward objective realism.

The second assumption, epistemology, concerns the nature of knowledge and asks, "How is it possible, if it is possible, for us to gain knowledge of the world?" (Hughes and Sharrock

1997, p. 5). Positivism and interpretivism are two extreme epistemological positions. A researcher who believes in positivism believes that reasonable knowledge cannot be attained unless natural sciences are applied through direct measurements and experiences. An interpretivist in phenomenology, on the other hand, believes that humans and social individuals construct reality.

That is, social subjects can only be studied using their diverse assumptions and perceptions rather than scientific or mathematical assumptions. This study takes a positivist epistemological approach to its research questions. When empirical knowledge is a key feature of the positivism paradigm (Ritchie, 2013), a researcher can produce results and conclude after applying statistics and other forms of research practices to a set of observations (Creswell 2009). Given that the goal of this study is to detect differences in earnings management activities of UK SEOs, empirical data for the calculation of discretionary accruals and real earnings metrics will be collected from trusted databases, observed, and then studied using multicollinearity analysis, as well as univariate and multivariate analysis. This will result in the generation of meaningful inferences based on observations and direct measurements, which is a fundamental characteristic of positivism.

3.3 Reasoning Approach

In research, there are two main reasoning approaches: the deductive and the inductive. The deductive approach is known as the “Top-down” method. This type starts with existing theory and narrows down to the hypotheses to reach conclusions (Trochim, 2006). On the

contrary, the inductive approach is referred to as the “bottom-up” approach where it starts with observations, hypotheses, and theories, respectively (Trochim, 2006). This study follows the deductive approach as we aim to test the extent of earnings management's impact on market liquidity and financial performance for UK SEOs.

Provided that the major objective of this research is to study firms' willingness to manage earnings in the year prior to an SEO in UK with the changes accompanying such behavior and its effect, then the agency theory will act as the guiding theory for such a study. Several studies (such as Jensen and Meckling, 1976 and Gjesdal, 1981) classify agency theory as a fundamental framework for earnings management activities because it reflects the principal-agent relationship, demonstrating the conflict of interest between managers and shareholders. Hence, we will start by investigating whether earnings management is opportunistic or beneficial from the agency theory perspective. Then, we will narrow it down to develop more specific hypotheses related to UK SEOs to subsequently test them statistically, reject or accept them and thereby reach a reliable conclusion. It is worth mentioning that generalization is a cornerstone in the deductive approach and hence a substantial sample is required to attain rigor in generalizing the results. Accordingly, this research is conducted on a representative sample of UK SEOs. As a further analysis, we will test the effectiveness of the adoption of IFRS and the way it affects levels of engagement in earnings management activities (Ho et al., 2015; Alhadab, 2017; Fuad et al., 2017). Other studies (such as Ferentinou et al., 2016; Oz and Yelkenci,2018; and Ayedh et al.,2019) examine the behavior of both accrual and real-based earnings management around IFRS . They state that IFRS is the most significant regulatory change in financial reporting worldwide in the last 30 years; which makes it interesting to investigate its role

in improving financial market regulation and enhancing the enforcement of financial reporting. In addition, we examine whether the Financial Crisis (FC) plays a role on the impact of earnings management on market liquidity and financial performance in UK SEOs context. Several studies (such as Grimaldi 2019; Callao et al., 2020; and Lakhal et al., 2020) examine the behavior of EM around the global financial crisis. Moreover, we try to estimate the impact of the Brexit referendum on EM within the UK SEOs setting.

3.4 Research Strategy

A research strategy, according to Bryman (2008), is "the general orientation to the conduct of research." It is stated that a research strategy should be selected by the research objective and question(s) to answer them (Saunders et al., 2011). Considering that the main aim of this research is to examine the impact of both accrual-and real-based earnings management activities prior to UK SEOs, the following research method will be used to address it. This research will be based on the archival method, which is the most commonly used strategy in business research. This method is based on data collected from several secondary resources and archives such as documents, journals, databases, and library archives. Secondary data includes information that is related to the historical background of a certain matter and is used in research studies (Bryman, 2016). Data is extracted and collected from DataStream and Refinitiv Workspace for this study. These sources comprise observations necessary for the calculation of discretionary accrual metrics and real earnings management proxies for every nonfinancial firm listed on the London Stock Exchange that underwent a SEO during the specified sample period.

3.5 Hypotheses Development

3.5.1 Earnings Management and Market Liquidity

The results of the impact of Earnings Management (EM) on market liquidity are mixed. Some studies report evidence supporting the claims of a negative impact (Amihud, 2002; Dechow and Dichev, 2002; Rajgopal & Venkatachalam, 2011; Bhattacharya et al., 2013). Prior studies such as Amihud (2002) and Dechow and Dichev (2002) find that firms with low market quality have low earnings quality. The above studies state that earnings management activities, both accrual and real-based, have a negative impact on liquidity. Furthermore, the authors find that there is a positive relationship between illiquidity and both the absolute level of discretionary expenditures and abnormal accruals. Moreover, Ascioglu et al. (2012) and Bhattacharya et al. (2013) show that accrual-based earnings management is associated with greater information asymmetry and less market liquidity, resulting in a higher cost of capital. Moreover, Ascioglu et al. (2012) examine the relationship between EM and market liquidity on the NYSE. They claim that the level of earnings management reduces the quality of earnings reported and disclosed to the public. Based on their research on a sample of publicly-traded companies in the United States between 1996 and 2001, they show that information asymmetry reduces the liquidity of the firms' shares in the market.

Other studies find a positive impact, such as (D'Augusta et al., 2015; Al-Jaifi, 2017; Abad et al., 2018). For instance, throughout a sample of 2,020 yearly firm observations in Bursa Malaysia over the 2009–2012 period, Al-Jaifi (2017) investigated the relationship between

EM and stock liquidity. His findings show that firms that engage in more earnings management have high liquidity.The authors suggest that firms may manipulate earnings to convey private information in order to increase the information content of the earnings. This is consistent with the signaling theory, which holds that information reported in financial reports sends signals about the financial situation's future prospects (D'Augusta et al., 2015; Al-Jaifi, 2017). Similarly, through a sample of French firms between 2008 and 2011, Ajina and Habib (2017) examine the relationship between EM and market liquidity. In contrast to Chung et al. (2009), who discovered that aggressive earnings management increases information asymmetry and decreases liquidity, their findings show that earnings management decreases agency costs and information asymmetry. Ajina and Habib (2017) claim that greater transparency allows investors to reduce the cost of their investment by component asymmetric information as a result of a lower spread. This is consistent with the findings of several papers (such as Ginglinger et al. 2013; Rahman et al. 2013; and D'Augusta et al., 2015).

Through a sample of 468 firm-year observations between 2001 to 2008, Abad et al. (2018) examine the impact of real activities manipulation on information asymmetry in Spain. The authors reveal that examining the Spanish market will reveal new information since it has worse investor protection, lower accounting quality and stock market liquidity, and more incentives for investors to seek out private information than the US market. Furthermore, they use an information asymmetry index based on microstructure measurements such as the bid-ask spread, Amihud (2002)'s illiquidity measure, and Huang & Stoll's (1996)'s price effect. Abad et al. (2018) show that deviations from normal activity are significantly and negatively associated with the level of information asymmetry in a setting where the

empirical proxies for REM may be capturing situations related to business circumstances rather than earnings manipulation. As a result, the authors claim that private information production and its impact on market information asymmetry are affected by firm circumstances.

In addition, Trang and Linh (2020) investigate the impact of earnings management on market liquidity. They use the fixed-effect model (FEM) to analyze financial data from a sample of 170 firms listed on the Vietnam Stock Exchange from 2013 to 2016. According to their findings, there is a positive relationship between earnings management level and equity liquidity. Furthermore, they discuss stock liquidity determinants such as earnings management, firm size, daily stock returns, and daily trading dollar volume of stock. In addition, Trang and Linh (2020) suggest that earnings management behavior influences market liquidity, which means that an increase in earnings management may lead to an increase in market liquidity. Furthermore, these empirical results highlight the issues of the frontier market which implies that investors are typically drawn to company earnings and tend to exercise these earnings. As a result, short-term speculators investigate this opportunity in search of a quick and high return while ignoring the degree of earnings management.

As a result, the following hypotheses are developed:

H_{1a}: There is a positive impact of Accrual-based earnings management activities on Market Liquidity for UK SEOs.

H_{1b}: There is a positive impact of Real-based earnings management activities on Market Liquidity for UK SEOs.

3.5.2 Earnings Management and Financial Performance

Several studies (such as Mizik, 2010; Ardekani et al., 2012; De Jong et al., 2014; Tabassum et al., 2015; and Vorst, 2016) confirm the existence of a negative impact of earnings management on financial performance, while others suggest a rather positive one (Dechow et al., 1995; Gunny, 2010; Gunny and Zhang, 2014; Al-Shattarat et al., 2018; Jiang et al., 2018).According to Bens et al. (2002), real-based earnings management has a negative effect on both firm value and financial performance. Similarly, Graham et al. (2005) and Roychowdhury (2006) show that firms engaging in REM to meet specific financial reporting benchmarks suffer from a negative impact on their subsequent financial performance. According to Lim et al. (2008), firms that practice a higher level of earnings management are entitled to a long-term underperformance of their SEO. However, the decline in post-SEO performance caused by real earnings management is more severe than that caused by accrual management (Cohen & Zarowin, 2010). Also, Cohen and Zarowin (2010) find that real-based earnings management has a significant negative impact on future financial operating performance. In addition, Yang et al. (2016) show that not all firms with earnings management outperform after SEOs. They claim that aggressively earnings-managing firms with financial constraints and a high risk of distress may perform

well after SEOs. As a result, Yang (2016) imply that financially constrained firms fairly signal their post-issue profitability as a result of the elimination of operational inflexibility.

However, Al-Shattarat et al. (2018) examine the relationship between REM and financial performance. Consistent with Gunny's (2010) and Zhao et al.'s (2012) findings, they show that UK firms that engage in REM to meet earnings targets do not always have significant negative consequences for subsequent operations.

According to the authors, this is consistent with the signaling earnings management argument, in which firms engage in REM to signal future good performance and differentiate themselves from poor performance. Hence, Al-Shattarat et al. (2018) state that REM improves investors' ability to predict firm performance. In addition, using a sample of 158,587 firm-year observations from 29 countries between 2001 and 2015, Jiang et al. (2018) study the impact of EM on the future financial performance of companies. They show that current-period real earnings management has a significantly positive impact on the future performance of firms, especially those that are present in countries with strict institutional environments. Moreover, they find that this positive effect is shown during a non-economic crisis period. Their findings are consistent with Al-Shattarat et al.'s (2018) findings, which indicate a positive relationship between these variables.

Moreover, Gunny and Zhang (2014) investigate the relationship between managers' usage of meeting analyst forecasts through earnings management and signaling private information while providing evidence from patent citations. They find that REM may be

beneficial or detrimental to firm performance, and it necessitates a better understanding of the conditions under which REM is used from an informational or opportunistic perspective. Also, the authors show that companies are more likely to use income-increasing accruals management to meet analyst expectations when they have favorable patent information. Similar to Tabassum et al. (2015), Vorst (2015), and Jory et al. (2018), Chakroun & Ben Amar (2019) show that EM can also positively impact financial performance in terms of the French context. Consistent with Gunny (2010) and Al-Shattarat et al. (2018), this result is associated with the informative perspective of EM. Through a sample of 311 French companies that are listed on the CAC-all-tradable index, between 2010 and 2014, Chakroun & Ben Amar (2019) investigate the impact of earnings management on financial performance. They state that managers seek to enhance the informative content of accounting figures; which in turn enables investors to more accurately value the firm and develop investment portfolios. Hence, Chakroun & Ben Amar (2019) suggest that earnings management can be beneficial to a company's financial performance.

Similarly, Alsharairi et al. (2020) examine the impact of real earnings management on future profitability for Jordanian industrial firms listed on the Amman Stock Exchange (ASE) from 2012 to 2017. Following Roychowdhury (2006), the authors use abnormal sales and abnormal production as proxies in the regression analysi. Alsharairi et al. (2020) discover that REM through abnormal sales has no effect on the firms' future profitability. They show that the firm's future profitability reacts differently to different real earnings management strategies

Based on the above discussion, the following hypotheses are developed:

H_{2a}: There is a positive impact of Accrual-based earnings management activities on the Financial performance of UK SEOs.

H_{2b}: There is a positive impact of Real-based earnings management activities on the Financial performance of UK SEOs.

3.6 Variables Measurement

For this research, earnings management (EM) will be measured in two ways: accrual and real-based earnings management. Accrual earnings management (AEM) will be measured through two proxies: Abnormal Current Accruals (A_CA) and Abnormal Total Accruals (A_TA). On the other hand, real-based earnings management (REM) will be measured by 3 proxies: abnormal cash flows from operations (A_CFO), abnormal production costs (A_PROD), and abnormal discretionary expenses (A_DISX). Concerning market liquidity, the Quoted Bid-Ask Spread (QBA) is used as a primary measure and the Bid-Ask Spread (DIFFBA) as a measure for robustness check. According to the previous literature (such as Abdel Razek, 2014), QBA is calculated by dividing the difference between the daily bid and ask prices by the average of the daily bid and ask prices. Also, the daily bid and ask price values are extracted from Refinitiv Workspace and Datastream. Moreover, return on equity (ROE) and return on assets (ROA) are used as financial performance proxies. We

chose five control variables: Leverage (LEV) is taken as a proxy for capital structure (Gao et al., 2015; Xu & Ji, 2016; Ngo et al., 2019). Second, firm growth is measured by the ratio of the difference in revenues between the years *t* and *t – 1* and divided by the revenues of year *t – 1* (Botsari and Meeks, 2018; Deng et al., 2018). Third, firm size is calculated by finding the log of total assets (Abad et al., 2018; Deng et al., 2018; Trang & Linh, 2020). After that, we choose tangibility, which represents net property, plant, and equipment (PPE) divided by the total assets of the company (Kaya et al., 2012; Ngo et al., 2019). Finally, the price reciprocal is used as a proxy that represents (1/end-of-year closing price). Table 1 represents the variables' descriptions and the sources of each item.

Table 1: Variables Description

Variable	Symbol	Definition/Measurement	Source
Abnormal Current Accruals	A_CA	Difference between current accruals and normal or non-discretionary accruals	Refinitiv Workspace/Datastream
Abnormal Total Accruals	A_TA	Difference between total accruals and non-discretionary or normal accruals	
Abnormal Cashflows from Operations	A_CFO	Difference between actual CFO and normal level of CFO	
Abnormal Production Costs	A_PROD	Difference between actual value of the production costs and its normal level	
Abnormal Discretionary Expenses	A_DISX	Difference between discretionary expenses and their value at their normal level	
Aggregate Real Earnings Management	AREM	Composite measure of real earnings management of firm which combines the three real-based earnings management proxies	
Quoted Bid-Ask Spread	QBA	Difference between the daily bid and ask prices by the average of the daily bid and ask prices	
Bid-Ask Spread	DIFFBA	Difference between the Ask and Bid Prices	
Return on Equity	ROE	Net income to total equity	
Return on Assets	ROA	Net income to total assets	
Leverage	LEV	Total debt to total assets	
Firm Growth	GRTH	Difference between last years' revenues and the current year ones divided by the revenues of the previous year.	
Firm Size	SIZE	Log of total assets	
Tangibility	TANG	Net Property, Plant, and Equipment divided by Total Assets	
Reciprocal of Price	RECIP	Reciprocal of the end-of-year closing price	

3.6.1 Accrual-based Earnings Management

For the purposes of this study, accrual-based earnings management (AEM) is measured in two ways: discretionary current accruals (A CA) and discretionary total accruals (A TA), using the cross-sectional version of the modified Jones model (Jones, 1991; Dechow et al., 1995), with modifications suggested by Kothari et al (2005). Dechow et al. (1995) report that the Jones and modified-Jones models (i.e., the modification by Dechow et al.) perform the best among the various discretionary accrual models. The modified-Jones model

attributes the entire change in receivables to earnings management, whereas the traditional-Jones model does not. We begin by looking at the Jones and modified-Jones models. The difference between the Jones model discretionary accrual and the corresponding discretionary accrual for a performance-matched firm is used to calculate the performance-matched Jones model discretionary accrual. Because it is easier to manage earnings by exercising discretion over the recognition of revenue on credit sales than to manage earnings by exercising discretion over the recognition of revenue on cash sales, the modified-Jones model implicitly assumes that all changes in credit sales in the event period result from earnings management (Botsari and Meeks, 2008).

Following Botsari and Meeks (2008), investment bankers have a high tendency to manage their earnings through current accruals. Furthermore, we use total accruals for robustness checks because they can indicate overinvestment and/or agency issues between managers and stockholers. The difference between current and total accruals is the depreciation and amortization expense, which is related to fixed assets and company size (Dionysiou, 2015). Ball and Shivakumar (2008) and Armstrong et al. (2009) argue that using the year of the event as the test year may overestimate discretionary accruals because this year is accompanied by large increases in working capital, which will inflate discretionary accrual measures. As a result, we calculate EM in the year preceding the SEO issue date , assuming that firms manage earnings prior to the SEO issue date (DeFond and Park, 2001; Dechow et al., 2012; Higgins, 2013).

To account for accrual-based earnings management activities, discretionary accruals (DA) must be differentiated from non-discretionary (NDA) ones. To calculate DA and NDA, the Modified Jones model as adjusted by Kothari et al (2005) will be implemented in this study. It will be based on the cash-flow approach of the current accrual model. To check for robustness, the cash-flow approach of total accruals will be used. A cross-sectional

regression for each industry and year combination will be estimated. Starting with the basic equation, we estimate non-discretionary accruals based on the cash-flow approach of the actual current accrual model:

$$\frac{CAC_{ij,t}}{TA_{ij,t-1}} = a_0\left(\frac{1}{TA_{ij,t-1}}\right) + a_1\left(\frac{\Delta REV_{ij,t}}{A_{ij,t-1}}\right) + a_2\left(ROA_{ij,t}\right) + \varepsilon_{ij,t} \qquad (1)$$

Whereas:

$CAC_{ij,t}$: the current accruals for a firm I in portfolio j for year t;

$TA_{ij,t-1}$: Total assets for a firm i in portfolio j for year t-1;

$\Delta REV_{ij,t}$: The change in revenues for a firm i in portfolio j for year t;

$ROA_{ij,t}$: Return on an asset for a firm i in portfolio j for year t;

$\varepsilon_{ij,t}$: Residual term for a firm i in portfolio j for year t

Consistent with Kothari et al. (2016), Sohn (2016), Mostafa (2017), and Khunkaew & Qingxiang (2019), all variables in the above regression model, except $ROA_{ij,t}$, are scaled by lagged total assets ($TA_{ij,t-1}$) to reduce heteroskedasticity. The estimation of coefficients a_0, a_1, and a_2 for industry and year combination is based on the 2 same-digit SIC classification in order to allow for a more efficient estimation of the OLS regression parameters by excluding observations less than 10 of each industry group (Iqbal et al., 2009; Alhadab et al., 2016).

Then, discretionary accruals, which are signified by the error term in the model, are estimated by subtracting the calculated non-discretionary current accruals from the actual current ones.

Current accruals are calculated from the cash flow statement as net income before extraordinary minus cash flow from operations minus depreciation and amortization (D&A), as shown below: NI (World scope yearly data item WC04001) - CFO (World Scope yearly data item WC0420I + WC04831) - D&A (World scope yearly data item WC0405I).

Following the cash-flow approach also, the normal or non-discretionary accruals ($NCAC_{ij,t)}$ are calculated as follows:

$$NCAC_{ij,t} = \hat{a}_0\left(\frac{1}{A_{ij,t-1}}\right) + \hat{a}_1\left(\frac{\Delta REV_{ij,t} - \Delta REC_{ij,t}}{A_{ij,t-1}}\right) + \hat{a}_2\left(ROA_{ij,t}\right) \qquad (2)$$

Whereas:

$\Delta REC_{ij,t:}$ Change in accounts receivable for a firm I in portfolio j for year t

The reported revenues of the firm ($\Delta REV_{ij,t}$) are adjusted for the change in accounts receivable ($\Delta REC_{ij,t}$) to take into consideration any possible accounting discretion arising from credit sales (Defond and Jiambalvo, 1994).

Therefore, by subtracting non-discretionary accruals (2) from actual current accruals (1), discretionary accruals will be obtained and in turn, represent a direct measure of accrual-based earnings management.

$$DCAC_{ij,t} = \frac{CAC_{ij,t}}{A_{ij,t-1}} - NCAC_{ij,t} \qquad (3)$$

A zero value of discretionary accruals indicates normal current accruals for firm i in year t and hence no earnings management is detected. A positive value, on the other hand, indicates that a firm's current accruals exceed their normal levels, implying that earnings are being managed upward. A negative value, on the other hand, indicates a downward manipulation and that a firm's current accruals are lower than expected.

To check for robustness, the total accrual method will be implemented.

$$\frac{TAC_{ij,t}}{TA_{ij,t-1}} = a_0\left(\frac{1}{TA_{ij.t-1}}\right) + a_1\left(\frac{\Delta REV_{ij,t}}{TA_{ij,t-1}}\right) + a_2\left(\frac{PPE_{ij,t}}{TA_{ij,t-1}}\right) + a_3\left(ROA_{ij,t}\right) + \varepsilon_{ij,t} \quad (4)$$

Whereas:

$TAC_{ij,t}$: the total accruals for a firm i in industry group j for year t;

PPE*ij, t:* the gross property, plant, and equipment for firm i industry group j for year t.

Total Accruals are calculated from the cash flow statement as net income before extraordinary minus cash flow from operations. NI (Worldscope yearly data item WC04001) - CFO (WorldScope yearly data item WC0420I + WC04831)

Furthermore, using the same estimates as those of equation (4), the normal or non-discretionary total accruals ($NTAC_{ij,t}$) is estimated as follows:

$$NTAC_{ij,t} = \hat{a}_0\left(\frac{1}{TA_{ij.t-1}}\right) + \hat{a}_1\left(\frac{\Delta REV_{ij,t} - REC_{ij,t}}{TA_{ij,t-1}}\right) + \hat{a}_2\left(\frac{PPE_{ij,t}}{TA_{ij,t-1}}\right) + \hat{a}_3\left(ROA_{ij,t}\right) \quad (5)$$

Hence, discretionary accruals will be computed as the difference between total accruals (4) and normal or non-discretionary total accruals (5):

$$DTAC_{ij,t} = \frac{TAC_{ij,t}}{TA_{ij,t-1}} - NTAC_{ij,t} \quad (6)$$

As a result, when the value of the discretionary accrual is zero, earnings management is undetected, and the firm's overall total accruals in year t are normal. As total accruals exceed their typical levels, a positive figure implies that the corporation manages its earnings upward. Finally, a negative value indicates that the firm's actual accruals are lower than expected, indicating downward earning management.

3.6.2 Real-based Earnings Management

Prior US studies by Roychowdhury (2006), Cohen and Zarowin (2010), Ibrahim et al. (2011), and Zang (2012) find that real earnings management activities can be carried out by the three methods listed below:

(1) Sales manipulation by accelerating the timing of sales through raising the price discounts or more lenient credit terms, which will result in a temporary increase in sales and boost sales levels.

(2) Manipulation of discretionary expenditures by lowering advertising and R&D costs as well as selling, general, and administrative (SG&A) costs. The reduction in these discretionary expenditures will boost current period earnings, especially if they do not generate immediate revenues and income.

(3) Manipulation of production by overproducing goods to meet expected demand and boost earnings.

Recent studies (such as Hoang et al., 2017; Kassamany et al., 2017; Abad et al., 2018; Haga et al., 2018; Khunkaew & Qingxiang, 2019; and Cherif et al., 2020) use three main proxies for real earnings management. These proxies concentrate on the following manipulation metrics: the abnormal levels of cash flow from operations (CFO), discretionary expenses, and production costs. According to Roychowdhury (2006), firms' managers use several methods to affect these variables and achieve their reporting margin aims. The following models will be adopted to estimate the abnormal levels of the above proxies:

$$\frac{CFO_{ij,t}}{TA_{ij,t-1}} = a_0 \frac{1}{TA_{ij,t-1}} + a_1 \frac{REV_{ij,t}}{TA_{ij,t-1}} + a_2 \frac{\Delta REV_{ij,t}}{TA_{ij,t-1}} + e_{ij,t} \quad (7)$$

Whereas:

$CFO_{ij,\,t:}$ cash flow from operations for a firm i in industry group j in year t.

The estimation of coefficients a_0, a_1, and a_2 for each industry and year combination done following the OLS regressions are used to calculate the normal level of CFO. So that Abnormal CFO (ACFO) is actual CFO (World scope yearly data items WC04201 plus WC04831) minus normal CFO computed using the estimated parameters from equation (7).

Moreover, production costs are defined as the sum of the cost of goods sold (COGS) (Worldscope yearly data item WCOIO51) and change in inventory (World scope yearly data item WCO210I) during the year. Normal COGS will be modeled as a linear function of the current sales, which equals to:

$$\frac{COGS_{ij,t}}{TA_{ij,t-1}} = a_0 \frac{1}{TA_{ij,t-1}} + a_1 \frac{REV_{ij,t}}{TA_{ij,t-1}} + e_{ij,t} \quad (8)$$

In addition, inventory growth is modeled as a linear function of the current and previous changes in sales:

$$\frac{\Delta INV_{ij,t}}{TA_{ij,t-1}} = a_0 \frac{1}{TA_{ij,t-1}} + a_1 \frac{\Delta REV_{ij,t}}{TA_{ij,t-1}} + a_2 \frac{\Delta REV_{ij,t-1}}{TA_{ij,t-1}} + e_{ij,t} \quad (9)$$

Therefore, using both equations (8) and (9), the normal level of production costs is estimated as:

$$\frac{PROD_{ij,t}}{TA_{ij,t-1}} = a_0 \frac{1}{TA_{ij,t-1}} + a_1 \frac{REV_{ij,t}}{TA_{ij,t-1}} + a_2 \frac{\Delta REV_{ij,t}}{TA_{ij,t-1}} + a_3 \frac{\Delta REV_{ij,t-1}}{TA_{ij,t-1}} + e_{ij,t} \quad (10)$$

Abnormal production costs (A_PROD) are the actual production costs minus normal production costs which are computed using the estimated parameters of equation (10). Normal discretionary expenses can be modeled as a linear function of sales, as follows:

$$\frac{DISX_{ij,t}}{TA_{ij,t-1}} = a_0 \frac{1}{TA_{ij,t-1}} + a_1 \frac{REV_{ij,t}}{TA_{ij,t-1}} + e_{ij,t} \quad (11)$$

Nonetheless, this creates an obstacle for the firm if its managers decide to increase sales to show a positive effect on its reported earnings during a certain period. To address the issue of equation (11), discretionary expenses will be modeled as a function of lagged sales as shown in the following equation:

$$\frac{DISX_{ij,t}}{TA_{ij,t-1}} = a_0 \frac{1}{TA_{ij,t-1}} + a_1 \frac{REV_{ij,t-1}}{TA_{ij,t-1}} + e_{ij,t} \quad (12)$$

Using the estimated parameters of equation (12), abnormal discretionary expenses (A_DISX) equal actual expenses minus normal discretionary expenses. In brief, CFO is the cash flow from operations in period t, PROD equals the production costs in period t and is estimated as the sum of the cost of goods sold and change in inventory during a specific year. DISX refers to the discretionary expenditures in period t and is calculated as the sum of advertising expenses, research, and development (R&D), and selling, general, and administrative expenses (SG&A). Moreover, the abnormal CFO (A_CFO), abnormal production costs (A_PROD), and abnormachoil discretionary expenses (A_DISX) are estimated as the actual values minus the normal levels computed in equations (7), (10), and (12) respectively.

In brief, for a given level of sales, upwardly manipulated reported earnings are more likely to be detected if firms engage in one or more of the following: unusually low cash flow from operations, and/or low discretionary expenses, as well as high production costs. Accrual and real-based earnings management are measured in the preceding year of the offer date, and consistent with Ibrahim et al. (2011), who believe that managers' incentives to manage earnings are the most powerful at that time. The offering year (year t) and pre-

offering year (year t-1) are determined like Cohen and Zarowin (2010) and Ibrahim et al. (2011). We examine earnings management behavior in the year preceding the offering. This is usually followed in earnings management research because the incentives to manage earnings are greatest in the year preceding the offering.

Furthermore, we use an aggregate proxy for REM as a robustness check. Before averaging, the following procedure converts DCF, DPROD, and DDISEXP into standardized variables. AREM thus captures the sum of Roychowdhury's (2006) real earnings management strategies. In comparison to other studies that simply add DCF, DPROD, and DDISEXP (e.g. Cohen and Zarowin 2010), our method is advantageous because our standardization process may alleviate concerns about adding variables with different distributions.

$$AREM_{i,t} = \left[\frac{A\_CFO_{i,t} - \overline{A\_CFO_{t,k}}}{\sigma(A\_CFO)_{t,k}} + \frac{A\_PROD_{i,t} - \overline{A\_PROD_{t,k}}}{\sigma(A\_PROD)_{t,k}} + \frac{A\_DISX_{i,t} - \overline{A\_DISX_{t,k}}}{\sigma(A\_DISX)_{t,k}} / 3\right] \qquad (13)$$

where AREM is the composite measure of real earnings management of firm i in year t; $\overline{A\_CFO_{t,k}}$, $\overline{A\_PROD_{t,k}}$, $\overline{A\_DISX_{t,k}}$ [$\sigma(A\_CFO)_{t,k}$, $\sigma(A\_PROD)_{t,k}$, $\sigma(A\_DISX)_{t,k}$] are, respectively, the mean (standard deviation) of A_CFO, A_PROD, and A_DISX.

A_CFO, A_PROD, and A_DISX capture three dimensions of real earnings management: sales activity manipulation, production activity manipulation, and discretionary expense manipulation. These three methods of managing earnings could be used interchangeably,thusa manager could manipulate earnings by changing real operation

decisions in one or two of the three areas, but not necessarily all of them at the same time. Hence, when the context indicates that a firm is inflating earnings and it decides to do so through sales manipulation, this is enough to consider that managers are enagging in REM.

3.6.3 Market Liquidity

Demsetz (1968) first developed the bid-ask spread as a way to estimate how liquid a firm's stocks are. The stock market's liquidity can be measured practically by combining all of its components (volume, time, and price). According to Ascioglu et al. (2012) and Kan (2013), the ask-bid spread is used as a measure of the liquidity of firms' securities. These studies claim that firms engage in earnings management as a result of high adverse selection costs, which widen the ask-bid spread and lower their market liquidity. Ajina and Habib (2017) state that it is expected that the market will be less liquid as the bid-ask spread widens. Moreover, the adverse selection issue that results from trading in firm shares in the presence of asymmetrically aware investors is addressed by the bid-ask spread.

In our study, we follow this method where we calculate the spread [1]for each sample value between ask and bid prices divided by the average of the two prices. Refinitiv Workspace is used to extract the daily bid and ask price values. Similar to Ginglinger et al. (2013), Elshandidy and Neri (2015), and Ajina and Habib (2017), the mean is calculated by

[1] "The quoted bid-ask spread, defined as the difference between the ask and bid prices divided by the quote midpoint" (Ginglinger et al., 2013).

dividing the difference between the daily bid and ask prices by the average of the daily bid and ask prices.

According to Abad et al. (2018), the bid-ask spread, is a widely used measure of market liquidity. It includes a component related to the protection of liquidity providers from being adversely selected. Furthermore, we choose two liquidity proxies: quoted and bid-ask spreads.

$$Quoted\ Spread = \frac{Askt - Bidt}{\frac{Askt + Bidt}{2}} \quad (14)$$

$$DIFFBA = Askt - Bidt \quad (15)$$

Whereas:

$Bidt$: the bid price

$Askt$: ask price

3.6.4 Financial Performance

Several accounting and market-related measures are widely used in the literature to identify the concept of financial performance (Pava and Krausz, 1996; Moore, 2001; Seifert et al., 2004). In fact, our methodology is based on two accounting measures, Return on Assets (ROA) and Return on Equity (ROE). These measures are commonly used by researchers and allow us to consider various firm characteristics, which justifies their selection in our

paper (Abdel Razek, 2014; Sharif and Lai, 2015; Jiang et al., 2018; Chakroun & Ben Amar, 2019).

ROA stands for the efficiency of invested capital and demonstrates its ability to generate a certain level of operating profit. It is calculated using the following formula: ROA = Net Income divided by Total Assets.

Several researchers have used ROE, including Lehman and Weigand (2000), Brown and Caylor (2004), and Bouaziz (2007). ROE stands for return on equity and demonstrates the ability of shareholder capital to generate a certain level of net profits. ROE is calculated using the following formula: ROE is calculated as Net Income / Total Equity. We use ROE as the main proxy for examining the impact of both accruals- and real-based earnings management on financial performance and ROA as a robustness check for validating our results.

3.6.5 Control Variables

Following prior studies (Cohen et al., 2008; Gunny, 2010; Zang, 2012; Abad et al., 2018; Deng et al., 2018; Sitanggang et al., 2019; Trang & Linh, 2020), we have included a set of variables in the regression models to control for firm characteristics and institutional effects. Abner and Ferrer (2018) show that firm size has a significant negative effect on ROE. Thus, higher total assets reduce ROE, which implies that firm size is negatively correlated with ROE, which contradicts the findings of Mohammadoor's study (2014). However, Abner and Ferrer (2018) find that firm size has a positive impact on ROA, implying that as a company grows, it discovers and capitalizes on better market

opportunities and other strategic advantages, resulting in higher ROA. This is consistent with Gao et al. (2015) and Chakroun and Ben Amar (2019), who find that ROA is positively correlated with firm size. Firm size has a positive and significant impact on the quality of corporate governance, level of performance, and earnings quality (El Zahaby, 2021). El Zahaby (2021) states that larger firms are better able to comply with corporate governance mechanisms, improve their level of performance, and improve the quality of their reported earnings.

Abner and Ferrer (2018) show that firm leverage has a significant negative impact on ROE. This could be due to the inefficient use of debt financing by the company. In addition, El Zahaby (2021) finds that leverage has a negative and significant effect on the quality of corporate governance, the level of performance, and the quality of earnings. This result is also consistent with previous research, which indicates that highly leveraged firms are less likely to adhere to corporate governance standards, have less ability to monitor their level of performance, and are more willing to engage in earnings management practices (Abbadi et al., 2016).

According to Ajina and Habib (2017), the bid-ask spread appears to decrease as the company's size grows. A significant but not negative relationship was discovered. This result supports the notion that small-cap company shares are less liquid than large-cap company shares. This result has also been demonstrated by Heflin et al. (2005) and Lafond et al. (2007). Moreover, Al-Jaifi (2017) states that firm size is one of the control variables that affect market liquidity. He shows that large companies have more information available to investors. Also, the author finds that larger firms significantly have high stock market liquidity.

Furthermore, Al-Jaifi (2017) finds that firms suffering from greater leverage levels have a negative impact on stock liquidity. This is consistent with Yu-Thompson et al. (2016), who show that the leverage ratio is significantly and negatively related to corporate liquidity.

Concerning how the tick-size (the reciprocal of the end-of-year closing price) affects market liquidity, Al-Jaifi (2017) discovers that higher stock liquidity is considerably demonstrated by companies with a higher reciprocal share price. Consistent with Munisi et al. (2014), Al-Jaifi (2017) claim that because tangible asset payoffs are simpler to perceive, there is less information asymmetry. Hence, tangibility has a positive impact on market liquidity.

Furthermore, the year effect and industry effect are included as dummy variables to account for potential variations. Florio and Leoni (2017) and El Zahaby (2021) state that the type of industry has no significant effect on all the main constructs.

3.7 Empirical Model

Because we are working with panel data, we can run three regression models: pooled Ordinary Least Squares (OLS), fixed effect, and random effect. While pooled OLS assumes bank homogeneity, the fixed and random effects assume unobserved bank heterogeneity. A statistical model with a fixed effect has model parameters that are not random. Its purpose is to "study the causes of changes within a person or entity because time-invariant characteristics cannot cause such a change because they are constant for each person or entity" (Torres-Reyna, 2007, p.23). In contrast, the random effect considers all or some of

the model parameters as random variables/quantities. If a researcher believes he did not leave out any variables that may be uncorrelated with the independent variables in the model, a random effect model is recommended because "it will produce unbiased estimates of the coefficients, use all available data, and produce the smallest standard errors" (Williams, 2017, p.1). On the other hand, if there are omitted variables that are correlated with the variables in the model, "then fixed effects models may provide a means of controlling for omitted variable bias," according to the authors (Williams, 2017, p.1).

We use a fixed-effect model (FEM) to investigate the impact of earnings management on market liquidity and financial performance because it is a reasonable method to use with our sample data and also provides reliable results. Moreover, we obtain statistical inferences such as mean, standard deviation, minimum, and maximum values. Furthermore, to guarantee unbiased results and account for any multicollinearity problem, we test the correlation between the variables through Pearson correlation and Variance Inflation Factor (VIF) and Tolerance Test method.

There are K regressors in a multiple linear regression model. In other words, it is a model with multiple independent variables (Brooks, 2008). In our study, we examine the impact of earnings management (accrual and real-based) on market liquidity through the quoted bid-ask spread (QBA) while applying 4four models by using each of the current and total accruals in two separate regressions, the three proxies of REM, a new aggregate[2] REM proxy rather than the three known separate proxies and the remaining control variable.

[2] The aggregate measure of REM combines the three method of real earnings management, namely the manipulation of sales activities, production activities, and discretionary expenses. Managers would manipulate earnings by changing real operations decisions in one or two of the three areas, not necessarily all three at the same time. Hence, it is important to estimate an overall measure rather than just the individual ones (Nguyet et al., 2022).

In order to measure the impact of earnings management on the financial performance of SEO companies, we will use Return on Equity (ROE) as a proxy in line with previous literature (Abdel Razek, 2014; Sharif and Lai, 2015, El Zahaby, 2021). Moreover, we examine the impact of earnings management on both market liquidity and financial performance while using the DIFFBA and ROA, as robustness checks .

$$QBA(ROE) = \alpha_0 + \beta_1 A\_CA(A\_TA) + \sum_{i=1}^{3} \beta_i REM(AREM) + \sum_{j=1}^{5} \beta_j CTRL + \sum \beta_k IND + \sum \beta_l YEAR + \varepsilon_t \qquad (15)$$

Where:

A_CA = Discretionary Current Accruals

A_TA = Discretionary Total Accruals

$\sum_{i=1}^{3} \beta_i REM =$ Where REM includes each of the 3 proxies: ACFO, APROD, AND ADISX

ACFO = Abnormal Cash Flow from Operations

APROD = Abnormal Production Costs

ADISX = Abnormal Discretionary Expenses

$$AREM_{i,t} = \left[\frac{A\_CFO_{i,t} - \overline{A\_CFO_{t,k}}}{\sigma(A\_CFO)_{t,k}} + \frac{A\_PROD_{i,t} - \overline{A\_PROD_{t,k}}}{\sigma(A\_PROD)_{t,k}} + \frac{A\_DISX_{i,t} - \overline{A\_DISX_{t,k}}}{\sigma(A\_DISX)_{t,k}} / 3 \right]$$

$\sum_{j=1}^{5} \beta_j CTRL =$ Where CTRL includes five variables: LEV: Total debt to total assets; GRTH: Difference between last year's revenues and the current year ones divided by the

revenues of the previous year; SIZE: Log of total assets; TANG: Net Property, Plant, and Equipment divided by Total Assets; 1/P: Reciprocal of the end-of-year closing price.

IND = Dummy variable for industry relatedness including the eleven industries of the sample.

YEAR = Dummy variable for year relatedness of each year between 2000.
and 2020.
ε_t = Residual term.

3.8 Data Sources

Following the research strategy proposed previously, this section explains the data collection tools and methods, highlighting the tactics of this research. Since this study relies on secondary data sources, data collection will include two steps. The first step in collecting secondary data is extracting a representative sample of UK Seasoned Equity Offerings (SEOs) from Refinitiv Workspace. Moreover, we collect data for all selected variables including earning management ones from DataStream[3].

The second step in the data collection process entails obtaining the necessary financial data on Refinitiv DataStream to estimate the annual proxies for accrual- and real-based earnings management in the year immediately prior to the SEO announcements In addition, all the available and collected data are cleaned, organized, and prepared for statistical analysis.

[3]DataStream is an industry-leading analytical data source that allows for the detailed exploration of data series relationships (*Refinitiv DataStream*, 2021).

3.9 Sampling Procedures

This research covers all UK public companies that underwent an SEO in the twenty-year extended from January 1, 2000, till 31 December 2020. It considers the years 1999-2019 for the SEO sample as the year prior to the offering is being used to test for EM activities (Botsari and Meeks, 2018). According to Alhadab et al. (2016) and Alhadab (2017), the requirements and characteristics of the UK markets differ in terms of auditor liability, types of prohibited audit services, corporate governance mechanisms, and disclosure system listing requirements. Hence, it would be of great interest to investigate earnings management behavior in a highly regulated financial hub that attracts a diverse pool of investors, such as the UK.

The period is particularly interesting because the UK experienced significant changes in corporate governance arrangements, beginning with t the mandatory IFRS, which came into effect in 2005. For further analysis, the period will be divided into two periods. The pre-IFRS phase covers the period from January 1, 2002, to December 31st, 2004; and the post-IFRS phase covers the period from January 1, 2005, to December 31st, 2007. Moreover, we decided to study the period that covers the Global Financial Crisis (GFC) to check its influence on the impact of earnings management on market liquidity and financial performance. The Financial Crisis period covers the years 2008-2009. Hence, the post-FC phase covers the period from January 1, 2010, till December 31st, 2012. Furthermore, we take into consideration another interesting event that occurred in 2016 which is Brexit. Since previous studies state that the Brexit Referendum happened on the 24th of June, 2016,

and to have a balance in the periods being studied and not overlap with other ones, we choose the Pre-Brexit period from January 1, 2013, till December 31st, 2015 and the post-Brexit phasefrom January 1, 2017 till December 31st, 2019.

In terms of sampling, this study is conducted on the entire population of non-financial firms of SEOs listed on the London Stock Exchange (LSE) and is thus considered a census, providing a complete list of the population. This eliminates the study's sample's non-random selection and representativeness complications. Furthermore, a census sampling method covers all members of a population, resulting in accurate results and making it a highly reliable tool for research. Botsari and Meeks (2018) state that the UK accounts for the greater majority of European deals.

The sample in this study includes UK firms that underwent an SEO in the twenty years from 1 January 2000 till 31 December 2020. The initial sample is composed of 12,259 UK SEOs . To be included in the final sample, each seasoned equity announcement must meet the following criteria:

- Given that SEO is a new issue of common stocks by a firm that has already been publicly traded to new or existing shareholders. UK SEO firms must be publicly listed companies and traded on the London Stock Exchange (LSE). This limits the sample count to 11,484 SEOs.

- Furthermore, the sample is restricted to all non-financial firms since firms in a financial sector are subject to unique accounting procedures and requirements that

may differ substantially from other sectors. This reduces the sample to 9,270 SEOs firm-year observations.

- Also, this research study excludes SEOs with proceeds less than GBP 1 million. This limits the sample count to 6,880. Furthermore, Rights[4] offerings are excluded which reduces the sample to 6,691 SEOs.

- While collecting data, some SEO firms did not have DataStream codes. This further reduces the sample to 6,562 SEOs. In addition, it is required that each firm-year observation has the financial data necessary to compute discretionary accruals metrics and real earnings management proxies; otherwise, it is dropped out of the sample. This reduces the sample count to 5,209.

- In addition, to account for SEOs by the same firm in adjacent fiscal periods, this sample keeps only one firm-year observation of that adjacent period to prevent confounding multiple transactions. This reduces the sample count to 3,083.

- In addition to excluding observations due to insufficient data, a small number of observations are deleted to mitigate the effects of outliers.We eliminate companies with missing values and use the mean plus/minus 3 standard deviation rule to check

[4] "In the Listing Rules of the London Stock Exchange, a Rights Issue is defined as: an offer to existing holders of securities to subscribe or purchase further securities in proportion to their holdings made by means of the issue of a renounceable letter (or other negotiable document) which may be traded (as 'nil paid' rights) for a period before payment for the securities is due." (Listing Rules, London Stock Exchange, 1998).

the distribution of variables in the study and exclude extreme values to mitigate the effect of possible outliers (Callao et al., 2020).

This results in a final sample of 2,494 SEO firm-year observations for accrual-based earnings management and 629 SEO firm-year observations for real-based management. The detailed sample selection procedure is illustrated in Table 2.

Table 2: Sampling Procedure

Description	**No. of Observations**	
	Accrual-based EM	**Real-based EM**
Initial Sample: UK SEOs between 01/01/2000 and 31/12/2020	*12,259*	*12,259*
Exclude:		
SEO firms in the Financial & Real Estate industries	2,989	2,989
Proceeds < 1 Million GBP[a]	2,390	2,390
Rights[b]	189	189
Missing DataStream Codes	129	129
Observations with unavailable data	1353	3639
SEO by same firm in adjacent years[c]	2,126	2,126
Industries (SIC Codes) with less than 10 Observations	132	76
Outliers[d]	457	92
Final Sample	*2,494*	*629*

Notes:
[a]To avoid possible skewness in our findings due to a large number of small issues, we exclude all issues with proceeds of less than £1 million (Andrikopoulos, 2017);
[b]We exclude rights offerings from our sample due to having blockholdings, current shareholders' takeup, and illiquidity as an indirect cost (Gao and Ritter, 2010; Ginglinger et al., 2013; Gao et al., 2015). This includes capital gains taxes (Smith, 1977), differences in prior share ownership (Hansen and Pinkerton, 1982), shareholder selling costs (Hansen, 1988) and adverse selection costs (Eckbo and Masulis, 1992).
[c]SEOs by the same firm in the same year are excluded from the final sample because this confounds the results;
[d]In addition to the unavailable data, a few observations for some control variables are deleted to mitigate the effects of outliers; the mean plus/minus 3 standard deviation rule is used to check the distribution of these variables and exclude extreme values.

Table 3 shows the distribution of the final sample comprising 2,494 SEO firm-year observations for accrual-based earnings management methods and 629 SEO firm-year observations for real-based ones. Sincethe financial data required to compute real methods contained more missing records than the discretionary accruals metrics, the final sample for real methods was smaller than that for accrual-based methods. As a result, the final sample used in the computation of accruals manipulations will be considered for a more representative reading of SEOs distribution over time.

Table 3: Distribution of SEO Sample by Year and Industry

Year	Frequency	Percentage (%)
Panel A: Distribution of SEO Sample by year		
2000	101	4.1
2001	96	3.9
2002	69	2.8
2003	114	4.6
2004	136	5.5
2005	62	2.5
2006	73	2.9
2007	122	4.9
2008	91	3.7
2009	172	6.9
2010	114	4.6
2011	101	4.1
2012	90	3.6
2013	117	4.7
2014	126	5.1
2015	149	6.0
2016	144	5.8
2017	159	6.4
2018	158	6.3
2019	121	4.9
2020	178	7.1
Total	2493	100
Panel B: Distribution of SEO Sample by industry		
Industry	**Frequency**	**Percentage (%)**
Academic & Educational Services	12	0.5
Basic Materials	220	8.8
Consumer Cyclicals	457	18.3
Consumer Non-Cyclicals	90	3.6
Energy	213	8.5
Healthcare	273	11.0
Industrials	470	18.9
Other	278	11.2
Technology	470	18.9
Utilities	10	0.4
Total	2493	100

Panel A shows that the highest count of SEOs was in 2020 with a total of 178 SEOs compromising 7.1% of the entire sample of seasoned offerings. On the contrary, the year

2005 witnessed the lowest number of SEOs among the study years, with a total of 62 SEOs compromising 2.5% of the entire sample of seasoned offerings.

Panel B of this table shows how the sample is distributed across 11 different industries. These industries are classified using two-digit SIC codes (Botsari and Meeks, 2018; Wang et al., 2019; Cherif et al., 2020). Based on the sample study's above-mentioned criteria, both the Finance and Real Estate sectors are excluded (Andrikopoulos, 2017; Maatougui et al., 2019). The Industrials and Technology industries have the most SEOs (18.9 percent), followed by the Consumer Cyclicals sector (457 SEOs representing 18.3 percent) and the unclassified other sectors (278 SEOs, with 11.2 percent). These four industries account for more than 63% of the sample. The remaining SEOs (approximately 37 percent of the distribution) are spread across the remaining seven industries. Klein (2002) states that at least ten firm-year observations with the same two-digit SIC code are required to estimate the amount of DA. Since the empirical analysis is based on cross-sectional analysis by industry and year combination, any industry-year combinations with fewer than ten observations are dropped from the sample (Li et al., 2019; Wang et al., 2019).

3.10 Conclusion

In brief, this chapter explains the proposed methodology of the research. It starts by discussing the philosophical dimension followed, in which the research question of the study is approached from a positivist philosophical side, as it is based on empirical observations to achieve logical results. Moreover, this research adopts a deductive approach as it begins with the general theory, mainly the agency theory, and narrows down

to explicit hypotheses. Furthermore, the archival research strategy is applied when data from UK seasoned equity offerings is extracted and analyzed from the specified sources. As a result, the cross-sectional version of the Jones model (Jones, 1991) with modifications by Kothari et al. (2005) is used to estimate discretionary accruals as a proxy for earnings management. To account for accrual-based earnings management activities, the cash-flow approach of the current accrual model will be employed. To check for robustness, the cash-flow approach of total accruals will be used. To detect real earnings management, three proxies measuring the abnormal levels of cash flow from operations, production costs, and discretionary expenditures will be used. Furthermore, an aggregate REM that combines the three proxies of REM will be used as a robustness check for real-based earnings management.

Announcement dates of UK SEOs are extracted from Refinitiv Workspace, while the data for earnings management, market liquidity, and financial performance proxies will be collected from DataStream. Univariate and multivariate analyses are implemented on a sample of 2,494 SEO firm-year observations for accrual-based earnings management methods and 629 SEO firm-year observations for real-based methods. The following chapter will tackle the impact of earnings management on both market liquidity and financial performance for UK seasoned equity offerings and will discuss the main results. Furthermore, parametric (t-test) tests are used to determine the statistical significance of the results when we analyze the behavior of accrual and real-based earnings management and their impact on market liquidity and financial performance during the three crucial events:IFRS, the Financial Crisis, and Brexit.

Chapter Four: Results

4.1 Introduction

This chapter focuses on the empirical results and analysis of this study. Section two presents the descriptive statistics of the variables included in the study. Section three shows the correlation among the independent variables and also includes multicollinearity tests. Section four presents the results of the regression analysis and clearly states the significance of the estimators and the models, and then discusses the results and relates them to previous studies. Section five examines the impact of IFRS, financial crisis and Brexit on market liquidity and financial performance. Section six concludes.

4.2 Descriptive Statistics

Descriptive statistics summarize the characteristics and properties of a data set and consider the main measures of central tendency and dispersion. Thus, Table 4 presents the descriptive statistics of the study variables and includes the number of observations, mean, standard deviation, minimum, maximum, skewness, and kurtosis.

The results show that the proxies of accrual earnings management, abnormal current accruals A_ CA and abnormal total accruals A_ TA, have similar characteristics with a mean of 0.004 (significant at 10%) and standard deviation of 17% and 12.9%, respectively. The three proxies for real earnings management, abnormal operating cash flow A_CFO, abnormal production costs A_ PROD, and abnormal discretionary spending A_DISX, have means of -0.043 (significant at 1%), -0.09 (not significant), and 0.332 (significant at 1%), respectively. According to Zhang (2015) and Kassamany et al. (2017), firms engage in real

profit manipulation through negative abnormal cash flows and/or negative abnormal discretionary spending and/or positive abnormal production costs. However, it is sufficient if they engage in one of the three real profit manipulations (Nguyen et al., 2022). Therefore, we use an aggregate measure of real earnings management AREM. The mean value of AREM (0.017, significant at the 10% level) suggests that UK SEOs have an incentive to manage their real-based earnings upward. Thus, we conclude that UK SEOs manage their earnings upward through accrual and real activities, especially sales manipulation.

Moreover, QBA records a mean of 0.044 and a standard deviation of 3.5%. ROE records a mean of 2.056 and a standard deviation of 5.198, implying that the data fluctuate widely. According to Brown (2006), the acceptable level of skewness is ±2 and that of kurtosis is ±10, which confirms the normality of all variables in this study and the credibility of using parametric tests.

Table 4: Descriptive Statistics

This table presents descriptive statistics of the mean, standard deviation, minimum, maximum, kurtosis and skewness.

Variables	Number of Observations	Mean	Std. Deviation	Minimum	Maximum	Skewness	Kurtosis
A_CA	2461	0.004[2]	0.170	-0.596	0.933	0.625	2.927
A_TA	2452	0.004[2]	0.129	-0.413	0.641	0.616	2.790
A_CFO	609	-0.043[1]	0.189	-0.962	0.496	-0.478	1.444
A_PROD	614	-0.009	0.222	-0.722	0.963	0.193	2.238
A_DISX	608	0.332[1]	0.506	-1.911	1.761	-0.434	2.132
AREM	596	0.017[2]	0.343	-1.788	1.844	-0.256	3.557
QBA	2279	0.044	0.035	0.000	0.158	0.939	0.362
ROE	2444	2.056	5.198	-45.597	47.691	0.630	9.437
LEV	2023	0.516	1.552	-12.672	10.747	-0.433	9.075
SIZE	2491	4.748	0.850	2.820	7.097	0.325	-0.561
GRTH	2261	0.107	0.378	-1.000	1.083	-0.335	1.173
TANG	2475	0.215	0.236	0.001	0.957	1.354	0.921
RECIP	2313	0.041	0.095	0.000	0.940	5.011	9.644

Note: [1] and [2] denote one-tailed significance at 1% and 10% levels, respectively.

4.3 Multicollinearity Analysis

Correlation is a statistical term that measures the extent to which two variables are related. According to Sharif and Lai (2015), high correlation between independent variables is inappropriate because it affects standard errors, leading to misinterpretation of significance. Accordingly, in Table 5, the correlation coefficients of the explanatory variables are examined using Pearson correlation. Ajina and Habib (2017), Al-Shattarat et

al. (2018), and Chang and Pan (2020) consider a correlation of 0.6 as the collinearity threshold, while Ibrahim et al. (2011) assume a lower bound of 0.8. As shown in Table 5, the correlation coefficients are low and do not pose any methodological or interpretational problems.

Moreover, there is a significant negative correlation between both accrual measures and A_CFO. Therefore, we find that firms simultaneously engage in accrual-based and reality-based earnings management, which is consistent with Cohen and Zarowin (2010). This result is also consistent with Kassamany et al. (2017), who find that a negative correlation between accrual-based ratios and A_CFO has an income-increasing effect.

Table 5: Correlation Matrix

This table presents the Pearson correlation coefficients (p-values) between accrual-based and real-based earnings management proxies and all control variables. P-values are stated in parentheses and significant correlations are marked in italics; ***, **, and * denote two-tailed significance at 1%, 5%, and 10%, respectively.

Panel A: Correlation Coefficient of A_CA and remaining variables

Variables	A_CA	A_CFO	A_PROD	A_DISX	LEV	SIZE	GRTH	TANG	RECIP
A_CA	1								
A_CFO	*-0.345****	1							
	(0.000)								
A_PROD	*0.172****	*-0.310****	1						
	(0.000)	(0.000)							
A_DISX	*-0.148****	*-0.323****	*-0.200****	1					
	(0.000)	(0.000)	(0.000)						
LEV	*-0.079****	*0.086**	-0.026	*0.078**	1				
	(0.000)	(0.0633)	(0.578)	(0.0912)					
SIZE	*-0.083****	0.050	0.052	0.011	0.035	1			
	(0.000)	(-0.217)	(0.196)	(0.786)	(0.111)				
GRTH	-0.003	-0.042	-0.054	0.020	0.013	*0.071****	1		
	(0.895)	(0.327)	(0.199)	(0.636)	(0.575)	(0.001)			
TANG	*-0.164****	0.025	0.032	-0.054	*0.089****	*0.117****	0.013	1	
	(0.000)	(0.540)	(0.426)	(0.185)	(0.000)	(0.000)	(0.527)		
RECIP	*0.036**	*0.132****	-0.047	*-0.140****	-0.035	*-0.083****	0.011	-0.023	1
	(0.086)	(0.001)	(0.249)	(0.000)	(0.124)	(0.000)	(0.618)	(0.280)	

Panel B: Correlation Coefficient of A_TA and remaining variables

Variables	A_TA	A_CFO	A_PROD	A_DISX	LEV	Size	GRTH	TANG	RECIP
A_TA	1								
A_CFO	*-0.445****	1							
	(0.000)								
A_PROD	*0.206****	-0.*310****	1						
	(0.000)	(0.000)							
A_DISX	-0.012	-0.*323****	-0.*200****	1					
	(0.772)	(0.000)	(0.000)						
LEV	-0.028	*0.086**	-0.026	*0.078**	1				
	(0.212)	(0.063)	(0.578)	(0.091)					
SIZE	*-0.076****	0.050	0.052	0.011	0.035	1			
	(0.000)	(0.217)	(0.196)	(0.787)	(0.111)				
GRTH	0.009	-0.042	-0.054	0.020	0.013	*0.071****	1		
	(0.676)	(0.328)	(0.200)	(0.637)	(0.576)	(0.001)			
TANG	*-0.064****	0.025	0.032	-0.054	*0.089****	*0.117****	0.013	1	
	(0.001)	(0.540)	(0.426)	(0.185)	(0.000)	(0.000)	(0.527)		
RECIP	-0.023	*0.132****	-0.047	*-0.140****	-0.035	*-0.083****	0.011	-0.023	1
	(0.270)	(0.001)	(0.249)	(0.0005)	(0.124)	(0.000)	(0.618)	(0.280)	

Moreover, multicollinearity occurs when two or more explanatory variables in a multiple linear regression model are highly correlated. In the presence of multicollinearity, the coefficients remain consistent, but the standard errors are inflated, leading to a lower precision in hypotheses testing (Marcoulides and Raykiv, 2018). A high coefficient of determination R^2 may be an indicator of the existence of multicollinearity; however, a more reliable and accurate test should be adopted. Consequently, Table 6 inspects the Tolerance and Variance Inflation Factor (VIF[5]) tests.

Accordingly, some studies such as Gunny (2010) consider a VIF greater than 10, equivalent to a tolerance less than 0.1, as an indicator of multicollinearity. However, other studies, such as Ajina and Habib (2017) and Trang and Linh (2020), worry about a VIF greater than 5, equivalent to a tolerance less than 0.2. To be more conservative, we consider VIF/Tolerance of 5/0.2 as a rule of thumb. Based on the results of Table 6, the lowest tolerance value is 0.476, which is equivalent to a maximum VIF of 2.1. Hence, our estimated models do not suffer from multicollinearity.

[5] The VIF of the ith independent variable is expressed as follows (Marcoulides and Raykiv, 2018):

$$VIF_i = \frac{1}{1 - R_i^2} = \frac{1}{TOLERANCE}$$

Where R_i^2 represents the coefficient of determination of regressing the ith explanatory variable on the remaining ones. If R_i^2 is equal to zero, this indicates that there is no linear relation between the explanatory variable and the remaining ones, accordingly VIF will be equal to 1.

Table 6: Variance Inflation Factor (VIF) and Tolerance Test Results

This table shows the Variance Inflation Factor (VIF) and Tolerance Test for the independent variables that are included in the Regression Analysis.

	Market Liquidity								**Financial Performance**							
	QBA								**ROE**							
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
A_CA	0.773	1.294			0.915	1.093			0.734	1.363			0.900	1.111		
A_TA			0.757	1.321			0.947	1.055			0.743	1.346			0.941	1.063
A_CFO	0.504	1.984	0.491	2.039					0.482	2.077	0.476	2.100				
A_PROD	0.708	1.412	0.714	1.401					0.705	1.418	0.709	1.409				
A_DISX	0.630	1.588	0.664	1.506					0.654	1.529	0.695	1.439				
AREM					0.871	1.147	0.901	1.109					0.875	1.143	0.907	1.102
LEV	0.925	1.082	0.919	1.088	0.937	1.067	0.935	1.070	0.956	1.046	0.952	1.050	0.962	1.039	0.962	1.039
Size	0.966	1.035	0.967	1.034	0.968	1.033	0.970	1.031	0.958	1.044	0.959	1.043	0.959	1.043	0.960	1.042
GRTH	0.987	1.013	0.987	1.013	0.989	1.011	0.989	1.011	0.989	1.011	0.989	1.011	0.992	1.008	0.992	1.009
TANG	0.966	1.035	0.964	1.038	0.979	1.022	0.978	1.022	0.967	1.034	0.961	1.040	0.976	1.024	0.976	1.025
RECIP	0.922	1.085	0.927	1.079	0.963	1.038	0.963	1.038	0.939	1.065	0.948	1.055	0.977	1.024	0.979	1.021

4.4. Main Results

4.4.1 Impact of Accrual and Real Earnings Management on Market Liquidity

To examine the effects of accrual and real earnings management on market liquidity, we provide the results of multivariate analysis, controlling for other variables that affect market liquidity. Accordingly, we regress QBA on proxies for accrual earnings management, real earnings management measures, and five control variables. It is important to note that we do not include A_ CA and A_ TA in the same regression, as they both represent the accrual manipulation. Similarly, the separate proxies for real earnings management (A_CFO, A_PROD, and A_DISX) and the aggregate measure AREM are not included in the same regression; instead, we run the regression using each variable separately.

The results presented in Table 7 show that the accrual earnings management proxies, A_ CA and A_ TA, do not have a statistically significant impact on market liquidity. The results also show that A_ PROD has an insignificant coefficient. Therefore, we find that UK SEOs did not manipulate either accrual or production activity to affect market liquidity. In contrast, the coefficients of A_CFO and A_DISX are both negative and significant (coefficient = -0.013 and -0.009 for A_CFO and -0.010 for A_DISX, respectively) and thus have a positive effect on market liquidity. Similarly, the aggregate proxy AREM for real earnings management shows a significance of 5% with a negative impact on QBA and a magnitude of 0.010. Therefore, we provide evidence that UK SEOs relies on real earnings manipulation, especially sales manipulation, to increase market liquidity. Our results are consistent with the informational perspective of earnings management. They are consistent

with Al-Jaifi (2017) and Trang and Linh (2020). One possible explanation for the results is that earnings manipulation is beneficial for investors who face a lack of information. This improves the level of information in the market, attracts more traders, and increases market liquidity. It is important to note that the larger the spread, the lower the liquidity (Ajina & Habib, 2017), while a lower spread means higher liquidity (Al-Jaifi, 2017). Consequently, a negative impact on QBA leads to a positive impact on market liquidity and vice versa.

The adjusted R-squared in the four models has a value of about 0.5. This means that 50% of the variation in the market liquidity proxy QBA is explained by accrual and real earnings management and control variables. The F-test tests the joint significance of the independent variables based on the following hypotheses:

H0: $\beta 1=0, \beta 2=0 \ldots \beta j=0$

H1: at least one coefficient is $\neq$ of 0.

The P-value of the F-statistic is zero in all four models of market liquidity, ensuring joint significance of the explanatory variables.

Table 7: Regression Analysis for the Impact of Earnings Management on Market Liquidity and Financial Performance

This table presents the results of the Ordinary Least Square (OLS) regression of the form:

$$\boldsymbol{QBA(ROE) = \alpha_0 + \beta_1 A\_CA(A\_TA) + \sum_{i=1}^{3} \beta_i REM(AREM) + \sum_{j=1}^{5} \beta_j CTRL + \sum \beta_k IND + \sum \beta_l YEAR + \varepsilon_t} \qquad \textbf{(16)}$$

P-values are given in parentheses and significant coefficients are marked in italics; ***, ** and * at 1%, 5% and 10%, respectively.

Variables	Market Liquidity (QBA)				Financial Performance (ROE)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	*0.182*** (0.000)*	*0.182*** (0.000)*	*0.178*** (0.000)*	*0.178*** (0.000)*	0.243 (0.803)	0.298 (0.759)	0.404 (0.674)	0.425 (0.660)
A_CA	0.005 (0.586)		0.006 (0.481)		*2.110** (0.079)*		*2.629** (0.015)*	
A_TA		0.014 (0.238)		0.011 (0.297)		*2.572** (0.095)*		*3.119** (0.023)*
A_CFO	*-0.013** (0.097)*	*-0.009** (0.097)*			*2.517** (0.079)*	*2.568** (0.079)*		
A_PROD	-0.009 (0.227)	-0.009 (0.243)			*3.284*** (0.001)*	*3.305*** (0.001)*		
A_DISX	*-0.010*** (0.006)*	*-0.010*** (0.006)*			*0.993** (0.033)*	*0.902** (0.046)*		
AREM			*-0.010** (0.024)*	*-0.010** (0.027)*			*1.848*** (0.001)*	*1.777*** (0.001)*
LEV	-0.0002 (0.801)	-0.0003 (0.734)	-0.0003 (0.711)	-0.0003 (0.679)	*1.855*** (0.000)*	*1.844*** (0.000)*	*1.844*** (0.000)*	*1.833*** (0.000)*
SIZE	*-0.028*** (0.000)*	*-0.028*** (0.000)*	*-0.028*** (0.000)*	*-0.028*** (0.000)*	0.124 (0.526)	0.127 (0.518)	0.130 (0.506)	0.134 (0.496)
GRTH	*-0.011*** (0.003)*	*-0.011*** (0.003)*	*-0.011*** (0.002)*	*-0.011*** (0.002)*	-0.132 (0.772)	-0.144 (0.752)	-0.136 (0.764)	-0.159 (0.728)
TANG	0.008 (0.307)	0.008 (0.351)	0.010 (0.224)	0.010 (0.248)	-0.298 (0.774)	-0.446 (0.670)	-0.290 (0.779)	-0.448 (0.666)
RECIP	0.003 (0.847)	0.003 (0.849)	0.007 (0.661)	0.008 (0.616)	*8.005*** (0.000)*	*8.187*** (0.000)*	*7.829*** (0.000)*	*8.164*** (0.000)*
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES
N	389	387	389	387	413	409	413	411
Adjusted-R^2	0.500	0.499	0.498	0.498	0.370	0.370	0.371	0.370
F-test	*44.035***	*43.787***	*56.095***	*55.633***	*27.870***	*27.699***	*35.737***	*35.46***
p-Value	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

4.4.2 Impact of Accrual and Real Earnings Management on Financial Performance

In addition, Table 7 presents the results of the multivariate analysis examining the impact of accrual and real earnings management on financial performance. The results show a significant positive effect of accrual earnings management on financial performance. In particular, the coefficients of A_ CA and A_ TA are both positive and significant. In Models 5 and 6, A_ CA and A_ TA have a coefficient (significance level) of 2.110 (10%) and 2.572 (10%), respectively. In models 7 and 8, they have a coefficient (significance level) of 2.629 (5%) and 3.119 (5%), respectively. In addition, we provide evidence of the positive impact of real-based earnings management on financial performance. In particular, the coefficients of A_CFO, A_ PROD, A_DISX and AREM are all positive and significant. The coefficient of AREM is significant at 1% and has a value of 1.848 and 1.777 in models 7 and 8, respectively. These results are consistent with previous literature (Al-Shattarat et al. 2018; Jiang et al., 2018; and Doukas & Zhang, 2020). One reason could be that UK firms operate in a strong institutional environment (Jiang et al., 2018). Another reason could be that UK companies use earnings manipulation as a tool to avoid a sudden drop in profits (Al-Shattarat et al., 2018).

The adjusted R-squared has a value of 0.37 in the four models. Thus, 37% of the variation in ROE is determined by accrual-based earnings management, real earnings management, and the control variables. Moreover, the p-value of the F-statistic is zero for all models, so the coefficients are jointly significant at the 1% level.

4.4.3 Robustness Check

To further test the accuracy of our study, we apply other measures of market liquidity and financial performance. Instead of using QBA as a measure of market liquidity, we use DIFFBA, and instead of using ROE as a proxy for financial performance, we use ROA. Table A1 in the Appendix shows the results of the regressions of DIFFBA and ROA on accrual earnings management, real earnings management, and control variables.

Similar to the results of the main regression, the accrual earnings management ratios, A_ CA and A_ TA, have an insignificant effect on market liquidity. A_ PROD remains insignificant. A_CFO, A_DISX, and AREM are all significant at 10%, 1%, and 5%, respectively, and have a positive impact on market liquidity. This is consistent with historical empirical evidence of this relationship (Al-Jaifi, 2017; and Trang and Linh, 2020).

Consistent with the main regression results, the proxies for accrual-based earnings management, A_ CA and A_ TA, have a significant positive impact on financial performance (ROA). In addition, the coefficients of A_CFO, A_ PROD, A_DISX and AREM are all positive and significant at the 1% level. On the other hand, adjusted R-squared of models 5, 7, and 8 record a lower value of 33.9%, 23.1%, and 23.5%, respectively, compared to 37% in the main regression. Whereas, the value of model 6 is higher at 40% as compared to 37% previously. Similar to previous interpretations, the coefficients are jointly significant. Thus, we validate the robustness of our results and the accuracy of statistical tests.

4.4.4 Discussion of the Results

One of the objectives of this study is to provide evidence on the impact of earnings management (accrual and real) on market liquidity. Therefore, we posit two hypotheses: H1a and H1b. The first hypothesis states that accrual earnings management has a positive impact on the market liquidity of UK SEOs, and the second hypothesis states that real earnings management has a positive impact on the market liquidity of UK SEOs. Consequently, the proxies for accrual earnings management do not have a significant impact on either market liquidity measure. Therefore, we cannot confirm H1a and conclude that UK firms do not use accrual manipulation strategies to affect market liquidity. This is related to the fact that firms do not adopt accrual manipulation strategies when they face stringent regulation and auditor scrutiny (Kothari et al., 2016; and Sitanggang et al., 2019).

However, real proxies for earnings management negatively affect both spreads, leading to a positive effect on market liquidity. Accordingly, we support H1b. Our results are consistent with the informational perspective of earnings manipulation, which provides investors with private information about the firm. These results are not consistent with those in other contexts, such as Chang et al. (2009), Ascioglu et al. (2012), Sayari & Omri (2017), and Hunjra et al. (2020), who found that higher earnings management is associated with lower market liquidity due to information asymmetry and lower transparency.

In contrast, our results are consistent with the findings of Arya et al. (2003), Petersen and Plenborg (2006), Rahman et al. (2013), D'Augusta et al. (2015), Al-Jaifi (2017), and Trang and Linh (2020), who conclude that the more corporate managers engage in earnings management, the better the market liquidity. Thus, we find that earnings management is neither opportunistic nor harmful; rather, it could be beneficial because it allows managers

to communicate financial information and improve its quality (Jiraporn et al., 2008). Moreover, earnings manipulation increases investor confidence when earnings are more stable, which in turn attracts more investors and improves market liquidity (Trang and Linh, 2020). Thus, firms manipulate earnings to avoid earnings shocks and maintain investor confidence. Moreover, Al-Jaifi (2017) relates his findings to the fact that firms can manipulate their earnings to transfer certain information to enhance the information quality of earnings. Therefore, he provides evidence that earnings manipulation can be informative, especially in emerging markets with a high degree of ownership concentration. We therefore conclude that UK SEOs attracted more investors through real earnings manipulation during our study period. This has led to a decrease in spread and an improvement in market liquidity, which is consistent with the findings of Rahman et al. (2013).

In the context of examining the impact of earnings management on financial performance, we posit two hypotheses, H2a and H2b. The first one states that there is a positive impact of accrual-based earnings management activities on the financial performance of UK SEOs, and the second one states that there is a positive impact of real-based earnings management activities on the financial performance of UK SEOs. The results show that the coefficients of accrual and real earnings management activities are significant and have a positive impact on financial performance. Consequently, we support hypotheses H2a and H2b. We conclude that overall earnings management has a positive impact on SEOs' financial performance.

As mentioned in chapter two, there is a contradiction in the results of the literature review where some studies find a negative impact of earnings management on financial

performance while others find a positive impact. Our findings contradict those of Gunny (2005), Bhojraj et al. (2009), Mizik (2010), Gill et al. (2010), Moradi et al. (2015), Vorst (2016), and Cupertino et al. (2016). They found that companies manipulate their profits from an opportunistic perspective by participating in AEM or REM, which negatively affects their financial performance.

Conversely, the results of our study are consistent with those of Dechow et al. (1995), Gunny (2010), Taylor & Xu (2010), Gunny and Zhang (2014), Al-Shattarat et al. (2018), Jiang et al. (2018), and Doukas & Zhang (2020). Gunny (2010) and Al-Shattarat et al. (2018) provide evidence that firms' manipulation of real earnings to achieve a benchmark has a positive impact on their future financial performance. Therefore, we relate our results to several considerations. First, managers use REM, to improve the credibility and reputation of the firm and thus enhance its future performance (Gunny, 2010). They also use manipulation strategies to prevent a sudden drop in profits, which is considered bad news for investors and rating agencies (Al-Shattarat et al., 2018). Moreover, Jiang et al. (2018) find that the positive impact of REM on performance is directly related to the country's institutional environment. They show that REM is associated with positive financial performance in countries with a strong institutional environment, but not in times of economic crisis. However, firms in countries with weak institutional environments show an insignificant or negative impact on their financial performance. From this, we infer that UK SEOs engage in earnings management to avoid earnings losses and improve their credibility and reputation. This may also suggest that the UK has a strong institutional environment that forces managers to manipulate firm earnings from an informative perspective.

4.5 Further Analysis

4.5.1 Accrual and Real Earnings Management around Events (IFRS, Financial Crisis, and Brexit)

We also examine the behavior of accrual and real earnings management during three crucial events (IFRS, financial crisis, and Brexit). From this perspective, Table 8 shows the mean and p-value of abnormal short-term accruals A_ CA, abnormal total accruals A_ TA, and aggregate real earnings management AREM for six subsamples. In addition, the mean differences for the three events are reported to detect significant changes in accruals or real earnings management. For significance of the mean, we apply a one-sample test. For the significance of the difference in means, we apply an independent samples test, more specifically a t-test for equality of means.

Although significant for the whole sample, the means for current and total accrual and AREM show different results when the sample is split. In the pre-IFRS period, the mean values of abnormal current and total accruals are 0.019 (significant at the 5% level) and 0.020 (significant at the 1% level), respectively. However, in the post-IFRS period, the mean of these two measures is not significant. Consequently, we provide evidence of a statistically significant decline in accrual earnings management by the mean differences of A_ CA and A_ TA. They have a mean difference of 0.018 (significant at 10%) and 0.016 (significant at 10%), respectively. Thus, UK SEOs has significantly higher abnormal accruals in the pre-IFRS period. On the other hand, there is no evidence of significant AREM in the pre-IFRS period. In the post-IFRS period, on the other hand, the proxy shows significance with a mean of 0.023 (significant at the 10% level). Our results are similar to those of Fuad & Wijanarto (2017). Consistent with our results, Ferentinou and

Anagnostopoulou (2016) find that discretionary accruals have a significantly higher mean in the pre-IFRS period. They also find that the aggregate proxy RM is not significant in the pre-IFRS period, while it is significant in the post-IFRS period. Therefore, it is evident that the adoption of IFRS is not sufficient to improve the transparency of financial statements. Instead, UK companies resort to a less easily detectable manipulation technique, namely real earnings management.

Moreover, the results in Table 8 show that SEOs in the UK use real manipulation strategies during the financial crisis. In particular, the mean value of AREM is 0.064 (significant at 5%). In contrast, they do not engage in accrual manipulation as the mean of A_ CA and A_ TA are not significant. Our results are consistent with previous studies (De Luca and Paolone, 2019; Callao et al., 2020; and Lakhal et al., 2020). The main reason is that managers manipulate earnings to mitigate the market reaction to a sharp decline in earnings. In the post-financial crisis period, the mean values of A_ TA and AREM are -0.010 (significant at 10%) and -0.017 (significant at 10%), respectively. This indicates that earnings management is no longer applied in the period after the financial crisis. Moreover, the mean difference of AREM records a value of 0.080 (significant at 10%). This indicates that real profits have decreased significantly after the financial crisis. This decrease could be an indicator that UK SEOs have no incentive to manipulate earnings after the financial crisis, mainly due to the massive use of manipulation strategies during the crisis.

In the pre-Brexit period, the mean value of A_ TA remains significant at 5% with a value of -0.010, the same as after the financial crisis. This could indicate that UK SEOs manipulates accruals only to a small extent in the pre-Brexit period. On the other hand, there is no evidence of significant real earnings management in this period. However, in

the post-Brexit period, the mean value of A_ TA became statistically insignificant. The mean value of AREM, on the other hand, proved to be significant at the 5% level with a value of 0.065. We show a statistically significant increase in real profit manipulation by the mean difference of AREM (-0.104, significant at 5%). The exposure to real earnings manipulation in the post-Brexit period can be explained by the high uncertainty following the announcement. One reason is that the Brexit referendum represents an uncertainty shock and bad news for UK businesses. Hence, Brexit may be difficult to analyze due to the political uncertainty involved, as well as the fact that there are extremely emotive issues that may give rise to excessively positive or negative sentiment. Consequently, Brexit negatively affects financial markets including investments, risk, and returns (Hudson et al., 2020; Hassan et al., 2021).

Table 8: Accrual and Real-based Earnings Management Proxies: Evidence from the Three Events

This table presents accrual-based and aggregate real-based earning management measures for the SEO in the year prior to the offering date. The p-Values are given in parentheses and significant results are marked in italics; ***, **, and * denote one-tailed significance at 1%, 5%, and 10% levels, respectively.

	Pre-IFRS	**Post-IFRS**	**Pre-post IFRS**	**During FC**	**Post-FC**	**Pre-post FC**	**Pre-Brexit**	**Post-Brexit**	**Pre-post Brexit**
Variable	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
A_CA	*0.019***	0.001	*0.018**	0.007	0.000	0.006	-0.007	-0.006	-0.001
p-value	(0.032)	(0.480)	(0.09)	(0.271)	(0.485)	(0.330)	(0.173)	(0.208)	(0.478)
N	315	252	567	258	302	560	391	431	822
A_TA	*0.020****	0.003	*0.016**	0.001	*-0.010**	0.012	*-0.010***	-0.001	-0.010
p-value	(0.006)	(0.349)	(0.084)	(0.430)	(0.063)	(0.128)	(0.034)	(0.452)	(0.134)
N	316	253	569	255	300	555	389	430	819
AREM	0.005	*0.023**	-0.018	*0.064***	*-0.017**	*0.080**	-0.038	*0.065***	*-0.104***
p-value	(0.452)	(0.092)	(0.381)	(0.049)	(0.091)	(0.066)	(0.160)	(0.018)	(0.017)
N	75	67	142	67	79	146	91	109	200

4.5.2 Impact of Accrual and Real Earnings Management on Market Liquidity: Evidence from IFRS, Financial Crisis, and Brexit

In this section, we examine the effects of accrual and real earnings management on market liquidity in six subsamples. Consequently, we present multivariate analysis results for each period: pre-IFRS (2002-2004), post-IFRS (2005-2007), during the financial crisis (2008-2009), post-financial crisis (2010-2012), pre-Brexit (2013-2015), and post-Brexit (2017-2019). We consider QBA as a measure of market liquidity, A_ CA and A_ TA as accrual-based earnings management, and AREM as real earnings management. It is important to note that we do not include A_ CA and A_ TA in the same regression but run two separate regressions.

From the results in Table 9, we find that earnings management has no effect on market liquidity before and after IFRS and during and after the financial crisis. Explicitly, the coefficients of A_ CA, A_ TA, and AREM are all not significant. This suggests that earnings manipulation strategies do not target market liquidity drivers during the period in question. On the other hand, we can demonstrate that actual earnings management has a positive impact on market liquidity in the pre-Brexit period. For example, the coefficient of AREM is negative and significant (-0.03, significant at 5%). In addition, both accrual and real earnings management have a significant positive impact on market liquidity post-Brexit. The coefficients of A_ CA, A_ TA, and AREM have a value of -0.060 (significant at 5%), -0.069 (significant at 5%), and -0.037 (significant at 1%), respectively. One reason is that the uncertainty shock resulting from the Brexit referendum forces UK SEO companies to manipulate their earnings to restore investor confidence.

Table 9: Regression Analysis for the Impact of Earnings Management on Market Liquidity: Evidence from three events

This table presents the results of the Ordinary Least Square (OLS) regression from three events (IFRS, Financial Crisis & Brexit) of the form:

$$QBA = \alpha_0 + \beta_1 A\_CA(A\_TA) + \sum_{i=1}^{3} \beta_i REM(AREM) + \sum_{j=1}^{5} \beta_j CTRL + \sum \beta_k IND + \sum \beta_l YEAR + \varepsilon_t \qquad (17)$$

P-values are given in parentheses and significant coefficients are marked in italics; ***, ** and * denote significance levels at 1%, 5% and 10%, respectively.

Market Liquidity (QBA)

Dependent Variable	**Pre-IFRS**		**Post-IFRS**		**During FC**		**Post-FC**		**Pre-Brexit**		**Post-Brexit**	
Independent Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Intercept	*0.193**** *(0.000)*	*0.188**** *(0.000)*	*0.226**** *(0.000)*	*0.218**** *(0.000)*	*0.179**** *(0.000)*	*0.175**** *(0.000)*	*0.181**** *(0.000)*	*0.173**** *(0.000)*	*0.171**** *(0.000)*	*0.170**** *(0.000)*	*0.166**** *(0.000)*	*0.163**** *(0.000)*
A_CA	0.018 (0.304)		0.053 (0.120)		-0.019 (0.538)		-0.061 (0.109)		0.001 (0.959)		*-0.060*** *(0.035)*	
A_TA		0.033 (0.138)		0.0521 (0.258)		-0.013 (0.681)		-0.007 (0.891)		0.041 (0.232)		*-0.069*** *(0.026)*
AREM	-0.005 (0.544)	-0.006 (0.449)	0.01 (0.621)	0.006 (0.788)	-0.013 (0.406)	-0.012 (0.449)	0.003 (0.854)	0.009 (0.554)	*-0.03*** *(0.026)*	*-0.022** *(0.087)*	*-0.037**** *(0.003)*	*-0.037**** *(0.002)*
LEV	0.000 (0.987)	-0.001 (0.765)	0.005 (0.651)	0.004 (0.713)	0.006 (0.236)	0.006 (0.224)	-0.0002 (0.913)	-0.0008 (0.750)	*-0.004**** *(0.006)*	*-0.005**** *(0.005)*	0.001 (0.701)	0.001 (0.636)
SIZE	*-0.031**** *(0.000)*	*-0.03**** *(0.000)*	*-0.04**** *(0.000)*	*-0.04**** *(0.000)*	*-0.03**** *(0.000)*	*-0.03**** *(0.000)*	*-0.03**** *(0.000)*	*-0.03**** *(0.000)*	*-0.028**** *(0.000)*	*-0.028**** *(0.000)*	*-0.025**** *(0.000)*	*-0.024**** *(0.000)*
GRTH	*-0.019** *(0.094)*	-0.017 (0.120)	-0.005 (0.761)	-0.006 (0.734)	-0.017 (0.146)	-0.016 (0.162)	0.002 (0.809)	0.0002 (0.984)	-0.014 (0.149)	-0.012 (0.218)	-0.008 (0.294)	-0.006 (0.457)
TANG	-0.004 (0.852)	-0.005 (0.832)	0.001 (0.973)	0.002 (0.962)	-0.027 (0.313)	-0.024 (0.357)	0.017 (0.502)	0.022 (0.411)	*0.047*** *(0.024)*	*0.048*** *(0.021)*	-0.008 (0.614)	-0.007 (0.656)
RECIP	*0.075*** *(0.017)*	*0.083**** *(0.009)*	-0.088 (0.328)	-0.074 (0.421)	-0.063 (0.413)	-0.062 (0.423)	0.011 (0.729)	0.018 (0.588)	0.063 (0.464)	0.043 (0.624)	-0.026 (0.645)	-0.038 (0.497)
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adjusted-R^2	0.663	0.671	0.353	0.313	0.442	0.438	0.541	0.512	0.577	0.588	0.513	0.517
F-test	*15.90****	*16.47****	*4.116****	*3.539****	*5.749****	*5.684****	*9.256****	*8.347****	*11.71****	*12.02****	*10.92****	*11.09****
p-Value	*(0.000)*	*(0.000)*	*(0.002)*	*(0.006)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*

4.5.3 Impact of Accrual and Real Earnings Management on Financial Performance: Evidence from IFRS, Financial Crisis, and Brexit

In this section, we examine the effects of accrual and real earnings management on financial performance for the same subsamples as in section 4.5.2. We include the same variables except for the change in market liquidity QBA for financial performance, which is measured by ROE. Table 10 shows the results of these regression models.

In the pre-IFRS period, accrual-based earnings management has a significant positive effect on financial performance (A_ CA coefficient = 6.461, significant at 1%, A_ TA coefficient, significant at 5%). In contrast, we find no evidence of the impact of real earnings management on market liquidity during this period. In the post-IFRS period, the coefficients of current and total accruals are not significant. Conversely, real earnings management has a significant positive effect on financial performance (AREM coefficient 2.098 in Model 3 and 2.396 in Model 4, both significant at the 5% level). These results suggest that U.K. SEOs engage in accrual-based manipulations to affect financial performance before IFRS, whereas they engage in true manipulations after IFRS. Consistent with the univariate analysis in Section 4.5.1, there is a shift from AEM to REM as a result of IFRS adoption.

During the financial crisis, both accrual and real earnings management have a positive significant impact on financial performance. The coefficients of A_ CA and AREM are significant and positive (coefficient = 6.447 and 2.864, respectively, both significant at 10%). In the post-financial crisis period, the coefficient of AREM reaches a higher significance of 1% and a stronger impact of 11.63 in model 7 and 11.58 in model 8. These

results suggest that companies need to improve their earnings during and after the financial crisis, especially to prevent the negative consequences of a decline in earnings. Moreover, accrual and real earnings management have no effect on financial performance in the pre-Brexit and post-Brexit periods (the coefficients of A_ CA, A_ TA, and AREM are all non-significant).

Table 10: Regression Analysis for the Impact of Earnings Management on Financial Performance: Evidence from three events

This table presents the results of the Ordinary Least Square (OLS) regression from three events (IFRS, Financial Crisis & Brexit) of the form:

$$ROE = \alpha_0 + \beta_1 A\_CA(A\_TA) + \sum_{i=1}^{3} \beta_i REM(AREM) + \sum_{j=1}^{5} \beta_j CTRL + \sum \beta_k IND + \sum \beta_l YEAR + \varepsilon_t \quad (18)$$

P-values are given in parentheses and significant coefficients are marked in italics; ***, ** and * denote significance levels at 1%, 5% and 10%, respectively.

Financial Performance (ROE)

Dependent Variable	**Pre-IFRS**		**Post-IFRS**		**During FC**		**Post-FC**		**Pre-Brexit**		**Post-Brexit**	
Independent Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Intercept	-1.873 (0.439)	-2.561 (0.313)	-1.117 (0.519)	-1.580 (0.362)	1.284 (0.651)	2.612 (0.351)	0.669 (0.872)	0.921 (0.817)	1.443 (0.446)	1.477 (0.446)	-0.536 (0.615)	-0.345 (0.747)
A_CA	*6.461**** *(0.007)*		1.088 (0.501)		*6.447** *(0.090)*		2.090 (0.739)		3.554 (0.119)		0.469 (0.775)	
A_TA		*7.236*** *(0.019)*		0.778 (0.714)		3.109 (0.406)		3.882 (0.708)		3.781 (0.254)		1.880 (0.288)
AREM	-0.928 (0.390)	-1.238 (0.260)	*2.098*** *(0.026)*	*2.396*** *(0.013)*	*2.864** *(0.093)*	*4.102** *(0.083)*	*11.63**** *(0.001)*	*11.58**** *(0.000)*	1.349 (0.226)	1.125 (0.327)	0.230 (0.738)	0.466 (0.490)
LEV	*4.545**** *(0.000)*	*4.357**** *(0.000)*	*2.709**** *(0.000)*	*2.622**** *(0.000)*	*2.914**** *(0.000)*	*2.792**** *(0.000)*	*2.650**** *(0.000)*	*2.637**** *(0.000)*	*0.623**** *(0.000)*	*0.602**** *(0.000)*	*1.087**** *(0.000)*	*1.090**** *(0.000)*
SIZE	0.193 (0.684)	0.340 (0.500)	0.391 (0.244)	0.497 (0.144)	-0.350 (0.524)	-0.517 (0.357)	0.121 (0.884)	0.086 (0.915)	-0.010 (0.981)	-0.021 (0.961)	*0.430*** *(0.046)*	*0.393** *(0.068)*
GRTH	0.426 (0.763)	0.773 (0.592)	0.441 (0.538)	0.410 (0.563)	-0.257 (0.848)	-0.700 (0.606)	-0.634 (0.729)	-0.593 (0.744)	0.389 (0.641)	0.317 (0.711)	-0.021 (0.963)	-0.112 (0.804)
TANG	2.590 (0.328)	2.262 (0.401)	-0.136 (0.935)	-0.163 (0.922)	-1.238 (0.678)	-2.552 (0.386)	-2.562 (0.590)	-2.696 (0.569)	0.715 (0.712)	0.784 (0.692)	-1.528 (0.115)	*-1.634*** *(0.091)*
RECIP	*16.70**** *(0.000)*	*18.43**** *(0.000)*	-1.026 (0.814)	-1.244 (0.772)	*29.83**** *(0.001)*	*29.59**** *(0.002)*	6.058 (0.396)	6.126 (0.391)	-2.886 (0.665)	-2.328 (0.736)	2.443 (0.456)	3.039 (0.357)
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adjusted-R^2	0.717	0.706	0.508	0.527	0.621	0.599	0.514	0.514	0.200	0.181	0.544	0.552
F-test	*21.27****	*20.23****	*7.480****	*7.856****	*11.75****	*10.80****	*9.159****	*9.169****	*3.113****	*2.832***	*12.93****	*13.30****
p-Value	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*

4.5.4 Robustness Check

To check the accuracy of our study, we replace market liquidity QBA with another measure DIFFBA and financial performance ROE with ROA. Appendix tables A2 and A3 present the results of the multivariate analysis.

Like the previous results, we find that accrual earnings management has an insignificant impact on market liquidity in the pre-IFRS and pre-Brexit periods. In the post-Brexit period, accrual earnings management has a significant positive effect on market liquidity through the positive and significant coefficient of A_ CA. On the other hand, the interpretation of AREM is different when DIFFBA is used. Although the effect of AREM on QBA is not significant in the pre-and post-IFRS period and during and after the financial crisis, AREM seems to have a significant negative effect on DIFFBA in the pre-IFRS period (significant at 1%) and after the financial crisis (significant at 10% only in model 7). Moreover, the coefficient of AREM is significant and negative after Brexit (coefficient = -0.017, significant at 10%).

Consistent with our previous findings, the accrual earnings management proxies have a significant and positive impact on financial performance (ROA) in the pre-IFRS period. Moreover, the coefficient of A_ CA is positive and significant in the post-IFRS period. AREM has a significant and positive coefficient in the pre-IFRS and post-IFRS periods. During the pre- and post-Brexit periods, AREM did not have a significant effect on either ROE or ROA.

Thus, we conclude that the results change slightly in terms of significance when the proxies for market liquidity and financial performance are changed. However, the main results are consistent and supported.

4.5.5 Discussion of the Results

The results of univariate and multivariate analysis show that earnings management shifts from AEM to REM from before to after IFRS. Our results are consistent with Ho et al. (2015), Ferentinou and Anagnostopoulou (2016), and Fuad and Wijanarto (2017). They all find that the adoption of IFRS has not led to a reduction in earnings management, but rather to a shift from accrual to true manipulative activities. According to Gunny (2010), AEM are constrained by auditor approval, while REM are controlled by managers. Therefore, the main reason for this shift is that true earnings management is less perceived by auditors, regulators, and investors than accrual earnings management (Ibrahim et al., 2011; Zang, 2012; Fuad & Wijanarto, 2017). Moreover, IFRS adoption leads to a reduction in accounting options available to managers, which is consistent with Lakhal et al. (2020). For example, when rigorous standards and high-quality financial reporting are available, managers perform REM instead of AEM (Enomoto et al., 2015; Ho et al., 2015; Kothari et al., 2016; and Sitanggang et al., 2019).

During the financial crisis, UK SEOs engage in high levels of real earnings manipulation. This finding is inconsistent with Ayedh et al. (2019), and Grimaldi (2019), who conclude that firms engage in low levels of earnings management during crises. However, our results are consistent with those of De Luca and Paolone (2019), Callao et al. (2020), and Lakhal et al. (2020), who find that firms engage in more manipulative actions during times of crisis. Since the crisis has already had a severe impact on firms' profits, they will engage

in profit manipulation to prevent negative reports to investors and lenders (De Luca and Paolone, 2019). Consistent with Lakhal et al. (2020), managers employ earnings manipulation strategies to disguise their actual performance and mitigate the severe market reactions to unanticipated earnings changes to show better financial performance.

In the post-Brexit period, UK SEOs are significantly increasing their activities to manage actual earnings. Moreover, earnings management in the pre-Brexit and post-Brexit periods is used to influence market liquidity rather than financial performance. The main reason for this finding is the increased uncertainty resulting from the Brexit vote. Accordingly, UK companies manipulate their earnings to prevent their sharp decline and restore investor confidence. Our arguments are supported by the findings of Bouoiyour et al. (2018), Bloom et al. (2019), and Kellard et al. (2022). According to Bloom et al. (2019), the Brexit decision has serious implications for U.K. firms as it leads to large and prolonged uncertainty, reducing investment and productivity over three years after the referendum. Similarly, Bouoiyour et al. (2018) find that the Brexit causes a decline in stock prices and valuation of UK firms. They attribute this effect to instability, political change, the failure to benefit from the international advantages of the EU, and the failure to attract talented workers. Kellard et al. (2022) also point to the increase in the level of uncertainty as a result of EU exit. Specifically, they argue that high levels of uncertainty are a consequence of policy changes and exchange rate risk, which particularly affects industries that rely heavily on exports and imports with the EU. Consequently, the results of our study, in concert with the findings of work addressing Brexit and its impact on U.K. companies, suggest that U.K. SEOs engage in earnings management, especially in the post-Brexit period, to attract investors, improve market liquidity, and restore stock prices.

In addition, it is important to relate the results of the regression analysis to those of the mean and mean difference. First, we confirm the fact that companies switch from AEM to REM due to IFRS through both univariate and multivariate analyses. Moreover, the significant use of REM during the financial crisis supports the fact that it has a significant positive impact on financial performance during the period. In addition, the strict use of REM in the pre-Brexit period supports the finding that it has a significant positive impact on market liquidity in the period. Although the mean value of accrual earnings is significant in the pre-IFRS, post-financial crisis, and pre-Brexit periods, it has an insignificant impact on market liquidity for the entire period from pre-IFRS to pre-Brexit. Moreover, the mean value of real earnings is significant after IFRS and during the financial crisis, while it has no significant impact on market liquidity but on financial performance. This indicates that the exposure to accrual and real earnings during the periods mentioned was not aimed at affecting market liquidity but had other purposes, mainly improving financial performance. Similarly, despite the importance of the mean of pre-Brexit accrual earnings and the mean of post-Brexit real earnings, both measures are insignificant in affecting financial performance in the two periods. Therefore, earnings manipulation in the pre-Brexit and post-Brexit periods was not done to affect financial performance, but to improve market liquidity.

Thus, we conclude that during the periods when profit manipulation strategies affected financial performance, they did not affect market liquidity and vice versa. This confirms our earlier findings that UK SEOs engage in earnings manipulation from an informational and signaling perspective rather than an opportunistic perspective. Accordingly, they employ manipulation strategies either to attract more traders and increase market liquidity

or to enhance their reputation and credibility, which in turn increases their financial performance.

4.6 Conclusion

This chapter presents, analyzes, and discusses the results and empirical findings of this study. The objective of our study is to investigate the impact of earnings management practices on market liquidity and financial performance of UK SEOs. It also examines the earnings management behaviors of UK SEOs, taking into account three events: IFRS adoption, financial crisis, and Brexit.

The main findings suggest that actual earnings management has a significant positive impact on market liquidity. On the other hand, accrual as well as real earnings management have a significant positive impact on financial performance. Accordingly, we cannot confirm hypothesis H1a, but we support all the remaining hypotheses H1b, H2a, and H2b. In addition, event results suggest that UK SEOs are switching from AEM to REM due to IFRS adoption. This is because AEM is more difficult to implement due to more stringent accounting and financial reporting standards. The results are consistent with previous literature such as Ho et al. (2015), Ferentinou and Anagnostopoulou (2016), and Fuad and Wijanarto (2017). Moreover, UK SEOs engage in a high degree of earnings management during the financial crisis to reduce the impact of the crisis on their earnings. As for Brexit, REM increases significantly in the post-Brexit period. Based on the results of the main regression and events, we conclude that UK SEOs take earnings management actions from an informational perspective. Consequently, earnings management has a positive impact on financial performance in the pre-IFRS crisis and post-financial crisis periods. In

contrast, earnings management has a positive impact on market liquidity before and after Brexit.

Chapter 5: Conclusion

5.1 Introduction

The main objective of this research is to investigate the impact of earnings management on market liquidity and the financial performance of UK SEOs. It also examines the impact of earnings management on market liquidity and financial performance based on three crucial events: IFRS, financial crisis, and Brexit. Section two of this chapter provides a summary of the findings and compares them to previous research. Section three proves the validity of the results. Section four presents the managerial implications. The limitations of this work are presented in section five. The final section paves the way for future research.

5.2 Summary of the Findings

This study examines the impact of accrual and real earnings management practices on market liquidity and financial performance of UK SEOs over the sample period 2000-2020. Table 11 summarizes the results in the context of the hypotheses examined. The results indicate that accrual earnings management (AEM) does not have a significant impact on market liquidity, so we do not support the first hypothesis H1a. Real earnings management (REM) has a significant negative impact on the spread and thus a positive impact on market liquidity. These results support the second proposed hypothesis (H1b) and are consistent with Al-Jaifi (2017) and Trang and Linh (2020). We provide empirical evidence that firms manipulate their returns from an informational perspective to increase investor confidence, attract more traders, and thus improve market liquidity. Moreover, we find that both accrual and real earnings management have a significant positive impact on financial performance.

These results support the remaining two hypotheses (H2a and H2b) and are consistent with the findings of Jiang et al. (2018) and Doukas & Zhang (2020). Consequently, firms manipulate earnings to improve their credibility and reputation and prevent a sudden drop in earnings, thereby enhancing financial performance. Consistent with Jiraporn et al. (2008) and Al-Jaifi (2017), earnings management is not opportunistic but is considered useful and informative.

As we examine events, we find that the adoption of IFRS has not reduced the prevalence of earnings management. Instead, firms are shifting from accrual to real earnings management. These results are similar to those of Jeanjean and Stolowy (2008) and Mongrut and Winkelried (2019). The is due to the fact that real earnings management is less easily detected by auditors and regulators than accrual earnings management. Consistent with Callao et al. (2020) and Lakhal et al. (2020), we provide compelling evidence that U.K. SEOs engaged in significant real manipulation during the financial crisis. This could be attributed that firms needed to mitigate the impact of the crisis on their profits to prevent its severe consequences. After the Brexit referendum, UK SEOs are stepping up their activities to manage real earnings. This is due to the widespread and prolonged uncertainty, which has serious implications for the UK industry (Bloom et al., 2019; and Kellard et al., 2022). Moreover, in the period before and after the financial crisis, UK SEOs manipulated their earnings to boost their financial performance. However, in the pre-Brexit and post-Brexit periods, they use manipulation strategies to increase market liquidity.

Table 11: Summary of Findings

This table presents a summary of findings along with the tested hypotheses.

Hypothesis	Theory	Statistical Test	Empirical Results	Findings
H1a: There is a positive impact of Accrual-based earnings management activities on Market Liquidity for UK SEOs	Agency Theory	Multivariate and Inferential Analysis	Insignificant	Not Supported
H1b: There is a positive impact of Real-based earnings management activities on Market Liquidity for UK SEOs	Agency Theory	Multivariate and Inferential Analysis	Significant	Supported
H2a: There is a positive impact of Accrual-based earnings management activities on the Financial performance of UK SEOs	Agency Theory	Multivariate and Inferential Analysis	Significant	Supported
H2b: There is a positive impact of Real-based earnings management activities on the Financial performance of UK SEOs	Agency Theory	Multivariate and Inferential Analysis	Significant	Supported

5.3 Validity

To ensure the quality, value, and reliability of good research, we test the validity of our findings. There are five major elements of validity: external validity, construct validity, internal validity, statistical validity, and inferential validity. This section identifies which types of validity are appropriate for this study.

External validity refers to the degree to which the results are generalizable and can be used by other individuals, settings, situations, and time periods (Trochim, 2008). We demonstrate the external validity of our study by showing that the sample of Seasoned Equity Offerings in the United Kingdom used was randomly selected and representative of the population. In addition, chapter four presents the results of the study and shows their consistency with previous studies and the literature. Like several previous studies in the

literature, our results show that actual earnings management affects market liquidity and financial performance, while accrual earnings manipulation activities appear to affect only financial performance.

The second type of validity, construct validity, assesses the degree of association between the theory and the data, particularly the credibility of the variables and proxies used in the research (Embreston, 2007). The main purpose of this study is to investigate the impact of accrual and real earnings management on market liquidity and financial performance of UK SEOs. We use two measures to account for accrual earnings management: abnormal current and total accrual, both of which are based on the cross-sectional version of the modified Jones model (Jones, 1991; Dechow et al., 1995), with modifications suggested by Kothari et al (2005). Previous literature such as Cohen and Zarowen (2010), Ibrahim et al. (2011), Doukakis (2014), Enomoto et al. (2015), Biang and Khan (2016), Kassamany et al. (2017), and Mongrut and Winkelried (2019) use this measure of AEM. In addition, Graham et al. (2005) and Roychowdhury (2006) show for the first time the introduction of manipulation of actual activity through sales manipulation, reduction of discretionary spending, and overproduction. As a result, Roychowdhury's (2006) three measures, abnormal operating cash flow (A_CFO), abnormal production costs (A_PROD), and abnormal discretionary spending (A_DISX), are used in our study to account for real economy revenue management. Consequently, Cohen and Zarowen (2010), Ibrahim et al. (2011), Doukakis (2014), Ho et al. (2015), Kassamany et al. (2017), Abad et al. (2018), and Al-Shattarat et al. (2018) adopt these proxies. In addition, a new aggregate measure REM by Nguyet et al. (2022) is adopted in this study. This proxy combines the three measures of Roychowdhury (2006) by averaging their standardized version. For market

liquidity, we choose two measures, the price spread, and the bid-ask spread, using the first as the main proxy and the second to check robustness. Prior literature relies heavily on these two spreads (Ajina and Habib, 2017; Sayari and Omri, 2017; Abad et al., 2018; and Trang and Linh, 2020). In addition, we use two measures of financial performance, ROE as the main proxy and ROA as a robustness check. Both proxies are commonly used to capture a firm's financial performance in previous studies (Abdel Razek, 2014; Sharif and Lai, 2015; Jiang et al., 2018; Chakroun & Ben Amar, 2019; Alsharairi et al., 2020). Therefore, we demonstrate the construct validity of this study through the broad use of accrual and real earnings management proxies and their ability to capture the earnings management activities of UK SEOs. The use of spreads as a measure of market liquidity and ROE and ROA as measures of financial performance also support construct validity.

Another type of validity is internal validity, which is the extent to which you can demonstrate a cause-and-effect relationship between your independent and dependent variables (Cook and Campbell, 1979; Buedo and Miller, 2010). Therefore, we define cause and effect in our study. The cause in our study is represented by the two types of earnings management, accrual and real, as independent variables. The effect is defined by the market liquidity and financial performance of UK SEOs and thus represents the dependent variables in the study. Moreover, there are no instrumentation issues due to the use of credible sources in the evaluation of all variables. Also, the collection of data from a reliable secondary source (Refinitiv Workspace and DataStream) makes the research free from moral concerns. Finally, there is no risk of regression due to the random and homogeneous selection of our sample.

Fourth, statistical validity refers to the selection of the appropriate statistical test given the assumptions to draw accurate and reliable conclusions (Trochim, 2008). Consequently, we test for multicollinearity by applying Pearson correlation coefficients between the independent variables and performing the VIF and tolerance test. The results show that there is no multicollinearity in our study. To check the robustness of the results, we apply an additional measure for market liquidity (DIFFBA) and financial performance (ROA) respectively.

Finally, the validity of conclusions refers to the degree of credibility and reliability of the study's conclusions (Calder et al., 1982). As discussed in chapter four, our results are consistent with previous literature. For example, the positive effect of earnings management on market liquidity is consistent with D'Augusta et al. (2015), Al-Jaifi (2017), and Trang and Linh (2020). Moreover, the positive impact of earnings management on financial performance is consistent with Al-Shattarat et al. (2018), Jiang et al. (2018), and Doukas & Zhang (2020). Moreover, the shift from AEM to REM due to IFRS adoption is consistent with Ho et al. (2015), Fuad and Wijanarto (2017), and Mongrut and Winkelried (2019). Engagement in earnings manipulation during the financial crisis is also consistent with De Luca and Paolone (2019), Callao et al. (2020), and Lakhal et al. (2020).

5.4 Managerial Implications

The results of this investigation have important theoretical and practical implications. From a theoretical perspective, the results of this study justify the impact of earnings management on the market liquidity and financial performance of UK SEOs and the role of IFRS, the financial crisis, and Brexit in triggering these results. As a result, regulators

and policymakers are interested in modifying and developing these measures to ensure their appropriateness. In addition, researchers would be interested in exploring earnings management issues, particularly the prevalence of earnings management during abnormal or financially distressed periods.

On a practical level, our results are of interest to investors and financial analysts, regulators and policymakers, and companies and managers. This research alerts them to engage in UK SEOs in different types of earnings management. Although it may be opportunistic, earnings management, if informative, would provide helpful information about the company's future cash flow and earnings potential. Consequently, stock market participants (investors, traders, and financial analysts) can benefit from our findings when evaluating information related to risk and return, market liquidity, and financial performance. Thus, they can base their investment decisions on the way earnings are managed.

In addition, the results of this study help regulators and policymakers develop operational and policy strategies to increase equity liquidity in their respective markets. For example, they almost realize how companies use balance sheet manipulation to draw the attention of financial analysts and investors to their financial statements in order to improve financial performance. Moreover, the adoption of IFRS is intended to improve the quality of financial reporting. However, the propensity to switch from one form of EM to another underscores that it does not improve the information content of financial statements. Common regulation will not be sufficient to create a common corporate language. Therefore, IFRS failure in reducing earnings manipulation poses serious challenges for regulators. For instance, they may focus on other strategies such as harmonizing law enforcement systems, competition law, market access requirements, and the effectiveness

of the legal system. In addition, managers and companies can rely on our findings to determine the extent and type of earnings management that keep investors confident, especially in times of economic and financial crisis.

5.5 Limitations of the Research

Although this study has remarkable theoretical and practical implications, it is subject to some limitations that may affect its approach and conclusions. First, this study focuses on a specific environment, namely stock issuance (SEOs), rather than other corporate events. Second, the empirical study focuses on the effects of accrual and realistic earnings management on market liquidity and corporate financial performance at UK SEO. As a result, the conclusions of this study may not be generalizable to other organizational contexts, countries, or nations.

In addition, the financial data needed to calculate the proxies for real earnings management are missing more records than the data needed to calculate the ratios for discretionary accrual. As a result, the final sample for real-profit methods is smaller, with 629 observations, than that for accrual methods, with 2494. In addition, the consideration of many factors in the sample selection stage also contributes to the reduction in sample size. Finally, as in any other study of earnings management, the extent and quality of manipulation may not be fully represented by the measures of earnings manipulation, and the results are highly dependent on the construct validity of the models demonstrated in this paper.

5.6 Suggestions for Future Research

In this section, we highlight possible future studies. Accordingly, future research could investigate the same analysis scenario for other corporate events in the UK, such as initial public offerings (IPOs) and mergers and acquisitions (M&A). It may also apply to other countries, such as the United States, or to a specific region, such as the European Union, or involve an international study that includes multiple countries. In addition, researchers may be interested in expanding the study period to cover, for example, the COVID 19 pandemic.

Another avenue for future research is to examine the impact of accrual and real-based earnings management on other corporate metrics such as debt or solvency and other market metrics such as market volatility or market returns. Furthermore, future research can add other variables to the tested model, such as audit quality and corporate governance, among other variables of expected effect, to improve understanding of the relationship between earnings management proxies and both of market liquidity and financial performance.. In addition, researchers can examine the impact of IFRS, FC, and Brexit on earnings management. Consequently, each earnings management proxy will be the dependent variable, and the events mentioned above would be included as dummies and interaction variables.

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Appendix

Table A1: Regression Analysis for the Impact of Earnings Management on Market Liquidity and Financial Performance

This table presents the results of the Ordinary Least Square (OLS) regression of the form:

$$\boldsymbol{DIFFBA(ROA) = \alpha_0 + \beta_1 A\_CA(A\_TA) + \sum_{i=1}^{3} \beta_i REM(AREM) + \sum_{j=1}^{5} \beta_j CTRL + \sum \beta_k IND + \sum \beta_l YEAR + \varepsilon_t} \quad \textbf{(19)}$$

P-values are given in parentheses and significant coefficients are marked in italics; ***, ** and * denote significance level at 1%, 5% and 10%, respectively.

Variables	Market Liquidity (DIFFBA)				Financial Performance (ROA)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	*0.034*** (0.000)*	*0.034*** (0.000)*	*0.030*** (0.000)*	*0.030*** (0.000)*	*-32.04*** (0.000)*	*-31.493*** (0.000)*	*-30.24*** (0.000)*	*-30.92*** (0.000)*
A_CA	-0.003 (0.688)		0.0004 (0.947)		*14.022** (0.065)*		*13.065** (0.076)*	
A_TA		-0.012 (0.162)		-0.009 (0.255)		*61.348*** (0.000)*		10.154 (0.286)
A_CFO	-0.011 (0.193)	*-0.015** (0.079)*			*93.902*** (0.000)*	*116.595*** (0.000)*		
A_PROD	-0.002 (0.794)	-0.002 (0.712)			*22.858*** (0.000)*	*26.683*** (0.000)*		
A_DISX	*-0.010*** (0.001)*	*-0.010*** (0.000)*			*18.454*** (0.000)*	*20.545*** (0.000)*		
AREM			*-0.007** (0.041)*	*-0.008** (0.017)*			*23.936*** (0.000)*	*27.555*** (0.000)*
LEV	*0.002*** (0.004)*	*0.002*** (0.003)*	*0.002*** (0.010)*	*0.002*** (0.008)*	0.983 (0.141)	0.656 (0.304)	*1.563** (0.029)*	*1.496** (0.036)*
SIZE	*-0.003** (0.011)*	*-0.003*** (0.010)*	*-0.003** (0.017)*	*-0.003** (0.016)*	*3.767*** (0.002)*	*3.857*** (0.001)*	*3.682*** (0.005)*	*3.778*** (0.004)*
GRTH	-0.001 (0.785)	-0.001 (0.802)	-0.001 (0.685)	-0.001 (0.695)	0.807 (0.774)	0.903 (0.736)	0.027 (0.993)	-0.045 (0.988)
TANG	*-0.011** (0.071)*	*-0.011** (0.083)*	-0.009 (0.140)	-0.009 (0.143)	*15.942** (0.014)*	*13.165** (0.033)*	*17.168** (0.014)*	*17.929*** (0.010)*
RECIP	*0.157*** (0.000)*	*0.157*** (0.000)*	*0.161*** (0.000)*	*0.161*** (0.000)*	*-86.22*** (0.000)*	*-90.445*** (0.000)*	*-66.54*** (0.000)*	*-68.41*** (0.000)*
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES
N	389	387	389	387	409	407	409	407
Adjusted-R^2	0.358	0.362	0.345	0.349	0.339	0.400	0.231	0.235
F-test	*25.039***	*25.305***	*30.253***	*30.535***	*24.248***	*31.075***	*18.513***	*18.779***
p-Value	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Table A2: Regression Analysis for the Impact of Earnings Management on Market Liquidity: Evidence from three events

This table presents the results of the Ordinary Least Square (OLS) regression from three events (IFRS, Financial Crisis & Brexit) of the form:

$$DIFFBA = \alpha_0 + \beta_1 A\_CA(A\_TA) + \sum_{i=1}^{3} \beta_i REM(AREM) + \sum_{j=1}^{5} \beta_j CTRL + \sum \beta_k IND + \sum \beta_l YEAR + \varepsilon_t \quad (20)$$

P-values are given in parentheses and significant coefficients are marked in italics; ***, ** and * denote significance levels at 1%, 5% and 10%, respectively.

Market Liquidity (DIFFBA)												
Dependent Variables	**Pre-IFRS**		**Post-IFRS**		**During FC**		**Post-FC**		**Pre-Brexit**		**Post-Brexit**	
Independent Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Intercept	0.019 (0.163)	0.0179 (0.209)	*0.049** *(0.085)*	0.044 (0.129)	0.035 (0.215)	0.039 (0.156)	*0.057**** *(0.002)*	*0.052**** *(0.003)*	*0.022** *(0.068)*	*0.024** *(0.055)*	*0.026**** *(0.006)*	*0.026**** *(0.009)*
A_CA	0.0167 (0.206)		0.0265 (0.260)		0.022 (0.533)		-0.050 (0.127)		0.005 (0.743)		*-0.027** *(0.056)*	
A_TA		0.016 (0.345)		0.013 (0.682)		0.019 (0.598)		-0.071 (0.124)		-0.012 (0.565)		-0.023 (0.142)
AREM	*-0.017**** *(0.009)*	*-0.018**** *(0.006)*	0.02 (0.160)	0.017 (0.259)	0.003 (0.878)	0.002 (0.919)	*-0.022** *(0.097)*	-0.021 (0.116)	0.0001 (0.994)	-0.003 (0.661)	*-0.017** *(0.087)*	-0.005 (0.359)
LEV	-0.0001 (0.966)	-0.0005 (0.888)	-0.006 (0.398)	-0.006 (0.446)	0.006 (0.321)	0.006 (0.330)	*0.006**** *(0.007)*	*0.006**** *(0.006)*	-0.0001 (0.886)	-0.0001 (0.915)	-0.0001 (0.919)	-0.0001 (0.994)
SIZE	0.0003 (0.911)	0.0005 (0.852)	-0.005 (0.352)	-0.004 (0.453)	-0.006 (0.271)	-0.006 (0.225)	*-0.008*** *(0.025)*	*-0.007*** *(0.038)*	-0.002 (0.464)	-0.002 (0.397)	-0.003 (0.102)	-0.003 (0.122)
GRTH	-0.006 (0.464)	-0.005 (0.543)	0.008 (0.484)	0.008 (0.516)	0.002 (0.854)	0.002 (0.855)	0.003 (0.647)	0.002 (0.771)	0.009 (0.141)	0.008 (0.179)	0.001 (0.705)	0.002 (0.608)
TANG	-0.013 (0.458)	-0.013 (0.479)	-0.025 (0.314)	-0.024 (0.348)	0.029 (0.314)	0.027 (0.347)	-0.016 (0.497)	-0.015 (0.510)	-0.014 (0.251)	-0.015 (0.211)	-0.001 (0.937)	-0.001 (0.926)
RECIP	*0.231**** *(0.000)*	*0.235**** *(0.000)*	*0.143*** *(0.027)*	*0.152*** *(0.022)*	*0.299**** *(0.001)*	*0.298**** *(0.001)*	*0.120**** *(0.000)*	*0.120**** *(0.000)*	*0.157**** *(0.003)*	*0.178**** *(0.001)*	*0.126**** *(0.000)*	*0.123**** *(0.000)*
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	330	330	268	268	274	274	317	317	421	421	456	456
Adjusted-R^2	0.732	0.728	0.140	0.110	0.333	0.331	0.418	0.419	0.131	0.147	0.352	0.336
F-test	*21.731****	*21.294****	*1.934**	1.688	*3.994****	*3.965****	*6.032****	*6.04****	*2.179**	*2.32***	*6.132****	*5.765****
p-Value	(0.000)	(0.000)	(0.095)	(0.147)	(0.003)	(0.003)	(0.000)	(0.000)	(0.053)	(0.041)	(0.000)	(0.000)

Table A3: Regression Analysis for the Impact of Earnings Management on Financial Performance: Evidence from three events

This table presents the results of the Ordinary Least Square (OLS) regression from three events (IFRS, Financial Crisis & Brexit) of the form:

$$ROA = \alpha_0 + \beta_1 A\_CA(A\_TA) + \sum_{i=1}^{3} \beta_i REM(AREM) + \sum_{j=1}^{5} \beta_j CTRL + \sum \beta_k IND + \sum \beta_l YEAR + \varepsilon_t \quad (21)$$

P-values are given in parentheses and significant coefficients are marked in italics; ***, ** and * denote significance levels at 1%, 5% and 10%, respectively.

Financial Performance (ROA)												
Dependent Variables	**Pre-IFRS**		**Post-IFRS**		**During FC**		**Post-FC**		**Pre-Brexit**		**Post-Brexit**	
Independent Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Intercept	-8.836 (0.645)	-18.568 (0.319)	*-17.603 (0.329)*	-22.210 (0.219)	-27.725 (0.211)	*-38.125* (0.079)*	-27.333 (0.154)	*-38.382** (0.045)*	*-31.123* (0.078)*	*-35.062* (0.051)*	*-38.562** (0.013)*	*-37.44** (0.018)*
A_CA	*44.596** (0.022)*		9.840 (0.557)		-55.683 (0.520)		*52.192* (0.073)*		-53.721 (0.210)		*-9.436 (0.702)*	
A_TA		*75.956*** (0.002)*		8.581 (0.697)		-47.315 (0.107)		39.271 (0.423)		-27.669 (0.359)		0.686 (0.980)
AREM	*39.537*** (0.000)*	*37.040*** (0.000)*	*20.046** (0.039)*	*23.441** (0.018)*	11.250 (0.477)	*19.689* (0.074)*	-1.669 (0.909)	9.580 (0.513)	14.434 (0.161)	*20.675* (0.052)*	*0.860 (0.932)*	2.964 (0.769)
LEV	-0.844 (0.864)	-3.291 (0.486)	*13.626** (0.015)*	*12.613** (0.026)*	2.891 (0.497)	3.297 (0.444)	1.165 (0.568)	0.755 (0.720)	*2.992** (0.033)*	*3.374** (0.017)*	*4.845** (0.010)*	*4.919*** (0.009)*
SIZE	0.126 (0.974)	2.272 (0.541)	1.045 (0.762)	2.124 (0.542)	5.914 (0.171)	*7.451* (0.087)*	2.872 (0.450)	4.895 (0.202)	4.280 (0.261)	5.183 (0.180)	*6.448** (0.036)*	*6.243** (0.045)*
GRTH	-0.710 (0.949)	2.492 (0.813)	4.381 (0.556)	4.011 (0.586)	-14.105 (0.145)	-13.633 (0.166)	-13.542 (0.110)	*-15.424* (0.076)*	11.577 (0.135)	11.718 (0.136)	0.786 (0.904)	0.678 (0.918)
TANG	5.006 (0.806)	2.355 (0.903)	6.848 (0.693)	6.511 (0.705)	-15.805 (0.492)	-6.818 (0.760)	33.919 (0.123)	*38.066* (0.092)*	6.336 (0.722)	10.271 (0.570)	-1.338 (0.922)	-2.031 (0.882)
RECIP	*-55.314* (0.086)*	*-37.832 (0.216)*	18.388 (0.685)	15.464 (0.729)	*-221.32*** (0.002)*	*-220.26*** (0.002)*	*-78.937** (0.019)*	*-68.653** (0.045)*	*-137.51** (0.028)*	*-186.65*** (0.004)*	-55.301 (0.287)	-56.597 (0.276)
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	330	330	268	268	274	274	317	317	421	421	456	456
Adjusted-R^2	0.326	0.392	0.212	0.241	0.347	0.327	0.237	0.193	0.423	0.398	0.168	0.166
F-test	*4.726****	*5.967****	*2.692***	2.947**	*4.497****	*4.191****	*3.392****	*2.850***	*7.173****	*6.480****	*2.936***	*2.908***
p-Value	(0.000)	(0.000)	(0.023)	(0.015)	(0.001)	(0.002)	(0.005)	(0.015)	(0.000)	(0.000)	(0.010)	(0.011)