

Real earnings management: A review of the international literature

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Abstract

We provide a systematic literature review of the determinants and consequences of real earnings management (REM) in an international context. We provide a theoretical framework for REM, the development of REM measures, and review the determinants of REM, categorising these into financial reporting, auditing, governance and controls, capital market incentives, and regulatory determinants. We then review the empirical literature on the consequences of REM. We provide some suggestions for future research on measurement issues related to REM, and on filling gaps in the empirical research investigating its determinants and consequences.

KEYWORDS

accruals earnings management, corporate governance, financial reporting regulations, real earnings management, Sarbanes Oxley Act

JEL CLASSIFICATION

G30, M40, M41, M42

Correction added on 2nd July, after First online publication open access funding statement has been added.

We appreciate helpful comments from the Associate Editor, Lili Dai, and two anonymous reviewers.

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1 | INTRODUCTION

We provide a systematic review of the determinants and consequences of real earnings management (hereafter REM) in an international context. Earnings management research has dominated the accounting research landscape for about three decades. Researchers initially investigated the determinants of accruals earnings management (hereafter AEM) following the seminal paper of Jones (1991). However, after the passage of the Sarbanes Oxley Act (hereafter SOX) of 2002, research on the determinants and consequences of REM proliferated.

REM is defined as ‘departures from normal operational practices, motivated by managers’ desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations’ (Roychowdhury, 2006, p. 337). Examples of REM include, but are not limited to, overproduction designed to decrease the cost of goods sold and the cutting of R&D investment to boost current-period earnings. Managers are increasingly using REM, particularly in the post-SOX period, owing to the greater possibility of AEM being detected by auditors and regulatory authorities (Cohen *et al.*, 2008).¹ In a survey of 401 chief financial officers (CFOs) in the US, Graham *et al.* (2005), reveal that ‘80% of survey participants report that they would decrease discretionary spending on R&D, advertising, and maintenance to meet an earnings target. More than half (55.3%) state that they would delay starting a new project to meet an earnings target, even if such a delay entailed a small sacrifice in value’ (p. 32).² This increased use of REM has, consequently, expanded academic research on the determinants and consequences of REM. In this paper, we use REM and real activities manipulation interchangeably.

The managerial tendency to use REM can be explained using at least two competing theoretical perspectives. The signalling perspective suggests that managers engage in REM to signal private information to capital market participants, manifested through positive future operating performance (e.g., Gunny, 2010) and reduced debt financing cost, among others. In contrast, the managerial opportunistic view, grounded in agency theory, suggests that REM disguises the true performance of the firm and weakens the usefulness of accounting numbers as an evaluation and monitoring tool. For example, Roychowdhury (2006) documents that opportunistic use of aggressive price discounts to increase sales volumes heightens customers’ expectation of discounts in future periods as well and, eventually, will be detrimental to long-term cash flows. As a result, REM increases information risk and reduces the quality of the overall information environment and, thus, results in significant negative consequences.

Xu *et al.* (2007) reviewed the early literature on REM beginning from 1991 and discussed the activities usually employed by managers to engage in REM. They categorised these activities into three main groups, namely, operating, investing and financing activities. They reviewed papers that examined managerial REM behaviour that used discretionary expenses, production, and sales of long-term assets to manage earnings, and structure operating and investing transactions. The review then discussed the financing activities used for REM, such as stock repurchases, financial instruments and structuring of financing activities. Since their review, a plethora of research has emerged in financial reporting including auditing, capital market settings, and in corporate governance internationally, that used and continues to use the Roychowdhury (2006) measure for examining the determinants and consequences of REM.

¹AEM occurs when managers manipulate reported earnings by exploiting the accounting discretion allowed under GAAP. We do not intend to review the AEM literature; however, REM cannot be discussed in isolation, owing to the substitutive nature of the two earnings management strategies (Zang, 2012).

²Ahearne *et al.* (2016) surveyed 668 sales executives from 40 countries, and document that companies engage more in REM activities when ‘(1) sales personnel receive cash-flow incentives, (2) finance functions make REM-related decisions, (3) companies are publicly traded, and (4) operations are conducted in the United States’ (p. 1234).

Our purpose is to provide an updated stock of this literature.³ We expect our review to be useful for researchers interested in exploring the hitherto unexplored determinants and consequences of REM. Importantly, we highlight some measurement concerns associated with the Roychowdhury (2006) measure that need to be addressed if this research is to be informative in assessing managerial incentives for engaging in REM and its subsequent consequences.

We conduct a structured literature review by identifying, reviewing and classifying relevant published research work (Brauer, 2006; Halebian *et al.*, 2009; Schweizer & Nienhaus, 2017). First, by defining a literature review period from 2006 to the end of 2021, we ensured that our review updates the previous review on REM by Xu *et al.* (2007). We begin with the Roychowdhury (2006) paper which serves as the foundation for our review.

Second, we identified three disciplines on which to focus our search: accounting, finance and corporate governance. The accounting discipline is the natural starting point, since the REM research uses fundamental accounting information to construct REM values. Various capital market incentives have been found to be associated with managerial REM activities and, therefore, capital market incentives, including both equity and debt market, become the second domain: finance. Some such incentives for REM relate to initial public offering (hereafter IPO) and seasoned equity offering (hereafter SEO) settings, to name a few. Finally, internal and external corporate governance-based REM research is voluminous, as researchers examine whether corporate governance tools are effective in constraining REM behaviour or not. Inclusion of the corporate governance and REM literature is a significant departure from Xu *et al.* (2007), who focused on financial reporting only, including the auditing aspect of REM research and, to some extent, the nexus between finance and REM.

Third, we conducted a keyword search that included ‘earnings management’, ‘real earnings management’, ‘real activity manipulation’, ‘accruals management’, ‘Sarbanes-Oxley Act’ and ‘financial reporting quality’. We used these search terms to retrieve articles from the major business databases, including EBSCOhost, Emerald Insight, Scopus, Web of Science and Google Scholar.

Fourth, we skimmed through each of the articles initially derived, to identify whether the research question tested the determinants and consequences of REM empirically. We include articles published in journals ranked A and above on the 2019 Australian Business Deans Council (ABDC) rankings (Field of Research [FOR] code 1501 and 1502) to maintain a certain quality threshold, as well as to keep our review manageable. However, we acknowledge that inclusion of all relevant papers published, even in A-ranked journals, would make the number of papers overwhelming and would probably present a convoluted message. Therefore, we remain selective in our choice of some the articles published in A-ranked journals. We include some published papers in B-ranked journals if we feel their inclusion is crucial for our review.⁴ We also included working papers, but only those that have been presented at top conferences. To make the review comprehensive, we also included articles investigating the determinants and consequences of REM, but published in non-accounting and finance journals, such as *Journal of Business Ethics*, *Management Science*, *Journal of Business Research*, among others. Finally, we excluded empirical papers that used ‘REM’ as a control and/or moderating variable. In total, we include 153 published papers and one working paper.

The remainder of the paper proceeds as follows. In the next section, we provide a brief theoretical overview of REM, along with a discussion of measurement issues, including the recent developments in REM measures. This is important, because the inferences gained from the reported results must be evaluated in light of the appropriateness of the REM models. In Section 3, we review the literature on the determinants of REM. Section 4 reviews the literature on the consequences of REM. Section 5 discusses the opportunities for future research. Section 6 concludes the paper.

³Also see Roychowdhury *et al.* (2019, pp. 10–12) for a review of the empirical evidence on managerial myopia that covers very briefly some of the recent literature on REM.

⁴ABDC ranks journals into four categories: A*, A, B and C. The full list of ABDC rankings can be retrieved from <https://abdc.edu.au/research/abdc-journal-list/> (accessed September 2021).

2 | REM: THEORY AND MEASUREMENT

2.1 | REM: theoretical framework

REM occurs when ‘managers undertake actions that change the timing or structuring of an operation, investment, and/or financing transaction in an effort to influence the output of the accounting system’ (Gunny, 2010, p. 855). Such departure is not necessarily detrimental since managers often engage in REM activities to optimise the efficient use of scarce resources. Detecting opportunistic REM, therefore, poses a serious challenge to financial statement users. Researchers have tried to explain the rationale for REM using one of the two theoretical frameworks, namely, efficiency theory or opportunistic theory.

2.1.1 | Efficiency theory of REM

The *efficiency view* or, in other words, the information view, which is informed by signalling theory, suggests that managers engage in REM to signal private information to capital market participants. More specifically, signalling theory proposes that firms with a solid financial performance utilise REM to reduce information asymmetry in the capital market, and to signal future economic growth. Although REM is a costly strategy, managers use REM to convey to investors that their firm's economic performance will not deteriorate in the subsequent periods. Owing to the costly nature of REM, managers use these activities in circumstances when the negative impact of REM is outweighed by the positive benefits derived from information conveyed to the capital markets (Zhao *et al.*, 2012). Based on the efficiency view, it is argued that firms that have a potential to show better future performance use REM to signal such potential to the capital markets. Gunny (2010) and Al-Shattarat *et al.* (2018), among others, provide evidence supporting the efficiency view of REM.

2.1.2 | Opportunistic theory of REM

Drawing insights from agency theory, the *opportunistic view* of REM suggests that managers depart from normal business activities with the desire to misinform financial statement users. Specifically, managers deliberately deviate from normal activities aimed at achieving financial reporting goals, in order to gain private benefits (Roychowdhury, 2006). The opportunistic use of activities, such as aggressive price reductions, overproduction and curtailing discretionary expenses like R&D expenditure, increases information risk, because such opportunistic actions disguise the true economic performance. Accordingly, REM creates information asymmetry and triggers agency frictions in the form of adverse selection and moral hazard problems. The adverse selection escalates when managers have access to true information about the firm value, while investors do not. REM-induced information asymmetry creates an adverse selection problem between managers and capital providers, thus undermining investors' efficient allocation of resources. For example, managers' over-optimistic revenue disclosures may bias investors' optimal investment decisions in an IPO situation. Moral hazard arises when the principal is not able to monitor the agent's behaviour and fails to assess whether the agent is acting to maximise firm value. Managers, therefore, can take advantage of this information asymmetry-induced moral hazard setting, and can myopically use REM to achieve earnings benchmarks to gain private contractual benefits (Cohen & Zarowin, 2010; Kothari *et al.*, 2016; Roychowdhury, 2006).⁵

⁵We refer to firms just meeting and or beating earnings benchmarks as SUSPECT firms in the remainder of the paper.

Such opportunistic REM manifests in adverse consequences, such as declined firm performance. Opportunistic REM also affects equity and debt market outcomes adversely (Kim & Sohn, 2013; Pappas *et al.*, 2019).

2.1.3 | Other theories

Our survey of the literature shows that the efficiency versus the opportunism theory of managerial REM behaviour is used as the dominant theoretical paradigm. However, managerial REM behaviour having the intention to mask true economic performance can also be explained using the revelation principle, a principle that states that managers will not be able to benefit from earnings management if a number of perfect market conditions hold. Some such conditions include: the existence of costless contracting and contract enforcement; fully rational and utility maximising investors and managers; and costless managerial communication. Given that these conditions are unlikely to hold in markets plagued with agency frictions, managers use REM as an earnings manipulation tool. Dye (1988) and Arya *et al.* (1998) argue that REM violates the revelation principle, as managers deliberately overstate earnings to benefit the current as opposed to the future generation of shareholders. Litigation and ethical theories have also been proposed to explain why managers choose REM over AEM. The litigation hypothesis posits that, since REM is embedded in business decisions that can be justified as rational economic decisions by decision-makers, managers engaging in REM are less prone to litigation threats from shareholders. The ethical perspective suggests that managers perceive REM as being more ethical than AEM (McGuire *et al.*, 2012).

Finally, in experimental research on the consequences of REM, some authors have used the correspondent inference theory (CIT). The CIT postulates that observers (e.g., auditors) make stronger inferences about an observed person's disposition or character based on observed behaviour. These inferences are stronger when the observed person's behaviour appears to be discretionary, differs from expectations and significantly alters results. This perception of the behaviour does affect how the observer reacts to the observed action. The CIT two-stage process suggests that observers first infer traits (such as aggressiveness) from the target's behaviour and, secondly, form a more general characterisation about the observed actor's disposition (i.e., perceive target as aggressive or conservative). Commerford *et al.* (2018) and Commerford *et al.* (2019) use CIT to explain auditor responses to the managerial use of REM.

2.2 | Measurement of REM

Roychowdhury (2006) develops the widely used REM measures in the extant literature: abnormal production costs (*ABN_PROD*), abnormal discretionary expenses (*ABN_DISX*) and abnormal levels of cash flow from operations (*ABN_CFO*).

To measure *ABN_PROD*, Roychowdhury (2006) first estimates the normal level of production costs using the following equation:

$$\frac{PROD_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{Sales_t}{A_{t-1}} + \alpha_3 \frac{\Delta Sales_t}{A_{t-1}} + \alpha_4 \frac{\Delta Sales_{t-1}}{A_{t-1}}, \quad (1)$$

where $PROD_t$ is the sum of the cost of goods sold (hereafter COGS) in year t and the change in inventory from $t - 1$ to t , A_{t-1} is the total assets in year $t - 1$, $Sales_t$ is the net sales in year t , and $\Delta Sales_t$ is the change in net sales from year $t - 1$ to t . Equation (1) is estimated cross-sectionally for each industry-year with a given number of observations. *ABN_PROD* is measured as the residual from Equation (1). A high value of *ABN_PROD* represents REM, under the assumption

that firms increase their production levels to reduce per unit fixed costs, in order to show higher profit margins.

To measure *ABN_DISX*, Roychowdhury (2006) measures the normal level of discretionary expenses using the following equation:

$$\frac{DISX_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{Sales_{t-1}}{A_{t-1}}, \quad (2)$$

where *DISX_t* is the discretionary expenses (i.e., the sum of R&D, advertising and SG&A expenditure) in year *t*.⁶ Roychowdhury adds R&D and advertising to SG&A, but Compustat's variable for SG&A (*XSGA*) includes advertising and R&D expenses (Srivastava, 2019). Equation (2) is again estimated cross-sectionally for industry-years. The *ABN_DISX* is measured as the residual from Equation (2) above. The residuals are multiplied by -1 so that the higher values indicate greater REM, using abnormal cuts in discretionary expenses to inflate earnings. The sum of *ABN_PROD* and *ABN_DISX* can be referred to as REM1.

Finally, to measure *ABN_CFO*, Roychowdhury (2006) uses the following cross-sectional regression for each industry and year to measure the normal level of CFO:

$$\frac{CFO_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{Sales_t}{A_{t-1}} + \alpha_2 \frac{\Delta Sales_t}{A_{t-1}}, \quad (3)$$

where *CFO_t* is the cash flow from operations in year *t*. The *ABN_CFO* is the residual from the above regression. Although Roychowdhury (2006) posits that the manipulation of real activities affects operating cash flow, he did not predict a directional effect. Subsequent studies, however, associate *ABN_CFO* with REM, consistent with the idea that a cut in discretionary costs increases operating cash flow. The residual from Equation (3) is multiplied by -1 so that higher values imply greater REM. The sum of $(-1 * ABN_CFO)$ and $(-1 * ABN_DISX)$ can be referred to as REM2. Many studies use individual components as proxies for REM.

The REM proxies defined above hinge critically on two assumptions. First, all firms in an industry have the same cost and cash flow patterns when they are not managing earnings. Second, sales revenue is the sole driver of costs and profitability in the normal course of business. In a recent study, Srivastava (2019) shows that these assumptions are systematically violated and, hence, caution needs to be exercised in inferring the extent to which the REM proxies of Roychowdhury (2006) capture REM. Cohen *et al.* (2020) further note that the fundamental driver of the variables used to construct REM measures is firms' investment opportunity sets (IOSs). Since IOSs are firm-specific, expected real activity levels will differ across firms, thereby requiring researchers to estimate firm-specific regressions. However, such an approach suffers from significant data attrition, because of the availability of short time series of annual or quarterly data for many firms. Hence, researchers use cross-sectional regressions at the industry level to determine the normal level of REM. Cross-sectional models, however, have low explanatory power, because they fail to capture the complexities of the firm-level underlying economics.

⁶Some marketing activities, like R&D expenditures, result in higher long-term profits but no immediate returns, as opposed to advertising brands via television. While the latter activities, such as price discounts and prominent place in the aisle, result in short-term performance boosts, they have no, or negative, long-term performance effects. Based on this premise, Chapman and Steenburg (2011) examine the use of marketing activities as an REM tool. The results indicate that firms have high price discounts, feature and display promotions more frequently in the last quarter of the year, indicating manipulation of real earnings through marketing activities. However, this is followed by a reduction in EPS in the next quarter. Furthermore, the phenomenon is more pronounced for firms which just meet or beat earnings targets.

Gunny (2010) expands the *ABN_DISX* model by incorporating four additional independent variables, namely: *MV* (market value of equity); *Tobin's Q*, to proxy for marginal benefits to the marginal cost for investment; internal funds (*INT*) to control for financial constraints; and a proxy for the sticky nature of cost (*DD*), an indicator variable equal to 1 when total sales decrease between $t - 1$ and t , and zero otherwise. Gunny (2010) notes that 'Not including this element in the SG&A expectations model may lead to underestimating (overestimating) the response of costs to increases (decreases) in sales' (p. 864). Despite this innovation proposed by Gunny (2010) as well as by Srivastava (2019), our review shows that Roychowdhury's (2006) model is the only one considered in most of the surveyed papers.

Cohen *et al.* (2020) use simulation analysis to provide evidence on 'whether the REM measures commonly used in the literature are, in fact, well specified' and on 'their ability to detect REM when it is present in the data' (p. 1173). The authors document that traditional REM measures are misspecified, although such misspecification varies conditional on the chosen sample, i.e., the misspecification is modest in samples drawn from the entire population, whereas it is acute for samples having extreme size, book-to-market and sales growth. With respect to the power of the test, the authors document that neither the traditional REM measures, nor the performance-matched REM measures, outperform one another. Despite this finding, Cohen *et al.* (2020) recommend future researchers report results using both measures. Gilliam (2021), however, argues that omitted variable bias and non-linear performance measures are responsible for REM model misspecification – misspecifications that the performance matching proposed by Cohen *et al.* (2020) does not mitigate. To reduce concerns regarding the omitted variable bias, Gilliam (2021) includes gross margin, firm size, firm performance and book-to-market.

Gilliam (2021) builds on Srivastava (2019), who proposes that for REM to actually capture earnings manipulation, researchers need to augment the existing models. Srivastava (2019), for example, expands the normal production model as follows:

$$\begin{aligned} \frac{PROD_t}{A_{t-1}} = & \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{Sales_t}{A_{t-1}} + \alpha_3 \frac{\Delta Sales_t}{A_{t-1}} + \alpha_4 \frac{\Delta Sales_{t-1}}{A_{t-1}} + \alpha_5 LN_MV_{i,t} + \alpha_6 ROA_{i,t-1} \\ & + \alpha_7 MTB_{i,t} + \alpha_8 \frac{Sales_{t+1}}{A_{t-1}} + \alpha_9 PROD_{i,t-1} + \epsilon_{i,t}, \end{aligned} \quad (4)$$

where *LN_MV* is the natural logarithm of market value of equity; *ROA* is return-on-assets, defined as operating income after depreciation deflated by total assets at the beginning of the year. Other variables are defined as before. Srivastava (2019), however, cautions that even this augmented model 'cannot correct for a firm's optimal business response to an external shock ..., which would appear as a deviation from the firm's own past behaviour. This factor can be controlled by a cohort adjustment motivated by the assumption that firms in similar life-cycle stage and with similar technology vintage experience similar economic shocks and have similar optimal response. A firm's abnormal behaviour is thus estimated by subtracting the activity of a same-cohort firm having similar size from the activity of the given firm to obtain a cohort-adjusted measure' (p. 1304).

2.3 | Section summary

This section summarises the two main theoretical strands that underpin the REM literature, namely, the efficiency versus the opportunistic theory of REM. Although these theories are intuitively appealing, disentangling whether managerial REM actions are undertaken for efficiency as opposed to opportunistic reasons is a major challenge for researchers. With respect to measurement of REM, certain concerns remain. Despite the dominance of the

Roychowdhury (2006) measure in empirical tests, this measure is not without its limitations. Other researchers have provided some suggestions for improving the Roychowdhury model, although our survey has not found much evidence that researchers have incorporated such suggestions.⁷

3 | DETERMINANTS OF REM

In this section we review the strand of the literature that examines various determinants of managerial REM behaviour. For expositional purposes, we categorised the determinants into (a) financial reporting (Section 3.1); (b) auditors (Section 3.2); (c) governance and controls (Section 3.3); capital market incentives (Section 3.4); regulation changes and other external factors (Section 3.5); and REM in private firms and other sectors (Section 3.6).

3.1 | Financial reporting

One major determinant of REM is the relative cost/benefit of AEM and REM. Because accounting standard setters perceive earnings management as being detrimental for stakeholders, they tend to tighten accounting standards (e.g., make more prescriptive or rule-based standards). However, tighter accounting standards may be successful in constraining AEM, but do little to restrict REM, thereby giving rise to a substitution effect (Ewert & Wagenhofer, 2005). The authors show analytically that tighter accounting standards increase earnings quality by reducing AEM, but also increase REM by increasing the marginal benefit of undertaking REM. However, it is not clear such benefits outweigh the costs associated with undertaking REM.

Zang (2012) considers the relative costs of the two strategies, and the timing differences between the two techniques, and provides stronger and more reliable evidence of the trade-off between REM and AEM. Zang (2012) introduces an important concept of the timing difference between the two earnings management strategies. While REM is implemented throughout the year, AEM is implemented at the end of the financial period, by adjusting accounting estimates and methods. This timing difference provides managers with the option of increasing (decreasing) accruals at the end of the year based on the lower (higher) REM during the year, which also suggests a sequential nature of the two earnings management strategies. Ernstberger *et al.* (2017) document an increase in REM for firms in the EU countries that were mandated to increase their Interim Management Statements (IMS) following the passage of the 2007 legislation. This finding is consistent with the notion that short-term reporting requirements create incentives for managers to manipulate earnings to meet or beat quarterly benchmarks. However, this finding is more pronounced in the presence of higher price pressure from investors but less so when IMS disclosure is more informative. This regulation proved costly, as the reporting frequency-induced REM decreased firms' long-term operating performance. This is one of few studies to investigate the real effects of regulation on REM practices.

Fan and Liu (2017) try to differentiate earnings management through expense misclassification from an REM-based strategy – a test that is expected to provide a better predictive power

⁷Siriviriyaikul (2021) empirically assesses three attributes of REM proxies, namely their economic magnitudes, time-series properties and variation with performance. For Roychowdhury's (2006) model, she finds that (1) the magnitude of the abnormal levels of activity are high relative to the normal levels; (2) they exhibit persistence; and (3) they vary predictably with firm performance. She examines five adjusted REM proxies found in the literature and notes that the reversal-based proxies proposed by Vorst (2016) and the time-series-adjusted proxies based on Kothari *et al.* (2016) have reliably lower magnitudes, do not exhibit persistence, and do not vary with performance.

of pure REM strategy. To achieve the research objective, the authors divided the full sample into two groups: one with, and another without, income-decreasing special items. Findings show that managers use both misclassification and REM to reduce the reported COGS and, thereby, meet or beat the prior period *gross margin benchmark* for firm-quarters with income-decreasing special items. In contrast, these suspect firms use misclassification of both COGS and SG&A (rather than REM) to meet or beat the *zero core earnings benchmark*. Similarly, both classification shifting and abnormal cuts in SG&A (a proxy for REM) are used to achieve a *small increase in core earnings*, supporting the opportunistic use of REM. These results suggest that unexpectedly low expenses do not necessarily suggest an REM phenomenon.

Our review has identified several financial reporting-related variables affecting REM, including financial leverage (Anagnostopoulou & Tsekrekos, 2017); financial statement comparability (Sohn, 2016); conditional conservatism (García Lara *et al.*, 2020); and asset disposal (Campa *et al.*, 2019).⁸ It should, however, be noted that not all these studies provide a direct test of the substitution effect between REM and AEM. For example, Sohn (2016) finds that firms that have comparable financial statements are less (more) likely to engage in AEM (REM) to achieve earnings targets, without referring to the substitution effect directly. Campa *et al.* (2019), on the other hand, document that the substitution effect between REM and AEM arising from asset sales depends on the magnitude of the accruals on the balance sheet. An interesting financial reporting phenomenon known as ‘accruals reversal’ has also been related to REM practices by Asay (2018). Opportunistic earnings management in the current period affects future earnings because of accruals reversals. Asay (2018) uses an experimental approach by holding constant the participants’ incentives and the information environment, and documents that horizon-induced optimism increases participants’ propensity to engage in both AEM and REM and also increases managerial confidence about future performance.

Standard setters intend to minimise managerial opportunism by promulgating and enforcing reporting regulations. Our review of financial reporting and REM do not give a clear indication about whether reporting standards are effective in constraining managerial opportunism. Although reporting standards aimed at curtailing managerial opportunism is desirable, managers with opportunistic intentions might increase REM which could adversely affect financial reporting quality. Therefore, the trade-off between AEM and REM has received significant research attention.

3.2 | Auditing and REM

Similar to the standard setters, independent and high-quality external auditors are expected to minimise managerial opportunistic use of REM. Thus, the empirical research on the auditing and REM relationship has primarily investigated whether high-quality auditors constrain or increase REM activities. Although it is expected that high quality auditors would constrain REM activities to protect their reputational capital, auditors may have limited ability to restrict REM, as ‘it is difficult for auditors to distinguish opportunistic REM from operational adjustments based on optimal business decisions’ (Choi *et al.*, 2018, p. 2229). On the other hand, auditors may have incentives to detect REM, because of increased litigation risk.

Using an international sample, Choi *et al.* (2018) find that the presence of a Big4 auditor reduces REM as well as AEM, and attenuates the positive relation between the strength of

⁸Raghuandan (2021) examines wage theft by employers as a mechanism for REM and finds that SUSPECT firms engage in wage theft more frequently than their non-SUSPECT firm counterparts do. Wage theft is a financially attractive tool to employers, because of its relatively low direct as well as indirect costs. For example, the federal law caps the fines that the US Department of Labor’s Wage & Hour Division (WHD) can charge for wage violations. The indirect firm-level costs of wage theft are also low because of contractual provisions barring certain employees to sue their employers (p. 868). The author further documents a substitute relation between wage theft and financial misconduct as firms are more (less) likely to engage in financial misconduct after (before) they are caught engaging in wage theft.

legal protection and REM.⁹ Chi *et al.* (2011), however, find a positive and significant relationship between audit quality and REM and, in the presence of higher audit quality, US firms switched to REM from AEM, an unintended consequence of higher quality auditors.¹⁰ Burnett *et al.* (2012) examine whether high-quality auditors constrain accretive share repurchases, a form of REM, by managers to meet earnings targets. Unlike AEM, auditors do not scrutinise stock repurchases since repurchases are a real financing activity and this, therefore, enables managers to use share repurchases opportunistically to meet earnings targets. The authors provide robust evidence that SUSPECT repurchase firms,¹¹ engaging industry-specialist auditors, are more likely to use accretive stock repurchases and less likely to use AEM to meet or beat analysts' forecasts, thereby raising concerns regarding the monitoring ability of high-quality auditors. Liu (2020), however, fails to find any significant change in the usage of AEM or REM from the pre- to post-engagement partner signature period for a sample from the UK and three other European countries.¹² The results of no change in the REM activities in the post-signature period suggest that there will likely be no adverse effects emanating from the disclosure of the identity of the engagement partner. In the UK IPO setting, Alhadab and Clacher (2018) find that the presence of high-quality auditors (Big N audit firms) fails to constrain *all forms* of earnings management. In particular, the presence of high-quality auditors constrains the manipulation of AEM, and REM that occurs through ADISX.¹³ However, IPO firms audited by higher quality auditors undertake sales-based manipulation (ACFO) to manipulate earnings upwards at the end of the IPO year.

Using arguments from gender socialisation theory (Mason & Mudrack, 1996), Owusu *et al.* (2022) examine whether auditor gender affects the trade-off between AEM and REM. The authors report that the magnitude of the AEM is lower in firms with female auditors. In contrast, the coefficient for female auditors is generally insignificant in both the level and the change REM regressions.¹⁴ Kung *et al.* (2019), however, document that all-female signing audi-

⁹However, Choi *et al.* (2018) did not examine whether the findings hold for SUSPECT firms and SEO firms.

¹⁰The substitution between AEM and REM suggests that if auditors make it more difficult for managers to engage in one form of earnings management, the marginal benefit of the other method will increase. Based on this theoretical notion, Lamoreaux *et al.* (2021) show that firms whose auditors have become subject to Public Company Accounting Oversight Board (PCAOB) inspection oversight, exhibit greater use of REM. Furthermore, firms are more likely to avoid reporting losses and negative earnings surprises through the use of REM in the post-PCAOB inspection period. Importantly, such REM proves costly as firms making the largest cuts to R&D expenditures upon the introduction of PCAOB oversight document a pronounced decrease in innovative outputs. Taken together, this study documents an economic cost of audit regulation.

¹¹Firms deploying repurchases for earnings management purposes are defined as firms that would have missed analysts' forecasts by five cents or less but are able to meet or beat forecasts by no more than five cents with a stock repurchase (Burnett *et al.*, 2012, p. 1868).

¹²One plausible explanation for the insignificant finding could be that there is a far less dramatic increase in the scrutiny from the engagement partner to force managers to substitute costly REM for AEM. The inconsistent finding between the US (Burnett *et al.*, 2012; Chi *et al.*, 2011) and this UK research points to an interesting question regarding the threshold of rigorous scrutiny that constrains managers from engaging in AEM but does not encourage managers to manipulate earnings through REM for meeting earnings targets.

¹³The negative relationship between audit quality and REM through ADISX 'is consistent with the approach for detecting real earnings management via the use of ratios, trends, financial and nonfinancial information, set out in the International Standards on Auditing. A divergent trend between increasing sales and the costs associated with increasing sales would be a signal to high-quality auditors that there may be pervasive manipulation going on' (Alhadab & Clacher, 2018, p. 445).

¹⁴In the change specification, the change in female auditor is not clearly defined in the paper. Therefore, it is not clear whether 'D_FAUDITOR' is the difference between FAUDITOR (a dummy variable indicating the presence of a female auditor) in period t minus FAUDITOR in period $t - 1$ or whether it indicates a change from male to female auditor from period $t - 1$ to period t . Depending on the definition used, the results should be interpreted with caution. For example, with the first definition, the insignificant coefficient of D_FAUDITOR, which may take the value of either 0 (no change in auditor gender), 1 (change from male auditor in year $t - 1$ to female auditor in year t), or -1 (change from female auditor in year $t - 1$ to male auditor in year t), suggests that there is no incremental change in REM due to change in auditor gender from last year to current year. In contrast, with the second definition, the coefficient of D_FAUDITOR indicates whether there are any changes in REM for firms switching from male to a female auditor in year t .

tor pairs and auditor industry expertise could drive clients to engage in REM as an alternative to AEM. Baatwah *et al.* (2021) report that the industry expertise of external providers of internal audit function (IAF) has a significantly negative association with REM in Oman. This supports the notion that the outsourced IAF offers an objective and cost-effective service and allows firms to access a more qualified and experienced provider, attain effective audit testing and recover losses in case of audit failure (Carey *et al.*, 2006).

Taken together, the research on the relationship between high-quality auditing and REM offers mixed evidence. Studies finding a positive relationship are premised on the argument that auditors fail to detect REM because REM is an operational decision and, hence, is unlikely to be as heavily scrutinised as AEM.

3.3 | Governance and controls

As discussed before, REM is embedded in strategic decision making, and executed through firms' operations. Corporate governance is, thus, particularly pertinent to REM, because well-governed firms will be able to deter opportunistic REM. We review the voluminous literature on the association between various corporate governance mechanisms and REM below, in four sub-sections for ease of exposition.

3.3.1 | Corporate boards, top management team, executive compensation and REM

An independent board should be effective in constraining opportunistic earnings management, including REM. Evidence supporting this proposition is provided by García Osma (2008) with respect to constraining managers from myopically motivated R&D expense cuts in the UK. It should, however, be noted that an overreliance on independent directors can be detrimental from an information sharing perspective, as CEOs may opt to avoid sharing information fully with the board to constrain board monitoring. Chen *et al.* (2015) test whether the SOX requirement for firms to have majority independent directors (an exogenous change in board structure) increased directors' monitoring intensity and, consequently, reduced opportunistic REM. Since effective monitoring is conditional on the availability of firm-specific information, the authors further test whether information acquisition cost moderates the relation between an increase in board independence and a reduction in earnings management. The authors find that non-compliant firms, i.e., firms required to increase independent directors on the board in the post-SOX period, experienced a reduction in REM, but *only* when the cost of information acquisition is low. However, they did not test whether the changes in REM induced by changes in board structure in the post-regulation period affected firm performance. Hoitash and Mkrtchyan (2022) extend this strand of research by investigating whether boards can acquire information from executives not serving on the board (i.e., internal ties), and whether such a governance arrangement helps boards to exercise better monitoring. The authors theorise that internal ties 'may increase the likelihood of information sharing, as social ties often lead to more frequent interactions and, more importantly, foster trust between the connected parties ... Sharing information with the board can also be beneficial for the connected executives; as such connections may mitigate the executives' potential fear of retaliation by the CEO' (p. 2). Consistent with this theoretical prediction, the authors document a negative relationship between internal ties and REM. However, it is not clear why the authors used only APROD cost as a proxy for REM.

Although various facets of board composition and REM have been investigated, very little research exists on labour representation on the board, and its implications for REM

behaviour. Gleason *et al.* (2021) fill this void in the literature by using data from Germany, where worker representation on corporate boards is a mandatory requirement. Economic theories predict that worker representatives would use control and voting rights in the boardroom to transform firm assets for wage increases (e.g., Furubotn, 1988). Labour contract models, on the other hand, suggest that by adding valuable first-hand knowledge to the board, workers on the board improve monitoring (e.g., Fauver & Fuerst, 2006). Results show that worker representation constrains REM that threatens the payroll (e.g., cuts in discretionary expenditure). Conversely, worker representation increases REM (e.g., over-production that reduces cost of goods sold and, hence, increases earnings), because workers benefit from the payroll increase. The study, therefore, documents the prevalence of payroll maximisation over monitoring duties towards managerial REM actions, thereby supporting the opportunistic theory of REM.

A strand of literature investigates whether directors are complementary or substitutive to takeover protections.¹⁵ Zhao *et al.* (2012) find that takeover protections measured by the existence of a staggered board¹⁶ are associated with lower levels of REM, a finding that is consistent with takeover protection serving as a good governance tool. However, Zhao *et al.* (2012) do not consider the implication of SOX on REM, although their data period covers the years from 1995 to 2008. Drawing on a more comprehensive index of takeover protection, Ge and Kim (2014) reveal that, after the passage of the SOX, REM achieved by manipulating sales and ADISX, increases (decreases) with stronger board governance (higher levels of takeover protection). These findings further question the monitoring role of the board of directors in the broad context of governance in detecting and preventing opportunistic REM.

CEOs play a prominent role in developing and executing strategies for firms and, hence, research has examined CEO attributes and firms' propensity to engage in REM. Griffin *et al.* (2021) posit that social connections can induce a CEO to engage in rent extraction to meet the market's expectation when the CEO's social capital increases. Using the number of social connections to outside executives and directors to measure CEO social capital, the authors find that CEOs' social connections are positively associated with higher levels and volatilities of REM, and such REM reduces firms' future operating performance. CEOs with financial experience (Gounopoulos & Pham, 2018), and more religious CEOs (Cai *et al.*, 2019) reduce REM. Ali and Zhang (2015) find that REM is greater in the earlier rather than the later years of a CEO's service. Geertsema *et al.* (2020) show that new CEOs, particularly CEOs in firms with low levels of institutional ownership, tend to adopt downwards REM. Choi *et al.* (2014) show upward earnings management by the departing CEO when, and only when, the departure is forced by an insider replacement and the new CEO engages in downward REM. However, it is not only CEOs in an organisation who are responsible for decision making. The top management team (TMT) also plays a crucial role in shaping organisation culture. The upper echelon theory posits that 'leadership of a complex organization is a shared activity, and the collective cognitions, capabilities, and interactions of the entire TMT enter into strategic behaviors' (Hambrick, 2007, p. 334). Therefore, research has also explored the TMT characteristics and REM behaviour.

¹⁵There are competing views on whether takeover protections serve as weak or strong governance. On one hand, takeover protections prevent firms being exposed to the monitoring of external markets, intensify agency conflicts between managers and investors (Gompers *et al.*, 2003; Scharfstein, 1988a) and, hence, increase managerial myopic behaviour, including REM. On the other hand, REM may be motivated by pressures to beat the analysts' expectations (Gunny, 2010). Takeover protections release firm managers from such external market pressures and strengthen firms' governance environment.

¹⁶A staggered board structure classifies board members into different classes with different terms or different expiry dates. This is to ensure that the board as an entirety cannot be removed and replaced all together upon election. Therefore, staggered boards may deter takeovers.

Cheng *et al.* (2016) examine the relationship between REM and key subordinate executives, defined as the top four executives with the highest compensation other than the CEO. Using the number of years until retirement age as a proxy for these executives' decision horizon, and the level of their compensation relative to the CEO as a proxy for their influence, the authors document a negative relationship between subordinate executives' horizon and relative compensation and REM, but only for SUSPECT firms. This finding is consistent with the prediction that the desire of some of these executives to become the CEO in the future motivates them to maximise future cash flows based on current optimum investments. Therefore, these executives are more likely to focus on creating value in the long-run instead of meeting short-term performance pressure by cutting value-adding investments. Ham *et al.* (2017) present evidence that CFO narcissism, as measured by signature size,¹⁷ is positively associated with both AEM and REM. Given that this research sample period centres around the passage of the SOX, which required the senior executives of certain publicly traded firms to certify the accuracy of their financial disclosures by providing signed statements, the authors could not test the relations between narcissistic CFOs and each of the two earnings management techniques. It would be interesting to see whether the documented positive association between CFO narcissism and both the AEM and REM continue to hold in the post-SOX era. Qi *et al.* (2017) shows that female top executives, and top executives near retirement age, are less likely to engage in either AEM or REM, while top executives with financial work experience are more likely to engage in both AEM and REM compared with those without financial experience. Baker *et al.* (2019) reveal that a powerful CEO prefers AEM, whereas a powerful CFO prefers REM.¹⁸ Interestingly, these two powerful executives do constrain each other with respect to earnings management. But this finding goes against a recent finding of Dikolli *et al.* (2021) who show that co-opted CFOs engage in opportunistic REM to meet earnings targets. Fang *et al.* (2022) finds that US firms with socially connected executives are more likely to engage in both AEM and REM, an association that is more pronounced for connections stemming from past professional working experiences than connections through education and other social activities. Di Meo *et al.* (2017) find a negative association between managerial entrenchment and both AEM and REM. Such earnings management is less detrimental to firm value.

With respect to their role in limiting or committing opportunistic REM, firm executives are under the spotlights of both agency theory, as underpinning agency conflicts, and upper echelons theory, where certain personal and demographic traits are able to predict and explain executive behaviours: REM in our setting. A missing link is how incentive compensation as an internal corporate governance mechanism affects REM behaviour. Incentive compensations are designed to align the interests of management with those of investors, although evidence also supports equity-based incentive schemes as encouraging managers to inflate earnings in order to boost stock prices. Results on the relationship between incentive compensation and REM remains mixed. Holderness *et al.* (2019) reveal that increases in employee equity-based compensation are associated with an increase in REM, as opposed to AEM. A negative relation between incentive compensation and REM is documented by Dhole *et al.* (2016) who reveal that CEO inside debt is negatively associated with both AEM and REM. Brown *et al.* (2017) document a negative relationship between a target stock ownership plan, which requires executives to maintain a particular level of holdings in the firm, and REM. Duellman *et al.* (2013) also document a negative relationship between equity incentives and REM, but

¹⁷To measure the signature size, the authors draw a rectangle around each signature, with each side touching the most extreme endpoint of the signature. The area of the rectangle is measured (in centimetres squared) and standardised by the number of letters in the signature (p. 1105).

¹⁸In Baker *et al.* (2019), CEO duality serves as a proxy for a powerful CEO. A CFO sitting on the board serves as a proxy for a powerful CFO.

only for high and moderate monitoring intensity firms, with monitoring intensity being proxied by a principal component analysis of board characteristics, auditor dependence on clients, and institutional ownership characteristics. Given the inconsistent findings documented in the literature, we encourage future research to identify settings where managerial incentives for opportunistic or efficiency-driven REM are rife, and then examine the equity compensation and REM relationship.

Strong internal controls over financial reporting should normally prevent myopic earnings management that undermines financial reporting quality. Following this notion, regulators expect that the implementation of effective internal controls will improve corporate transparency and increase the quality of financial reporting (Committee of Sponsoring Organizations of the Treadway Commission (COSO), 1992; SOX, 2002). Garg (2018) examines the effect of changes in internal control certification requirements (ICCR) on the earnings management choices of Australian firms.¹⁹ Consistent with the notion that REM is harder to detect, the results suggest that firms place greater reliance on REM than on AEM to manipulate earnings when having to comply with ICCR. Guggenmos (2020) examines whether corporate innovative culture determines managerial REM activities, using an experimental research approach. Although creativity and innovation generate new products and new business processes, which enable firms to remain competitive, they are not without some negative consequences. Supporting the shortcomings of the innovative culture, the authors find that innovation increases REM. Drawing insights from construal level theory, this study investigates how downside intervention and big-picture intervention in an innovative culture affect REM. The study reveals that, while downside intervention reduces REM in an innovative culture, the reduction resulting from big-picture intervention is stronger.

3.3.2 | Ownership structure and REM

Sakaki *et al.* (2017) document a negative association between stable institutional ownership and REM, thus supporting the efficient monitoring hypothesis. The results further show that the beneficial effects on REM of institutional ownership are more pronounced for pressure-insensitive investors (such as investment advisors and pension funds) than for pressure sensitive investors (such as banks and insurance companies). Kałdoński *et al.* (2020) find no association between REM and institutional ownership in Poland. However, a weak negative association is reported between REM and long-term institutional ownership. Furthermore, the relationship between institutional ownership and REM is negative for single-class shares (firms under intense capital market pressure), but insignificant for dual-class shares.

Competing arguments exist regarding the association between majority shareholdings and earnings management. The incentive alignment hypothesis suggests that high shareholdings align the interests of controlling and non-controlling shareholders and, thus, reduce earnings management. Evidence supporting this hypothesis includes Goh *et al.* (2013), who find a significant negative association between majority shareholdings and income-increasing REM in the post-Asian financial crises period. The expropriation hypothesis, on the other hand, suggests that large shareholdings create an entrenchment effect, thus resulting in higher earnings management. Dong *et al.* (2020) find a positive association between the presence of controlling shareholders and REM in China. Bonacchi *et al.* (2018) find that non-listed subsidiaries in

¹⁹In Australia, the regulatory requirement to issue an internal control certification has gone through several reforms from voluntary, to compulsory and, eventually, to being phased out. These events provide a unique opportunity to study the implications of regulatory intervention on the relationship between internal controls and REM.

Italy engage in both AEM and REM to help their parent entities to meet or beat a benchmark, and this relationship is more pronounced in family firms.

Social emotional wealth (SEW) theory suggests that family-controlled firms have a transgenerational sustainability perspective and, thus, such firms are less involved in earnings management practices. However, a competing strand of literature argues that family-controlled firms have higher incentives to report poor quality financial information (Prencipe *et al.*, 2014). Using German listed firms, Achleitner *et al.* (2014) find a negative association between family control and REM, and document a substitution effect between AEM and REM. Using Bangladeshi settings, Razzaque *et al.* (2016) report a curvilinear association between family control and REM, i.e., higher REM when family ownership concentration is low, but decreased REM when the family ownership crosses a specific threshold of ownership. Eng *et al.* (2019) compare the REM behaviour of US versus Chinese family-controlled firms and report a positive association between family ownership and REM in the US as well as in China. Summarising this strand of literature, we can conclude that the association between REM and family control is inconclusive, and that this association is moderated by institutional and other factors. The mixed findings on the association between ownership structure and REM highlights the complex nature of REM. Research in this field tends to focus on investigating how firms with certain ownership structure use REM opportunistically.

3.3.3 | External monitoring agents and REM

Certain types of external monitoring agents play an active role in deterring opportunistic REM. Financial analysts are expected to mitigate information asymmetry between investors and managers by revealing information to the markets, but increased analyst coverage might induce managers to focus on short-term results (e.g., Irani & Oesch, 2016). Irani and Oesch (2016) find that firms losing analyst coverage reduce REM but increase AEM, findings that are more pronounced for firms close to the zero earnings threshold. These findings indicate that analysts following put pressure on management to meet or beat earnings targets through REM but, once the analyst coverage is lost, managers adopt less-costly AEM. However, the beneficial effects of analyst following, with respect to REM, have also been documented in the literature. Eiler *et al.* (2021), for example, find that analyst forecast error and dispersion are significantly lower for SUSPECT firms – a finding that supports the notion that analysts better understand the REM-induced earnings implications compared with the earnings implications stemming from firm-specific economic shocks. Taken together, the findings on analyst following and REM provide mixed evidence. Future research might look into whether financial analysts' private information acquisition incentives accentuate or attenuate REM. Also, in the context of China, future research might examine whether analysts' site visits, a disclosure requirement, are related to REM. Short-selling threat has been shown to affect REM behaviour. For example, Jiang *et al.* (2020) find that short-selling threat reduces REM internationally – an association that is more pronounced for firms operating in countries with weak shareholder protection, indicating a substitutive monitoring effect between country-level shareholder protection and short-selling threat. Rennekamp *et al.* (2020) conduct an experimental study and find that managers resort to REM, as opposed to AEM, when short-selling restrictions are relaxed. This is consistent with the notion that managers justify REM as legitimate operating decisions and, hence, are able to avoid scrutiny from short sellers.

Some other external monitoring agents, on the other hand, provide incentives for management to manipulate financial information. For example, hedge funds motivate the target firms' management to achieve financial goals (Brav *et al.*, 2008). Khurana *et al.* (2018) predict that hedge fund activism will encourage target firms' managers to withhold bad news via opportunistic REM. Holding bad news will enable the managers to avoid any unwanted hedge fund activist's

intervention and tailor strategies to counter the bad news. The authors find support for both these predictions but failed to find any substitution effect between REM and AEM. An interesting avenue for expanding this research would be to compare the corporate shareholder activism and hedge fund activism, as the former is known to provide firms with new resources and freedoms that increase their flexibility to expand their strategic actions (DesJardine *et al.*, 2021), and may enable the firms to engage in efficiency-enhancing REM. Venture capitalists (VCs), another external governance player, also affect firms' REM behaviour. Wongsunwai (2013) investigates earnings management behaviour of IPO firms in the context of lockup expiration period and financial restatements. Lockup period is important in the sense that, upon its expiry, VCs and insiders have incentives to gain private benefits by liquidating their investments, but high-quality VCs may be swayed by reputation concerns and, hence, are less likely to gain private benefits. The results indicate a negative relationship between high-quality VCs and AEM, REM and subsequent financial restatements. Wang *et al.* (2018) find that firms backed by politically connected state-owned VCs will have more incentives to manipulate earnings through REM, because such VCs lack operating efficiencies. This deficiency is exacerbated by the difficulty in attracting better managers, owing to poor incentive structures. Furthermore, these firms have poor long-term performance, and the VCs exit soon after the expiration of the lockup period. On the other hand, managers in politically connected non-state-owned VC firms are often shareholders or fundraisers, who are concerned about the long-term performance of the entity and, hence, constrain opportunistic REM.

3.3.4 | Other governance mechanisms and REM

Managers of firms operating in more competitive industries have competing incentives in relation to earnings management. Managers of such firms are under intense pressure to show better performance to outperform their peers and, hence, could resort to higher earnings management. However, competition also plays a strong monitoring role and can curb earnings management (Scharfstein, 1988b; Schmidt, 1997). In this context, Laksmana and Yang (2014) find support for the latter proposition with respect to REM. Shi *et al.* (2018) also find a negative association between product market competition and REM, because reducing discretionary expenses will reduce firms' competitiveness. Markarian and Santalo (2014), on the other hand, find that high market competition increases REM, but only for poor performing firms. Lanier *et al.* (2019) investigate the tendency of powerful customers to engage in REM to meet or beat targets, arguing that powerful customers have more powers to influence weaker partners in the supply chain. The results indicate that powerful customers have higher episodic REM to meet or beat earnings benchmarks.

Political connections are regarded as a non-market strategy available to connected firms for securing competitive advantages not openly available to other firms (Habib *et al.*, 2018). Braam *et al.* (2015) find, for a sample of international firms, that politically connected firms are more likely than non-connected firms to substitute REM for AEM. This finding suggests that politically connected firms try to maintain secrecy, and are motivated to conceal their preferential treatment via REM. Ding *et al.* (2018) find that politically affiliated firms tend to have superior accounting performance resulting in the aforementioned competitive advantages, and are more likely than non-affiliated firms to engage in REM. Regional economic development moderates the relationship between political affiliation and REM, and REM mediates the effect of political affiliation on firm performance. In contrast, He (2016) reports that Chinese IPOs and SEO firms, receiving fiscal support in the form of preferential tax treatment, have significantly lower levels of AEM and REM prior to the offering, implying that fiscal support reduces the demand for earnings management.

Haga *et al.* (2019) hypothesise and find that firms in short-term-oriented cultures tend to manage earnings through REM to meet or beat earnings benchmarks. However, firms

operating in long-term-oriented cultures manage accruals to meet or beat zero and prior year earnings benchmarks. Halabi *et al.* (2019) examine the impact of informal institutions (religiosity and culture) on firms' earnings management practices after controlling for formal institutional settings across 22 IFRS-adopting countries. The authors document a positive relationship between power distance, religiosity and REM, a finding that supports the notion that REM is considered more ethical and, hence, justifiable than practising AEM (McGuire *et al.*, 2012).

Corporate social responsibility (CSR) serves as a governance element and is underpinned by legitimacy theory and stakeholder theory: corporates engage with a wide range of stakeholders and must fulfil a social contract to establish their legitimacy. Following this vein, the signalling hypothesis posits that firms actively engaging in CSR activities are less likely to manipulate earnings. Research on the CSR–REM nexus has primarily examined voluntary CSR disclosure and earnings management practice, but few studies also examine the mandated regulation of CSR expenditure on earnings management behaviour. For example, using the natural experiment of India's Companies Act of 2013,²⁰ Hickman *et al.* (2021) reveal that the legal mandating of CSR expenditure 'decreased earnings management overall, but ... no incremental effect [is found] from the CSR mandate. Therefore, the CSR mandate did not appear to have an impact on the earnings management behavior of firms that initiated CSR spending and reporting as a result of the Act' (p. 15). Employees are important stakeholders of a firm. Caskey and Ozel (2017) investigate whether and how employee injury rates are associated with earnings management behaviour, positing that management has discretion over operating expenses that affect employees' work conditions directly. Caskey and Ozel (2017) find significantly higher injury rates for SUSPECT firms through both increases in employee workloads and abnormal reductions in discretionary expenses, a finding that supports the opportunistic use of REM with real economic consequences.

3.4 | Capital market incentives

One of the stronger capital market incentives for managers to manipulate earnings is to sustain equity overvaluation. The agency cost theory of overvalued equity proposed by Jensen (2005) predicts that managers of overvalued firms manipulate earnings upward to maintain the overvaluation of their firms, because the wealth of the managers is typically tied to stock prices. Empirical evidence on the relation between equity overvaluation and REM generally supports the opportunistic theory of REM. Badertscher (2011), for example, finds that overvalued firms initially engage in AEM to sustain overvaluation, and then resort to REM when opportunities for AEM are exhausted. The study further finds that once the REM also runs out, managers use non-GAAP earnings management strategies to sustain overvaluation. Duong and Pescetto (2019), however, argue that this finding may not hold for all overvalued firms as the *substantially* overvalued firms (SOV) may have no other choice but to manipulate earnings to sustain overvaluation, whereas *relatively* overvalued firms (ROV) have other options to sustain overvaluation including, but not limited to, increasing investments (p. 122). They find evidence supporting their assertion. Although these findings suggest a detrimental effect of equity overvaluation in the form of increased REM, it is not clear whether such earnings manipulation techniques result in adverse operating performance in the future for such firms. Capital raising from the stock market through SEOs is another incentive that might prompt managers to engage in opportunistic REM. Cohen and Zarowin (2010) find that managers manipulate earnings through REM

²⁰The Act mandates that firms shall spend a minimum of 2% of reported income on CSR initiatives (Hickman *et al.*, 2021).

prior to SEO but such an action results in subsequent decline in SEO firm performance, a finding that is consistent with managerial opportunism.

Meeting or beating earnings benchmarks has been shown to be a strong capital market incentive for earnings management. However, evidence remains inconclusive as to whether such an action is undertaken for efficiency (signalling) or opportunistic reasons (see the review in Section 4.1). Bartov and Cohen (2009) predict a decrease in 'expectations management'²¹ in the post-SOX period for reasons related to increased scrutiny from the financial press and regulators along with corporate governance improvements introduced by the SOX. However, firms could substitute AEM with expectations management in the post-SOX period to meet or beat performance targets (p. 506). The authors considered expectations management, AEM and REM as tools for meeting earnings targets, and show that expectations management and AEM declined significantly, whereas REM increased. Roychowdhury (2006) finds that managers engage in REM to meet or beat earnings benchmarks, an effect that is less pronounced when sophisticated investors are present. Opportunistic use of REM is manifested, for example, in aggressive price discounts given to customers to increase sales volume. This strategy will heighten customers' expectations of discounts in future periods as well, eventually damaging firms' future long-term cash flow prospects. As a result, REM increases information risk and reduces the quality of the overall information environment. Cohen *et al.* (2010) find the opportunistic use of monthly advertising is used as an REM tool to meet quarterly earnings targets. The primary contribution of this study stems from the authors' use of a proprietary database, instead of annual advertising expenses aggregated with other discretionary expenses, in order to analyse advertising expenditure separately. Thereby, the authors could evaluate the unique costs²² and effects of monthly advertising expenditures on short-term earnings.

Capital market incentives for engaging in REM are also manifested in acquisition transactions, whereby managers use income-increasing REM to inflate share prices so that fewer shares are required to purchase the target firm (Campa & Hajbaba, 2016; Chang & Pan, 2020). Target firms, too, engage in both AEM and REM in the periods leading to the announcement date, although the extent of AEM decreased significantly during the post-SOX period (Mughal *et al.*, 2021). Chen and Soileau (2014) find that firms listing on the US capital markets through reverse mergers²³ have significantly higher REM than IPO firms. Zhu *et al.* (2015) investigate REM behaviour of reverse-merged firms and find that such firms have income-increasing AEM and REM in the year of acquisition. However, Big4 auditors constrain both AEM and REM and, thus, reverse-merged firms tend to engage non-Big4 auditors. The results further indicate that both AEM and REM result in poor future performance. The paper argues that income-increasing earnings management may be conducted to convince banks to offer better loan terms, but the descriptive statistics indicate that reverse-merged firms do not procure more loans. It will be an interesting future research area to examine the source of funds for reverse-merged firms, as the paper neither controls for, nor provides a clear description of, this issue. All these findings are generally consistent with the substitution of one earnings management technique, i.e., REM for

²¹Expectations management occurs when managers walk down analyst earnings expectations so that an otherwise negative earnings surprise is transformed into a positive earnings surprise and garners favourable market reaction.

²²For example, changing advertising may be easier and quicker, because it does not involve adjustment costs, such as the disposal of assets, laying off workers, or both.

²³Reverse merger is the acquisition of US listed firms by private Chinese firms. Through this acquisition, Chinese private firms avoid lengthy listing procedures, and become listed firms after the acquisition.

AEM, to avoid capital market scrutiny while at the same time trying to maximise synergistic effects.

Debt contracting also provides strong incentives for managers to engage in opportunistic REM. Ertan (2021) explores syndicated loan originations as a mechanism for REM. To capture the managerial incentives for engaging in earnings management, Ertan (2021) defines suspect loans as loans originating in the third (and final) month of income-constrained lender-quarters, and observes that the incremental loan issuance in the third month is significantly higher for income-constrained lenders. This evidence supports the notion that there are managerial incentives for issuing syndicated loans to achieve earnings targets. Avoiding debt covenant violation has also been found to be an important incentive for REM. Lending contracts include covenants, thereby granting lenders the rights to accelerate the loan repayment schedule and/or restrict the availability of credit, among other things. Franz *et al.* (2014) find that firms that are close to violation or in technical default of their debt covenants engage in REM. Interestingly, Franz *et al.* (2014) suggest that total earnings management increased in the post-SOX period for firms likely to violate covenants, suggesting a rapid increase in the REM that is much greater than the decrease in AEM.

Managers also use REM to influence credit ratings. The choice of a credit rating scale as a target for engaging in REM 'offers an important advantage over the research setting that uses ex post reported earnings or other achieved targets to identify firms' incentives to manage earnings' (Brown *et al.*, 2015, p. 75). Because credit ratings represent firm quality, and rating downgrades impose significant costs on firms (e.g., investors may liquidate their position in firms with rating downgrades) (Alissa *et al.*, 2013), managers have incentives to manipulate earnings upwards to improve credit ratings. Alissa *et al.* (2013) develop an expected credit rating model and find that firms deviating below the expected rating engage in income-increasing REM and, by doing so, achieve future rating upgrades. Brown *et al.* (2015), too, find that rating agencies do not penalise firms located on the borderlines of investment and speculative ratings for undertaking REM. Despite these findings, reasons for credit rating agencies' failure, as sophisticated market players, to adjust for firms' REM actions, remain unanswered. One possible reason for this could be that rating agencies, unlike auditors, do not consider their role as overseeing financial reporting.²⁴

Share repurchase is considered an important tool to inflate earnings-per-share, and managers use share repurchase as an REM strategy to cater to capital market incentives (Farrell *et al.*, 2014), but the presence of debt-financing constraints discourages such behaviour. Cooper *et al.* (2018) and Francis *et al.* (2016a) find that managers use downward REM before share repurchase. Sawicki and Shrestha (2014) find that misvalued firms manage accruals opportunistically and, at the same time, sell/buy shares. However, the results for REM in misvalued stocks are not significant, probably because, for insider traders in misvalued firms, the costs associated with opportunistic REM outweigh the benefits.

3.5 | Regulation changes and other external factors

3.5.1 | Regulation and REM

Cohen *et al.* (2008) provide robust evidence on the substitution between AEM and REM using the SOX as the critical regulatory enactment. This evidence, therefore, appears to suggest that passage of the SOX failed to curb earnings management practices, and an unintended consequence of the SOX is manifested by managers switching to

²⁴However, rating agencies appear to care about their reputational capital, as the value of their service depends on it. Failure to detect earnings management could threaten the loss of such reputational capital.

harder-to-detect REM activities. This evidence is found to be more pronounced for SUSPECT firms. Huang *et al.* (2020) find that the Ninth Circuit ruling,²⁵ increases REM for firms located in such circuit significantly more relative to the magnitude of REM for firms located elsewhere – an increase that is more pronounced for firms issuing more optimistic disclosures. The findings are consistent with a reduction in litigation stemming from Ninth Circuit rulings, thus encouraging managers to issue optimistic, but misleading, disclosures manifested in increased opportunistic REM behaviour. Ni (2020) exploits the enactment of the non-shareholder constituency statutes (CS),²⁶ and documents that firms headquartered in states adopting the CS report significantly lower REM (APROD and ADISX), a finding consistent with the notion that stakeholder orientation curtails REM. However, it is not evident from the finding whether such a reduction in REM is consistent with efficiency arguments for REM. Cunningham *et al.* (2020) investigate the managerial earnings management trade-off after receipt of SEC comment letters. The Division of Corporation Finance of SEC periodically reviews firms' filings, and issues comment letters as a monitoring and compliance tool. Managers receiving such comment letters are likely to re-evaluate the trade-off between AEM and REM because 'comment letters serve as a salient cue that the SEC is monitoring the firm's accounting policies and disclosures [and] can identify potential concerns about firms' accounting choices or about the transparency of the disclosure surrounding those choices' (Cunningham *et al.*, 2020, p. 919). The authors find a decrease in AEM but a significant increase in REM, thereby supporting the substitution hypothesis. Further tests support the opportunistic use of these earnings management techniques, as future firm performance decreases with an increase in AEM and REM, although there are no incremental adverse effects on future performance of comment letter-induced earnings management techniques.

Prior literature reports that high risk of litigation reduces AEM (Hopkins, 2018). However, as has been discussed before, substitution between AEM and REM allows managers to continue managing earnings. Enomoto *et al.* (2015), in a cross-country study, investigate the effects of investor protection on REM and find that firms in countries with strict investor protection laws tend to engage in higher REM than AEM. These results support the substitution hypothesis in relation to REM.

Several studies examined managerial REM behaviour surrounding the adoption of the International Financial Reporting Standards (IFRS). IFRSs are more detailed, and broader in scope, than many local accounting standards, and are expected to enhance corporate transparency (De George *et al.*, 2016). However, empirical evidence on the impact of IFRS on REM remains mixed. Doukakis (2014), for example, finds no impact of mandatory IFRS adoption on either REM or AEM for a sample of 22 EU countries, whereas Ho *et al.* (2015) document that AEM decreased significantly, while there was a sharp rise in REM following the adoption of IFRS in China. A similar trade-off between AEM and REM is also observed in countries with strict enforcement regimes (Ipino & Parbonetti, 2017; Oz & Yelkenci, 2018). This strand of the research, however, needs to be evaluated in light of the concern that the adoption of IFRS also made many countries change their corporate governance landscape substantially. Therefore, it is not clear whether it is IFRS, or those governance changes, that are responsible for better earnings quality, i.e., lower REM. The

²⁵There are 13 Circuit Courts that mediate the appellate courts of the US federal judiciary. The Ninth Circuit rulings have traditionally been described as liberal rulings and, therefore, have often been criticised by commentators (see Broscheid, 2011). Hopkins (2018) finds that firms located in the Ninth Circuit have a higher probability of restating the financial statements after a decline in litigation risk, relative to firms that are located elsewhere.

²⁶CS allowed corporate leaders a legally enforceable mechanism for considering stakeholder interests without violating their fiduciary duties to shareholders (Orts, 1992). The CS are premised on the notion that a corporation should conduct its actions for a wider stakeholder group than just shareholders. Despite the statutes being permissive in nature, they are legally enforceable, and made an important shift away from the shareholder primacy principle.

trade-off between AEM and REM is also observed in China after the implementation of the split share structure reform (Kuo *et al.*, 2014).²⁷ Chan *et al.* (2015) document a significant decrease (increase) in AEM (REM) following the adoption of the clawback provisions, and a marginal increase in total earnings management.²⁸ This substitution effect is more pronounced for clawback adopters with higher growth opportunities or with more transient institutional investors, settings that are rife for earnings management. Finally, the authors find that, while REM increases firm performance in the short term, such short-term advantage disappears after three years, a finding that supports the notion that the switch from AEM to REM is a manifestation of managerial opportunism. The findings, therefore, suggest that mandating the adoption of clawback provisions may result in unintended adverse consequences.

Inventory overproduction results in the allocation of fixed overheads to a larger number of units, resulting in lower COGS, i.e., higher profits. To discourage the overproduction tendency, the Statement of Financial Accounting Standard (SFAS) 151 attempts to make it costlier, by requiring firms to assign fixed overheads to COGS based on the normal level of activity rather than the actual production. The regulation appeared to have achieved its objective, as Galdi and Johnson (2021) find that prior to SFAS 151 the SUSPECT firms were involved in REM through overproduction, while after SFAS 151 the difference between the abnormal production costs of SUSPECT and non-SUSPECT firms became insignificant.²⁹

Literature reports that firms have incentives to portray a better picture before cross-listing (DuCharme *et al.*, 2004). Beckmann *et al.* (2019) examine REM behaviour of firms at the time of listing on the US stock exchanges. The authors hypothesise that since strict US regulations may impede AEM, firms planning to cross-list may inflate earnings by engaging in REM. The authors find support for this hypothesis. Further results indicate that firms listed under Level 1 programs, sponsored firms and IFRS-adopted firms from countries with poor enforcement regimes, engaged more in REM. Alhadab *et al.* (2016) report that firms listed on the lightly regulated Alternative Investment Market (AIM)³⁰ engage in higher levels of AEM, and lower levels of discretionary expense-based REM, compared with IPO firms listed on the heavily regulated main market. As companies with strong incentives to manage earnings may choose to list on the AIM in the first place, these findings are subject to self-selection bias. García Osma *et al.* (2020) find no evidence of the substitution effect between AEM and REM for voluntary adopters of firm-specific insider trading restrictions. Specifically, the authors find that, although such restrictions reduced AEM, they did not have any effect on REM.

²⁷Under the split share structure reform, non-tradeable shareholders' wealth was linked to firms' stock performance after the reform, which incentivised managers to maximise firm value and strengthened firm-level corporate governance.

²⁸Clawback provisions' authorise the board of directors to recoup compensation paid to managers, if managers are found to engage in manipulative earnings that result in misstated financial reports. Section 954 of the Dodd-Frank Wall Street Reform and Consumer Protection Act requires the SEC to direct stock exchanges to prohibit the listing of companies that have not implemented compensation clawback policies.

²⁹A key limitation of the paper, however, is that the paper focused on SUSPECT firms' behaviour. There are other firms that are in the pseudo-benchmark regime, such as firms meeting and/or beating targets by more than 10%, and it is not clear whether this regulation is relevant for such firms as well.

³⁰AIM is a market for smaller and growing companies for raising capital with fewer regulatory constraints and lower listing and on-going costs. Compared with the main market companies, AIM companies do not need to have any minimum market capitalisation but do need to have at least 25% of shares in public hands, and three years of trading record, among others. Flexible regulation, however, makes companies listed on the AIM relatively more risky and highly speculative.

3.5.2 | Other factors and REM

Although REM is a firm-level decision, firms are not immune to external changes, including macroeconomic changes that might have implications for managerial incentives to engage in REM behaviour. Policy uncertainty (PU) at country level creates future weaker macroeconomic conditions and may result in different industry regulations. Therefore, firms facing high PU tend to encounter information uncertainty and have the incentive to manipulate earnings, among other things, to mitigate such uncertainty. Yung and Root (2019), using a global sample, find that PU increases REM but PU-induced REM decisions reduce firm value. Chen *et al.* (2020) explore whether the provincial GDP growth in China affects firm-level managerial earnings management decisions. They argue that provincial officials seeking promotion require their provincial GDP rates to be higher than the national level. The authors find that firms in provinces with GDP growth lower than the national level or the average GDP growth of the adjacent provinces (i.e., suspect firms in this study) are more likely to engage in REM. Climate risk may also create the incentive for management to take discretionary actions. Ding *et al.* (2021) use a country-level climate risk variable to measure the damage caused by extreme weather events and find that climate risk increases firms' engagement in both AEM and REM. Furthermore, the effects are more pronounced for firms from developed countries, firms in environment-sensitive industries, and firms reporting losses.

Furthermore, the existence of informal institutions can also be related to REM. Considering language as an important tool affecting management perception and decision making, Kim *et al.* (2017) segregate countries into two groups: countries having languages with strong future time references (FTR), such as English, versus countries with weak FTR, such as German. Languages with weak FTR do not use the future tense but, rather, use the present tense to describe future events. The authors argue that use of the present tense for future events makes future events nearer and, hence, should discourage managers from earnings management practices, because they will consider the legal and other consequences of earnings management as being imminent. Results support their argument. McGuire *et al.* (2012) find that firms located in regions with high religiosity engage in real, but not accrual, earnings management when meeting earnings targets becomes important. This finding is consistent with managers perceiving REM as more ethical and less risky relative to AEM (Graham *et al.*, 2005).

3.6 | REM in private firms and other sectors

The pressures exerted by capital markets for meeting and beating earnings targets are more intense for public, as opposed to private, firms and, hence, public firms are more likely to manipulate earnings. Private firms have high managerial ownership, thereby reduced agency problems and lower incentives for manipulating earnings compared with their listed firm counterparts. However, private firms are under pressure to inflate earnings to satisfy lenders in order to access cheaper loans. Prior literature suggests that private firms in the US and Europe have poor accruals quality (Burgstahler *et al.*, 2006; Hope *et al.*, 2013). However, research on the difference in REM behaviour between public and private firms is still in its infancy. Listed entities engage more in REM activities in the UK (Haga *et al.*, 2018), a finding that is stronger for listed SUSPECT firms. This weaker incentives to engage in REM by private firms can be attributed to weaker capital market pressure, higher managerial ownership and financial strengths, among other

factors. Grieser *et al.* (2021) argue that the conventional research on REM using SUSPECT firms, although informative, may not truly capture REM behaviour, as researchers first identify SUSPECT firms and then examine their REM behaviour. Grieser *et al.* (2021), on the other hand, identify weather-driven demand shift in the utility industry as an exogenous shock and then examine firm's reporting decisions. For a small sample of 51 utility firms, the authors document that firms increase (decrease) charitable giving (a form of REM) to achieve certain earnings goals in response to demand-increasing (decreasing) weather shock.³¹

Non-profit hospitals have incentives to avoid losses, as reported losses will affect their reputations adversely. Similarly, non-profit hospitals have incentives to reduce high earnings, to avoid any regulatory scrutiny or third-party demand for reduced service charges. Using US settings, Eldenburg *et al.* (2011) find that hospital managers increase sales of assets and reduce non-operating (such as maintenance and refurbishment) costs and non-revenue generating (such as general services, research and administration) expenses, to avoid losses. Wen *et al.* (2019) find that sample hospitals from Taiwan reduce, not only non-revenue-generating expenses but even operating expenses, to avoid missing earnings targets. This may be an indication that reducing the quality of core hospital services to meet earnings benchmarks has less severe regulatory or reputational consequences in Taiwan. Furthermore, public hospitals use only income-increasing REM, but its magnitude is significantly lower than that of private hospitals. Apart from REM and AEM, overbilling³² is an important mechanism for hospitals to manage their earnings. Unlike REM and AEM, hospitals do not need to reverse their overbilling behaviour in the future. Heese (2018) documents that overbilling is the first choice for hospitals when the use of either AEM or REM is constrained. However, when overbilling is constrained by hospitals' operations, and by regulatory as well as market oversight, hospitals resort to REM rather than to AEM.

These papers explore REM activities in the non-profit-sector: a departure from the mainstream public firm setting. However, given that the regulations (government as well as accounting) for the not-for-profit sector are different across countries, generalisability of these findings requires further research, in particular, on the regulatory changes across jurisdictions.

3.7 | Section summary

In this section we reviewed the empirical literature on the various factors found to be associated with managerial incentives to engage in REM activities, including financial reporting, auditing, governance and controls, and capital market incentives. Most of these studies conclude that managers substitute REM in the post-SOX regime to inflate earnings, thereby supporting the opportunistic theory of REM. Some studies specifically consider firms that are more susceptible to managing earnings through REM, e.g., SUSPECT firms,

³¹Their choice of using 'charitable giving' as a form of earnings management is based on two main arguments. First, utility firms may have fewer opportunities to alter real activities in the event of weather shocks, particularly those occurring near the end of the fiscal year. Second, since utilities are highly regulated, they often spend heavily on public relations activities (e.g., charitable giving) to curry political favour during the rate-setting process.

³²Overbilling occurs when hospitals 'classify patients' ailments as more severe than they are to earn higher revenues without changing the actual treatment. Such behaviour is made possible by the information asymmetry between hospitals and insurers regarding patients' conditions' (Heese, 2018, p. 875).

whereas others make no such assumption. Table 1 summarises the key findings of papers surveyed in this section.

4 | CONSEQUENCES OF REM

Section 3 above has reviewed the literature on the determinants of REM. As is evident from the review, a plethora of determinants have been shown to affect managerial incentives to engage in REM behaviour. However, managerial earnings management choices have consequences as well. In this section, we review the literature on the consequences of REM, categorised into the consequences of REM for firm performance (Section 4.1), capital and credit markets (Section 4.2), tax avoidance (Section 4.3) and, finally, corporate governance (Section 4.4).

4.1 | REM and future performance

Contrasting views exist regarding the consequences of REM for future firm performance. On one hand, REM adversely affects firms' long-term productivity and performance because REM deviates from normal business operations. Alhadab *et al.* (2015) find that REM increases the adverse selection problem for IPO firms, thereby increasing the probability of their failure in the subsequent periods. Bereskin *et al.* (2018) posit that R&D cuts to meet earnings benchmarks for SUSPECT firms represent opportunistic REM and should result in fewer innovation outputs. The authors find that, a one standard deviation increase in REM-related R&D spending, for example, is associated with a 2.9 percent decline in the number of patents in the next 3-year period.³³ Vorst (2016) hypothesises that a quick reversal of cuts in discretionary investments can be inferred as representing REM having subsequent performance implications. Consistent with this hypothesis, Vorst (2016) finds that a severe cut in abnormal R&D or SG&A in the current year that reverses in the next year is associated with lower future industry-adjusted firm performance, thereby supporting the managerial opportunism theory of REM. Interestingly, Vorst (2016) finds that 'the negative future performance disappears when the firm beats the benchmark and engages in REM by means of cutting R&D. The latter finding indicates that REM can also bring offsetting benefits in such settings and is consistent with evidence provided in prior literature' (p. 1221). Hewitt *et al.* (2020) predict that investors' trust in management will be impaired when the *outcome of earnings management* indicates that managers consider their interests above shareholders' interests, and/or when the *method of earnings management* (e.g., AEM and/or REM) suggests that managers misreported the firm's economic performance. Using an experimental research design, the authors find that trust is lower when there is misalignment between managers' and shareholders' interests and/or when managers use AEM. When the outcome of earnings management is consistent with shareholders' interests, trust is only impaired when managers use AEM. The combined effects of the outcome and the methods of earnings management on trust affect investment decisions. The earnings management findings, therefore, suggest that 'the use of real methods does not necessarily provide a signal of untrustworthiness because managers who use real methods to manage earnings can still objectively report the firm's economic performance' (Hewitt *et al.*, 2020, p. 2062).

On the other hand, firms may conduct REM strategically, to avoid both immediate loss, and failure to reach the current period's earnings targets, thereby signalling the firm's potential for better performance in the future (Zang, 2012). The fundamental objective of signalling is

³³Managers could cut R&D expenditure for efficiency reasons: divesting unnecessary or even wasteful projects. Therefore, Bereskin *et al.* (2018) focus on SUSPECT firms to differentiate between opportunistic versus efficiency-driven R&D cuts.

TABLE 1 Determinants of REM

Author(s)	Research question	Sample	Key results	Theme
Roychowdhury (2006)	Examine whether REM is used to achieve earnings targets	US: Sample period 1987 and 2001 with a total of 21,758 firm-year observations	Firms avoid losses by offering price discounts to temporarily increase sales, engaging in overproduction to lower COGS, and reducing DISX aggressively to improve margins	Financial reporting
Cohen <i>et al.</i> (2008)	The substitution between AEM and REM in the post-SOX era	US: 87,217 firm-year observations spanning the period 1987 to 2005	AEM increased steadily from 1987 until the SOX is enacted in 2002 for SUSPECT firms. AEM significantly decreased after the passage of the SOX. In contrast, REM increased significantly in the post-SOX period for suspect firms	Regulation
Garcia Osma (2008)	Independent directors and value-reducing R&D cuts	UK: 3438 firm-year observations from 1989 to 2002	Independent directors are capable of constraining R&D cuts motivated by short-term pressures. But insider-dominated boards are more likely to support managerial short-term oriented decisions	Governance and controls
Bartov and Cohen (2009)	The substitution between AEM, REM and expectations management in the post-SOX era	US: 1987 to 2006 sample period with 262,754 firm-quarter observations	Expectations management and AEM decreased but REM increased in the post-SOX period. Frequency of just meeting or beating analysts' earnings expectations has declined in the post-SOX period	Regulation/financial reporting
Cohen <i>et al.</i> (2010)	REM through advertising expenses and meet and beat quarterly earnings benchmarks	US: 15,672 firms' advertising expenses from 2001 through 2006	Firms decrease advertising spending to avoid reporting quarterly loss and meeting earnings from the same quarter in the previous year. Firms increase their advertising in the third month of the fiscal quarter to meet earnings from the same quarter in the previous year. Suspect firms are more likely to increase their advertising in the fourth fiscal quarter compared with other quarters	Capital market incentives
Cohen and Zarowin (2010)	REM by SEO firms and its implications for firm performance	US: 1511 SEOs over the period 1987 and 2006	Firms use both REM and AEM during the SEOs as earnings management strategies. Trade-off decision to use between REM and AEM depends on the costs of AEM. Decline in operating performance in the post-SEO is more pronounced for REM	Financial reporting

(Continues)

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Badertscher (2011)	Managerial use of alternative earnings management strategies to sustain firm overvaluation	US: 33,502 observations during the period 1994 to 2008	Overvalued firms first use AEM to sustain overvaluation. Once the AEM is exhausted they use REM and non-GAAP earnings management to sustain overvaluation	Capital market incentives
Chi <i>et al.</i> (2011)	Audit quality and REM	US: 925 firm-year observations from 2001 to 2008	Higher audit quality and longer auditor tenure are associated with higher levels of REM for SUSPECT firms. The positive association between auditory industry expertise and REM is significantly stronger in the upward earnings management sample compared with the rest	Auditing
Eidenburg <i>et al.</i> (2011)	REM behaviour of non-profit hospitals	US: 95 non-profit hospitals and 432 hospital years in California from 1998 to 2003	Results indicate income increasing REM by reducing expenses and increase assets sale and income decreasing REM by increasing expenses and reducing assets sale. Further, results indicate that managers manage expenses but not assets to increase their compensation	Financial reporting
Burnett <i>et al.</i> (2012)	Auditor industry specialisation and REM	US: 23,290 firm-year observations over a period of 1989 to 2009	Firms use accretive share repurchase mechanisms to meet and beat analysts' earnings forecasts when their AEM is constrained by industry specialist auditors	Auditing
McGuire <i>et al.</i> (2012)	Religiosity and financial reporting quality	US: 11,576 firm-year observations between 2006 and 2008	Firms located in regions with high religiosity engage in REM, but not AEM, when meeting earnings targets become important	Other factors
Zang (2012)	Managerial trade-off between REM and AEM	US: 6500 earnings management suspect firm-years over the period 1987–2008	Significant positive relations between the level of REM and the costs associated with AEM, and also between the level of AEM and the costs associated with REM. Finds support for sequential nature of the two techniques	Financial reporting
Zhao <i>et al.</i> (2012)	Staggered boards and REM	US: 7966 firm-year observations from 1995 to 2008	Firms with staggered boards, a proxy for takeover protection, are associated with lower levels of REM for meeting earnings targets. Thus, takeover protection reduces managers' pressure to resort to REM as a costly means of signalling better future performance	Governance and controls

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Alissa <i>et al.</i> (2013)	Credit rating and REM	US: 23,909 firm-year observations between 1985 and 2010	Firms use income-increasing REM when they are below their expected credit rating level; an action that allows such firms to upgrade their rating level	Capital market incentives
Duellman <i>et al.</i> (2013)	Equity incentives and REM	US: 4780 firm-year observations from 2001 to 2007	The incentive alignment effect dominates the opportunistic REM for high and moderate monitoring intensity firms. However, for low monitoring intensity firms the opportunistic REM mitigates, but does not completely offset, the benefits of the incentive alignment effect	Governance and controls
Goh <i>et al.</i> (2013)	Majority shareholders and REM	Korea: 7358 firm-year observations from 1991 to 2007	The result does not find a systematic relationship between majority shareholder ownership and REM. However, the higher the proportion of majority shareholders, the more they avoid upward REM that may damage the firm's operating performance and, subsequently, their own wealth	Governance and controls
Wongsunwai (2013)	Venture capitalist (VC) quality and REM for firms conducting IPOs	US: 9283 firm-year observations between 1990 and 2004	Companies backed by higher quality VCs exhibit lower REM activities, measured through ACFO and ADISX	Governance and controls
Achleitner <i>et al.</i> (2014)	Family firms and earnings management	Germany: 4937 firm-year observations from 1998 to 2008	A negative relationship between family ownership and both REM and AEM. Furthermore, there exists a substitutive relation between REM and AEM in family firms indicating that family firms trade off these two types of earnings management strategies	Governance and controls
Chen and Soileau (2014)	Reverse merger (RM) transactions and REM	US: 77,986 IPO firm observations and 550 RM firm observations from 1997 to 2011	US domestic RM firms have higher REM compared with US IPO firms	Finance
Choi <i>et al.</i> (2014)	Types of CEO turnover and REM	Korea: 403 CEO turnovers and 806 non-turnover control firms during the period 2001–2010	The results show upward earnings management by the departing CEO only when the departure is forced, and the new CEO is an insider. In this case, the new CEO also engages in downward earnings management using both AEM and REM	Governance and controls

(Continues)

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Doukakis (2014)	Mandatory IFRS adoption and earnings management	Europe: 15,206 observations from 22 countries between 2000 and 2010	Mandatory IFRS adoption did not have any significant effect on the level of AEM or REM. Firm-level incentives play a more significant role than IFRS in shaping earnings management behaviour	Regulation
Farrell <i>et al.</i> (2014)	Share repurchases and REM	US: Sample period 1983 to 2011 with 94,382 firm-year observations	Debt-financing constraints discourage the use of repurchase-based earnings management. For firms more likely to be engaged in earnings management, high financing constraints increase (decrease) AEM (REM)	Capital market incentives
Franz <i>et al.</i> (2014)	Proximity to debt covenant violation as an incentive for REM	US: 14,816 loan quarters from 1992 to 2007	Firms close to violation or in technical default of their debt covenants engage in REM. This is stronger in the post-SOX period, thereby suggesting a substitution effect	Capital market incentives
Ge and Kim (2014)	Board governance, takeover protection, and REM	US: 7797 firm-year observations from 2004 to 2006	In the post-SOX period, the level of REM increased with better board governance and decreased with higher takeover protection. These two governance factors generally have no significant effect on APROD. Firms substitute AEM with sales manipulation and abnormal cuts in DISX, and the substitution effect is more pronounced in firms with stronger board governance	Governance and controls
Hong <i>et al.</i> (2014)	Earnings management and analyst following	US: 4953 firm-year observations for the period 1990 to 2010	The findings indicate that analysts following, and managers' earnings management decisions are jointly determined, i.e., lower AEM improves the information environment and attracts more analysts while analysts following further reduce both AEM and REM. However, the REM and analyst following do not have a significant association	Governance and controls
Kuo <i>et al.</i> (2014)	Split share structure reform and earnings management	China: 13,840 firm-year observations for the period 2002–2011	Sample firms switched from AEM to REM after the reform to avoid detection and scrutiny by capital market regulators	Regulation

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Laksmmana and Yang (2014)	Product market competitions and earnings management	US: 85,213 firm-year observations from 1988 to 2007	Both income-increasing AEM and REM are more prevalent among firms in low competition industries than those in high competition industries suggesting that the market consequences of missing important earnings targets are more (less) severe among firms in low (high) competition industries	Governance and controls
Markarian and Santalo (2014)	Product market competition and earnings management	US: 69,445 firm-year observations between 1989 and 2011	High market competition increases AEM as well REM and the results are more pronounced for underperforming companies	Governance and controls
Sawicki and Shrestha (2014)	Insider trading, equity mis-valuation and REM	US: 35,946 firm-year observations from 1992 to 2006	Insiders sell (purchase) when the stocks are overvalued (undervalued). Furthermore, the mis-valued firms engage in AEM; however, the paper does not report any association between mis-valuation and REM	Capital market incentives
Ali and Zhang (2015)	CEO tenure and REM	US: 24,161 firm-year observations, representing 5043 CEOs from 1992 to 2010	Earnings overstatement is greater in the early years than in the later years of CEO service and this overstatement increases reported ROA. These results are robust to using different earnings management measures, specifically, DAC and ADISX.	Governance and controls
Braam <i>et al.</i> (2015)	Political connections and the trade-off between REM and AEM	International: 17,664 firm-year observations for 30 countries	Politically connected firms are more likely to substitute REM for AEM than non-connected firms. Furthermore, when public monitoring, i.e., the risk of detection increases, politically connected firms are more likely to resort to less detectable REM strategies.	Governance and controls
Brown <i>et al.</i> (2015)	REM by firms near the borderlines of investment/speculative credit ratings	US: 6402 manufacturing firm-year observations between 1989 and 2009	Firms on the borderlines of speculative and investments grades engage in REM but rating agencies decisions are not affected by REM activities, instead the decisions are based on firm performance	Capital market incentives

(Continues)

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Chan <i>et al.</i> (2015)	Clawback provisions and earnings management	US: 343 adopters and 1840 non-adopters from 2005 to 2009	Passage of clawback provisions is associated with reduced AEM, but greater REM	Regulation
Chen <i>et al.</i> (2015)	Board independence and REM	US: 1587 firms from the BoardEx with data on board structure over 2000–2005	Firms that did not have a majority of independent directors before the reforms (referred to as non-compliant firms) are required to increase their board independence. While non-compliant firms, on average, do not experience a significant decrease in earnings management after the reforms compared with other firms, non-compliant firms with low information acquisition cost experience a significant reduction in earnings management	Governance and controls
Enomoto <i>et al.</i> (2015)	Investor protection and earnings management	International: 222,513 firm-year observations across 38 countries covering 1991 to 2010	Firms in countries with high investor protection tend to engage in REM than AEM (substitution effect); however, this tendency of high REM is constrained by analyst following	Governance and controls
Ho <i>et al.</i> (2015)	Mandatory IFRS adoption and earnings management	China: 4050 firm-year observations from 2002 to 2011	In the post-IFRS period (2007–2011), the magnitude of AEM decreased, and firms started using REM as a substitute. The relationship is less pronounced in state-owned enterprises, firms located in less developed areas, manufacturing firms, and firms with weaker financial performance	Regulation
Zhu <i>et al.</i> (2015)	REM behaviour of reverse merger (RM) firms	China: RM firms and three control groups: non-Chinese (Chinese) RM (non-RM) firms and regular US listed firms from 1990 to 2011 for 13,695 firms	Results indicate income increasing AEM and REM in the year of acquisition. Furthermore, AEM and REM are used as substitutes, but the substitution effect is evident for reduction in DISX only. The presence of Big4 auditors reduce the level of AEM as well as REM.	Capital market incentives
Alhadab <i>et al.</i> (2016)	Market regulation and REM	UK: 571 IPO firms between 1998 and 2008	IPO firms on the lightly regulated AIM market engage in higher levels of AEM and lower levels of ADISX manipulations compared to IPO firms on the heavily regulated main market	Regulation

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Campa and Hajbaba (2016)	Method of payments in acquisition and earnings management in target firms	US: 461 public acquisitions of non-financial US firms between 2001 and 2011	Target firms manage their earnings upwards using sales-based REM rather than accruals in the year immediately before the cash-based acquisition methods. Such REM is negatively associated with the long-term post-acquisition performance of the acquirers	Capital market incentives
Cheng <i>et al.</i> (2016)	Monitoring provided by key subordinate executives and REM	US: 11,994 firm-year observations from 1993 to 2011	Using the number of years to retirement to capture key subordinate executives' horizon incentives and using their compensation relative to CEO compensation to capture their influence within the firm, the results show that REM decreases with key subordinate executives' horizon and influence	Governance and controls
Dhole <i>et al.</i> (2016)	CEO inside debt and earnings management	US: 4845 observations from 2006 to 2010	CEO inside debt is negatively associated with both AEM and REM, suggesting that CEOs with higher inside debt holdings adopt less risky corporate policies and choose investment policies that result in less volatile earnings and, hence, less earnings management	Governance and controls
Francis <i>et al.</i> (2016a)	Share repurchases, MBOs and CEO option awards on downward REM	US: 9459 open-market repurchase announcements from 1994 to 2011	Find evidence of downward REM and AEM around share repurchase, MBOs and CEO option awards: an effect that is higher when the firms have more AEM. Further results suggest that there is no downward REM around the announcements of repurchases and MBOs that are not followed by actual repurchases or completions	Capital market incentives
Irani and Oesch (2016)	Analyst following and earnings management	US: 60,758 firm-year observations from 1994 to 2005	Firms losing analyst following decrease REM but increase AEM. These results are more pronounced for firms with less analyst coverage and close to zero-earning threshold	Governance and controls

(Continues)

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Liu <i>et al.</i> (2016)	CFO gender and earnings management	China: 11,644 firm-year observations from 1999 to 2011	Female CFOs engage less in REM. Male CFOs engage more in REM activities, through overproduction and discretionary expenditures manipulation, than their female counterparts	Governance and controls
Razzaque <i>et al.</i> (2016)	Family ownership and REM	Bangladesh: 691 firm-year observations from 2006 to 2011	The results indicate a positive association between REM and family control. However, this association is curvilinear in shape, i.e., higher REM at an early stage of family ownership but, once it passes a certain threshold, REM decreases	Governance and controls
Sohn (2016)	Financial statement comparability and earnings management	US: Sample from 1983 to 2012 with 32,211 firm-year observations	AEM decreases but REM increases with an increase in a firm's accounting comparability. However, this substitution effect is mitigated when firms' information environment and/or audit quality are better	Financial reporting
Anagnostopoulou and Tsekrekos (2017)	Level and changes in leverage and earnings management	US: Sample from 1997 to 2009 with 2861 SUSPECT firm-year observations with composite REM1 measures	The level and changes in leverage have a significantly positive impact on upward REM as opposed to AEM for firms with earnings targets in place. High leveraged firms use AEM as a complementary mechanism to achieve earnings targets as they are unable to achieve targets using REM only	Financial reporting
Asay (2018)	Accrual reversals and earnings management	Two experiments: 408 participants through Amazon's Mechanical Turk website	The results indicate that timing difference increases optimism about future performance, and this increases participants' propensity to engage in AEM and REM	Financial reporting
Brown <i>et al.</i> (2017)	Target ownership plans (TOPs) on REM	US: 2160 firm-year observations of S&P 500 firms from 1992 to 2010	The findings show that TOPs are associated with less use of income increasing AEM and REM	Governance and controls

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Caskey and Ozel (2017)	Employee injury and illness rates and REM	US: 33,350 firm-year observations for the 2002–2011 period	The results show significantly higher injury/illness rates for SUSPECT firms compared to firms that miss or comfortably beat analyst forecasts. The higher injury/illness rates for SUSPECT firms are associated with both increases in employee workloads and in abnormal reductions of DISX	Governance and controls
Di Meo <i>et al.</i> (2017)	Managerial entrenchment and REM	US: 7349 firm-year observations from 1992 to 2011	There exists a negative association between managerial entrenchment and both the opportunistic use of AEM and the manipulation of REM. Earnings management is less detrimental to firm value if the manager is entrenched	Governance and controls
Ernstberger <i>et al.</i> (2017)	Mandatory reporting of Interim Management Statements and REM	EU: 5304 firm-year observations for the period 2005–2014	REM increased for firms mandated to switch from semi-annual to quarterly IMS reporting, relative to matched control firms. The reporting frequency-induced REM decreased firms' long-term operating performance	Financial reporting
Fan and Liu (2017)	Managerial use of REM or misclassification of COGS and SGA to achieve different earnings benchmarks	US: 319,518 firm-quarter observations from 1988 to 2012	Managers engage in both misclassification of COGS (SG&A) and RAM of COGS (SG&A) to meet or beat prior period gross margin benchmark (to report small increase in core earnings benchmark). When both misclassification and RAM are available to managers, they prefer misclassification over RAM to achieve small positive core earnings	Capital market
Ham <i>et al.</i> (2017)	CFO narcissism and REM	US: Varying observations for various REM proxies	Narcissistic CFOs are more willing to use AEM and REM to influence reported outcomes	Governance and controls
Heese (2017)	Overbilling, AEM and REM in hospitals	U.S.: 115 for-profit hospitals (902 hospital-year observations) in California from 1996 to 2007	Overbilling, REM and AEM are substitutes for each other in hospitals. When either AEM or REM is constrained, hospitals resort to overbilling. When overbilling is constrained, hospitals use more REM rather than more AEM.	Financial reporting

(Continues)

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Ipino and Parbonetti (2017)	Mandatory IFRS adoption and earnings management	International: 33 countries from 2000 to 2010 with 101,331 firm-year observations	Firms substitute REM for AEM in countries with strict enforcement regimes and in the presence of strong firm-level control mechanisms, the market's level of scrutiny and firm-specific incentives to provide transparency	Regulation
Kim <i>et al.</i> (2017)	Language's grammatical rules and earnings management	Cross-country: 132,909 observations for the period 2002 to 2011	Countries where the grammatical rules do not require to mark future events are less involved in AEM as well as REM. This is because weaker time disassociation reduces the gap between present and future, thus managers are more conscious about the future	Other
Qi <i>et al.</i> (2017)	TMT characteristics and REM	China: 16,841 firm-year observations from 2000 to 2015	Female top executives and top executives near retirement age are less likely to engage in either AEM or REM, while top executives with financial work experience are more likely to engage in both AEM and REM	Governance and controls
Sakaki <i>et al.</i> (2017)	Stable institutional ownership and REM	US: 63,675 firm-year observations from 1990 to 2012	The results indicate a negative association between stable institutional ownership and REM. However, this negative association holds for pressure-insensitive institutional investors only	Governance and controls
Alhadab and Clacher (2018)	Audit quality and REM around IPOs	UK: 498 IPO firms between 1998 and 2008	Higher audit quality constrains abnormal DISX but increases abnormal CFO manipulation at the end of the IPO year	Auditing
Bonacchi <i>et al.</i> (2018)	Earnings management in non-listed subsidiaries	Italy: 3196 firm-year observations from 2003 to 2014	Non-listed subsidiaries engage in both AEM and REM to help their family-owned parent firms to meet or beat benchmarks. Big 4 auditors reduce subsidiary level AEM. Higher board proximity (parent and subsidiaries sharing more than half of the board members) is the channel used to manage earnings to avoid losses	Governance and controls

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Choi <i>et al.</i> (2018)	Legal regime, audit quality and REM	International: 24,463 observations from 22 countries from 1995 to 2004	Firms switch from AEM to REM in countries with the stronger legal regime. The presence of a Big4 auditor reduces both AEM and REM and attenuates the positive relationship between legal regime strength and REM	Auditing
Chou and Lee (2018)	CEO stock-based compensation and REM	US: 1997 to 2007 (number of observations not reported)	There is a substitutive (complementary) relation between AEM and REM when CEOs have the lowest (median) degree of stock-based compensation incentives. The trade-off relation exists when the CEOs have the highest degree of stock-based incentives during the post-SOX period, but not the pre-SOX period	Governance and controls
Cooper <i>et al.</i> (2018)	Share repurchases and REM	US: 23,396 firm-year observations from 1988 to 2011	The results indicate a weak support for income decreasing REM through underproduction before share repurchases. Income decreasing REM through increasing DISX before repurchases is strongly supported	Capital market incentives
Ding <i>et al.</i> (2018)	Political affiliation, firm performance and REM for private firms	China: 456,849 observations of privately held firms between 1998 and 2012	Politically affiliated firms are more likely than non-affiliated firms to engage in REM. Furthermore, regional economic development moderates the relationships between political affiliation and REM as well as firm performance. Finally, REM mediates the effect of political affiliation on firm performance among privately held firms	Governance and controls
Garg (2018)	Changes in internal control certification requirements (ICCR) and earnings management	Australia: $N = 474$ in 2007 (Voluntary), $N = 4602$ from 2008 to 2014 (Mandatory); $N = 921$ in 2015 (Abolition)	Consistent with the notion that REM is less susceptible to detection, the results suggest that firms place greater reliance on REM than on AEM when having to comply with certification requirements (the mandatory period between 2008 and 2014)	Governance and controls

(Continues)

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Gounopoulos and Pham (2018)	CEOs' financial expertise and REM around IPOs	US: 467 observations over the period 2003–2011	The study finds strong evidence that newly listed firms with financial expert CEOs are less likely to engage in either AEM or REM in the offering year than are those with non-financial expert CEOs	Governance and controls
Haga <i>et al.</i> (2018)	Listing status and REM	UK: 94,282 firm-year observations from 2008 to 2014	Compared with private firms, listed firms engage more in REM. Firms with higher managerial ownership, bank financing, financial distress risk and audit quality engage in less REM and these effects are more pronounced in the listed firms	Regulation
Heese (2018)	Overbilling, AEM and REM in hospitals	US: 115 for-profit hospitals (902 hospital-year observations) in California from 1996 to 2007	Overbilling, REM and AEM are substitutes for each other in hospitals. When either AEM or REM is constrained, hospitals resort to overbilling. When overbilling is constrained, hospitals use more REM rather than more AEM	Financial reporting
Khurana <i>et al.</i> (2018)	Hedge fund interventions and EM behaviour	US: 5450 firm-quarter observations for 2001–2013 sample period	There is a positive association between hedge fund activism and REM; however, hedge fund activism and AEM exhibit no association	Governance and controls
Oz and Yelkenci (2018)	Legal origin, enforcement, and IFRS adoption and earnings management	EU: 14 countries from 1997 to 2015 with 53,861 firm-year observations	Strong enforcement and IFRS adoption decreased AEM in the code law countries while there was no effect on REM. In the case of common law countries, an increase in enforcement intensity negatively affected both AEM and REM, while IFRS had no significant effect	Regulation
Shi <i>et al.</i> (2018)	Product market competition and earnings management	US: 19,778 observations between 1995 and 2007	The findings indicate a positive association between accounting irregularities and AEM while showing a negative association between product market competition and REM	Governance and controls

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Wang <i>et al.</i> (2018)	Venture capitalists' political connections and REM	China: 885 IPO listings for the period 2006–2012	The results indicate that government-connected VCs have the highest AEM and REM to window-dress before IPOs; however, these firms have poor long-term performance, and the VC's exit soon after the expiration of the lock-up period. While politically connected VCs through management have the lowest level of EM	Governance and controls
Baker <i>et al.</i> (2019)	The effect of CEO and CFO power on earnings management	US: 8708 firm-year observations for the period 1992–2010	In the pre-SOX period, AEM (REM) is greater when the CEO (CFO) is powerful relative to the CFO (CEO). In the post-SOX period, however, the effect of relative CEO power on AEM subsides, whereas the effect of relative CFO power on REM persists. Powerful CEOs inhibit REM preferences of powerful CFOs in the pre-SOX period, but not in the post-SOX period	Governance and controls
Beckmann <i>et al.</i> (2019)	Cross-listing and REM	US non-financial sample of 765 ADRs from 2000 to 2015	The results indicate the existence of high REM surrounding the US cross-listing events. Firms following IFRS, unsponsored firms and firms listed under the level 1 program have significantly high REM and poor long-term market performance	Regulation
Cai <i>et al.</i> (2019)	CEO religiosity and REM	US: 2698 firm-year observations from 2000–2010	Firms managed by religious CEOs exhibit less earnings management through REM	Governance and controls
Campa <i>et al.</i> (2019)	REM based on asset sales	UK: 20,789 firm-year observations from 1999 to 2015	Asset sale is used to avoid losses and achieve earnings increases, and as a big bath strategy. This is moderated by the magnitude of the opening balance of accruals. The main results are also moderated by the introduction of IFRS	Financial reporting/Regulation
Duong and Pescetto (2019)	Degree of equity overvaluation and REM	UK: 11,851 firm-year observations for the period 1995–2012	Substantially overvalued firms (SOV) inflate earnings using both AEM and REM. Relatively overvalued firms, on the other hand, do not engage in AEM but report higher ADISX, consistent with such firms increasing discretionary expenses to finance growth to justify the high market valuation	Capital market incentives

(Continues)

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Eng <i>et al.</i> (2019)	REM between Chinese family firms and US family firms after the financial crisis of 2008	US: 7467 firm-year observations from 2004 to 2014; China: 7778 firm-year observations from 2004 to 2014	For the US sample, there is greater REM in family firms than non-family firms in the post-financial crisis period than the pre-financial crisis period. For the Chinese sample, there is greater REM in family firms than non-family firms, but REM is lower in the post-financial crisis period	Governance and controls
Haga <i>et al.</i> (2019)	Earnings management and country-level long-term orientation	Cross-country: 237,525 observations for the period 2003–2015	Firms in short-term oriented cultures tend to manage real earnings to meet or beat earnings benchmarks. While firms operating in long-term oriented cultures manage accruals to meet or beat benchmarks	Governance and controls
Halabi <i>et al.</i> (2019)	In formal institutions (religion and culture) and earnings management	Cross-country: 15,979 firm-year observations for the period 2005–2010	A positive association between high power distance and religiosity and REM	Governance and controls
Holderness <i>et al.</i> (2019)	Employee option-based compensation and earnings management	US: 9508 firm-year observations over the period 2004–2016	Increases in rank-and-file employees' option-based compensation are associated with increases in REM. The relation is stronger when the performance incentives and is attenuated in the presence of more intense monitoring	Governance and controls
Kung <i>et al.</i> (2019)	Auditors' gender compositions of joint audit and REM	Taiwan: 10,474 observations from 2005 to 2015	All-female signing auditor pairs and auditor industry expertise could drive clients to engage in REM as an alternative to AEM	Auditing
Lanier <i>et al.</i> (2019)	Powerful customers and REM	US: 75,219 observations from 1980 to 2015	The results indicate that powerful customers and REM has a significant positive association	Governance and controls
Wen <i>et al.</i> (2019)	REM in not-for-profit hospitals	Taiwan: 2005–2010 sample period with a total of 319 hospital-years	Higher REM stemming from non-revenue-generating expenditures and operating expenditures. Private hospitals are involved in more REM than public hospitals and private non-religious hospitals are involved in more REM than religious hospitals	Financial reporting
Yung and Root (2019)	Policy uncertainty and REM	International: 81,395 firm-year observations from 2001 to 2014	Firms increase (decrease) REM when policy uncertainty is high (low). Further, policy uncertainty induced earnings management harms firm value	External factors

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Chang and Pan (2020)	Stock-for-stock mergers and REM	US: 2281 firm-year observations between 1990 and 2013	Stock-for-stock mergers result in higher discretionary current accruals in the quarter before merger. Further results indicate that sales are manipulated through relaxing credit terms. Similarly, acquirers overproduce to reduce COGS. Stock-for-stock merger firms have post-merger operating, as well as market, underperformance because of REM	Capital market incentives
Chen <i>et al.</i> (2020)	Provincial GDP and REM	China: 21,702 firm-year observations from 2002 through 2016	Firms in the provinces that have GDP rates below the national average and below the adjacent provinces engage in REM	External factors
Cunningham <i>et al.</i> (2020)	SEC comment letters and REM	US: 24,410 firm-year observations from 2007 to 2016	Sample firms switched from AEM to REM after the receipt of SEC comment letters relating to accounting estimates and accruals. However, there is no significant change in total earnings management (sum of AEM and REM) after the receipt of the comment letters	Regulation
Dong <i>et al.</i> (2020)	Ownership structure and REM	China: 7143 observations from 2003 to 2014	The percentage ownership of the largest shareholders is positively related while State and managerial ownership are negatively related with REM. The negative association is more pronounced for firms with higher ownership by the largest shareholders	Governance and controls
García Lara <i>et al.</i> (2020)	Earnings conservatism and earnings management	US: 52,849 firm-year observations over the period 1998–2018	Conditional conservatism reduces AEM but creates a substitution effect with REM. This effect is more pronounced when the information environment is poor. Passage of SFAS121, which induces increased conservatism, made managers use more REM and reduce the use of overall earnings management to meet and beat benchmarks	Financial reporting/Regulation

(Continues)

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
García Osma <i>et al.</i> (2020)	Firm-specific insider trading restrictions and the substitution effect between AEM and REM	US: 1132 firms from 1996 to 2012	Results document a significant decrease in AEM after the adoption of insider trading restrictions but no concurrent increase in REM. Overall, voluntary insider trading restrictions limit the opportunities to profit from earnings management of any type	Financial reporting/ Regulation
Geertsema <i>et al.</i> (2020)	CEO tenure and REM	US: 1901 observations from 2005 to 2012	Firms tend to use REM to temporarily decrease earnings after CEO turnovers. By contrast, new CEOs do not tend to use accruals to manage earnings downwards. The results do not support that outgoing CEOs manage earnings upwards through AEM or REM	Governance and controls
Guggenmos (2020)	Innovative corporate culture and REM	3×2 between-participant experiment. 137 participants from Amazon Mechanical Turk (AMT)	Managers in a more innovative company culture engage in greater REM than managers in a less innovative company culture	Governance and controls
Huang <i>et al.</i> (2020)	Litigation risk (Ninth Circuit ruling) and REM	US: 15,225 observations over the period 1995–2003	The results indicate an increase in REM after the Ninth Circuit ruling and the results are more pronounced for firms with more optimistic disclosures, indicating that the risk of litigation results in lower REM	Regulation
Jiang <i>et al.</i> (2020)	Short-selling threat and REM	International: 122,591 firm-year observations from 22 countries for the period 2003–2015	Short-selling threat reduces REM; a result mainly driven by firms operating in countries with weak shareholder protection, indicating a substitutive monitoring effect of country-level shareholder protection and firm-level short-selling threat	Governance and controls
Kałdoński <i>et al.</i> (2020)	Institutional ownership stability and REM	US: 1204 observations from 2007 and 2016	A negative association is found between REM and institutional ownership stability. However, there is no relationship between institutional ownership stability and REM in companies with entrenched managers	Governance and controls
Ni (2020)	Constituency statutes (CS) and REM	US: 84,460 firm-year observations for the period 1980–2007	The adoption of CS laws curtails REM mainly by reducing APROD and ADISX	Regulation

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Rennekamp <i>et al.</i> (2020)	Short-selling pressure, reporting transparency and REM	Experimental: 2 × 2 between-participants design using 74 graduate and undergraduate business students	In the presence of reporting transparency, managers are more likely to use REM relative to AEM when short-selling restrictions are relaxed. This is consistent with managers switching to hard-to-scrutinise REM to avoid the external monitoring of short sellers as sophisticated market participants	Governance and controls
Baatwah <i>et al.</i> (2021)	Internal audit function (IAF) outsourcing and REM	Oman: 928 firm-year observations from 2005 to 2017	External IAF providers' firm-specific expertise is associated with lower REM. External IAF providers' industry moderates the relationship between firm-specific expertise of external IAF and REM	Auditing
Chen and Hung (2021)	CSR, REM and firm value	Taiwan: 3495 firm-year observations from 2010 to 2014	A significant and negative relationship between CSR and REM. If managers promote CSR to obfuscate earnings management, it will reduce firm value	Governance and controls
Ding <i>et al.</i> (2021)	The influence of climate risk on REM	International: 184,897 observations from 64 countries during the period from 2005 to 2016	Firms in countries with higher climate risk are more likely to engage in both AEM and REM. Furthermore country-level quality of governance strengthens the main effects of climate risk on both types of earnings management	External factors
Eiler <i>et al.</i> (2021)	REM and financial analysts' forecast properties	US: Sample period 2001 to 2019 with 19,316 firm-year observations	Non-SUSPECT firms exhibit the strongest positive relation between REM measures and the analysts' forecast properties, suggesting analysts more fully incorporate the earnings implications of SUSPECT firms	Governance and controls
Ertan (2021)	Syndicated loan originations as a mechanism of REM	US: 105,000 syndicated loans from 1993 to 2017	Income-constrained lenders initiate more loans in the third month of a fiscal quarter than in the first two months, suggesting the issuance of loans to achieve earnings goals	Capital market incentives

(Continues)

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Fang <i>et al.</i> (2022)	External social networks of top executives and REM	US: 27,720 firm-year observations between 2010 and 2017	Firms with socially connected executives are more aggressive in managing earnings through both AEM and REM. Additional analysis shows that connections of past professional working experiences have a greater impact on earnings management than connections through education and other social activities. Moreover, CFO social networks have a greater influence on earnings management than CEO social networks	Governance and controls
Galdi and Johnson (2021)	SFAS 151 and REM	US manufacturing firms: 6424 firm-year observations (2003–04 and 2006–07)	During the pre-SFAS 151 period, the suspect firms, on average, had higher APROD. However, during the post-SFAS 151 period this effect diminished. Further tests show that the APROD in the current year results in lower ROA in the subsequent 2 years	Regulation
Gleason <i>et al.</i> (2021)	Worker representation on corporate boards and REM	Germany: 978 firm-year observations from 2009 to 2015	The worker representatives' payroll maximisation incentives dominate their monitoring duties. Specifically, worker representation on corporate boards reduces REM when it results in wage cuts or job losses but not when it increases payroll or job security	Governance and controls
Grieser <i>et al.</i> (2021)	External demand shocks and REM	US: 51 utilities firms from 2000 to 2016	Firms increase (decrease) charitable giving, a proxy for REM, from expected levels in order to achieve certain earnings goals in response to demand-increasing (decreasing) weather shocks	External factors
Griffin <i>et al.</i> (2021)	CEO social capital and REM	US: 24,224 firm-year observations from 2000 to 2014	Well-connected CEOs are associated with higher levels and volatilities of REM. The positive relation between REM and CEO network size is stronger when the CEO connects with more informed and influential persons. The level of REM induced by a large CEO social network is associated negatively with future operating performance	Governance and controls

TABLE 1 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Hickman <i>et al.</i> (2021)	CSR engagement and earnings management	India: 15,626 firm-year observations from 2012 to 2017	Results indicate that the mandate of CSR expenditure decreased AEM, while no consistent change in REM was observed	Governance and controls
Hoitash and Mkrtechyan (2022)	Connection between outside directors and executives not serving on the board (internal ties) and REM	US: 43,943 firm-years over the period between 2001 and 2018	There is a negative and marginally significant relationship between internal ties and REM: a relationship that is driven mainly by ties involving chief operating officers	Governance and controls
Mughal <i>et al.</i> (2021)	Earnings management in target firms before and after the SOX	US: 2099 target firms and 868 acquiring firms between 1987 and 2017	Target firms used REM in eight quarters before the merger announcement both before and after the SOX. Use of AEM increased (decreased) significantly during the pre-SOX (post-SOX) period in stock-based acquisition	Capital market incentives
Raghuramandan (2021)	Whether wage theft, as an REM mechanism, is a substitute for financial misconduct	US: 16,692 observations from 2004 to 2015	Firms engage in wage theft more frequently in years in which they just meet or beat analyst forecasts. Wage theft leads to financial misconduct if the theft is undetected. However, once firms are caught engaging in wage theft, they are more likely to shift to engaging in financial misconduct	Financial reporting
Espahbodi <i>et al.</i> (2022)	Change in the level and significance of AEM and REM in the post-SOX period	US: 16,354 firm-year observations from 1996 to 2018	REM has decreased significantly in both the short term (2003–06) and long term (2007–18) post-regulation period. AEM, in contrast, has decreased significantly only in the short-term post-regulation period	Regulation
Owusu <i>et al.</i> (2022)	Auditor gender and the trade-off between AEM and REM	UK: 1793 FTSE350 firm-year observations from 2009 to 2016	Companies audited by female auditors are associated with significantly lower AEM. There is no significant difference between change in auditor gender and REM	Auditing

Note: The papers in this table are listed in chronological order.

to reduce information asymmetry between managers and external investors (Spence, 2002). Supporting this signalling view of REM, Jiang *et al.* (2018) find that current-period REM is positively associated with future performance for a sample of international firms: a finding that is more pronounced for countries having strong institutional environments. Using evidence from the US, Gunny (2010) and Al-Shattarat *et al.* (2018) also support the signalling view of REM. They find that SUSPECT firms have relatively better subsequent performance than firms that do not engage in REM and that miss or just meet the benchmarks. Beyer *et al.* (2018), too, find support for the signalling view, and the response to such signalling is more pronounced for firms with an opaque information environment. In addition, the paper also documents that the signalling role becomes stronger when REM is costly, and the incentives to meet and/beat earnings targets are weak. Dyreng *et al.* (2022) document that shareholders at high violation risk firms are better off when their firms successfully engage in covenant-related earnings management compared with shareholders at comparable firms that violate a covenant but do not engage in covenant-related earnings management.

4.2 | Financial reporting, capital and credit market consequences of REM

With respect to the timing of earnings announcements, it is documented that not all firms disclose good news early. Trueman (1990) proposes that late announcers with good news are more prone to earnings management, among other characteristics – a theory that is empirically tested by Kim *et al.* (2021). The authors document that good news firms managing earnings through AEM are more likely to delay announcements. However, there is no association between REM and late earnings announcements because REM are undertaken across the year. Black *et al.* (2017) examine the impact of REM on non-GAAP reporting practices and find that when the GAAP reporting reveals firms as meeting benchmarks, it is unlikely that managers will use non-GAAP disclosures. However, when managers meet expectations using REM, they are significantly less likely to report a non-GAAP earnings metric. In sum, Black *et al.* (2017) suggest that managers follow the sequence of GAAP reporting, REM, AEM and non-GAAP reporting to meet and beat benchmarks, but do not show whether managerial opportunism or signalling intentions affect the sequential nature. Using excessive working capital to measure balance sheet bloat as a mechanism of REM, Ettredge *et al.* (2010) find a systematically high level of balance sheet bloat for firms later issuing fraudulent financial reports. Li (2019) documents a negative relationship between REM and earnings persistence that weakens the predictive ability of earnings for future cash flows. These findings therefore support the opportunistic use of REM.

Because the true performance of the firm is disguised by earnings management and the usefulness of accounting numbers as an evaluation and monitoring tool is weakened, lenders are motivated to exert efforts to identify and penalise such practices (Pappas *et al.*, 2019). If lenders are able to detect REM, they are likely to respond with stricter loan terms. Using evidence from the private loan market in the US, Pappas *et al.* (2019) find that, as REM increases, the loan contract terms become stricter. Chen *et al.* (2015) also find that REM and bond yield spread are positively associated, suggesting that REM increases the credit risk. These findings reveal that lenders factor REM into their credit decisions and respond accordingly. However, Li *et al.* (2018) document that banks fail to detect REM in China, but the study does not shed light on whether bank characteristics, i.e., large versus smaller banks, or local versus foreign banks, moderate the association or not. This segregation may affect the results, as large and foreign banks will have expert lending teams, while state-owned banks will have their own lending incentives (client's political affiliation).

In contrast, investors may view REM as less costly than AEM, and are likely to assume that smoothed earnings are derived from smoothed actual operating activities (Kim *et al.*, 2021).

Supporting this view, Kim *et al.* (2021) find that REM and credit default swap spread are negatively associated, suggesting that real earnings smoothing reduces creditors' perceived risk. Crabtree *et al.* (2014) suggest a negative association between REM and perceived credit risk, resulting in a lower bond rating and a higher market yield of the firm's debt at issuance. Lin and Shen (2015) examine the impact of earnings management on credit risk under the condition of idiosyncratic risk in family firms. Based on the evidence from Taiwan, Lin and Shen (2015) find that REM affects credit risk negatively while controlling for idiosyncratic risk in family firms. These findings suggest that irrespective of the incentive to engage in REM, the trade-off between REM and AEM has dominated investor response to earnings management.

However, evidence also suggests that managerial opportunistic use of REM adversely affects shareholder wealth. Khurana *et al.* (2018), for example, find that real earnings smoothing is positively related to one-year-ahead stock price crash risk, a finding that is primarily driven by overinvestment and resource diversion channels. Francis *et al.* (2016b) also find a positive association between deviation from real operations and crash likelihood in the next period. The authors argue that when investors observe the release of bad news hidden via REM all at once, together with the negative economic consequences of REM, the crash risk is more acute than when the investors observe only the bad news release.³⁴ Mellado-Cid *et al.* (2019) document a positive association between a firm's REM and the volatility spread. As REM causes uncertainties in future cash flows, option investors are more likely to take long positions in put options, rather than call options (Mellado-Cid *et al.*, 2019), expecting a stock price decline. Abad *et al.* (2018) show that when firms have (do not have) incentives to achieve earnings benchmarks, the REM is positively (negatively) associated with information asymmetry. Finally, Kim and Sohn (2013) find that implied cost of equity is positively associated with REM. This positive association is stronger for SUSPECT firms. Park (2017) examines whether short sellers capitalise the overvaluation of firms attributable to REM and find that, while short interest is negatively related to abnormal cash flows from operations, it is positively associated with abnormal production costs. In conclusion, the majority of prior research suggests that managerial opportunism is the dominant motivation for engaging in REM to derive various financial reporting and capital market benefits. However, there is also some evidence to support the efficiency arguments for engaging in REM. In addition, managers do weigh the relative costs and benefits of using REM and AEM.

4.3 | REM and tax avoidance

AEM has minimal tax consequences while REM increases income tax expenses, making it costlier than AEM (Zang, 2012). The increased tax burden attributable to REM can be reduced through aggressive tax planning, but at the expense of increased regulatory scrutiny. Kaldonksi and Jewartowski (2020) find that SUSPECT firms that use REM as a tool to meet or beat earnings targets are less tax aggressive than their non-REM-using peers. Further results indicate that overvalued firms engaged in REM activities are less aggressive tax planners than their peers, and SUSPECT firms with high analyst coverage are less aggressive tax planners than firms with less analyst coverage. However, the paper does not use a matched sample of the benchmark and non-benchmark firms. In a related work, Sánchez-Ballesta and Yagüe (2021) find that SMEs are involved in both AEM and REM, and avoid taxes but are less (more) tax aggressive when they have (no) incentives to report higher income.

³⁴The two studies differ in that Khurana *et al.* (2018b) examine real smoothing resulting from both upward and downward REM while Francis *et al.* (2016b) emphasise upward REM only, used to meet earnings benchmarks.

4.4 | REM and corporate governance

The hierarchical power structure within the organisation suggests that CEOs can exert significant influence over CFOs, and one mechanism to achieve such influence is to have co-opted CFOs, i.e., CFOs hired after a CEO has taken office. Dikolli *et al.* (2021) theorise that such co-opted CFOs will be more likely to engage in opportunistic REM to reach earnings targets, thus affecting CEO compensation favourably. The authors find support for this hypothesis, but only for firms with newly co-opted CFOs and in the post-SOX period – the latter supporting the substitution hypothesis between AEM and REM in meeting earnings benchmarks. REM could cause more damage for the clients' survival and future operating performance. Further, clients' REM and potential bankruptcy may pose greater legal and reputational risks to auditors. Consequently, auditors view REM as being of higher risk than AEM. Hence, the REM premium could be higher than the AEM premium. Choi *et al.* (2021) find that the average audit fee premium is higher for REM than for AEM for a sample of international firms. Greiner *et al.* (2017) suggest that auditors would require additional substantive testing to gain sufficient audit evidence and, hence, would require a fee premium. They find supportive evidence and also document that firms engaging in aggressive REM have a longer audit report lag, evidence consistent with increased audit effort for such firms. Pacheco-Paredes and Wheatley (2021) confirm the findings of Greiner *et al.* (2017) but for non-accelerated filers only, suggesting that auditors engage in greater audit efforts in detecting REM only when they are allowed sufficient time to do so.

Using an experimental setting, Commerford *et al.* (2019) examine whether REM matters to auditors, mainly because of what REM indicates about management, or because of what REM suggests about audit-related risks. Their 3×2 between-subjects experiment revealed that auditors are less likely to retain clients when they employ explicit REM, regardless of their intention to meet and beat earnings benchmarks. However, when clients employ more ambiguous REM, auditors are less likely to retain them in the context of an intention to meet and beat earnings benchmarks. Kim and Park (2014) also provide evidence to suggest that auditors are likely to drop clients who engage in REM through cash flow manipulation. Their evidence for auditors' client retention decisions is stronger when the REM is motivated by managerial opportunistic intentions, such as meeting and beating earnings targets. Based on the two-stage process of CIT, Commerford *et al.* (2018) argue that auditors have a cascading effect of observed dispositional inferences of managerial REM behaviour. The authors argue and find evidence to suggest that when managers use REM, auditors first perceive them as aggressive and, as a result, increase scrutiny in managers' accrual earnings management. Consistent with both audit standards and theory, their paper finds that auditors are more likely to propose an adjustment only when an audit difference is qualitatively material.

4.5 | Section summary

Studies that examined the consequences of REM are fewer in number than the ones examining the determinants of REM and, importantly, provide inconclusive evidence. For example, the signalling argument introduced in the Gunny (2010) paper has been challenged by other research, such as Cohen and Zarowin (2010) and Kothari *et al.* (2016), but supported by Al-Shattarat *et al.* (2018). Research on credit and the capital market consequences of REM also provides mixed evidence. One stream suggests that REM is difficult to detect, increases uncertainties in future cash flows and, consequently, increases credit risk, stock price crash risk and cost of equity. In contrast, others suggest that REM produces smooth earnings and, as a result, reduces credit risk. In conclusion, accounting and finance researchers have paid relatively little

attention to the consequences of REM, and the few studies published provide inconclusive evidence. Table 2 summarises the key findings of papers surveyed in this section.

5 | POTENTIAL FUTURE RESEARCH DIRECTIONS

Based on this survey of the extensive literature on, primarily, the determinants and, to some extent, the consequences of REM, we offer some suggestions for future research below.

5.1 | Methodological issues surrounding the measurement of REM

As summarised in Section 2, the Roychowdhury (2006) measure dominates the measurement of REM, both in the US and internationally, despite the fact that this measure suffers from some limitations (Cohen *et al.*, 2020; Gilliam, 2021; Srivastava, 2019). For example, Cohen *et al.* (2020) express concerns that the existing studies use endogenous variations in firms' economic environments to examine REM. This approach is questionable, because the omitted factors that drive the firm's underlying economic environment may be correlated with the decisions that are used to identify earnings management strategies. Whether performance-matching REM measures (Cohen *et al.*, 2020) might provide more robust evidence requires further attention. Our survey has not found much evidence that researchers have incorporated such measures in order to test whether their findings hold, using alternatives.

Before testing the hypothesis in the context of REM, researchers must identify and establish a setting that provides incentives for managers to engage in earnings management. For example, meeting and beating earnings thresholds, such as avoiding a loss, beating last year's earnings, and meeting analysts' forecasts, are common incentives for managers to engage in earnings management (Burgstahler & Dichev, 1997; Graham *et al.*, 2005). Suspect firms provide a setting within which managers have incentives to engage in earnings management. However, many of our surveyed papers have not considered such settings before testing their hypotheses. In particular, many non-US studies have not tested their hypotheses in a context that provides incentives for managers to engage in REM. Therefore, they need to first examine how managers act when they are faced with missing a threshold, such as zero earnings or last year's earnings.³⁵ Future research, which uses non-US data, could follow procedures similar to those of Roychowdhury (2006), Burgstahler and Dichev (1997) and Gilliam (2021) in order to establish a setting, before moving to testing the determinants and consequences of REM. However, a caveat is in order. As pointed out by Grieser *et al.* (2021, p. 906), 'Researchers often identify firms that they suspect managed earnings ... and proceed to work backward to identify the accounting or operating choices that allowed the firm to meet the target or expectation ..., the ex post nature of these investigations often does not allow one to gauge the importance or magnitude of earnings management activities for a general firm population.' It would be more informative to examine exogenous shock(s) that might affect unmanaged earnings and then investigate firms' reporting behaviour.

³⁵Researchers often document the use of earnings management as the possible reason behind the kink (Burgstahler & Dichev, 1997). However, Gilliam *et al.* (2015) document that the zero-earnings discontinuity becomes less kinky after 2002: the year in which the SOX was enacted, and managers switched to REM. Dechow *et al.* (2003) fail to find any significant difference in AEM between small profit and small loss firms. Makarem *et al.* (2018) extend this to the REM setting, but only for zero-earnings and earnings change benchmarks. Meeting or beating analyst forecasts continues to be an important benchmark, particularly in the US. We encourage international studies to consider all three thresholds, as it is not apparent which of the three incentives is more dominant.

TABLE 2 Consequences of REM

Author(s)	Research question	Sample	Key results	Theme
Ettredge <i>et al.</i> (2010)	Bloated balance sheet as an REM mechanism and restatements	US: 354 financial restatements from 1995 to 2003	Increasing balance sheet bloats in years prior to the restated periods. Balance sheets of companies restating core earnings accounts are significantly more bloated than control companies beginning more than one year prior to the misstatement	Financial reporting
Gunny (2010)	REM and future performance for benchmark beating firms	US: 39,432 firm-year observations from 1988 to 2002	REM is positively associated with firms just meeting earnings benchmarks. Firms engaging in REM to just meet earnings benchmarks have relatively better subsequent performance than firms that do not engage in REM and miss or just meet the benchmarks	Performance
Ascioglu <i>et al.</i> (2012)	REM and market liquidity	US: 326 NYSE sample firms from 1996 to 2001	Evidence supports a strong association between ADISX and illiquidity	Market liquidity
Kim and Sohn (2013)	REM and cost of capital	US: 39,865 firm-year observations for the period 1987–2011	Implied cost of equity is positively associated with REM after controlling for the effect of AEM. Subsample analysis reveals that the positive association is more pronounced for suspect firms	Capital market
Crabtree <i>et al.</i> (2014)	Impact of REM on debt issue	US: 2583 new debt issues and 1579 unique firm-year observations for 1990–2007	REM is negatively associated with firm's bond rating and positively associated with bond yield. These negative consequences of REM on bond ratings and yields are most prevalent for firms using REM to achieve analyst expectations	Credit risk

TABLE 2 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Alhadab <i>et al.</i> (2015)	REM, AEM and IPO failure risk	UK: 571 IPO firms that went public on either the main or AIM markets between 1998 and 2008	IPO firms use income increasing REM during IPO but have a higher probability of failure in the subsequent periods. Conversely, IPO firms with lower levels of REM during the IPO have higher survival rates in the subsequent periods	Performance
Chen <i>et al.</i> (2015)	REM uncertainty and credit risk	US: 9565 annual bond observations from 2001 through 2008	REM uncertainty is positively associated with credit risk. The positive effects of R_CFOV and R_DISXX on a firm's credit risk become weaker when a firm has a lower credit rating. Results are robust to suspect firm analyses	Credit risk
Lin and Shen (2015)	REM on credit risk in family firms	Taiwan: 2368 family firm-year observations from 2003 to 2009	REM is negatively associated with credit risk, when idiosyncratic risk is present	Credit risk
Francis <i>et al.</i> (2016b)	Abnormal real operations, REM and stock price crash risk	US: 40,037 for DISX, 42,404 for PROD, and 44,731 for CFO firm-year observations for the period 1994–2009	A positive association between REM and price crash is found. This effect becomes much stronger following the SOX whereas AEM's impact drops by about half. In comparison with DRO's impact on crash risk, the AEM's impact on price crashes is more concentrated on earnings announcement dates	Capital market
Vorst (2016)	Reversals of discretionary investment cuts and operating performance	US: 37,572 firm-year observations for the period 1983–2012	A reversal of an abnormal cut in discretionary investments in the year after the cut is indicative of REM. Such cuts are associated with lower future operating performance, but not when firms beat earnings benchmarks.	Financial reporting/performance
Black <i>et al.</i> (2017)	Use of REM and AEM along with non-GAAP disclosures for earnings management	US: Hand-collected non-GAAP disclosures from 42,018 press releases over the period 1998–2018	Managers first use AEM and REM and then move to non-GAAP metrics if the managed earnings still fall short of targets	Financial reporting

(Continues)

TABLE 2 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Abad <i>et al.</i> (2018)	REM and information asymmetry in the equity market	Spain: 468 firm-year observations for the period 2001–2008	The results do not (do) show significant associations between REM proxies and information asymmetry for the pooled (suspect) sample. For the non-suspect subsample, the relation is found to be negative suggesting that when REM does not reflect low earnings quality but change in business, the informed traders have fewer incentives to produce private information	Capital market
Al-Shattarat <i>et al.</i> (2018)	REM and future firm performance for SUSPECT firms	UK: 4487 firm-year observations spanning the period 2009–2017	REM to meet earnings benchmarks improves firms' subsequent operating performance. Firms that undertake REM in the absence of meeting earnings benchmarks experience a decline in their subsequent operating performance	Performance
Bereskin <i>et al.</i> (2018)	REM and innovation performance	US: 36,042 firm-year observations from 1987 through 2013	REM-related R&D cuts have more significant negative consequences than other cuts to R&D. A one standard deviation increase in REM-related R&D spending cuts is associated with a 2.9 percent decline in the number of patents, a 3.9 percent decline in patent citations, and a 36.0 percent decline in innovative efficiency in the subsequent 3-year period	Performance

TABLE 2 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Beyer <i>et al.</i> (2018)	Information environment, costs of engaging in REM and REM for signalling by SUSPECT firms	US: 70,604 observations from 1988 to 2015	The positive relation between REM and future profitability is limited to firms that have less robust information environments, more costly REM (measured with market share and financial health), and for non-SUSPECT firms. Further analysis reveal that small firms use REM to signal positive future performance, but large firms do not	Performance
Choi <i>et al.</i> (2018)	REM and audit fees	US Sample period, 2000–2008 with 14,678 observations	REM is significantly and positively related to audit fees, and this relation is incremental over and beyond the effects of AEM. The positive relation is more pronounced in firms with a higher level of institutional ownership, stock price informativeness and acute financial constraints	CG (Auditing)
Commerford <i>et al.</i> (2018)	Auditors' scrutiny on unrelated financial reporting in the presence of REM	2 × 2 between-subjects experiment	When REM exists, auditors propose larger adjustments for audit differences that are unrelated to the REM (AEM for instance). Auditors' perception of aggressiveness/integrity of managers' behaviour and managers' actual aggressive behaviour regarding operating decisions sequentially mediate the association between REM and auditors' adjustments. REM and auditor adjustments association is moderated by the presence or absence of qualitatively material audit differences	CG (Auditing)

(Continues)

TABLE 2 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Jiang <i>et al.</i> (2018)	REM and future performance	International: 158,587 firm-year observations for 29 countries for the period 2001–2015	The current-period REM is positively associated with future performance: a finding that is driven by firms operating in countries with strong institutional environments and only during a non-economic crisis period	Performance
Khurana <i>et al.</i> (2018)	Real earnings smoothing and stock price crash	US: 32,188 firm-year observations for the period 1993–2014	Real earnings smoothing is positively related to one-year-ahead stock price crash risk. The positive association is more pronounced for firms with high uncertainty and more balance sheet constraints, but less pronounced for firms with high product market competition. The effect is attenuated when firms' credit ratings shift from minus to middle notch ratings	Capital market
Li <i>et al.</i> (2018)	REM and banks' lending decisions	China: 6132 firm-year observations from 2009 to 2014	Firms with REM gets more and less costly loans. SOEs get more loans while non-SOEs get cheaper loans. Firms located in less marketised regions get more and cheaper loans by engaging in REM	Capital market
Commerford <i>et al.</i> (2019)	Auditors' response to explicit REM	3×2 between-subjects experiment	When auditors observe REM, they perceive weaker management tone, are more likely to discuss the issues with the audit committee and are less likely to retain the client. Auditors consistently respond to explicit REM regardless of whether the client missed or beat the earnings target. In the more ambiguous potential REM setting, auditor responses to potential REM depend upon the earnings context	CG (Auditing)

TABLE 2 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Li (2019)	REM and earnings quality	US: 161,941 firm-years spanning the period 1975–2016	REM through abnormal DISX weakens earnings predictive ability for future cash flows. This negative association is more pronounced in the post-SOX period	Capital market
Mellado-Cid <i>et al.</i> (2019)	Options trades, short sales and REM	US: 85,356 firm-year observations between 1996 and December 2011	A positive association is revealed between a firm's level of REM and the volatility spread and skewness of the firm's options. Consistent with the higher demand for put options, the implied volatility of put options exceeds that of call options for firms using REM	Capital market
Pappas <i>et al.</i> (2019)	REM and loan contract terms	US: 22,918 loans issued to 3723 companies between 1996 and 2017	REM increases interest spreads. A significant and negative relation is found between REM measures and debt maturity structure. The likelihood of the lender imposing collateral requirements and the number of financial covenants increases significantly with REM as well. These findings are generally consistent with lenders being able to detect REM	Credit risk

TABLE 2 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Hewitt <i>et al.</i> (2020)	Outcome of earnings management, method of earnings management and investor trust	Experiment: 185 business professionals	Trust is impaired when the outcome of earnings management is inconsistent with shareholders' interests and/or when managers use AEM. Furthermore, in the presence of misaligned interests, the misalignment alone is sufficient to impair trust regardless of earnings management. When the outcome of earnings management is <i>consistent</i> with shareholders' interests, trust is impaired when managers use AEM but not REM. Finally, the combined effects of the outcome and the method of earnings management on trust affect investment decisions	Performance
Kaidoński and Jewartowski (2020)	REM and aggressive tax planning by suspect firms	Poland: Sample period 2005–2017 with 1149 firm-year observations	The findings indicate a negative association between REM and the industry- and size- adjusted income tax expenses of benchmark-beating firms indicating lower tax planning. The association is more pronounced for overvalued and high analyst coverage firms	Tax avoidance
Kim <i>et al.</i> (2020)	REM and cost of debt capital	International: 14,654 observations across 18 countries from 1987 to 2013	REM is positively associated with the cost of debt capital proxied by credit rating. Debt investors impose more premiums on the cost of debt capital for the firms in countries with more developed debt markets	Credit risk

TABLE 2 (Continued)

Author(s)	Research question	Sample	Key results	Theme
Choi <i>et al.</i> (2021)	The differential effect of AEM and REM on audit fees	International: 2000–2013 sample period with 256,431 firm-year observations from 40 countries	Auditors charge higher fees when their clients engage in either AEM or REM, confirming that both AEM and REM are reflected in audit fees. The average REM premium is larger than the average AEM premium across countries. AEM and REM premiums increase with legal regime strength. These findings are more pronounced for the Big 4 auditors than for non-Big 4 auditors, and for clients with higher litigation risk than for those with lower litigation risk	CG (Auditing)
Dikolli <i>et al.</i> (2021)	Co-opted CFOs, REM and benchmark beating	US: 17,726 firm-year observations for the period 1993–2015	Newly co-opted CFOs engage in income-increasing REM to meet analyst earnings targets but only during the post-SOX period.	Corporate governance
Kim <i>et al.</i> (2021)	Earnings announcements and earnings management	US: 25,107 observations from 1989 to 2017	Good news firms with income increasing discretionary accruals have a higher probability of late earnings announcement. However, there is no significant association between REM and late earnings announcement	Financial reporting
Kim <i>et al.</i> (2021)	REM and equity and credit investors' perceptions of risk	US: 25,063 firm-year observations from 1996 to 2018	REM is negatively associated with option-implied volatility, suggesting that REM lowers equity investors' perceived risk. REM is negatively associated with CDS spread, suggesting that REM lowers credit investors' perceived risk	Equity and credit risk
Dyreng <i>et al.</i> (2022)	Covenant-related earnings management on shareholder value and performance	US: sample period 1996 to 2008. A matched sample consisting of 1514 violation (non-matched violation) observations	Covenant-related earnings management may be in the best interest of shareholders and is not necessarily evidence of shareholder-manager agency conflicts; however, costly for the shareholders	Performance

Note: The papers in this table are listed in chronological order.

An overwhelming majority of REM research assumes that REM is opportunistic. It is crucial to determine whether deviation from real activities can be interpreted as opportunism. In other words, researchers have to disentangle ‘opportunism’ vs ‘efficiency’ arguments. Gilliam (2021) argues that model bias contributes to the above problem. Although prior research used suspect firms, and labelled deviation from real operations as opportunistic earnings management, it is necessary to establish the presence of opportunism in these suspect firms. For example, future research should test whether non-suspect firms in the sample, i.e., firms that just miss thresholds, such as loss avoidance, are also significantly associated with REM measures. If this is the case, then the original interpretation that managers employ REM to meet and beat thresholds is called into question. Therefore, future research should first rule out that the non-suspect firms are not using REM, so that it can be established that managers use REM for opportunistic reasons. Then other variables of interest, such as intended determinants and consequences, can be introduced into the models. We emphasise this procedure particularly in the non-US-based studies.

Further, we recommend that future research should also consider the issues associated with the models (as discussed in Section 2), when considering ‘opportunism’ vs ‘efficiency’. If the managers are not engaging in REM for opportunistic reasons, then it is important to understand whether they are using REM for signalling purposes. As explained in Section 4.1, research finds evidence, from both US and non-US settings, that managers do use REM for signalling intentions (Al-Shattarat *et al.*, 2018; Gunny, 2010; Jiang *et al.*, 2018). Further evidence on signalling intentions using state-of-the-art models will help us to gain more insights into the ‘opportunism’ vs ‘efficiency’ arguments. To establish a setting and to disentangle ‘opportunism’ vs ‘efficiency’, future research can use inductive research methodologies such as qualitative in-depth inquiries to determine ‘why’ and ‘how’ managers deviate from real activities. The findings from these qualitative investigations will reveal deeper insights into managerial earnings management behaviour, which may give a basis to disentangle ‘opportunism’ vs ‘efficiency’. Experimental research can also be used to unravel the above issues. The experimental method is superior to traditional archival research in measuring the intervening processes and psychological factors that could shed light on such issues as whether individual personality characteristics moderate the REM behaviour.

As presented in Section 3, inconclusive evidence exists about the substitution between AEM and REM. Although earlier studies such as Cohen *et al.* (2008) and Cohen and Zarowin (2010) provide evidence of substitution between REM and AEM post-SOX, later research did not provide support for this assertion. For example, Pincus *et al.* (2022) find REM and AEM behave as substitutes in the period preceding SOX but, contrary to Cohen *et al.* (2008), Pincus *et al.* (2022) find a significantly weakened substitution effect in the post-SOX period.³⁶ Espahbodi *et al.* (2022), too, report that both REM and AEM decreased significantly in the short term in the post-regulation period (2003–2006). Some of these contradictory findings are attributed to model bias (Gilliam, 2021; Pincus *et al.*, 2022). Therefore, future research should investigate the REM and AEM substitution effect using the models suggested by later research (see Section 2).

We further recommend that future research considers other mechanisms that managers use for substitution such as classification shifting. Classification shifting is the process of vertical movement of items, i.e., shifting expenses from core expenses, such as cost of goods sold, and selling, general and administrative expenses, to special items in order to inflate core earnings. McVay (2006) finds that this practice of earnings management also enables managers to meet and beat earnings thresholds, thereby supporting the opportunistic incentive. Abernathy *et al.* (2014) find that when REM is constrained by factors such as higher tax rates, poorer

³⁶Cohen and Lys (2022), however, criticise Pincus *et al.* (2022) by suggesting that they do not incorporate recent developments in the measurement of REM and the changing information environment.

financial conditions, higher institutional ownership and lower industry market share, managers use classification shifting. Future research can investigate whether classification shifting and REM together substitute AEM in the post-SOX period. Future research should also consider the costs and timing of alternative earnings management strategies, such as REM, AEM and classification shifting, and incorporate these into their model formulation. As discussed in Section 3.1, Fan and Liu's (2017) study is important in this direction, whereby they document that misclassification of expenses and REM can be used as alternative earnings management strategies to meet different earnings benchmarks. Although some non-US evidence does exist (Haw *et al.*, 2011), more international investigations are needed in the space of classification shifting, and the trade-off between REM and classification shifting. Although we know some evidence from the field regarding managerial REM behaviour (e.g., Graham *et al.*, 2005), more survey and qualitative inquiries into the practice of classification shifting can reveal deeper insights.

5.2 | Other research opportunities

Departing from the mainstream public firm research, some studies investigated the non-profit sector's REM practices, and private firms' REM practices (Eldenburg *et al.*, 2011; Heese, 2018). However, compared to the abundance of research on REM in public firms, more research is warranted in not-for-profit and private firms in order to understand their managerial motivations for REM. As discussed above, the capital market pressure for meeting or beating earnings is much less pronounced for private firms, as opposed to public firms, so researchers need to better understand what other factors incentivise managers to engage in REM activities in private firms and not-for-profit organisations. Regulations aimed at curbing REM will be ineffective unless such incentives can be unravelled.

Our survey has highlighted managerial incentives for engaging in alternative earnings management strategies to withstand capital market pressure to meet earnings benchmarks. The passage of legislation appears to have accentuated this unintended consequence. However, more international evidence is required to ascertain whether this substitution effect is moderated by country-level institutional features. Effective institutional reforms should reduce the opportunity for REM in general. The recent paper examining the impact of SFAS 151 on REM in the US is an example of the impact of accounting reforms on curbing REM. This can be extended internationally to countries adopting IFRS and some other specific standards that have significant bearings on REM.

The literature on the debt market incentives for REM generally suggest that firms engaging in REM can favourably influence bank and rating agencies' perceptions about their credit risk (Alissa *et al.*, 2013; Brown *et al.*, 2015). However, this strand of literature does not consider the long-term consequences of the additional debt burden: obtaining more loans through REM might result in higher defaults on loans. Also, improving credit ratings through REM should result in reversal of the credit rating, as earnings management cannot be sustained over a longer window. We encourage future research on these issues to improve our understanding of the implications of REM for debt market transactions.

Although our review has demonstrated the important role that internal and external corporate governance mechanisms play in attenuating, or in some cases accentuating, REM behaviour, we highlight the following gaps in the existing body of corporate governance and REM research. First, research on the relationship between REM and the risk management committee, an important monitoring mechanism, is missing from the literature. Given that REM is considered to be a product of managerial myopic behaviour, the effects on REM activities of risk management committees and enterprise risk management programmes, and the characteristics of chief risk officers, would be an avenue for interesting future research (Kuo

et al., 2021). Furthermore, the characteristics of nomination and/or remuneration committees may be another relevant consideration for REM, since such committees play a significant role in appointing key personnel, as well as in overseeing the design and disclosure of compensation packages (Kanapathippillai *et al.*, 2017).

Second, our survey also demonstrates that TMT characteristics are related to REM. Our review echoes the concern of Plöckinger *et al.* (2016) about testing manager-specific effects explicitly, instead of measuring individual manager characteristics at firm level. Some suggestions from Plöckinger *et al.* (2016) include tracking individual managers across different firms over time (Bertrand & Schoar, 2003), and performing comparisons of before and after a particular TMT's time in office (Ge *et al.*, 2011). These may have implications for REM behaviour. Reverse causality is also a concern since an executive might be actively looking for employment with firms that suit his or her personality and preferences, and firms might be appointing executives having certain personal styles and characteristics deliberately. Future research linking upper echelons and REM could focus on particular research designs that may provide remedies against the implications of reverse causality in existing studies.

Third, our review suggests that there remains more opportunities for research to further explore the relationship between CSR and REM. Until recently, financial and CSR reporting were developing separately. In order to promote integrated reporting, the Global Reporting Initiative (GRI) announced the formation of the International Integrated Reporting Council, which was formed on 2 August 2010. Integrated reporting involves reporting both financial and nonfinancial governance, business models and CSR information in a single document. It should not be viewed merely as an extension of financial reporting but, rather, as a governance-level commitment. Because integrated reporting is an overarching reporting practice that enhances the ultimate transparency of corporate matters for a broad range of stakeholders (Pavlopoulos *et al.*, 2017), we believe that future research investigating the association between REM and integrated reporting would enrich the REM–CSR nexus.

Fourth, although there have been cross-country studies on the relationship between external governance mechanisms and REM (Enomoto *et al.*, 2015), we believe more research studies in this direction may yield fruitful discussions in the areas of institutionalisation of the global capital market and issues of particular institutional background. For instance, REM determinants may be based on a country-level corporate governance quality index (Lau *et al.*, 2016), economic uncertainties (Kim *et al.*, 2016) and comparisons between institutional environments with or without the influence of Islamic finance practices (Alsaadi *et al.*, 2017). Last, but not least, very little is known about how various corporate governance factors, internal and external, affect REM activities jointly. Research using path analysis should be a welcome addition to this strand of the research.

6 | CONCLUSION

The current study is a timely review of the body of knowledge of REM, based on the papers published from 2006 to 2021. Since the passage of SOX in 2002, research on the determinants of REM has proliferated, owing primarily to a shift from more easily detectable AEM to difficult-to-scrutinise REM actions. We surveyed and synthesised the REM literature with respect to the measurement, determinants and consequences of REM. Our review suggests that the existing REM literature has made little effort to adopt suggestions aimed at improving the measurement models of REM originally proposed by Roychowdhury (2006). Second, the passage of the SOX, as well as IFRS internationally, motivated managers to engage more in REM than in AEM. Capital market incentives arising from IPOs, SEOs and acquisition activities also appear to drive firms' REM behaviour. A vast body of literature has examined the relation

between REM and various factors related to corporate governance and controls. Some such factors include corporate boards, TMT characteristics, incentive compensation structures, external ownership structure, market competition, and country-level political, economic, legal and cultural characteristics. However, the evidence on the relation between corporate governance and REM remains mixed. Third, studies that examined the consequences of REM are fewer in number than the ones that examined the determinants of REM and, importantly, also provide inconclusive evidence.

Our review shows that the incentives and implications of REM have not been fully understood, nor have any significant efforts been made to address the measurement issues in REM. Furthermore, since Graham *et al.* (2005), very little has been done to understand management willingness to commit to REM. Further investigation of REM is important, not only to investors and other stakeholders of the firm, but also to regulators, because REM has proved to be a potential unintended consequence of restricting AEM by regulation. We offer a range of future research directions with regard to improving the measurement of REM, and filling in the gaps of empirical research investigating its determinants and consequences.

ACKNOWLEDGMENT

Open access funding enabled by Massey University.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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How to cite this article: Habib, A., Ranasinghe, D., Wu, J.Y., Biswas, P.K. & Ahmad, F. (2022) Real earnings management: A review of the international literature. *Accounting & Finance*, 62, 4279–4344. Available from: <https://doi.org/10.1111/acfi.12968>