Title: Future of earnings management research: Comprehensive literature review on real earnings management

Abstract

The purpose of this article is to provide a comprehensive literature review pertaining to real earnings management (REM) since 2006. It highlights the development of REM research, its antecedents and consequences and indicates avenues for future research. A structured literature review of articles related to REM was carried out by investigating articles published during the period 2006-2018, with exception for the recent articles. Although literature has a fair share of studies on REM, they are predominately related to developed economies. Researchers in future must examine the REM in the context of emerging economies such as India and China. It is observed that most of the existing research has emphasised on the factors leading to REM or its consequences. However, there is need for experimental research to understand the behavioural aspects of managers engaging in REM and the potential environmental interactions between these components. The findings of this study would provide valuable insights to researchers and scholars to engage in future earnings management research.

Keywords: Real earnings management, financial reporting, earnings management, consequences of earnings management.

Paper Type: Literature review

Introduction

The main objective of financial reporting is to provide investors the firm's financial performance and earnings plays the lead role in determining an enterprise's performance. Earnings is primarily used to assess firm's future performance, measure management performance and determine the executive compensation. Prior researchers provide evidence that managers manipulate earnings for several reasons such as, employee bonuses, bond covenants, stock market motivations and to meet/beat the analysts forecast. Moreover, regulators and practitioners perceive earnings management to be pervasive and problematic. SEC suggests financial reporting choices of the managers is 'fraud' when it falls outside the purview of GAPP and when the reporting choices lie within GAAP, it is known as 'earnings management'.

We observe the lack of consensus among researchers regarding what constitutes earnings management. Researchers have suggested that earnings management occurs to mislead investors for management or firm's benefit (Healy and Wahlen 1999), the presence of flexibility in accounting leads to earnings manipulation (Watts and Zimmerman 1990) and the management intent to obtain some private benefit (Schipper, 1989). Prior studies substantiate that earnings management occurs as managers exploit the accounting discretion in GAAP by manipulating accruals. However, earnings can be manipulated using both discretionary accruals and operating cash flows.

Earnings can be managed using two options: Accrual-based Earnings Management (hereafter AEM) and Real Earnings Management (hereafter REM) and they affect the business at different levels. Both AEM and REM is used by managers of the firm to achieve earnings target, but the medium through which it happens differ. AEM changes the accounting

methods of the transaction either by increasing or decreasing estimates of bad debt reserves, inventory write-downs, warranty costs, depreciation rates etc. In contrast, REM changes the actual transactions such as providing higher discounts and lenient credit terms to clients, timing the sale of long-term assets etc. Graham et al. (2005) show that REM is costlier in long run, as it affects the cash flow of firm, whereas AEM is costlier in short period. Further firms are more susceptible to higher scrutiny by auditors and regulators when they use AEM. Hence, managers prefer manipulating the cash flow to improve the earnings target. AEM can be reversed in future as managers adjust the financial statements within the accounting rules, whereas it is difficult to detect and reverse REM, as it changes the actual transactions.

Graham et al. (2005) suggest that “the aftermath of accounting scandals at Enron and WorldCom and the certification requirements imposed by the Sarbanes–Oxley Act may have changed managers’ preferences for the mix between taking accounting versus real actions to manage earnings”. Further, the standard setters set up certain accounting standards to be followed by all firms to provide accurate financials. The huge influence of the tightness of accounting standards, can be visible through the type of manipulation (real/discretionary accrual) used by managers. The presence of mandatory corporate governance regulations with independent board and tighter accounting standards has led the managers to shift towards REM (Cohen et al. 2008 and Koh et al. 2008). In this changing context, the review of real earnings manipulation will help us understand why firms engage in REM and the implications of REM. The purpose of this review paper is to provide a framework to evaluate existing research related to REM. The framework characterises antecedents and consequences of REM. We organise the studies on REM within this framework and identify areas and topics for future research directions.

This paper contributes to the REM literature in several ways. First, it summarizes all the research available on REM to provide a comprehensive up-to-date review of the REM

literature. Second, the adoption of structured literature review methodology provides an unbiased empirical insight into the current REM literature and helps to identify possible future research direction.

Scope and method of literature review

We adopt Structured Literature Review (SLR) based on Massaro et al. (2016) to capture the state of academic knowledge in the field of accounting, with particular focus on REM. SLR follows specific steps to ensure transparency and replicability. These steps are arranged in chronological order and don't necessarily have to be a series of sequential events, since flexibility is essential to maintain creativity and intuition in research. We develop a research protocol and formulate the tasks to be carried out by each researcher. The objective of the protocol is to identify, understand and suggest research avenues for REM. We focus on the following research question: What are the possible antecedents and consequences of REM? We choose articles which are dedicated or linked to REM by screening for 'real earnings management' either in title, abstract and/or keywords provided by the author.

The scope of this review consists of articles which empirically investigate REM from 2006 to October 2018. The keywords used for the search are real manipulation, real earnings management, and real earnings manipulation, and matched with terms, such as securitization, asset sale, R&D expenditure, derivatives etc. We use the search engine Google scholar and databases, such as SAGE, Wiley, Science Direct and Web of Science to collect the articles. We shortlist the articles which have been cited more than 50 times with relaxation in criteria for the most recent articles.

The screening process provided us with a list of 320 articles published in reputed journals. We read each paper separately and evaluate its relevance with the established research

protocol, and finally, our sample consists of 136 articles related to REM. The data is organised based on the antecedents and consequences of REM. The next section deals with the descriptive analysis with the objective to provide a preliminary overview of the selected papers.

Descriptive Analysis

The descriptive analysis provides detailed information about the selected papers based on some simple categories such as number of articles per year, and the country where the study was carried.

Trend- Time distribution of articles

The frequency of the REM research articles published has increased tremendously over the period, as shown in Figure I. The figure illustrates a limited number of articles published from 2006 to 2012, and we can see a considerable increase from 2013 onwards. This increase in REM articles emphasizes its growing relevance in the area of accounting.

Figure I.No. of Publications per Year

Regional Focus

The geographical location is the region where researchers conduct their studies. The regional focus is based on Guthrie et. al. (2012) classification scheme, wherein the criterion for conceptual papers is nil, as it doesn't have any specific regional focus. The papers with no regional focus constituted only 2% (e.g., Cohen et al., 2016; Asay, 2018 and Einhorn et al., 2018). Bulk of the REM investigation is carried out in developed markets such as U.S. and U.K.,constituting 62.3% of all the articles (e.g., Osma, 2008;Alhadab et al., 2015; Khurana et al., 2018),as shown in Figure II. There are 15 articles which focus on several countries, i.e. multi-country studies. (e.g., Braam et al., 2015; Jiang et al., 2018). The need to carry out studies in the other geographical areas is essential since countries have different laws, accounting standards, regulations,and other factors such as language, culture etc.

Figure II. Papers based on the location of REM studies.

REM Models

Most REM studies have used the traditional REM method (Roychowdhary, 2006) to obtain REM variables (Gunny 2010; Chi et.al 2011; Braam et.al 2015). A few studies have also used the performance-based matching REM measure (Alissa et al., 2013; Kim and Park 2014; Cheng et al., 2015). Cohen et al., (2016) show that performance matching REM measure provides better specified test results across a wide variety of research settings as compared to the traditional REM measure. They suggest that studies must include both performance and non-performance matched REM measures so that the readers can access the reliability of the inferences drawn regarding REM.

REM and Evidence of REM

Schipper (1989) defines earnings management as “a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain”. Further, Healy and Wahlen (1999, 368) describes “Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers”.

A minor extension to the above definitions would explain REM. The managers can alter the financial report by changing the timing of investment or by changing the financial decisions to mislead the stakeholders on the underlying economic condition of the firm.

Rowchowdhury (2006) defines REM as a deviation from the normal business operations to mislead the stakeholders about firms' performance. Xu et al. (2007) show that REM can be carried out by altering the firm's real activities, such as capital investments, disposal of

assets, sales, production, and R & D expenditure. Thus, manipulation of earnings is achieved by altering the firm's *operating, investing and financing activities*¹. Previous researchers show managers manipulate operating and investing activities by altering the discretionary expenditures, structuring transactions to exploit the accounting choices, and sale of long-term assets (Roychowdhury, 2006; Cohen et al., 2010; Chapman and Steenburgh, 2011; Ahearne et. al. 2016). Firms also use financing activities such as stock options, repurchases, securitization and debt–equity swaps to manage earnings (Dechow and Shakespeare, 2009; Mao and Renneboog, 2015; Francis et al., 2016).

Graham et al. (2005) suggest that CFOs would rather sacrifice a firm's long-term value to achieve earnings target. On the contrary, Eldenburget al., (2011) show that REM doesn't have long-term strategy changes, indicating temporary changes which reverse in the next period. AEM can be reversed in future as managers adjust the financial statements within the accounting rules. However, REM is difficult to detect and reverse as it impacts the business decisions of the firm. Firms' trade-off between REM and AEM to achieve their earnings target (Cohen and Zarowin, 2010; Gunny, 2010)².

Framework for analysing REM

The incentives for earnings manipulation are: capital market, contracting and external motivations. Following Campa and Camacho-Miñano (2015), the motivation to manipulate earnings depends on two sets of variables, that is, a firm's internal and external factors. Figure III identifies the internal incentives that are in a firm's control and external factors outside the purview of the firm. Both these factors serve as antecedents to REM. The review seeks to bring clarity on the potential variables that affects REM and its consequences.

¹ For a detailed review on instances of real activities manipulation refer Xu et al. (2007)

² The review doesn't cover studies related to REM and AEM trade-off.

Figure III A framework for analysing REM literature

Internal Factors as Antecedents of REM

The internal factors that drive earnings manipulation are –firm-level, managerial-level, capital market and corporate governance antecedents.

Firm-Level Antecedents

Prior studies have shown that firms manage earnings to avoid losses or decline in results, and to achieve earnings forecasts. Firm-specific characteristics associated with REM are – firms past performance, debt structure and other factors, such as location, industry, etc. Prior studies show that manager's motivation to manipulate earnings is high for firms that are highly leveraged (Anagnostopoulou and Tsekrekos 2017) and those near debt covenant violation (Kim et al., 2010; Franz et al., 2014). Lara et al., (2009) show that manipulation starts four years prior to firm failure. Shayan-Nia et.al. (2017) show that financially distressed firms engage in upwards REM and only foreign investors are able to curb discretionary expenditure. These studies show that monitoring distressed firms is not sufficient and there is need for better corporate governance regulations to prevent manager's opportunistic behaviour.

Extant literature regarding the impact of ownership on REM is mixed. Achleitner et al., (2014) show that family firms are less likely to use REM in comparison to non-family firms, since it impacts firm's future performance. However, Razzaque et al. (2016) show that family firms engage in higher levels of REM compared to non-family firms. They show an existence of curvilinear relation between REM and family firms. Extant research shows that firm's dividend policy (Liu and Espahbodi, 2014; Smith and Pennathur, 2017), corporate social responsibility (Kim et al., 2012; Bozzolan et al., 2015; Liu et al., 2017), diversification (Farooqi et al., 2014; Shi et al., 2015) and its subsidiaries (Durnev et al., 2017; Bonacchi et al., 2018) impacts REM. Zhao et al. (2012) and Ge and Kim (2013) show that takeover protection mitigates REM by reducing the pressure on managers to reach short-term earnings target. It helps to shift the earnings-target-oriented managerial myopia to better future firm performance.

Managerial-Level Antecedents

Managers engage in REM tactics to satisfy the demands of existing customers, reduce the overall risk for the firm and to increase their own compensation and reputation. Manager's self-interest affects decision horizon resulting in short-term gains or long-term value creation for the firm. Ahearne et al. (2016) show that cash incentives to sales personnel lead to higher REM propensity³. They also show that REM propensity is high when the companies are publically traded and operations are carried in the U.S. Researchers show that overconfident CEOs and CFOs indulge in real activities to manipulate earnings (Hsieh et al., 2014; Kouaib and Jarboui, 2017; Ham et al., 2017; Asay, 2018). Further, manager's reputation, career prospects (Seybert, 2010), age (Demers and Wang, 2010), political connection (Chi et al.,

³ REM propensity is the likelihood the firm ask the sales personnel to use REM tools to meet or beat earnings target.

2016) and compensation (Li, 2017; Moradi et al., 2015) play a significant role in real activities manipulation.

Managers with financial expertise and experience are less likely to use REM (Jiang et al., 2013; Huang and Sun, 2017; Gounopoulos and Pham 2018). Moreover, Demerjian et al., (2017) show that high ability managers intentionally smooth earnings by using both REM and AEM to reduce earnings variability for the benefit of all shareholders and not for their personal benefit. Researchers show that CEOs inside debt (Dhole et al., 2015), CEO's contractual protection (Chen et al., 2015) and key executives with longer horizon (Cheng et al., 2015) mitigate REM.

Capital Market Antecedents

Researchers show that firms engage in REM and AEM during Initial Public Offerings (IPOs) (Alhadab et al., 2015; Buchner et al., 2018). The probability of IPO failure rates is high when the firms use REM vis-à-vis AEM. However, IPOs with credit rating or earnings forecasts before listing curb REM (Gounopoulos and Pham 2017; Buchner et al., 2018). Further, managers use REM around seasoned equity offerings (SEOs) since opacity associated with REM is high (Cohen and Zarowin, 2010; Ibrahim et al., 2011; Kothari et al., 2015; Chang and Lin, 2018).

Corporate Governance Antecedents

Prior studies show that firm's corporate governance characteristics, in particular board independence, board size, number of board meetings and the presence of financial expertise on the audit committee help to curb REM (Osma, 2009; Kang and Kim, 2012; Anglin et al., 2013). However, studies show that better governed boards and independent directors are not able to constrain REM (Ge and Kim, 2013; Chen et al., 2017). Further, audit committee

with busy directors (Sun et al., 2014) and problem directors⁴ (Habib and Bhuiyan, 2015) are associated with higher REM. Researchers show politically connected firms indulge in more REM since it helps them to mask political favours and maintain secrecy (Braam et al. 2015; Ding et al., 2018). Chen et al. (2017) show that with improved firm-level information, outside directors are able to reduce REM. The increased willingness by insiders to share information will result in better earnings quality. Table I documents the additional research related to internal factors of REM.

[Table I about here]

External Factor as Antecedent of REM

Researchers show that external factors responsible for REM are auditors, analysts, investors, credit rating agencies and institutional factors such as regulations, accounting standards etc.

Auditors

Research shows that high audit quality ensures greater credibility to financial statements. However, the presence of high audit quality is associated with greater levels of REM (Chi et al., 2011; Burnett et al. 2012). Alhadab and Clacher (2018) show that the presence of Big N auditors constrains the use of discretionary expenses around IPOs. But the auditors are unable to restrain managers from using sales-based manipulations to manage earnings upwards. The challenging task for auditors is to detect REM, since it is difficult to differentiate between normal business operations and REM.

Commerford et al. (2016) show that management tone mediates the relation between REM and auditors. The auditors' respond to REM by lowering their assessment regarding management tone (i.e. the manager's commitment to high ethical standards), and are more

⁴ Problem directors are those with prior involvement in financial failures such as accounting restatements, corporate scandals, corporate bankruptcies etc.

likely to discuss the issue with audit committee. Further, they are less likely to retain the client since the auditor's perception of management tone indirectly affects their decisions. Thus, auditors view the usage of REM as a signal about the type of people they are auditing (Commerford et al., 2016; Kim and Park 2014).

Analysts

The use of earnings manipulation to just meet or beat analyst's target is a prevalent practice. Hribar et al. (2006) and Bartov and Cohen (2009) show that firms manage earnings to meet earnings forecasts. Irani and Oesch (2016) show that analyst coverage forces managers to use REM to meet their short-term performance. However, Enomoto et al., (2015) show that analyst coverage constrains REM in countries with strong investor protection. Hong et al., (2014) show that analyst coverage results in lesser AEM and REM due to the monitoring effect on managers. The relation between analyst following and earnings management varies based on the firm's choice of earnings management. Thus, analysts serve as external monitors by processing and disseminating financial information to the investors.

Credit Rating Agencies

Credit rating of firms has significant impact on firms' access to capital, hence, firms take action to regain or avoid downgrades of credit ratings. Brown et al., (2014) show that firms near the investment-speculative borderline rating categories engage in aggressive income-increasing REM. The credit rating agencies don't discount for earnings management achieved through real activities. Alissa et al. (2013) show that firms engage in directional earnings management to reach their expected credit ratings. They show a positive (negative) relation between income decreasing (increasing) earnings management and rating deviations.

Investors

Prior research show that different investors have different interests and hence they react differently towards earnings manipulation. The investors can be shareholders, bondholders and/or they can be existing or potential investors. Mehrani et al., (2017) show that active Institutional Investors⁵ (IIs) are able to curb both REM and AEM. However, Lemma et.al. (2018) show that institutional investors have no impact on REM.

Blockholders play the role of informed investors when they base their trades on manager's action and send an informal signal to the market regarding manager's performance (Dou et al., 2016; Dou et al., 2018). But, blockholders (IIs and non-family shareholders) in family firms are unable to mitigate myopic R&D investment behaviour (Tsao et al., 2017). Researchers show venture capitalists (Wongsunwai, 2013; Wang et al., 2018), short sellers (Park, 2017) and hedge fund activists (Khurana et al., 2017) are associated with firm's real activities choices.

Accounting Standards

The flexibility in accounting standards allow managers to manipulate earnings (Dechow et al., 2010). To impose restriction on managerial discretion regarding accounting alternatives the regulators imposed mandatory adoption of IFRS. They expect the IFRS adoption would raise financial reporting quality since it limits AEM. However, researchers show that mandatory IFRS adoption either has no impact (Doukakis, 2014) or leads to an increase in REM (Ho et al., 2015; Ipino and Parbonetti, 2017). For example, Ipino and Parbonetti (2017) show that IFRS adoption leads to an unintended consequence in the form of an increase in usage of REM. Thus, tighter accounting standards leads to better earnings quality by reducing AEM, however resulting in more REM (Ewert and Wagenhofer 2005). The managers may deviate from their normal business operations, which could increase the overall cost to the

⁵ Active institutional investors include banks, pension funds and insurance companies.

firm. Moreover, Sohn (2016) shows that firm's accounting comparability with similar firms in the same industry constrains managers from using AEM. On the other hand, REM increases with the degree of firm's accounting comparability.

Regulations

Firms are more susceptible to higher scrutiny by regulators when they use AEM, hence managers prefer REM (Graham et al., 2005). Extant literature shows that government regulations such as SOX, earnings-based delisting, compensation disclosure and government-issued financial forecast warnings exacerbate REM (Cohen et al., 2008; Cheng et al., 2010; Espahbodiet al., (2016); Chung et al., 2015; Alhadab et al, 2016; Phan et al., 2017). Cohen et al., (2008) show that prior to SOX, firms engage in AEM and post SOX implementation, there is a decline in AEM and an increase in REM. Chen and Huang (2013) show that firms don't engage in REM around share repurchases, both pre and post SOX. However, Nakashima and Ziebart (2015) show that unlike U.S. firms, Japanese firms didn't mitigate AEM post J-SOX but were able to reduce REM.

Chung et al. (2015) shows that firms with government-issued financial forecast warnings engaged in REM to avoid litigation and penalties. These firms changed their earnings strategy from REM to both AEM and REM, after the government changed the financial forecast regulations from mandatory to voluntary regime. Kuo et al., (2014) show that firms choose REM over AEM after the split share structure reform due to heightened scrutiny. They show that quality of earnings information may not fundamentally increase post-reforms, but it leads to greater accessibility of information to market participants.

Institutional Factors

Extant research shows that REM is influenced not only by various regulations and accounting standards, but also by the country's cultural and institutional framework. The country level

factors such are legal tradition (Francis et al., 2016), financial development (Enomoto et al., 2018), investor protection (Enomoto et al., 2015), law (Ahearne et. al., 2016; Huang et al., 2018), market competition (Laksmana and Yang, 2014; Lemma et al., 2018), and so forth influences the firm's REM. Ahearne et. al. (2016) show that REM propensity is strongly associated with countries with strong institutions and common law tradition. Huang et al., (2018) show that managers' propensity to use REM increases when the shareholder's ability to file class action lawsuits is limited by law. REM is more pronounced for companies with weak corporate governance and lower institutional investors. Table II documents the additional research related to external factors of REM.

[Table II about here]

Consequences of REM

Extant literature on consequences of REM and its impact on the normal business strategy is mixed. Manipulation of operating and production activities leads to a decline in future firm performance (Mizik, 2010; Filip et al. 2014). However, Taylor and Xu (2007) show that REM is less likely to negatively impact firm's future performance. Gunny (2010) and Al-Shattarat et al., (2018) show that firms that manipulate earnings using REM to meet the earnings benchmark results in positive operating performance. These studies suggest that REM is not opportunistic in nature, but rather consistent with managers obtaining a better future performance. The managers indeed do a cost-benefit analysis before indulging in REM.

The market reacts more positively when the firm manipulates earnings using REM as compared to AEM (Chen et al., 2010; Li 2017). Managerial opportunism is the driving force behind REM and the market participants are not able to detect this, and this more likely increases the firm's exposure to various risks (Francis et al., 2016; Lin and Shen 2015; Chen

et al., 2015). For example, Khurana et al. (2018) show that real earnings smoothing is a long-term strategy used by managers to hide bad news, conceal asset diversion, engage in ineffective risk management and continue poor-performing projects, eventually resulting in future stock price crashes.

Researchers show that earnings management distorts firm's earnings quality and thereby exacerbates information asymmetry among different investors and lenders (Ge and Kim, 2014; Hinkel and Hoffman, 2017; Gao et al., 2017; Li et al., 2018). Abad et al. (2018) show that REM enhances private information production resulting in higher information asymmetry in the capital market. Hinkel and Hoffman (2017) show that probability of firms getting adverse credit rating increases when they meet earnings target using REM. Li et al. (2018) show that firms with higher REM get more and lower cost bank loans. Bondholders and credit rating agencies demand high-risk premiums since they perceive REM as credit risk increasing factor (Ge and Kim, 2014; Chen et al., 2014). The use of aggressive REM increases perceived business risk, thus, influencing the auditor's client retention decisions and audit fees (Kim and Park, 2013; Greiner et al., 2016; Choi et al., 2018). Table III documents the additional research related to consequences of REM.

[Table III about here]

Avenues for Future Research

The paper examines the key internal and external antecedents to REM and the consequences of REM. The review summarizes the studies related to the REM framework and suggests directions for future research. It also provides evidence on the dominance of REM research in developed economies. REM needs to be investigated in other locations, since contextual settings provide potential rich avenues for future research.

Presently the focus of REM research is on studies related to why managers engage in REM and none on them have addressed the 'how' questions associated with REM. Future research should investigate how managers evaluate the implications of REM and to what extent the firms engaged in REM deviate from normal business practices. For example, how does industry characteristics accentuate the effect on managers to engage in REM? Does organisation culture discourage managers from using REM? How does accounting standards affect manager's earnings management decisions? Researchers need to study when earnings manipulation is useful vs harmful and how do some firms design a system that can maintain an optimal level of earnings manipulation which doesn't have impact on the firm's long-term growth.

The review reveals mixed results on the impact of family firms, corporate governance, managerial ability etc. The contradictory results provide an opportunity for future researchers to explore the impact of various antecedents on REM. We know that the prevalence of earnings-based executive compensation leads managers to engage in earnings management. So, there is need to study why earnings-based compensation is required. Another possible area of future research is to investigate how recent regulatory changes such as mandatory audit rotation impacts REM. Do firms hire Big-4 or Non-Big-4 auditors when manipulating earnings using real activities?

Future research must explore the impact of potential losses from REM on various stakeholders (Shareholders and bondholders – existing & potential, employees, auditors, bankers, managers and regulators). Since different stakeholders have different interests, the actual manipulation level will depend on who holds more power. The managers will weigh losses and gains before any action regarding REM is taken. Much of REM research relates to income-increasing earnings manipulation (Roychowdhury, 2006; Cohen and Zarowin, 2010). However, Dichev et.al. (2013) show that 40% of earnings manipulation happens through

income-decreasing activities. Francis et al (2014) show that managers engage in downward REM to achieve certain economic benefits. More research is required to determine what factors contribute to firm's usage of downwards REM. COVID-19 has impacted the world and it has a huge implication on the firm's business. The future studies must examine the impact of COVID 19 on firms' earnings management behaviour.

Conclusion

This article provides a detailed review of studies that explores the antecedents and consequences of REM. We categorise the REM antecedents into internal and external factors such as environmental, firm and manager-specific characteristics that lead to REM. The study highlights the consequences of REM on firm performance, auditors, investors and creditors. Our review reveals the complex relation between these variables and also the paucity of research on certain factors that invite further analysis. Further, the need to carry out experimental research is required as we find lack of research related to the impact of behavioural and the environmental factors on REM.

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Table I. Additional articles related to internal factors of REM.

Internal Factors			
Classification Criteria	Authors	Country	Earnings Management Strategy
Firm-Level Antecedents	Campa (2015)	Spain	Financially distressed firms - REM>AEM
	Farrell et al. (2014)	U.S.	Financial Constrain - REM<AEM
	Liu and Espahbodi (2014)	U.S.	Dividend paying firms use both REM & AEM
	Smith and Pennathur (2017)	U.S.	Dividend increasers (REM), Dividend initiators (both REM & AEM)
	Kim et al. (2012)	U.S.	CSR mitigates REM & AEM
	Bozzolan et al. (2015)	24 countries	CSR firms are less likely to use REM compared to AEM. Firms with CSR orientation in presence of strong legal enforcement would indulge in lesser REM.
	Liu et.al. (2017)	U.S.	CSR has no impact on REM or AEM
	Shi et al. (2015)	U.S.	Geographically dispersed firms (REM) & local firms (AEM)
	Durnev et al. (2017)	37 countries	Firms' operations in offshore financial centers engage in REM & AEM.
	Farooqi et al. (2014)	U.S.	Global diversification mitigates REM & industrial diversification aggravates REM
	Bonacchi et al. (2018)	Italy	Parent companies use their subsidiaries to meet earnings target (REM & AEM)
	Goh et al. (2013)	Korea	Family-owned firms (FOF)mitigates upwards REM post Asian crisis.
	Tsao et al. (2017)	Taiwan	FOF do not reduce R&D expenditure in order to protect its reputation.
	Chang and Chen (2018)	Taiwan	Directors' and officers' liability insured firms mitigates REM
Managerial-Level Antecedents	Hsieh et al. (2014)	U.S.	CEO overconfidence - REM>AEM
	Kouaib and Jarboui (2017)	12 Countries	CEO overconfidence – REM post IFRS adoption
	Ham et.al. (2017)	U.S.	CFO Narcissism exacerbates REM & AEM
	Seybert (2010)	U.S.	Abandonment of R&D projects impacts managers reputation and career prospects
	Demers and Wang (2010)	U.S.	Older CEO's – REM, younger CEOs – AEM
	Moradi et al. (2015)	U.S.	Bonuses curbs REM& exacerbates AEM
	Li (2017)	U.S.	Equity compensation is positively associated with AEM & REM
	Huang and Sun (2017)	U.S.	Manager's high ability– AEM &classification shifting > REM
	Dhole et al. (2015)	U.S.	Higher the CEOs inside debt, lower is REM & AEM
	Choi et al. (2014)	Korea	Internal candidate CEO uses discretionary accruals and discretionary expenditure to manage earnings downwards only when the incumbent CEO departure is forced.
	Chi et al. (2016)	China	Politically connected CEOs uses REM
	Cheng et al. (2015)	U.S.	Key executive's horizon and influence has a negative impact on REM
	Sawicki and Shrestha (2014)	U.S.	Managers motivated insider trading do not lead to REM.
	Kim et al., 2017	38 countries	Weak future time reference language - less likely to use REM & AEM
	Asay (2018)		Optimism – increases the managers' propensity to engage in REM & AEM

Classification Criteria	Authors	Country	Earnings Management Strategy
Capital Market Antecedents	Zhu et. al. (2015)	U.S.	Chinese reverse mergers firms – use REM & AEM
	Wang et.al. (2018)	Taiwan	External debt – REM or AEM, external equity – both REM & AEM. Managers in presence of weak enterprise risk management (ERM) environment - use more REM.
	Haga et al., (2018)	U.S.	Discount rates positively influences managers to use both REM & AEM
Corporate Governance (CG) Antecedents	Kang and Kim (2012)	Korea	IDs reduces REM and it is more pronounced in presence of audit committee (AC)
	Cho and Chun (2015)	Korea	CG moderates CSR & REM.
	Braam et al. (2015); Ding et al. (2018)	30 Countries; China	Politically connected firms - REM>AEM

Table II.Additional articles related to external factors of REM.

External Factors			
Classification criteria	Authors	Sample (Country)	Earnings Management Strategy
Auditors	El-Helaly et al., (2018)	Greece	Big 4 auditors curb substitution effect between REM and related party transactions.
Investors	Dou et al. (2016); Dou et al. (2018)	U.S.	Blockholders - Mitigates REM & AEM
	Mehrani et al. (2017)	Iran	Active institutional investors - curb REM
	Lemma et.al. (2018)	41 Countries	Institutional investors (IIs) - No impact on REM
	Wongsunwai (2013)	U.S.	Higher quality VCs – curb REM, AEM
	Wang et al.,(2018)	China	Government owned VCs with political connection - exacerbates REM & AEM
	Park (2017)	U.S.	Short sellers detect REM
	Khurana et al., (2017)	U.S.	Hedge Fund Activists – increases REM
	Chen et al. (2015)	U.S.	Stock liquidity Mitigates REM
Analysts	Hong et al. (2014)	U.S.	Higher analyst coverage – Mitigates AEM & REM
Accounting Standard	Doukakis (2014)	22 Countries	IFRS - No impact on REM or AEM. Firm level factors play a dominant role in financial reporting quality
	Ho et al., (2015)	China	IFRS - Exacerbates REM. Substitution effect between AEM & REM
	Ipino and Parbonetti(2017)	33 Countries	IFRS - Trade-off between AEM & REM
	Bonetti et al., (2016)	14 Countries	IFRS - Increase in financial reporting quality in weak enforcement countries, where strong firm level corporate governance exists.

Classification criteria	Authors	Sample (Country)	Earnings Management Strategy
Regulations	Cohen et al. (2008); Bartov and Cohen (2009)	U.S.	Post SOX - REM>AEM
	Cheng et al. (2010)	China	Earnings-based listing regulation - Use REM & AEM
	Alhadab et al. (2016)	UK	Lightly regulated market – more sales-based REM & AEM, Highly regulated – discretionary expenses and R & D manipulation methods
	Espahbodi et al., (2016)	U.S.	Executive Compensation Disclosure Mitigates REM
	Phan et al.,(2017)	U.S.	Mandatory Pension Contribution – exacerbates REM
Other Institutional Factors	McGuire et al., (2012)	U.S.	Firms located in religious area - Exacerbates REM
	Duellman et al., (2013)	U.S.	Opportunistic financial reporting effect of equity incentives increases as monitoring intensity reduces, resulting in firms increased usage of REM.
	Einhorn et al., (2018)		The managers of competing firms operating in the same product market and their stocks are listed in the same capital market evoke cross firm REM.
	Enomoto et al., (2015)	38 Countries	Strong investor protection and analyst following curbs REM
	Ibrahim et al., (2011)	U.S.	Litigation unlikely since detecting REM is difficult.
	Ahearne et. al., (2016)	40 Countries	Strong institutions and common law tradition - REM
	Francis et al., (2016)	38 Countries	Stronger legal system – REM>AEM
	Laksmmana and Yang (2014); Lemma et al., (2018); Shi et al., (2018); Liao and Lin (2016)	U.S.; 41 countries; U.S.; U.S.	Low product market competition – exacerbates REM
	Ding et al., (2018)	China	Regional development moderates the relation between political connected and accounting quality (REM).
	Oz and Yelkenci, (2018)	14 Countries	IFRS adoption - constrains AEM in code law countries and constrains REM in common law countries when the enforcement intensity increases.
	Enomoto et al., (2018)	37 Countries	Higher financial development constrains REM & AEM
	Huang et al., (2018)	U.S.	Litigation risk – mitigates REM

Table III. Additional articles related to consequences of REM.

Consequences of REM			
Classification criteria	Authors	Sample (Country)	Results
Firm Future Performance	Mizik, 2010	U.S.	Short term - higher stock price; Long term – greater negative abnormal returns
	Al-Shattarat et al., 2018	UK	Meet last year earnings benchmark or zero earnings target - Positive impact on firm's future operating performance. Absence of earnings benchmark – Negative impact
	Taylor and Xu, 2007	U.S.	No negative impact
	Jiang et al., 2018	29 countries	Positive impact on firm future performance. The institutional environment moderates the positive association between REM and firm's future performance.
Risk	Lin & Shen (2015)	Taiwan	The credit risk decreases in family firms which uses REM after controlling for idiosyncratic risk.
	Alhadab et al., (2015)	UK	IPO firms with high levels of REM experience higher probability of IPO failure.
Cash Holdings	Chang et al., 2018	U.S.	Firms using REM impairs the value of cash holdings
Audit Fees	Chi et al., (2011); Greiner et al., (2017); Choi et al., (2018)	U.S.	Higher Audit fees
Bond Issues	Ge and Kim (2014)	U.S.	Bondholders demand higher risk premiums when the firms engage in REM
Innovation	Bereskin et al., (2018)	U.S.	R & D cuts leads to less patents and lower innovative efficiency.
Cost of Capital	Kim and Sohn (2013)	U.S.	The use of REM is positively associated firms cost of capital. Investors demand higher risk premium since managers exacerbates earnings using REM.
Bank Loans	Li et.al. (2017)	China	Firms with higher levels of REM - Lower cost and more bank loans. Ownership of firm moderates the relation between REM and bank loans
Bond	Chen et al., (2014)	U.S.	The volatilities of REM has a positive impact on bond yield spreads.
Auditors	Kim and Park (2013)	U.S.	Auditors resign when firms aggressively use REM
Information	Abad et al., (2018)	Spain	REM – higher information asymmetry
Market	Chen et al., (2010); Li (2017)	U.S.	Market reacts more positively to firms using REM compared to AEM
IPO price	Gao et.al. (2017)	China	IIs recognise REM & AEM, whereas retail investors can recognise AEM. The IIs pre-IPO earnings management recognition forces underwriters to lower the IPO offer price.