Financial Integration and Earnings Management: Evidence from Emerging Markets

Abstract

Purpose: This study examines whether country-level financial integration affects firms' accounting choices and the quality of financial information.

Design/Methodology/Approach: This study employs Propensity Score Matching (PSM), and panel regressions of a large sample of data from 20 emerging markets over the period 1987-2018.

Findings: This study finds evidence that increased level of financial integration is significantly positively associated with firms' accruals earnings management (AEM) and real earnings management (REM).

Originality/Value: Findings in the study reveals how country-level financial integration affects accruals and real earnings management in a sample of firms from 20 emerging markets. Further, the study adds to the growing body of literature on emerging markets where capital markets mechanisms, regulatory environment and firm's corporate governance are distinct to developed markets.

Practical Implications: Findings in the study have implications for standard-setting bodies that aim to enhance the usefulness and quality of financial reporting. The findings can be of interest to analysts, auditors, and other monitoring institutions who play a crucial role in detecting earnings management and reducing information asymmetry. Finally, the study has implications for various initiatives by governments in emerging markets aimed at raising investor confidence and fostering stock market development through greater financial integration.

Key Words: Financial Integration, Accruals, Earnings Management, Emerging Markets

1. Introduction

Capital markets rely on the availability of timely and high-quality information to sustain market efficiency and facilitate investors and other stakeholders in making informed decisions. Agency theory (Jensen and Meckling, 1976), however, suggest that information asymmetry can arise due to conflict of interest between managers and shareholders, with managers acting opportunistically in pursuing their own interest at the expense of shareholders' interests. Managers may inflate share prices through accruals earnings management (AEM) and real earnings management (REM), thus resulting in an overly optimistic and biased information environment (Shleifer and Vishny, 1997; Kothari et al., 2009). This can be especially the case in emerging markets' context where the quality of financial information may be relatively low due to weak corporate governance mechanisms and lack of stringent regulatory control (Li et al., 2014). In these economies, share prices are frequently overpriced (Dyck and Zingales, 2004), indicating potential upward earnings management.

Financial integration has become an important element in emerging markets in the past few decades due to high cross-border capital movements worldwide. There has been extensive literature on exploring several aspects of financial integration across countries (e.g., Bekaert et al., 2005; Chen and Quang, 2014; Ahmed, 2016). Surprisingly, however, there is little attention paid to exploring the effects of financial integration on agency conflicts in general, and firm-level earnings management, in particular. This paper aims to fill this gap in the literature by examining whether financial integration has a pronounced impact on accounting choices and the information quality? Specifically, this study employs PSM and panel data regressions to examine whether country-level financial integration, proxied by a country-level de-jure measure of openness in capital controls based on information from the IMF's Annual Report on Exchange Arrangement and Exchange Restrictions (AREAER)[1], influences firms' accrual earnings management (AEM) and real earnings management (REM) activities. Instead of a single-country sample, this study uses a multi-country sample of firm years over the period

[1] AREAER provides information on the extent and nature of restrictions on external accounts for a broad range of countries.

1987-2018, across 20 emerging economies as classified by the International Monetary Fund (IMF). This is because the level of financial integration can be affected by the characteristics of the domestic country, including financial development, macroeconomic stability and institutions' quality (Vo and Daly, 2007; Masten et al., 2008).

This study focuses on emerging markets for two reasons. Firstly, advanced capital markets are characterized by the presence of sound legal, regulatory, and institutional environments where there is regular flow of information that drives share prices to reflect fundamentals (Admati and Pfleiderer, 2009; Edmans and Manso, 2011; Ferreira et al., 2011; Beekes et al., 2016). In contrast, firms in emerging markets are more prone to agency conflicts due to weak institutional environments, poor quality of financial reporting and the absence of sophisticated market participants. Secondly, emerging markets have become increasingly integrated with the international financial markets, resulting in greater flows of capital into emerging markets. The relevant literature, however, documents conflicting evidence regarding the effects of financial integration. On the one hand, there is empirical evidence suggesting that financial integration improves institutional quality (Fratzscher and Bussiere, 2004; Kose et al., 2009), brings more sophisticated market participants into emerging markets, and enhances informed transaction and market mechanisms (e.g., Aggarwal et al., 2011). On the other hand, there is literature that criticises financial integration for causing macroeconomic volatility, exposure to external shock, and financial crises (Bhagwati, 1998; Rodrik, 1998; Dvorak, 2005; Stiglitz, 2002). Whether financial markets integration induces or constrains firms' earnings management propensity is therefore an empirical question that we address in this study.

This study makes several useful contributions to the relevant literature. First, this study contributes to the literature on financial integration and earnings management and reveals how country-level financial integration affects AEM and REM in the sample of firms from 20 emerging markets. Results in the study suggest that higher levels of financial integration are significantly positively associated with both firms' AEM and REM. Second, the study adds to the growing body of literature on emerging markets where capital markets mechanisms,

regulatory environment and firm's corporate governance are distinct to developed markets. Findings in the study have implications for standard-setting bodies that aim to enhance the usefulness and quality of financial reporting. The findings can be of interest to analysts, auditors, and other monitoring institutions and also provides useful insights into managers' behaviour that may be of interest to the boards of directors who contemplate managers' ex-ante contracts. Finally, the study has implications for initiatives by governments in emerging markets to lift investor confidence and fostering stock market development through greater financial integration.

The remaining part of the paper is organized as follows. Section 2 provides review of the relevant literature and presents the associated hypotheses. Section 3 details the methodology, data, and models employed in the study, and briefly discusses how we account for potential endogeneity issues. Section 4 presents discussion of empirical results. Finally, Section 5 summarises the main findings, discusses the limitations and suggests implications of the study.

2. Literature Review and Hypothesis Development

Financial integration

The term 'financial integration' represents a multitude of concepts, and the relevant research has considered a range of various descriptions and indicators to proxy for international financial integration but there is no consensus on a generally accepted definition of the term (e.g., Vo and Daly 2007). Furthermore, the terms *"financial integration"*, "*financial openness*", and "*financial liberalisation*" have been used interchangeably in the relevant literature.

As a result of lacking a benchmark definition, there are various indicators such as, financial development, macroeconomic stability and institutional quality of an economy that are believed to influence the level of financial integration, resulting in varying levels of financial integration across countries (Vo and Daly 2007; Masten et al., 2008). A large volume of literature documents the benefits of financial integration, including economic growth (Chen and Quang, 2014), financial development (Ahmed, 2016), lowered cost of capital (Bekaert and Harvey, 2000), and increased private investment (Henry, 2000).

One of the main criteria for financial integration is the extent of cross-border financial activity in terms of countries linked through cross-border financial holdings and proxied by the sum of countries' gross external assets and liabilities relative to GDP (IMF, 2016). It is clear that barriers to market access limit the free flow of capital and restrict integration. The openness of the financial market alone is not sufficient to achieve full integration. The second criterion for financial integration is, therefore, the level of convergence and consolidation across markets (Baele et al., 2004). Nonetheless, market convergence encourages cross-border capital flows, whereas financial openness allows for the entry of financial institutions and serves as a prerequisite for full financial integration.

Emerging markets have gained considerable research attention in the past few decades due to their economic growth, market reforms and significant participation in the world economy (Hoskisson et al., 2000).[2] The financial systems of emerging economies have become increasingly integrated into the international financial system since the early 1990s. As a result, financial integration has partly contributed to the rise of emerging markets recently. To deepen financial integration, emerging countries strive to move towards harmonised accounting standards and take steps towards deregulation and privatisation, offering new opportunities for cross-border capital movements (Li et al., 2014).

Prior literature, however, indicate that the harmonisation of accounting practices could affect earnings management. Jeanjean and Stolowy (2008), for instance, study International Financial Reporting Standards (IFRS) first-time adopter countries: Australia, France, and the UK and report evidence suggesting that after adopting IFRS, the pervasiveness of earnings management

[2] Despite lacking an official definition of the emerging market, the International Monetary Fund (IMF) identifies the following countries as the emerging markets: Argentina, Brazil, Chile, China, Colombia, Egypt, Hungary, India, Indonesia, Iran, Malaysia, Mexico, the Philippines, Poland, Russia, Saudi Arabia, South Africa, Thailand, Turkey, and the United Arab Emirates. IMF classifies these economies as "emerging", based on such factors as systematic presence, market access and income level. These 20 emerging market countries comprise 34% of world nominal GDP in USD and 46% in purchasing-power-parity (PPP) terms. These countries are also listed by widely used emerging market indices, including those developed by J.P. Morgan, Morgan Stanley Capital International and Bloomberg.

did not decline in Australia and the UK, and even increased in France. It might be due to the transition from rule-based characteristics in GAAP to the adoption of principle-based IFRS that allowed early adopters some initial flexibility in terms of financial reporting.

Earnings Management

Earnings based on accrual accounting serve as a summary measure of firm performance for stakeholders and play a significant role in formulating managerial compensation and debt contracts (Dechow, 1994). Earnings based on accrual accounting system is viewed as a useful measure of firm performance (Dechow, 1994; Dechow et al., 1998; Liu et al., 2002). This is because managers can use their discretion in recognising accruals to signal their inside information about the actual cash generating ability of their firms to outsiders (Watts and Zimmerman, 1986, Holthausen, 1990, and Healy and Palepu, 1993).

On the other hand, firm's management can exploit their discretion to manipulate accruals resulting in earnings being less credible measure of firm performance (Healy and Wahlen, 1999). When accruals-based manipulations are severe, the reported figures could lead to disparity between the accounting numbers and the actual underlying economic performance. It is estimated that nearly 60 percent of managers violate generally accepted accounting principles once or more, while the probability of being detected is only around 14 percent (Zakolyukina, 2018). Nonetheless, there is a growing tendency for analysts to provide operating cash flow forecasts in addition to earnings forecasts (McInnis and Collins, 2011). The operating cash flow forecasts can then be compared to actual accruals when financial statements are available.

While AEM behaviours can be detected by auditors, institutional investors, fund managers and analysts, REM are relatively difficult to detect as managers have control over operating decisions and can portray their abnormal decisions as normal (Gunny, 2005; Kothari et al., 2016; Libby et al., 2015). Further, prior literature indicates that firms that extensively use AEM face a higher risk of regulatory scrutiny and shareholder litigation (e.g., Dechow et al., 1996;

DeFond and Subramanyam, 1998; Heninger, 2001). Therefore, REM serves as an alternative to AEM, especially with the passage of the Sarbanes-Oxley Act (2002) which had further restricted managers' ability to manipulate accruals (e.g., Cohen et al., 2008; Farrell et al., 2014).

Graham et al. (2005) suggests that nearly 80% of executives indicate their willingness to limit their discretionary expenditures on research and development (R&D) and advertising to meet an earnings benchmark, and 78% admit to presenting smooth earnings at the cost of long-term value. Non-recurring and modest REM does not appear to exert a significant negative effect on the firms' future operations (Xu et al., 2007). However, other studies document that REM through R&D, production, and capital investment can lead to deviations from normal operational practices, potentially resulting in a decline in firms' performance (e.g., Vorst, 2016). Similarly, Cohen and Zarowin (2010) indicate that firms' future performance is more adversely affected by REM than by AEM because REM directly affects cash flows (Roychowdhury, 2006; Sun and Liu, 2016). As a consequence, REM influence the correctness of investors' decision-making more negatively and cause the market to become less efficient.

A large volume of literature examines the incentives and various motives for managers to manage earnings. Consistent with agency theory, managers may inflate earnings in order to maximize their rewards from compensation and improve their job security (e.g., Ali and Zhang, 2012; Rani et al., 2013). Similarly, managers are incentivised to manage earnings, especially prior to share offerings to boost valuation (e.g., Shivakumar, 2000; Cohen and Zarowin, 2010), or exceed/meet analysts' forecasts (e.g., Degeorge et al., 1999; Burgstahler and Eames, 2006). Firms that report earnings in excess of earnings thresholds have typically enjoyed a share price increase (Bartov et al., 2002). In contrast, other studies document that firms are penalised by the market when they fail to meet earnings benchmarks (e.g., Skinner and Sloan, 2002).

While DeFond and Jiambalvo (1994) provide evidence suggesting that firms close to violating debt covenants firms used discretionary accruals to increase reported earnings both in the preceding year and in the year of the covenant violation, DeAngelo et al. (1994) find no such evidence. Failure to account for REM could be one of the reasons for mixed findings in the

prior literature. Further, some previous studies reveal that earnings management is associated with country's institutional characteristics. Leuz et al. (2003), for instance, indicate that countries with a lower level of investor protection exhibit a greater extent of opportunistic earnings management behaviours.

Hypothesis Development

International capital and trade flows have significantly increased due to rise of financial integration of markets. The benefits of country-level financial integration such as, lower costs of capital (Bekaert and Harvey, 2000), and more investment (Mitton, 2006; Chari and Henry, 2008), have contributed to the prosperity of capital markets in emerging economies. As capital markets flourish, managers are more incentivised to manage earnings upwards in order to benefit from increased share price and firm's valuation (Dechow and Skinner, 2000). Furthermore, these earning management behaviours may be promoted by majority shareholders who may have strong motivation to maximise the firm's value (Claessens et al., 2002).

Financial integration at the country level also brings sophisticated foreign market participants to the domestic capital markets. Compared to domestic counterparts in emerging economies, foreign investors from developed markets are relatively more professional and possess a better understanding of global market information (Kim and Yi, 2005; Ng and Wu, 2007). The performance of firms in emerging economies is under the spotlight of sophisticated investors (e.g., institutional investors, venture capitalists) and security analysts from local as well as foreign developed economies. This increased scrutiny could have two alternative consequences. On the one hand, increased monitoring by the more sophisticated developed market participants is likely to result in reduced information asymmetries and more enhanced market discipline over management (Bae and Goyal, 2010; Aggarwal et al., 2011; Lucey and Zhang, 2011; Huang and Zhu, 2015).

However, investors need to collect, process and verify large volume of complex information.

These actions are further complicated by geographical separation from investee firms, differences in the cultural, legal and regulatory environment, and accounting standards (Baik et al., 2013). Therefore, in an opaque information environment, information and monitoring costs to foreign investors may therefore increase, which will reduce their motivation for disciplining activities of the emerging market firms (Ayers et al., 2011). As a consequence, managers are more likely to manage earnings as discipline activities over management are weakened. In addition, firms may be more inclined to manipulate earnings to meet or exceed analysts' forecasts in order to avoid any potential negative response by the market (Degeorge et al., 1999; Burgstahler and Eames, 2006).

Taken together, the consequences of country-level financial integration, including capital market prosperity, more sophisticated market participants, accounting practices convergence, all lead to the further pervasiveness of earnings management. Therefore, based on the analysis above, country-level financial integration is expected to increase firms' earnings management behaviours in emerging markets. Specifically, the following hypotheses are formed:

H1a: Firms in countries of higher-level of financial integration exhibit a higher level of accrual-based earnings management (AEM).

H1b: Firms in countries of higher-level financial integration exhibit a higher level of real activities manipulation (REM).

3. Methodology and Data

Financial statement data used to construct proxies for AEM and REM is obtained from COMPUSTAT Global and CRSP/Compustat Merged. Data for financial integration measurement is from Chinn and Ito (2006). Firm-year observations with insufficient data on Compustat/CRSP to compute the earnings management variables used in the tests are eliminated. Since financial statements data in COMPUSTAT are only available from 1987 onwards, the data period starts from 1987 and ends in 2018 as the latest version of the Chinn and Ito index covers the period of 1970-2018. The sample is restricted to non-financial firms

as the distinction between operating and financing activities is unclear for banks and financial institutions (SIC codes 6000-6999). Firms from highly regulated industries (SIC codes between 4400-4999) are also excluded from the sample as firms from these sectors are likely to exhibit different earnings management behaviours due to highly regulated environment. Given the focus of the study on emerging markets, the sample is restricted to the 20 emerging markets identified by the International Monetary Fund (IMF) including, Argentina, Brazil, Chile, China, Colombia, Egypt, Hungary, India, Indonesia, Iran, Malaysia, Mexico, the Philippines, Poland, Russia, Saudi Arabia, South Africa, Thailand, Turkey, and the United Arab Emirates.[3]

Independent Variable - Financial Integration

Measuring the degree of openness in capital account transactions is often quite difficult (Eichengreen, 2002). Data for financial integration measurement is collected from the updated version of the Chinn and Ito index series, which encompasses the time period of 1970-2018 for 182 countries. Developed by Chinn and Ito (2006), this comprehensive and extensive measure of financial openness is widely used in empirical research to capture financial integration (e.g., Umutlu et al., 2010).

The Chinn and Ito index is a country-level de-jure measure of openness in capital controls, which is based on the binary dummy variables that codify information provided in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions, which provides information on the extent and nature of restrictions on external accounts for a broad range of countries. This index of financial integration, KAOPEN, takes the first standardised principal component of four major categories on restriction measures (i.e., k1 to k4 binary variables), which captures the greatest variance of these variables. k1 is a variable indicating the existence of multiple exchange rates, and k4 is an indicator variable of the surrender of export proceeds requirements. k2 and k3 are the variables most relevant to capital controls, which indicate restrictions on current account and capital account transactions, respectively. k3 is the variable

[3]https://www.imf.org/external/pubs/ft/fandd/2021/06/the-future-of-emerging-markets-duttagupta-and-pazarbasioglu.htm, accessed dated 5th. February, 2022.

often used for capital controls. SHARE3 represents the share of a 5-year window in which capital controls (k3) are not in force. To be more specific, the financial openness variable for year t is the share of the five years, including year t and the four years preceding in which the capital account was open:

$$\text{SHAREk3}_t = \frac{k3_t + k3_{t-1} + k3_{t-2} + k3_{t-3} + k3_{t-4}}{5}$$

Finally, the index for capital openness is:

$KAOPEN_t$ = the first standardised principal component of $k1_t$, $k2_t$, $SHAREk3_t$, and $k4_t$.

Besides, the reciprocal values of the binary variables (i.e., k1 to k4) are taken in order to measure the effect of financial openness rather than that of controls. In this study, the normalised Chinn and Ito index (KA_OPEN_t) that ranges between 0 and 1 is adopted. The higher values correspond with higher financial openness, with the value of KA_OPEN_t being 1 when the restriction is non-existent.

Dependent Variables

Accrual-based Earnings Management (AEM)

Discretionary accruals are widely used to proxy for AEM. The total accrual (TA) is made up of a discretionary accrual (DA), and a non-discretionary accrual (NDA) component. A cross-sectional model of discretionary accruals is estimated cross-sectionally for each industry-year with at least 15 observations, with industry classification based on Fama and French (1997).[4] The normal level of total accruals is estimated for each industry-year using the following modified Jones (1991) model:

$$\frac{\text{TA}_{i,t}}{A_{i,t-1}} = \alpha_1\left(\frac{1}{\text{A}_{i,t-1}}\right) + \beta_1\left(\frac{\Delta\text{S}_{i,t}}{\text{A}_{i,t-1}}\right) + \beta_2\left(\frac{PPE_{i,t}}{\text{A}_{i,t-1}}\right) + \varepsilon_{it} \qquad (1)$$

where, for fiscal year t and firm i, TA represents the total accruals, $\Delta S_{i,t}$ is the change in sales for firm i during the year t, $PPE_{i,t}$ is the gross value of property, plant and equipment. Firm-

[4] None of the results is materially impacted if using two-digit SIC code to classify industry rather than Fama and French (1997).

specific normal accruals can be computed using the coefficients estimated from equation (1). The difference between the actual accruals and the normal accruals, in other words, the residuals from the model, would proxy for firm-specific discretionary accruals ($DA_{i,t}$). All variables are deflated by lagged assets ($A_{i,t-1}$) to alleviate heteroscedasticity (see Kmenta, 1986).

Real Earnings Management (REM)

Real activities manipulations (REM) refer to deviations from normal business practices that may contribute to a higher income reported for the current period. Following Roychowdhury (2006), this study employs the abnormal levels of cash flow from operations (CFO), production costs and discretionary expenses (i.e., advertising, R&D, selling, general and administrative expenses) to proxy for REM, respectively (e.g., Cohen et al., 2008; Zang, 2012).

This study also relies on the model developed by Dechow et al. (1998) to generate the normal levels of CFO, production costs and discretionary expenses (Roychowdhury, 2006). These models are estimated cross-sectionally for each industry-year with at least 15 observations, where the industry is classified based on Fama and French (1997).[5] To predict normal CFO, the cross-sectional regression as follows is estimated for each industry and year:

$$\frac{\mathrm{CFO}_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{\mathrm{A}_{i,t-1}}\right) + \beta_1\left(\frac{\mathrm{S}_{i,t}}{\mathrm{A}_{i,t-1}}\right) + \beta_2\left(\frac{\Delta\mathrm{S}_{i,t}}{\mathrm{A}_{i,t-1}}\right) + \varepsilon_{it} \qquad (2)$$

where A_t denotes the total assets at the end of year t, S_t denotes sales generated during year t, and ΔS_t is the change in sales during the year t, which can be obtained by: $S_t - S_{t-1}$. Abnormal CFO (RM_{CFO}) is estimated by actual CFO minus the normal level of CFO computed using the estimated coefficients from equation (2).

Further, the following model estimates the normal level of production costs:

$$\frac{\mathrm{PROD}_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{\mathrm{A}_{i,t-1}}\right) + \beta_1\left(\frac{\mathrm{S}_{i,t}}{\mathrm{A}_{i,t-1}}\right) + \beta_2\left(\frac{\Delta\mathrm{S}_{i,t}}{\mathrm{A}_{i,t-1}}\right) + \beta_3\left(\frac{\Delta\mathrm{S}_{i,t-1}}{\mathrm{A}_{i,t-1}}\right) + \varepsilon_{it} \qquad (3)$$

[5] None of the results is materially impacted if using two-digit SIC codes to classify industry rather than based on Fama and French (1997).

The abnormal level of PROD (RM_{PROD}) can be obtained by actual PROD minus the normal level of PROD predicted using the estimated coefficients from equation (3).

Finally, to predict normal discretionary expenses, the cross-sectional regression as follows is estimated for each industry and year:

$$\frac{\mathrm{DISEXP}_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{\mathrm{A}_{i,t-1}}\right) + \beta_1\left(\frac{\mathrm{S}_{i,t-1}}{\mathrm{A}_{i,t-1}}\right) + \varepsilon_{it} \quad (4)$$

Abnormal DISEXP (RM_{DISEXP}) is estimated by actual DISEXP minus the normal level of DISEXP computed using the estimated coefficients from equation (4).

Control Variables

This study employs several control variables (SIZE, PERFORMANCE, ROA, GROWTH, BIG4, LEV) in empirical testing to mitigate possible effects of time-varying and firm-specific factors (e.g., Dechow et al., 1996; Barth, 1999; Skinner and Sloan, 2002; Becker et al., 1998; Chen et al. 2011; Klein, 2002; Fields et al., 2001).

In order to control for systematic variation in variables of interest with firm's size, the regressions include 'SIZE' as one of the control variables. This variable is computed using the logarithm of the total asset. Similarly, Dechow et al. (1995, 1996) argue that discretionary accruals generated using traditional models exhibit measurement error positively correlated with firm performance. Therefore, 'PERFORMANCE' is introduced into the regression models to eliminate the probability that measurement errors of abnormal values estimated from the regression models are correlated with performance. This study uses lagged values of return on assets (ROA) to capture past performance, where ROA is computed using net income divided by lagged total assets.

Moreover, both Barth et al. (1999) and Skinner and Sloan (2002) document that the incentive to manage earnings upwards increases with firms' growth opportunities. Thus, the growth rate

of the firm's assets is included in the models to proxy for the firm's growth opportunity. In addition, as the existing body of evidence (Becker et al., 1998; Chen et al. 2011; Klein, 2002) documents the importance of audit quality in affecting earnings management, a dummy variable is adopted to control for whether or not a firm is audited by a Big4 auditor. This dummy variable 'BIG4' is equal to one if the firm is audited by a big four auditor and zero otherwise. Finally, consistent with prior earnings management literature (e.g., Fields et al., 2001), leverage 'LEV', the ratio of total debt over total assets, is included in the model to control for changes in capital structure since measurements for earnings management may contain measurement errors correlate with this firm characteristic.

Empirical Models

In order to examine the effects of financial integration on earnings management activities, the following regression model is employed:

$$EM_{i,t} = \alpha + \alpha_s + \alpha_t + \beta_1 KA\_OPEN + \beta_2 BIG4 + \beta_3 PAST\_PERFORMANCE + \beta_4 GROWTH + \beta_5 SIZE + \beta_6 LEV + \varepsilon_{it} \quad (5)$$

where the subscripts i, s and t stand for firm, industry and year, respectively; α_S and α_t are the industry and year dummy variables. EM represents earnings management related variables (i.e., discretionary accruals, abnormal CFO, abnormal PROD, abnormal DISXEP), and KA_OPEN stands for proxy of financial integration.

The following regression model is estimated to test the effect of financial integration on AEM:

$$Abs(DA_{i,t}) = \alpha + \alpha_s + \alpha_t + \beta_1 KA\_OPEN + \beta_2 BIG4 + \beta_3 PAST\_PERFORMANCE + \beta_4 GROWTH + \beta_5 SIZE + \beta_6 LEV + \varepsilon_{it} \quad (6)$$

where $Abs(DA_{i,t})$ represents the absolute value of discretionary accruals. Positive discretionary accruals show that firms manage earnings upwards, while negative discretionary accruals show that firms manage earnings downwards. Since the hypotheses do not predict any specific direction for earnings management, the absolute value of discretionary accruals is used in this study. A higher level of $Abs(DA_{i,t})$ indicates a greater extent of earnings management through

accrual-manipulations.

To test the effect of financial integration on REM, the following regression is used:

$$Abs(RM_{i,t}) = \alpha + \alpha_s + \alpha_t + \beta_1 KA\_OPEN + \beta_2 BIG4 + \beta_3 PAST\_PERFORMANCE + \beta_4 GROWTH + \beta_5 SIZE + \beta_6 LEV + \varepsilon_{it} \quad (7)$$

where RM represents proxies for real activities manipulations, including abnormal CFO (RM_{CFO}), abnormal production costs (RM_{PROD}), and abnormal discretionary expenses (RM_{DISEXP}).

Propensity Score Matching (PSM)

A number of tests of robustness checks are carried out. First, Propensity Score Matching (PSM) is employed to address potential endogeneity issues (Roberts and Whited, 2013). A PSM sample within a radius of 0.05 based on ROA, BIG4, GROWTH, LEV, and SIZE for firms in the same year and industry is created. Besides, panel regressions with year and industry fixed effects are used. This is to control for market-wide time trends as well as industry-level unobservable, time-invariant attributes. Further, this study uses annual rather than quarterly financial statement data to compute the dependent variables, thus alleviating the measurement errors in the dependent variables.

4. Result and Discussions

Descriptive Statistics

Figure 1 presents the time series of the normalised Chinn-Ito index, which proxies the extent of country-level financial integration from 1987 to 2018 for each of the 20 emerging markets identified by the IMF. As shown in Figure 1, there is a significant variance of country-level financial integration among these emerging economies.

Figure 1

Country-level financial integration of 20 emerging markets

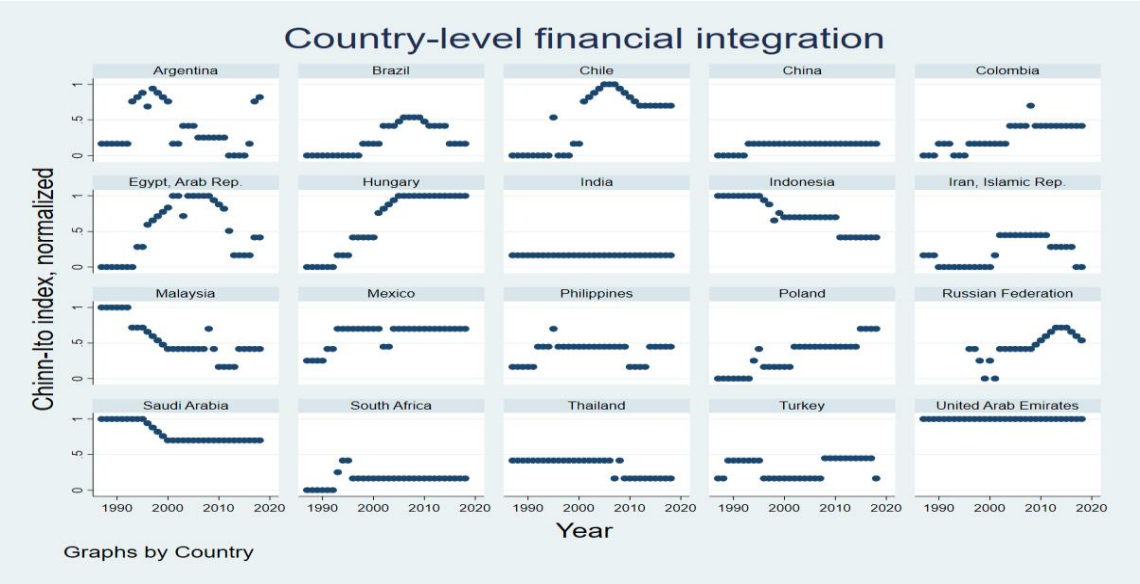

Figure created by authors

Panel A of Table 1 presents the estimated results for “normal" levels of both total accruals and real activities. Following prior studies, all continuous variables are winsorised at the top and bottom 1% of their distributions to eliminate the influence of outliers. The presented coefficients are the average values of the coefficients across industry-year. The estimated coefficients are significant and with comparable size and predicted signs (e.g., Roychowdhury, 2006).

Panel B of Table 1 provides the summary statistics for the residuals of the relevant models, which capture discretionary accruals (DA) and the abnormal levels of CFO, production costs, discretionary expenses. A higher value of discretionary accruals and production costs residuals (RM_{PROD}) indicates a greater extent of increase in reported earnings through accrual manipulations and overproduction, respectively. Conversely, a lower value of CFO residuals (RM_{CFO}) and discretionary expenses residuals (RM_{DISEXP}) indicates a greater extent of the increase in reported earnings through sales manipulations and discretionary expenses cut, respectively. These residuals serve as the proxies for accrual-based earnings management and real activities manipulations, respectively. To eliminate the effect of outliers, the continuous variables are winsorised at the top and bottom 1 percent of their distribution. All the distributions have the skewness data relatively close to zero, which indicates that these

distributions are quite symmetrical.

Table 2 shows the Pearson and Spearman correlations among the variables. The correlations among variables of interest are consistent with previous research (e.g., Roychowdhury, 2006). Moreover, the correlations between the total and abnormal levels of variables of interest are strongly positive. RM_{PROD} and RM_{DISEXP} exhibit a strong negative relationship, with a correlation coefficient of over 50%. Further, there is a strong negative correlation between DA and RM_{CFO}, with a correlation coefficient of over 22%.

INSERT TABLE 1 HERE

INSERT TABLE 2 HERE

Financial integration and AEM

Table 3 represents the result of estimating equation (6), with year and industry effects being controlled. The observations are divided into three groups: the full sample, sample firms with positive DA, sample firms with negative DA. The observations are grouped to investigate the impact of financial integration on income-increasing accruals and income-decreasing accruals, respectively. In terms of the full sample, discretionary accrual (Abs_DA) is significantly and positively associated with financial integration at the country level (KA_OPEN). This positive and strongly significant result supports H1.

INSERT TABLE 3 HERE

There is a positive and strongly significant relationship between accrual manipulations and financial integration, even when relevant firm characteristics are controlled. This result may be partly explained by the fact that the capital market prosperity led by financial integration provide managers with strong motivation to manipulate earnings to maximise the firm's value. Another explanation could be that firms are more likely to manage earnings to meet or exceed earnings forecasts when facing greater scrutiny from sophisticated foreign investors.

When distinguishing between accrual manipulations for managing earnings upwards or downwards, Table 3 Columns 2 and 3 show that both income-increasing and income-decreasing accrual manipulations are significantly and positively related to financial integration. However, managers seem more likely to overstate rather than understate earnings

(DeFond and Jiambalvo, 1991,1993; Hirst, 1994; Kinney and Martin, 1994). This could be especially the case when under the process of financial integration, foreign capital flows into the economies and the cost of capital decreases (Bekaert and Harvey, 2000). Managers are incentivised to manipulate earnings to attract foreign investment, thus benefiting from the lower cost of capital and better financing opportunities.

Regarding the control variables, as can be seen from Table 3, DA is significantly and positively related to GROWTH and LEV. These results suggest that great growth opportunities and high leverage incentivise firms to manipulate reported earnings through accruals (Barth et al., 1999; Fields et al., 2001; Skinner and Sloan, 2002). Moreover, as shown in Table 3, DA is significantly and negatively related to SIZE and LAGGED ROA.

These results suggest that larger companies or those with better past performance are less likely to conduct accrual manipulations. These outstanding firms may have less demand for accrual-based earnings management to manage the reported earnings, or they may engage in a less detectable but more complex form of earnings management: real activities manipulations. Whether these outstanding firms engage in the more sophisticated earnings management can be revealed in the latter analyses regarding real activities manipulations. However, interestingly, in terms of BIG4, only income-increasing DA is significantly and negatively associated with it (-0.00673, $p<0.05$), whereas income-decreasing DA is not significantly related to it. One possible interpretation could be that Big 4 auditors are more likely to focus on accrual manipulations intended to increase earnings when conducting auditing work (DeFond and Jiambalvo 1991,1993; Hirst, 1994; Kinney and Martin, 1994).

Financial integration and REM

Table 4 represents the result of estimating equation (7), with year and industry effects being controlled. The dependent variables in columns 1-3, 4-6, 7-9 are the absolute values of abnormal CFO, abnormal production costs, and abnormal discretionary expense. The observations are divided into three groups: the entire sample, sample firms with proxies of

positive values and sample firms with proxies of negative values. The grouping of firms aims to investigate the impact of financial integration on income-increasing and income-decreasing real earnings manipulations, respectively. In general, regardless of which sample they are in, most of REM proxies are significantly and positively related to financial integration, with p values lower than 0.01.

INSERT TABLE 4 HERE

These results provide strong evidence for H2 that firms in countries with higher levels of financial integration exhibit higher levels of REM. The direct incentive from the capital market and the difficulty for foreign investors to process information could serve as the possible explanations for this relationship. Another factor explaining this relationship might be heightened scrutiny of accounting practices following the entry of sophisticated foreign market participants into the emerging markets. As a result, firms conduct more REM, which is consistent with previous studies that REM increase with greater scrutiny (e.g., Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012).

When distinguishing between REM for managing earnings upwards or downwards, Table 4 Column 2 shows that positive CFO residual has no significant relationship with financial integration. This result is not surprising because sales manipulations through offering price discounts or relaxing credit terms lead to lower CFO at the current period (Roychowdhury, 2006). Therefore, the proxy for sales manipulation, CFO residual, is more likely to exhibit negative instead of positive value. Moreover, Table 4 Column 3 presents that negative CFO residuals are significantly and positively related to financial integration (0.0175, $p<0.01$), further supporting H2.

As can be seen from Table 4, financial integration seems to affect overproduction more than sales manipulations or discretionary expenses reduction. On the one hand, the increase in production may not necessarily be attributed to REM entirely, which may also be driven by enhanced productivity resulting from financial integration (Bekaert et al., 2005). On the other hand, under the process of financial integration, managers may deliberately choose to conduct

overproduction rather than manipulate sales or cut discretionary expenses to increase earnings. This is because the increase in production could claim to be a consequence of the increased productivity led by financial integration.

Propensity Score Matching and Robustness Tests

In addition to the above OLS regressions, the propensity score matching is used to address self-selection bias and provide robust evidence of the results. Tables 5 and 6 present the estimated results using the propensity score-matched sample. The results remain stable and robust. In sum, the results from Tables 5 and 6 also support H1 and H2.

INSERT TABLE 5 HERE

INSERT TABLE 6 HERE

Conclusion

Financial information informs investors of the firm's economic performance and financial position, which is crucial for eliminating information asymmetry between managers and investors and enhancing stock market efficiency. However, the quality of financial information can be distorted by earnings management. Especially in emerging markets where mechanisms are less established, regulatory and institutional environments are poorer, and investors are less sophisticated, managers may have more discretion to manipulate earnings. This study provides evidence based on a large sample from 20 emerging markets suggesting that both AEM and REM increase with greater country-level financial integration. These results are also robust to different industry classification (SIC codes) and propensity score matching estimations.

This paper is among the first comprehensive investigations of the impact of financial integration on earnings management. Nonetheless, financial integration can be at the country level or firm level. Firm-level financial integration can be proxied by foreign shareholding or cross-listing status (e.g., Mitton, 2006; Claessens and Schmuckler, 2007; Gozzi et al., 2010; Li et al., 2015). However, due to the data accessibility, this paper did not examine the relationship between firm-level financial integration and earnings management. **Examining the**

relationship between firm-level financial integration and earnings management could be a useful avenue for future research. While this study mainly concerns agency conflicts, future studies could focus on examining conflicting interests between large shareholders and minority shareholders. Similarly, despite the superiority of Jones (1991) over other models, recent research (e.g., Dechow et al., 2012) has criticised the discretionary accrual models of misspecification and lack of power.

Moreover, the sample used in this study consists of emerging markets firms as classified by IMF with sufficient data to compute the earnings management proxies over 1987-2018. Therefore, the sample firms contain domestic firms and firms that are registered in these emerging markets but have their main operations and headquarters located in developed markets. **Future research that distinguishes between these two classes of firms could shed further light on the relationship between financial integration and earnings management.** We further acknowledge that the study did not specifically control for country-level variables and differences in accounting standards used by the sample firms, which could provide useful avenues for future research.

Notwithstanding these limitations, this work provides useful insights for regulators who aim to prevent fraudulent accounting and restore investors' confidence. Results in the study imply that heightened scrutiny and limitations on accounting discretion do not entirely eliminate earnings management activities as managers can switch to REM, which could be more costly to firms and shareholders.

Similarly, our study findings further strengthen the belief that large corporations with operations across borders may take advantage of potential arbitrage opportunities cropping up due to country-wide differences in legal, financial reporting and institutional quality. Multinational firms could potentially resort to AEM and REM in subsidiaries located in countries with more lax regulatory requirements and weak enforcement of regulation. Our findings therefore emphasise the need for improved cross-country harmonization of financial

reporting standards and regulatory oversight to prevent manipulation of earnings and financial reporting quality (e.g., Beuselinck et al., 2019).

Moreover, the results suggest that auditors place more emphasis on income-increasing manipulations as these activities are more directly related to fraudulent accounting, whereas relatively overlook income-decreasing manipulations. However, as prior studies suggest, when unlikely to meet earnings forecast in the current period through income-increasing manipulations, firms may conduct income-decreasing manipulations to create a greater likelihood of meet earnings forecast in the next period. Therefore, a practical implication for auditors is that greater efforts are needed to detect income-decreasing manipulations, as these are as significant as those income-increasing manipulations in causing accounting frauds.

Finally, the findings bring to the attention of the policy makers in emerging markets some of the disadvantages of financial integration in terms of incentivising managers to resort to both AEM and REM. Therefore, emerging markets governments may take targeted actions aimed at improving institutional environments and enhancing investor protection to counterpart the negative impact of financial integration.

Data Availability Statement:

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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TABLE 1

Estimated parameters and summary statistics for residuals from estimation models 1-4

Panel A: Estimation of the normal level of total accruals, CFO, production costs and discretionary expenses

Model 1: $\frac{\mathbf{TA}_{i,t}}{\boldsymbol{A}_{i,t-1}}$		**Model 2:** $\frac{\mathbf{CFO}_{i,t}}{\boldsymbol{A}_{i,t-1}}$		**Model 3:** $\frac{\mathbf{PROD}_{i,t}}{\boldsymbol{A}_{i,t-1}}$		**Model 4:** $\frac{\mathbf{DISXEP}_{i,t}}{\boldsymbol{A}_{i,t-1}}$	
Intercept	-0.00422	Intercept	0.0199***	Intercept	-0.0365***	Intercept	0.0219***
	(-0.709)		(4.048)		(-3.672)		(4.283)
$\frac{1}{A_{i,t-1}}$	-0.840***	$\frac{1}{A_{i,t-1}}$	-0.878***	$\frac{1}{A_{i,t-1}}$	-0.777**	$\frac{1}{A_{i,t-1}}$	2.240***
	(-4.904)		(-5.545)		(-2.322)		(11.82)
$\frac{\Delta S_{i,t}}{A_{i,t-1}}$	0.0580***	$\frac{\Delta S_{i,t}}{A_{i,t-1}}$	0.0214	$\frac{\Delta S_{i,t}}{A_{i,t-1}}$	0.0990***		
	(3.837)		(1.285)		(2.948)		
$\frac{PPE_{i,t}}{A_{i,t-1}}$	-0.0514***	$\frac{S_{i,t}}{A_{i,t-1}}$	0.0295***	$\frac{S_{i,t}}{A_{i,t-1}}$	0.796***	$\frac{S_{i,t-1}}{A_{i,t-1}}$	0.0975***
	(-5.957)		(4.496)		(58.28)		(14.36)
				$\frac{\Delta S_{i,t-1}}{A_{i,t-1}}$	-0.00573		
					(-0.158)		
$\frac{PPE_{i,t}}{A_{i,t-1}}$	-0.0514***						
	(-5.957)						
Observations	1,344	Observations	997	Observations	908	Observations	831
R^2	0.052	R^2	0.070	R^2	0.869	R^2	0.281

Panel B: Summary statistics for residuals from estimation models

	n	**Mean**	**Median**	**Std. Dev.**	**25%**	**75%**
DA	54,134	-0.0016	0.0009	0.1277	-0.0495	0.0473
RM_{CFO} (CFO residuals)	54,134	0.0005	-0.0007	0.1029	-0.0473	0.0526
RM_{PROD} (PROD residuals)	54,134	0.0002	0.0185	0.1904	-0.0734	0.0863
RM_{DISEXP} (DISEXP residuals)	54,134	-2.55e-12	-0.0215	0.1112	-0.0589	0.0335

Note: *, **, *** represent significance at the 10%, 5% and 1% levels. See Appendix A for definitions of the variables.
Panel A presents the mean coefficients across all industry-year and t statistics computed using the standard error of the mean coefficients across industry-year following Fama and MacBeth (1973). The mean R square for each model is also reported.

Panel B reports the estimated residuals from Models 1-4. DA is the estimated residuals from Model (1), which capture AEM. RM_{CFO}, RM_{PROD} and RM_{DISEXP} are the estimated residuals from Model (2)-(4), which captures sales manipulations, overproduction and discretionary expenses, respectively.

Table created by authors

TABLE 2

Pearson (upper triangle) and Spearman (lower triangle) correlations Matrix

	$\frac{TA}{A_{i,t-1}}$	$\frac{CFO}{A_{i,t-1}}$	$\frac{PROD}{A_{i,t-1}}$	$\frac{DISEXP}{A_{i,t-1}}$	DA	RM_{CFO}	RM_{PROD}	RM_{DISEXP}
$\frac{TA}{A_{i,t-1}}$	1	-0.2539***	0.0408***	-0.0229***	0.9201***	-0.2711***	0.0568***	-0.0275***
$\frac{CFO}{A_{i,t-1}}$	-0.2344***	1	0.1766***	0.2144***	-0.2150***	0.9401***	-0.4196***	0.1333***
$\frac{PROD}{A_{i,t-1}}$	0.0485***	0.0849***	1	0.3852***	0.0058	-0.0254***	0.1874***	-0.0261***
$\frac{DISEXP}{A_{i,t-1}}$	-0.0224***	0.1592***	0.2785***	1	-0.0314***	0.1168***	-0.4151***	0.7624***
DA	0.9668***	-0.2195***	-0.0018	-0.0341***	1	-0.2214***	0.0182***	-0.0337***
RM_{CFO}	-0.2536***	0.9541***	-0.1040***	0.0927***	-0.2272***	1	-0.4429***	0.1156***
RM_{PROD}	0.0639***	-0.3799***	0.2843***	-0.4432***	0.0450***	-0.3987***	1	-0.5239***
RM_{DISEXP}	-0.0240***	0.1314***	-0.0398***	0.8700***	-0.0330***	0.1073***	-0.5095***	1

Note: *, **, *** represent significance at the 10%, 5% and 1% levels.

See Appendix A for definitions of the variables.

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TABLE 3

The effect of financial integration on AEM

	Dependent variable: absolute value of discretionary accruals (Abs_DA)		
Sample	All firms	Firms with positive DA	Firm with negative DA
KA_OPEN	0.0208***	0.0243***	0.0177**
	(4.337)	(3.499)	(2.383)
BIG4	-0.000911	-0.00673**	0.00400
	(-0.518)	(-2.528)	(1.527)
LAGGED ROA	-0.0690***	-0.101***	-0.0379***
	(-15.52)	(-15.52)	(-5.430)
GROWTH	0.0977***	0.0943***	0.103***
	(79.73)	(51.11)	(54.58)
SIZE	-0.0154***	-0.0140***	-0.0154***
	(-27.24)	(-16.30)	(-18.49)
LEV	0.0529***	0.0206***	0.0793***
	(26.28)	(6.418)	(27.00)
Constant	0.167***	0.159***	0.168***
	(14.76)	(9.023)	(10.57)
Year fixed effect	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Observations	73,101	36,807	36,294
R-squared	0.104	0.095	0.120
Number of id	8,804	8,095	8,160

Note: Estimation results of equation (6). See Appendix A for definitions of the variables.

*, **, *** represent significance at the 10%, 5% and 1% level.

Table created by authors

TABLE 4

The effect of financial integration on REM

Dependent variables	Absolute value of RM_{CFO}			Absolute value of RM_{PROD}			Absolute value of RM_{DISEXP}		
Sample	All firms	Firms with + RM_{CFO}	Firms with - RM_{CFO}	All firms	Firms with + RM_{PROD}	Firms with - RM_{PROD}	All firms	Firms with + RM_{DISEXP}	Firms with - RM_{DISEXP}
KA_OPEN	0.0128***	0.00371	0.0175***	0.0244***	0.0239***	0.0220***	0.0182***	0.0331***	0.00132
	-3.727	-0.812	-3.224	-4.669	-3.477	-2.628	-5.959	-5.236	-0.536
BIG4	0.00211*	0.00344**	0.000709	0.00419**	0.00246	0.00705**	0.00353***	0.00682***	1.72E-05
	-1.687	-2.053	-0.353	-2.137	-0.891	-2.422	-3.015	-3.061	-0.0168
LAGGED ROA	0.0287***	0.0565***	0.00113	0.0627***	0.0113*	0.113***	-0.00552*	-0.0360***	0.0283***
	-9.032	-11.71	-0.25	-12.9	-1.856	-13.49	(-1.927)	(-6.170)	-11.84
GROWTH	0.0661***	0.0596***	0.0715***	0.0926***	0.0931***	0.0927***	0.0466***	0.0995***	-0.00572***
	-75.55	-46.59	-54.43	-69.2	-57.56	-36.6	-59.2	-63.11	(-7.866)
SIZE	-0.00750***	-0.00907***	-0.00573***	-0.00648***	-0.000652	-0.0240***	-0.00632***	-0.0225***	-0.000546*
	(-18.56)	(-14.25)	(-9.859)	(-10.30)	(-0.902)	(-17.34)	(-16.84)	(-20.70)	(-1.929)
LEV	0.00826***	-0.0253***	0.0233***	-0.0125***	0.00253	-0.0470***	0.00522***	0.00764**	0.000373
	-5.757	(-10.04)	-12.15	(-5.645)	-0.979	(-10.31)	-3.962	-2.502	-0.356
Constant	0.0909***	0.115***	0.0761***	0.120***	0.0902***	0.237***	0.0892***	0.183***	0.0682***
	-10.82	-9.609	-6.051	-12.07	-6.84	-13.98	-15.8	-14.71	-14.52
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	72,611	35,802	36,809	62,754	35,352	27,402	54,134	20,573	33,561
R-squared	0.088	0.094	0.095	0.094	0.112	0.09	0.078	0.207	0.021
Number of id	8,785	7,560	7,472	8,171	6,371	5,822	7,542	4,306	5,797

Note: Estimation results of equation (7). See Appendix A for definitions of the variables.

*, **, *** represent significance at the 10%, 5% and 1% levels.

Table created by authors

TABLE 5

The effect of financial integration on AEM (Propensity Score Matched Sample)

	Dependent variable: absolute value of discretionary accruals (Abs_DA)		
Sample	All firms	Firms with positive DA	Firms with negative DA
KA_OPEN	0.0199***	0.0213***	0.0158*
	(3.554)	(2.591)	(1.815)
BIG4	-0.00184	-0.00678**	0.00421
	(-0.854)	(-2.052)	(1.302)
LAGGED ROA	-0.0678***	-0.101***	-0.0341***
	(-12.84)	(-13.09)	(-4.094)
GROWTH	0.0985***	0.0920***	0.108***
	(67.30)	(41.13)	(48.29)
SIZE	-0.0162***	-0.0152***	-0.0154***
	(-23.34)	(-14.24)	(-15.35)
LEV	0.0490***	0.0152***	0.0826***
	(20.09)	(3.909)	(23.16)
Constant	0.183***	0.187***	0.163***
	(17.32)	(11.68)	(10.62)
	0.183***	0.187***	0.163***
Year fixed effect	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Observations	54,052	27,343	26,709
R-squared	0.100	0.087	0.126
Number of id	7,537	6,727	6,797

Note: Estimation results of equation (6). See Appendix A for definitions of the variables.

*, **, *** represent significance at the 10%, 5% and 1% levels.

Table created by authors

TABLE 6

The effect of financial integration on REM (Propensity Score Matched Sample)

Dependent variables	Absolute value of abnormal RM_{CFO}			Absolute value of abnormal RM_{PROD}			Absolute value of abnormal RM_{DISEXP}		
Sample	All firms	Firms with + RM_{CFO}	Firms with - RM_{CFO}	All firms	Firms with + RM_{PROD}	Firms with - RM_{PROD}	All firms	Firms with + RM_{DISEXP}	Firms with - RM_{DISEXP}
KA_OPEN	0.0133***	0.00321	0.0181***	0.0191***	0.0162**	0.0186**	0.0179***	0.0331***	0.001000
	(3.321)	(0.606)	(2.825)	(3.425)	(2.194)	(2.081)	(5.853)	(5.241)	(0.406)
BIG4	0.00221	0.00536***	-0.00140	0.00413*	0.00652**	0.00284	0.00370***	0.00683***	0.000454
	(1.434)	(2.639)	(-0.551)	(1.929)	(2.132)	(0.906)	(3.150)	(3.065)	(0.445)
LAGGED ROA	0.0255***	0.0468***	0.00216	0.0666***	0.0187***	0.108***	-0.00576**	-0.0359***	0.0283***
	(6.764)	(8.133)	(0.400)	(12.72)	(2.821)	(11.94)	(-2.008)	(-6.147)	(11.85)
GROWTH	0.0647***	0.0612***	0.0680***	0.0933***	0.0923***	0.0976***	0.0467***	0.0997***	-0.00578***
	(62.47)	(40.68)	(43.20)	(64.51)	(52.50)	(35.73)	(59.16)	(63.15)	(-7.955)
SIZE	-0.00734***	-0.00890***	-0.00549***	-0.00710***	-0.00120	-0.0266***	-0.00631***	-0.0226***	-0.000480*
	(-14.77)	(-11.28)	(-7.715)	(-10.29)	(-1.510)	(-17.13)	(-16.70)	(-20.70)	(-1.688)
LEV	0.00695***	-0.0328***	0.0231***	-0.0109***	0.00519*	-0.0487***	0.00521***	0.00771**	0.000366
	(4.006)	(-10.65)	(9.917)	(-4.546)	(1.839)	(-9.591)	(3.947)	(2.521)	(0.350)
Constant	0.0981***	0.131***	0.0800***	0.130***	0.104***	0.267***	0.0881***	0.182***	0.0678***
	(12.99)	(12.51)	(6.885)	(12.35)	(7.970)	(13.92)	(15.35)	(14.47)	(14.25)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	54,083	26,842	27,241	54,069	30,542	23,527	54,079	20,551	33,528
R-squared	0.082	0.096	0.085	0.094	0.110	0.095	0.078	0.208	0.021
Number of id	7,538	6,263	6,208	7,538	5,832	5,228	7,537	4,299	5,794

Note: Estimation results of equation (7). See Appendix A for definitions of the variables.

*, **, *** represent significance at the 10%, 5% and 1% levels.

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Appendix A

Variable definitions

Variable	Description	Source
Financial integration variable		Chinn and Ito (2006)
KA_OPEN	A country-level de-jure measure of openness in capital controls based on information from the IMF's Annual Report on Exchange Arrangement and Exchange Restrictions (AREAER)	
Total accruals		COMPUSTAT
TA	Total Accruals, following Jones (1991), $TA_{i,t} = \Delta COA_{i,t} - \Delta COL_{i,t} - dp$, where ΔCOA is the change in 'current operating assets', ΔCOL is the 'current operating liabilities', and dp is the 'depreciation and amortisation'.	
COA	Current operating assets, equal to 'current assets' (item #4) minus 'cash and short-term Investments' (item #1)	
COL	Current operating liabilities, equal to 'current liabilities' (item#5) minus 'long-term debt due in one year' (item #44) minus 'income taxes payable' (item #71)	
Dp	Depreciation and amortisation, item#14	
AEM variables		
DA	Discretionary Accruals, the proxy for accrual-based earnings management, measured as deviations from the estimated values from the corresponding industry-year regression $TA_{i,t}/A_{i,t-1} = \alpha_1(1/A_{i,t-1}) + \beta_1(\Delta S_{i,t}/A_{i,t-1}) + \beta_2(PPE_{i,t}/A_{i,t-1}) + \varepsilon_{it}$	
Abs_DA	The absolute value of discretionary accruals	

REM variables		COMPUSTAT
CFO	Cash flow from operations, item#308	
Production Costs (PROD)	COGS + Change in inventory	
Inventory (INV)	item#3	
COGS	Cost of goods sold, item#44	
Discretionary expenses (DISEXP)	R&D expense (item#46) + Advertising expense (from CRSP/COMPUSTAT Merged) + Selling, General and Administrative expenses (item#189); as long as SG&A expense is available, advertising and R&D expenses can be set to zero if they are missing	
Abnormal CFO (RM_{CFO})	Measured as deviations from the estimated values from the corresponding industry-year regression $\mathrm{CFO}_{i,t}/A_{i,t-1} = \alpha_0 + \alpha_1(1/\mathrm{A}_{i,t-1}) + \beta_1(\mathrm{S}_{i,t}/\mathrm{A}_{i,t-1}) + \beta_2(\Delta\mathrm{S}_{i,t}/\mathrm{A}_{i,t-1}) + \varepsilon_{it}$	
Abnormal PROD (RM_{PROD})	Abnormal production costs, measured as deviations from the estimated values from the corresponding industry-year regression $\mathrm{PROD}_{i,t}/A_{i,t-1} = \alpha_0 + \alpha_1(1/\mathrm{A}_{i,t-1}) + \beta_1(\mathrm{S}_{i,t}/\mathrm{A}_{i,t-1}) + \beta_2(\Delta\mathrm{S}_{i,t}/\mathrm{A}_{i,t-1}) + \beta_3(\Delta\mathrm{S}_{i,t-1}/\mathrm{A}_{i,t-1}) + \varepsilon_{it}$	
Abnormal DISEXP (RM_{DISEXP})	Abnormal discretionary expenses, measured as deviations from the estimated values from the corresponding industry-year regression $\mathrm{DISEXP}_{i,t}/A_{i,t-1} = \alpha_0 + \alpha_1(1/\mathrm{A}_{i,t-1}) + \beta_1(\mathrm{S}_{i,t-1}/\mathrm{A}_{i,t-1}) + \varepsilon_{it}$	
Control variables		COMPUSTAT
BIG4	A dummy variable that is equal to one if the firm is audited by the "BIG FOUR" accounting	

	firm, computed using COMPUSTAT variable "au" (auditor)	
LEV (Leverage)	The sum of "Long-Term Debt – Total (item#9), "Debt in Current Liabilities - Total" (item#34) and "Long-Term Debt Due in One Year" (item #44) divided by "Assets - Total"(item#6)	
PAST_PERFORMANCE	The lagged value of ROA, where ROA is computed as "Net Income (Loss) – Consolidated" (item#172) divided by lagged total assets (item#6)	
SIZE	The natural logarithm of total assets (item#6) as a proxy for firm size	
GROWTH	Growth rate, measured by the growth rate of total assets (item#6)	
Variables used in the estimation models of total accrual and the normal level of REM		COMPUSTAT
A	Total assets, item#6	
PPE	Property, plant and equipment, item#7	
S	Sales, item#12	
ΔS	Change in sales	

Table created by authors