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Multiple measurements of CEOs' overconfidence and future earnings management: evidence from Asia-Pacific developing countries

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This study investigates the association between CEOs' overconfidence and future earnings management. This research is designed to explain CEOs' overconfidence with the serial logic of self-confidence and self-identity in constructing their overconfidence. The authors demonstrate the CEOs' overconfidence using multiple measures exploratorily that criticise their behaviour to manage their firms' earnings aggressively. The authors collected data from the Bureau Van Dijk and Refinitiv Thomson Reuters databases. They identified manufacturing firms listed on the stock exchanges of Singapore (SSE), Malaysia (KLSE), Thailand (SET), the Philippines (PSE), Indonesia (IDX), Vietnam (HOSE), Pakistan (PSE); Taiwan (TSEC); India (NSE) and China (SSE). They categorised developing countries as lower-middle and upper-middle-income. This study used Generalised Least-Square (GLS) regression to test all the hypotheses. This study finds this association robust in an international setting for developing countries. In other words, it shows some extant research that most CEOs in developing countries would intentionally like to manage future earnings. Furthermore, it identifies developing countries with lower-middle incomes and less competition due to emerging capital markets. Then, it highlights that CEOs in developing countries tend to be overconfident because of cognitive behaviour. Moreover, these CEOs assemble an organisational culture that can easily improve prospective performance. Therefore, this study infers that economic uncertainty causes CEOs to be overconfident, enhancing their boldness when managing earnings excessively. This study presents a novelty supported by three critical reasoning arguments. First, it explains the phenomenon of CEOs' overconfidence through self-confidence (self-control). Second, the authors develop multiple measurements used in the study to mark the CEOs' overconfidence as a combined product of self-confidence and self-identity. It uses capital expenditures to measure the CEOs' overconfidence and firm over-investment, the incremental debt-to-equity ratio, historical earnings persistence, historical stock price persistence, the magnitude of the related party's transactions and political connections. Third, this study investigates CEOs' overconfidence in an international setting.

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Introduction

This study investigates the overconfident behaviour of CEOs that directs their earnings management decisions. Malmendier and Tate (2015) suggested that CEOs' overconfidence influences future decision-making. Furthermore, Li and Hung (2013) and Schrand and Zechman (2012) supported Malmendier and Tate (2015) in finding that CEOs' overconfidence influences their behaviour in increasing earnings management. Nevertheless, this research only measured a firm's unit analysis, with a single estimate of the CEOs' overconfidence in only one country. The authors then argue that this study will complement this extant research's low internal consistency and conclusion validity. Using exploratorily multiple measures, it examines the association between the CEOs' behaviour and future earnings management. Moreover, it shows this examination for some developing countries and their emerging capital markets.

This study presents a new approach supported by three critical reasoning arguments. First, it explains the phenomenon of CEOs' overconfidence through self-confidence (self-control) (Bandura, 1977, 1990) and self-identity (Bailey, 2003; Berzonsky, 1994). This new perspective is essential for a more comprehensive exploration of CEO overconfidence behaviour, which was narrowly investigated from economic or strategic views in prior literature (Ahmed and Duellman, 2013; Ali and Tauni, 2021; Duellman et al., 2015; He et al., 2019; Malmendier and Tate, 2005; Schrand and Zechman, 2012). Furthermore, Kirsch (1985), Kirsch and Cummings (1996), and Kleitman and Stankov (2007) demonstrated that overconfidence is individual beliefs about future output expectations. Then, these expectations develop the CEOs' behaviour in deciding on an investment policy due to a specific output (Druckman and Bjork, 1994; Malmendier and Tate, 2005, 2008). Conversely, these CEOs found their self-identity, making them bolder about deciding future investments (Malmendier and Tate, 2008; Reese et al., 2015). The degree of the CEOs' beliefs about achieving targeted outputs makes them able to engineer future earnings. In other words, these CEOs have cognitive biases called psychological projection (Goel and Thakor, 2008; Holmes, 1968; Malanchruvil, 2004). Therefore, by exploring CEOs' wide-ranging overconfidence characteristics through multiple measures, this study provides novel overconfidence evidence from several proxies grounded by self-confidence and self-identity. Finally, it demonstrates that self-confidence and self-identity simultaneously develop the CEOs' overconfidence in psychological projection to engage in future earnings management.

Second, the authors develop the multiple measurements used by this study to mark the CEOs' overconfidence as a powerful combination of self-confidence and self-identity. This study argues that the CEOs' overconfidence affects their policy at the organisational level, meaning the CEO's overconfidence is at the organisational unit level of analysis. This research not only uses capital expenditures (Ahmed and Duellman, 2013; Killins et al., 2021) to measure the CEOs' overconfidence but also firm overinvestment (Biddle et al., 2009; Duellman et al., 2015); it employs the incremental debt to equity ratio (Huang et al., 2016; Malmendier et al., 2011), historical earnings persistence (Artikis and Papanastasopoulos, 2016; Sloan, 1996), historical stock price persistence (Chou, 1988; Constantin and Das Sarma, 2005), the magnitude of the related party's transactions (Jian and Wong, 2010; Yeh et al., 2012) and political connections (Boubakri et al., 2012; Hou et al., 2017). This study raises all these measurements from the critical logic of firms' or CEOs' self-confidence and self-identity. These measurements enhance the CEOs' overconfidence due to protective future cash inflows, a more remarkable ability to repay debts, and a closed position. The authors, therefore, utilise these multiple measures to determine the CEOs' behaviour on future earnings management.

Third, this study investigates CEOs' overconfidence in an international setting (Li and Hung, 2013; Sumiyana, 2020; Sumiyana et al., 2019). By these means, it uses some emerging countries in Asia. Moreover, the World Bank lists emerging economies, differentiating between lower-middle-income and upper-middle-income (Wang and Lin, 2021; Yi, 2021). Furthermore, the authors consider that developing countries, related to their emerging capital markets, have economic structures that differ from advanced countries (Agénor and Montiel, 2015). Furthermore, developing countries face economic uncertainty and easily get economic rents (Sumiyana, 2020; Sumiyana et al., 2019). Finally, the authors highlight that CEOs in developing countries manage earnings boldly due to the differential structuration in accomplishing their tasks and responsibilities.

This study accomplishes its goal using three clustered theories and concepts. The first cluster combines self-confidence and self-identity in constructing the CEOs' overconfident behaviour (Bandura, 1977; Berzonsky, 1994). In addition, the authors accentuate that past accounting numbers and economical-political business relationships support the CEOs' overconfidence. In other words, this support develops the CEOs' cognition, making it biased in its psychological projection. The second cluster is all the measurements used by this study to construct the CEOs' overconfidence about engineering future earnings management. In short, this new study's measurements relate to the CEOs' future earnings management. The third and last cluster is the CEOs' behaviour in developing countries that would probably be more overconfident, supported by economic structuration due to this research's measures. This study argues that they face uncertainties and less competition and easily gain economic rents. Thus, the international setting of this research complements the CEOs' overconfidence.

This study contributes to explaining CEOs' behaviour in managing future earnings. First, it raises the CEOs' behaviour from the combined perspective of self-confidence and self-identity. The authors argue that CEOs act based on past accounting numbers that predispose them to high levels of self-confidence and self-identity. This self-confidence and self-identity, in turn, direct the CEOs' cognitive biases to make psychological projections. The CEOs' psychological projection is manifested in their boldness (Holmes, 1968; Malanchruvil, 2004) in managing more progressive future earnings. Second, this study contributes to some measurements of the CEOs' overconfidence: the incremental debt-to-equity ratio, historical earnings persistence, the magnitude of the related party's transactions, and political connections. By these means, the authors comprehend the existence of the CEO's overconfidence and the consequences for future earnings management (Li and Hung, 2013; Schrand and Zechman, 2012). In other words, it complements the paradigm of the extant research that these new measurements in this study cause overconfidence. Finally, this research demonstrates that CEOs' overconfidence probably occurs in developing countries. Economic structuration and the relative ease in getting economic rent support this occurrence. Moreover, this research argues that CEOs in emerging economies manage earnings boldly due to their closed positions and have little competition compared to advanced countries.

Literature review and hypotheses development

Self-confidence, self-identity and overconfident behaviour. Self-confidence is an individual's self-cognitive persuasion in assessing his or her ability to perform specific tasks. Reliable sources of information usually shape the individuals' cognitive self-persuasion (Bandura, 1977, 1990). Thus, the authors argue that self-confidence could develop a high self-identity, further

constructing CEOs' cognitive overconfidence. In addition, Kirsch (1985), Kirsch and Cummings (1996), and Kleitman and Stankov (2007) suggested that overconfidence develops a certain level of future expectations. This study shows CEOs' self-confidence is the behaviour that arises because of an assessment of themselves, and this behaviour has an orientation toward certain expectations. Furthermore, this study argues that CEOs' overconfidence is closely related to excessive expectations based on their future earnings management.

CEOs' self-confidence has sequentially constructed their self-identity. Self-identity is an attribute possessed by an individual that includes personal values, goals, knowledge, and psychological states (Bailey, 2003; Berzonsky, 1994). This extant research prioritises the individual's point of view without seeing the influence of the surrounding environment. However, self-identity arises because of serial steps that build self-image and distinguish one from others over time. In other words, some extant research assumes that CEOs with authoritative power usually develop their defence mechanism or cognitive biases to direct what priorities they intend to achieve. Therefore, the authors infer that the CEOs' self-identity emerges because long serial actions develop their self-image and differentiate them from others. Thus, this study argues that the CEOs' self-identity supports their development and ends their overconfident behaviour.

Overconfidence measurements and future earnings management. This study posits Malmendier and Tate (2015) and Gong et al. (2009) by suggesting that the CEO's excessive overconfidence affects their firms' future decisions. It identifies the behaviour that emerges from the point of view of the individual CEO. Besides that, the authors use the CEO as a unit of analysis, equivalently representing the firm. Furthermore, CEO characteristics reflect multiple standing constructing their behaviours due to the firm's mission and goals, including their behavioural measurements. This study's measurement of excessive overconfidence combines self-confidence (Bandura, 1990) and self-identity (Bailey, 2003). Moreover, the authors argue that CEOs with excessive overconfidence generally use their super-ego to control the firm, meaning that all policies rest on the CEO's definitive decision. The model states that excessive self-confidence arises within the individual, influencing several firm policies. Kirsch (1985), Kirsch and Cummings (1996), and Kleitman and Stankov (2007) describe overconfidence as beliefs about a firm's future expectations. This study uses the debt-to-equity ratio (Huang et al., 2016; Malmendier et al., 2011), the measurement of historical earnings persistence (Artikis and Papanastasopoulos, 2016; Sloan, 1996), and historical stock price persistence (Chou, 1988; Constantin and Das Sarma, 2005) to describe the CEO's confidence. The researchers argue that CEOs are more daring about borrowing significant funds to finance their operational activities. The CEOs' belief drives their behaviour; borrowing funds improve operational activities and ultimately increases future earnings. Finally, the periodic income is utilised to pay off loans made previously. On the other hand, Lim (2008) explains that past earnings and stock price persistence could predict firms' future performance. The researchers argue that CEOs could express their confidence based on previous earnings due to their future expectations. Moreover, their beliefs in their firms' future projections increase their confidence, supported by optimism based on the last year's earnings.

Furthermore, when CEOs' confidence is high, their behaviour directs their future investment policies to maximise the outputs (Malmendier and Tate, 2005, 2008). This study uses capital expenditure (Ahmed and Duellman, 2013; Killins et al., 2021) and overinvestment (Biddle et al., 2009; Duellman et al., 2015) to

measure CEOs' confidence. CEOs are confident they will invest under the firms' financial conditions, encouraging them to invest using internal and external funds (Kahle and Stulz, 2013; Killins et al., 2021). Furthermore, for firms that rely heavily on bank creditors, economic shocks could reduce the firms' capital investments. Therefore, in this study, CEOs are more likely to use internal funding to make subsequent capital investments. This belief arises because the CEOs have confidence that today's investment decisions will provide maximum results in the future.

Finally, this study shows the existence of CEOs' overconfidence. It measures the magnitude of affiliated transactions, related parties' transactions, and political connections (Chen et al., 2009; Cheung et al., 2009; Goldman et al., 2009; Ovtchinnikov and Pantaleoni, 2012). Hendratama and Barokah (2020) and Jackowicz et al. (2014) have suggested that companies with affiliated transactions and political connections could gain several advantages in business processes. The researchers argue that related party transactions and political affiliations make it easier for companies to run their businesses and enhance corporate identity. Some CEOs' confident behaviour could easily increase or decrease earnings management (Li and Hung, 2013; Schrand and Zechman, 2012). This study explains the CEOs' defence mechanism for psychological projection to explain their behaviour (Holmes, 1968; Malancharuvi, 2004). Moreover, it suggests that the CEOs' psychological states develop their future expectations due to their overconfidence. Then, these CEOs would conduct their future bias in achieving their expectations. Consequently, this study argues whether there were differences between the CEOs' expectations and what occurred; these expectation gaps encourage them to carry out future earnings management.

CEOs' behaviour in developing countries. This study refers to Agénor and Montiel (2015), who state that developing countries have different characteristics. First, developing countries have lower-middle and upper-middle-income features (Wang and Lin, 2021; Yi, 2021). Second, future economic uncertainty supports these characteristics, which developing countries experience less than developed ones (Sumiyana, 2020; Sumiyana et al., 2019). Furthermore, in developing countries, these characteristics affect the CEOs' behaviour when making corporate financial decisions (Hearn and Filatotchev, 2019; Hu et al., 2013; Munir et al., 2017; Wei et al., 2018). Several previous studies have suggested that a CEO's behaviour is excessive overconfidence in developing countries (Ali and Tauni, 2021; He et al., 2019; Lin et al., 2020). Moreover, the authors support argumentation regarding self-confidence and self-identity. For example, we identified Chinese CEOs' overconfident behaviour, probably leading to a future higher risk level (Ali and Tauni, 2021). In addition, we notified overinvestment actions (Lin et al., 2020). The authors argue that CEOs' behaviour in developing countries is about managing their firms' future earnings more boldly because they face uncertain economic conditions. Furthermore, the authors consider that the annual incomes of developing countries, noted by the lower-middle level, encourage these CEOs to manage future revenues boldly. Such behaviour by these CEOs is related to getting more bonuses and incentives for their achievements.

Hypotheses development. This study argues that CEOs' overconfidence affects their firms' earnings management practices. Previous research has concluded that CEOs' excessive overconfidence encourages manipulative earnings management practices because they boldly adjust future profits to their expectations (Li and Hung, 2013; Schrand and Zechman, 2012). This study explores the CEO's overconfident behaviour using the logical constructs of self-confidence and self-identity. The authors believe this study's constructed reasoning has never been used

before. Therefore, the authors propose that this construct could explain the relationship between the CEOs' overconfidence and corporate earnings management practices. This study posits Malmendier and Tate (2005) and Malmendier and Tate (2008) by suggesting that CEOs with overconfidence carry out excessive investment activities. Then, these CEOs tend to use internal funding because they avoid any broader economic contraction if they use external funding (Kahle and Stulz, 2013). This study infers that these CEOs have more confidence in using internal financing to decide on future investments because they have confidence in long-term performance. From the behavioural view, this excessive confidence reflects sequential CEO behaviour in enacting self-confidence and self-identity. By the mean, it argues that the future performance set by the CEOs is unaligned with expectations. For instance, McCarthy et al. (2017) suggest that CEOs' overconfidence would overestimate future performance. So, in this study, the CEOs do not want their investments to produce commensurate future poor performances. Moreover, these CEOs encourage earnings management practices to gain higher investment profits. Therefore, this study formulates hypotheses H1 and H2 below.

H1: CEOs' overconfidence, measured by capital expenditure, influences future earnings management positively.

H2: CEOs' overconfidence, measured by current overinvestment decisions, influences future earnings management positively.

This research refers to Kirsch (1985), Kirsch and Cummings (1996), and Kleitman and Stankov (2007) and describes the CEOs' overconfidence as their beliefs about their firms' future expectations. The researchers argue that CEOs with excessive self-confidence dare to take enormous loans that may be even greater than the firm's total equity. In addition, these CEOs usually provide unreasonable expectations based on previous earnings persistence. However, these CEOs behave this way because they overestimate their future earnings, although they understand the differential gaps between actual and expected earnings (Goel and Thakor, 2008; Gong et al., 2009). The authors make a new argument for the stock price persistence encouraging this sort of behaviour by the CEOs due to earnings persistence. This study posits McCarthy et al. (2017) by suggesting that overconfident CEOs overestimate themselves. Then, it argues that these CEOs manage earnings to ensure that future incomes match their expectations. Therefore, this study constructs hypotheses H3, H4 and H5 below.

H3: CEOs' overconfidence, measured by earnings persistence, influences future earnings management positively.

H4: CEOs' overconfidence, measured by stock price persistence, influences future earnings management positively.

H5: CEOs' overconfidence, measured by the debt-to-equity ratio, influences future earnings management positively.

This study constructs CEOs' overconfidence by attributing it to high self-identity. It uses business affiliations and political connections to explain the CEOs' overconfidence and earnings management practices. Moreover, it infers Hendratama and Barokah (2020) and Jackowicz et al. (2014) that firms having related business affiliations and political connections might have several advantages in carrying out their business processes. However, Lo et al. (2010) argue that the related party's transactions could distort the financial statements, leading to information asymmetry and lowering the firms' confidence (Guedhami et al., 2014). Thus, the authors argue that firms with affiliated transactions could manipulate accounting numbers to hide their actual economic performance to ensure that the practice would remain confidential. Moreover, the CEOs' overconfidence increases when they gain intensive political connections, marked by their existing social networks. Therefore, this study formulates hypotheses H6 and H7 below.

H6: CEOs' overconfidence, measured by a related party's transactions, influences future earnings management positively.

H7: CEOs' overconfidence, measured by political connections, influences future earnings management positively.

Research methods

Data sampling. This study used secondary data on manufacturing firms listed on the stock exchanges of ten developing Asian-Pacific countries. The authors collected data from the Bureau Van Dijk and Refinitiv Thomson Reuters databases. They identified manufacturing firms on the stock exchanges of Singapore (SSE), Malaysia (KLSE), Thailand (SET), the Philippines (PSE), Indonesia (IDX), Vietnam (HOSE), Pakistan (PSE); Taiwan (TSEC); India (NSE) and China (SSE). They categorised developing countries as lower-middle and upper-middle-income (Sumiyana, 2020; Sumiyana et al., 2019; Wang and Lin, 2021; Yi, 2021). Furthermore, this research employed a purposive sampling method with the following criteria. First, it selected manufacturing firms from the period 2010 to 2019. In addition, manufacturing firms were selected because they have complex earnings management and untighten-regulated tensions. Moreover, the authors ascertained that the latest decade is enough to represent these phenomena of CEOs' overconfidence and deleted two years later due to the COVID pandemic. Second, the data are filtered by ensuring that these firms listed on the ten stock exchanges published financial statements with the fiscal year ending 31 December.

The researchers excluded the Philippines from the study sample because their firms did not fulfil the minimum data required for the regression tests. Furthermore, the researchers divided the sample into three clusters for sensitivity tests: Southeast Asia, South Asia, and East Asia. Then, this study used nine developing countries in the Asia-Pacific region from 2010 to 2019, with 29,017 firm-year data that have issued outlier data of 2%.

Variable measurements. This study identified CEOs' overconfidence as irrational behaviour in their excessive self-identity and self-confidence. It also noted that the variable measurements would develop CEOs' overconfidence. First, the CEOs' investment behaviour was considered (Malmendier and Tate, 2005, 2008). Next, the researchers measured investment behaviour by capital expenditure (CAPEX_{i,t}). Previous research (Ahmed and Duellman, 2013; Killins et al., 2021) has used this measurement as the CEO's investment behaviour. The formulation is in Eq. (1). Next, overinvestment (OVER_{i,t}) measured the CEOs' behaviour. The researchers posited Biddle et al. (2009) and Duellman et al. (2015) by measuring the CEOs' overinvestment in Eq. (2). The Acq_{i,t} represented company acquisition, SGrowth_{i,t} depicts sales growth and SPPE_{i,t} meant the sold PPE. Equation (2) then constructed Eq. (3) to estimate the residual errors and determine the CEOs' overinvestment for the top quartile. In the equation below, R&D_{i,t} was research and development expenses.

$$CAPEX_{i,t} = \frac{Capex_{i,t}}{TA_{i,t-1}} \tag{1}$$

$$Inv_{i,t} = \frac{(Capex_{i,t} + R\&D_{i,t} + Acq_{i,t}) - SPPE_{i,t}}{TA_{i,t}} \tag{2}$$

$$Inv_{i,t} = \alpha_0 + SGrowth_{i,t-1} + \varepsilon_{i,t} \tag{3}$$

Second, the researchers considered the CEOs' behaviour, demonstrating their belief in their firms' future performance (Kirsch, 1985; Kirsch and Cummings, 1996; Kleitman and

Stankov, 2007). The CEOs' overconfidence was measured using the ratio of debt to equity (DER_{i,t}) in Eq. (4) (Huang et al., 2016; Malmendier et al., 2011). The researchers marked firms that increased their annual DER ratio to express the CEOs' overconfidence. Next, earnings persistence (EARNPERS_{i,t}) was used (Artikis and Papanastopoulos, 2016; Sloan, 1996). The CEOs' future beliefs due to past earnings movements were found in the regression results from Eq. (5). The researchers also considered stock price persistence (SPPERS_{i,t}) to measure the CEOs' overconfidence, enhancing their belief in past stock price movements. The researchers argued that the increased stock price persistence had the same reasoning as earnings (Chou, 1988; Constantin and Das Sarma, 2005) in Eq. (6). In the equation below, TD_{i,t} was the company's total debt in the year i. The stock price_{i,t} was the stock price at the end of the year.

$$DER_{i,t} = \frac{TD_{i,t}}{TA_{i,t}} \tag{4}$$

$$EARNPERS_{i,t} = \alpha_0 + \text{Earnings}_{i,t-1} + \text{Earnings}_{i,t-2} + \text{Earnings}_{i,t-3} + \epsilon_{i,t} \tag{5}$$

$$SPPERS_{i,t} = \alpha_0 + \text{Stock price}_{i,t-1} + \text{Stock price}_{i,t-2} + \text{Stock price}_{i,t-3} + \epsilon_{i,t} \tag{6}$$

Finally, the researchers considered several conditions that could affect the CEOs' self-identity. First, this study used the measurement used by affiliated transactions (RPT_{i,t}), referring to Jian and Wong (2010) and Yeh et al. (2012). Those studies used abnormal sales from the residual regression Eq. (7). Second, the political connection (PC_{i,t}) posits Goldman et al. (2009) and Ovtchinnikov and Pantaleoni (2012) by suggesting that firms have expenses from supporting political parties. Finally, the researchers measured the political connection with the abnormal variance of a firm's miscellaneous expenses, compared to the average industry expenditure, presented in Eq. (8). If the PC value was negative, this study assigned a value of 1 for firms with political connections and 0 otherwise.

$$RPT_{i,t} = \beta_0 + \beta_1 \ln(\text{assets}) + \beta_2 \text{net debt} + \beta_3 \text{Sales Growth} + \beta_4 \text{MTB} + \epsilon_{i,t} \tag{7}$$

$$PC_{i,t} = \bar{X}OE_{i,t} - OE_{i,t} \tag{8}$$

This study measured earnings management using discretionary accruals. The authors posit Dechow et al. (1995) by suggesting that the modified Jones model produces substantial results. Therefore, the authors calculated a firm's total accruals in Eq. (9). TAC was a firm's total accruals calculated with the formula: ΔCA_{i,t} (the change in current assets), ΔCL_{i,t} (the change in current liabilities), ΔCash_{i,t} (the difference in cash and cash equivalents), ΔCLD_{i,t} (the change in long-term debts), and DFA_{i,t} (the depreciation expenses for fixed assets). Furthermore, this study calculated a firm's discretionary accruals using the residual error in Eq. (10) (Li and Hung, 2013; Lim et al., 2008). Therefore, this study estimated discretionary accruals in Eq. (10). It explained that TA was total assets, REV_{i,t} was total revenues, REC_{i,t} was the change in total receivables and PPE_{i,t} was property, plant, and equipment. Meanwhile, the notation t-1 was the previous year's total assets at firm i.

$$TAC_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta Cash_{i,t} + \Delta CLD_{i,t} - DFA_{i,t} \tag{9}$$

Table 1 Descriptive statistics.

Variables	Mean	Median	Std. dev	Min	Max
EM _{i,t}	0.063	0.047	0.051	0.008	0.167
CAPEX _{i,t-1}	0.047	0.034	0.040	0.004	0.129
OVER _{i,t-1}	0.251	0.000	0.434	0.000	1.000
EARNSPERS _{i,t-1}	2.286	1.104	2.632	0.228	8.488
SPPERS _{i,t-1}	0.388	0.249	0.375	0.029	1.198
DER _{i,t-1}	0.519	0.519	0.169	0.255	0.778
RPT _{i,t-1}	-0.037	-0.080	0.335	-0.510	0.556
PC _{i,t-1}	0.131	0.000	0.337	0.000	1.000
SIZE _{i,t-1}	12.160	12.179	1.515	9.817	14.504
PM _{i,t-1}	5.486	4.79	7.117	-6.45	17.72
CFO _{i,t-1}	-0.059	-0.026	0.059	-0.128	0.073
LEV _{i,t-1}	0.101	0.071	0.094	0.001	0.284
GROWTH _{i,t-1}	0.067	0.047	0.190	-0.212	0.407
AG _{i,t-1}	0.714	0.049	0.141	-0.119	0.332
NPG _{i,t-1}	-0.080	-0.036	0.893	-1.661	1.487
MTB _{i,t-1}	1.604	1.120	1.169	0.370	4.026

Indonesia (910), Malaysia (1896), Singapore (1254), Thailand (940), Vietnam (675), Pakistan (945), Taiwan (5806), India (8678), China (7913), the Philippines Eliminated, and Total: 29,017 firm-years.

$$TAC_{i,t} = \alpha_0 + \beta_1 \left(\frac{1}{TA_{i,t-1}} \right) + \beta_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}} \right) + \beta_3 \left(\frac{PPE_{i,t}}{TA_{i,t-1}} \right) + \epsilon_{i,t} \tag{10}$$

Empirical testing stages. This study divided its empirical testing into several stages. Firstly, it tested using normality, heteroscedasticity, and multicollinearity to ensure its proposed research model, diminishing random and systematic errors (Barber et al., 2013; Suzuki et al., 2016). Then secondly, it used GLS regression to test all the hypotheses. The grounded reason for utilising GLS regression is to maintain the differences in data characteristics and homoscedasticity (Outa et al., 2017; Pekár and Brabec, 2016). In particular, this test used future earnings management (EM_{i,t}) as a dependent variable. Therefore, it formulated this GLS regression below.

$$EM_{i,t} = \alpha_0 + \beta_1 \text{CAPEX}_{i,t-1} + \beta_2 \text{OVER}_{i,t-1} + \beta_3 \text{EARNPERS}_{i,t-1} + \beta_4 \text{SPPERS}_{i,t-1} + \beta_5 \text{DER}_{i,t-1} + \beta_6 \text{RTT}_{i,t-1} + \beta_7 \text{PC}_{i,t-1} + \beta_8 \text{SIZE}_{i,t-1} + \beta_9 \text{PM}_{i,t-1} + \beta_{10} \text{CFO}_{i,t-1} + \beta_{11} \text{Lev}_{i,t-1} + \beta_{12} \text{GROWTH}_{i,t-1} + \beta_{13} \text{AG}_{i,t-1} + \beta_{14} \text{NPG}_{i,t-1} + \beta_{15} \text{MTB}_{i,t-1} + \epsilon_{i,t} \tag{11}$$

This study posited some extant research to describe eight control variables (Killins et al., 2021; Li and Hung, 2013; Schrand and Zechman, 2012). These variables were the natural logarithm of the firm's total assets (SIZE), total revenue divided by net sales (PM), total operating cash flow divided by total assets for the previous year (CFO), long-term debt divided by total assets (LEV), the growth ratio of total sales (GROWTH), the percentage of assets growth (AG), the net profit growth (NPG), and market to book value (MTB). The control variables were the previous year's measurements (t - 1) and each firm (i). In other words, this study controlled the linearity with the best-unbiased error (White, 1980). Lastly, it examined additional testing, a sensitivity test, to strengthen its findings by clustering the final sample regionally.

Statistical results

Descriptive statistics. Table 1 describes the research sample. These results show that the average value of EM was positive at 0.063, with the highest value of 0.167 and the lowest value of 0.008. The CAPEX variable offered an average value of 0.047,

Table 2 Regression results.

Variables	Pred.	CAPEX	OVER	EARNPERS	SPERS	DER	RPT	PC	All
Constant	?	0.101 [35.74]***	0.056 [25.39]***	0.073 [32.77]**	0.133 [11.80]***	0.067 [20.63]***	0.083 [13.91]***	0.100 [31.65]***	0.076 [12.35]***
CAPEX _{it-1}	H1: +	0.014 [2.23]**							-0.001 [-0.59]
OVER _{it-1}	H2: +		0.002 [3.76]***	0.001 [13.97]***	0.006 [3.55]***	0.022 [8.47]**	0.005 [3.56]**		0.039 [7.19]***
EARNPERS _{it-1}	H3: +								0.001 [6.66]**
SPERS _{it-1}	H4: +								0.005 [3.45]***
DER _{it-1}	H5: +								0.039 [11.44]***
RPT _{it-1}	H6: +								0.000 [0.56]
PC _{it-1}	H7: +								0.005 [2.51]**
SIZE _{it-1}	-	-0.002 [-9.44]***	0.000 [3.95]	-0.001 [-8.44]***	-0.004 [-4.69]**	-0.000 [-1.25]	0.000 [0.76]	-0.000 [-0.06]	-0.002 [-4.84]***
PM _{it-1}	-	-0.000 [-12.80]***	-0.000 [-2.68]**	-0.000 [-8.27]***	-0.000 [-3.71]**	-0.000 [-14.95]***	-0.000 [-10.94]***	-0.003 [-11.32]***	-0.000 [-5.51]***
CFO _{it-1}	-	0.005 [1.52]	0.012 [2.74]	0.024 [5.20]	0.020 [1.92]	0.031 [5.96]	0.001 [0.19]	0.028 [5.69]	0.008 [1.27]
LEV _{it-1}	+	0.022 [9.93]***	-0.008 [-2.97]	0.002 [0.97]	-0.000 [-1.54]	0.009 [2.19]**	0.041 [9.00]**	0.035 [10.19]***	0.031 [5.02]**
GROWTH _{it-1}	+	7.010 [1.23]	0.002 [1.71]**	0.001 [0.67]	0.000 [1.44]	0.005 [3.76]***	9.640 [0.78]	0.004 [3.45]**	0.000 [1.87]*
AG _{it-1}	+	0.000 [3.80]***	0.006 [2.81]**	0.024 [10.73]***	0.000 [0.76]	0.025 [12.83]***	0.000 [1.75]*	0.023 [12.57]**	0.000 [0.69]
NPG _{it-1}	+	-2.420 [-0.75]	-0.000 [-1.48]	-0.000 [-2.43]	-0.000 [-0.58]	-0.000 [-3.40]	-3.370 [-0.48]	-0.000 [-3.45]	-0.000 [-0.75]
MTB _{it-1}	+	0.000 [1.59]	0.000 [3.00]**	0.005 [21.91]***	0.000 [1.09]	0.004 [22.31]***	0.000 [3.28]**	0.005 [25.68]***	0.000 [1.61]
Wald-Chi ²		476.15***	73.24***	944.48***	583.40***	1,206.72***	251.89***	1,435.05***	736.27***
Obs: n		38,071	37,549	36,205	31,994	38,911	38,907	37,066	29,017

*, **, *** indicate significance at 0.10; 0.05; 0.01 levels respectively.

with the highest value of 0.129 and the lowest value of 0.004. Furthermore, EARNSPERS and SPERS showed an average value of 2.286 and 0.338, with the highest and lowest values of 8.488, 0.228 and 1.198, 0.029, respectively. Thus, the EARNSPERS and SPERS showed that the stock price was more persistent than the earnings variable. In contrast, the RPT variable showed an average negative 0.037, with the highest value of 0.556 and the lowest value of -0.510. Finally, OVER and PC variables offered an average value of 0.251 and 0.131, with 1 and 0 because of a dummy variable.

Statistical test results. This study hypothesised that a CEO's overconfidence was proxied by capital expenditure (H1), overinvestment (H2), earnings persistence (H3), stock price persistence (H4), debt to equity ratio (H5), related party's transactions (H6), and political connections (H7), which all could affect the company's decisions about earnings management in the future. Table 2 shows the results of testing these hypotheses, split into several models: each variable and all-variable models. The capital expenditure influenced the CAPEX model's future corporate earnings management tendency, with a coefficient value of 0.014, a z-value of 2.23, and a significance level of 5%. These results indicated that H1 was supported. Hypothesis H2 examined the association between overinvestment and earnings management. The statistical tests showed that earnings management influences overinvestment, which may lead to a potential simultaneous relationship, with a coefficient of 0.002, a z-value of 3.76 and a significance level of 1%. These results were consistent with the all-variable model. Furthermore, hypotheses H3 and H4 examined the association of earnings persistence and stock price persistence with future earnings management. The statistical test results showed that earnings and stock price persistence influenced earnings management in each variable and all-variable models, with a significance level of 1%.

The researchers hypothesised that the debt-to-equity ratio affected firms' future earnings management decisions. The regression test results showed that the association was significant, with a coefficient of 0.022 and a z-value of 8.47 in the DER model. Moreover, these results had a coefficient of 0.039 and a z-value of 11.44 in all models. In addition, related parties' transactions were positively associated with future earnings management with a coefficient value of 0.005 and a z-value of 3.56 in the RPT model. Finally, the researchers hypothesised that political connections were associated with the tendency for earnings management to occur. The regression test results showed that political connections were significant in the all-variable model, with a coefficient value of 0.005, a z-value of 2.51, and a significance level of 5%. In addition, the researchers strengthened the statistical results by using separate and repeated examinations. Thus, based on the regression testing results, all the hypotheses in the study were supported significantly, even when the test was still using the control variables.

Sensitivity test results. This study conducted sensitivity tests based on regional clustering. The sensitivity testing was split into Southeast, South, and East Asia. The analysis was possible based on the distribution between countries because the researchers used a sample of developing Asia-Pacific countries with several regions. These may have had different patterns explaining the association between overconfidence and earnings management. In addition, the selected time did not allow for period-based testing because 2010–2019 did not have a moment that could affect the logical association of the tests in this study. Tables 3, 4, and 5 present the results of the sensitivity tests.

Table 3 Sensitivity test results: Southeast Asia.

Variables	Pred.	CAPEX	OVER	EARNPERS	SPERS	DER	RPT	PC	All
Constant	?	0.167 [14.51]***	0.137 [16.96]***	0.105 [15.59]***	0.139 [17.68]***	0.161 [14.05]***	0.172 [15.11]***	0.150 [17.04]***	0.145 [9.22]***
CAPEX _{it-1}	H1: +	0.041 [3.32]***							0.026 [1.32]
OVER _{it-1}	H2: +		0.007 [3.17]**						0.012 [2.99]**
EARNSPERS _{it-1}	H3: +			0.001 [5.30]***					0.002 [3.54]***
SPERS _{it-1}	H4: +				0.007 [1.70]*				0.001 [0.52]
DER _{it-1}	H5: +					0.034 [5.90]***			0.034 [5.36]***
RPT _{it-1}	H6: +						0.002 [1.26]		0.004 [1.68]*
PC _{it-1}	H7: +							0.007 [2.15]**	0.005 [0.98]
... All control variables are not presented.									
Wald-Chi ²		241.84***	355.29***	248.71***	272.20***	272.61***	238.22***	323.29***	281.51***
Obs: n		7396	7305	6989	6448	7464	7460	6769	5672

*, **, *** indicate significance at 0.10; 0.05; 0.01 levels respectively.

Table 4 Sensitivity test results: South Asia.

Variables	Pred.	CAPEX	OVER	EARNPERS	SPERS	DER	RPT	PC	All
Constant	?	0.111 [23.71]***	0.106 [21.77]***	0.107 [24.96]***	0.108 [25.30]***	0.108 [224.02]***	0.116 [24.74]***	0.123 [24.13]***	0.111 [16.88]***
CAPEX _{it-1}	H1: +	0.015 [2.28]**							-0.072 [-4.11]
OVER _{it-1}	H2: +		0.009 [4.62]***						0.008 [3.94]***
EARNSPERS _{it-1}	H3: +			0.000 [2.31]**					0.000 [3.25]**
SPERS _{it-1}	H4: +				0.001 [1.39]				0.001 [3.29]**
DER _{it-1}	H5: +					0.006 [1.78]*			0.021 [4.84]***
RPT _{it-1}	H6: +						0.002 [1.66]*		-0.003 [-1.98]
PC _{it-1}	H7: +							0.011 [4.16]***	0.012 [4.08]***
... All control variables are not presented.									
Wald-Chi ²		563.35***	845.38***	784.81***	664.79***	846.67***	764.04***	887.50***	799.91***
Obs: n		12,341	12,040	11,872	11,438	13,092	13,092	12,153	9623

*, **, *** indicate significance at 0.10; 0.05; 0.01 levels respectively.

Table 5 Sensitivity test results: East Asia.

Variables	Pred.	CAPEX	OVER	EARNPERS	SPPERS	DER	RPT	PC	All
Constant	?	0.107 [27.35]***	0.064 [13.30]***	0.064 [12.94]***	0.133 [11.80]***	0.064 [14.50]***	0.023 [3.70]***	0.091 [7.95]***	0.115 [15.33]***
CAPEX _{i,t-1}	H1: +	0.015 [1.76]*							0.036 [1.81]*
OVER _{i,t-1}	H2: +		0.006 [5.58]***						0.006 [4.17]***
EARNSPERS _{i,t-1}	H3: +			0.000 [8.17]***					0.000 [2.43]**
SPPERS _{i,t-1}	H4: +				0.006 [3.55]***				0.002 [0.92]
DER _{i,t-1}	H5: +					0.017 [5.21]***			0.020 [4.19]***
RPT _{i,t-1}	H6: +						0.004 [2.62]**		-0.006 [-3.27]
PC _{i,t-1}	H7: +							0.001 [0.38]	0.005 [2.38]**
... All control variables are not presented.									
Wald-Chi ²		259.00***	796.46***	844.15***	67.27***	694.45***	804.25***	407.79***	444.13***
Obs: n		23,313	18,204	17,343	14,108	18,355	18,355	18,144	6569

*, **, *** indicate significance at 0.10; 0.05; 0.01 levels respectively.

Table 3 shows the sensitivity testing results of the Southeast Asian sample. According to the regression testing results, the sensitivity results are consistent with previous statistical tests in this study. Furthermore, Table 4 shows the sensitivity test for South Asia samples. This table indicates that the sensitivity test results were identical to the first results in Table 2. However, the SPPERS regression did not offer statistical significance for the South Asia sample or the all-variable model. The researcher argued that stock price persistence in South Asia was not the priority consideration incorporated into policymaking because the economies and capital markets were stable compared to the others. Finally, Table 5 shows the sensitivity results of the East Asia sample. These results confirmed Table 2's regression test results. However, it can be noted that the PC variable was not statistically significant. The researchers argued that the regional economic and social system encouraged fewer political connections that many firms tried to build. Although the sensitivity tests differed from the primary test, these results confirmed consistent findings in all the East Asia samples. Furthermore, this study provided evidence that the seven proxies were good predictors for identifying and analysing the CEOs' tendency to manage future accounting earnings.

Discussion and findings. This study finds that seven measurements of CEOs' overconfidence have high validities in constructing their behaviour to manage future earnings management. Furthermore, it demonstrates that CEOs are bold enough to engage in excessive earnings management due to the historical performances in the accounting numbers (Li and Hung, 2013; Schrand and Zechman, 2012). This research argues that historical accounting performances construct the CEOs' behaviour through experiential values building their cognition, which has highly psychological projections. Moreover, it deepens the research's reasoning that past consistency in accounting performance supports the CEOs' behaviour, so it becomes a habitual method for decision-making in emerging countries (Agénor and Montiel, 2015; Sumiyana, 2020; Sumiyana et al., 2019). Then, long practical habits assemble to cause the CEOs' cognition to lay down their behaviour on organisational culture, especially in managing procedures and policies relating to future accounting earnings.

This study demonstrates CEOs' overconfidence in influencing future earnings management through their cognitive behaviour and organisational culture in emerging economies. Thus, these influences come from self-confidence, self-identity, and both theories (Bandura, 1977; Berzonsky, 1994). Based on the self-confidence theory, the authors argue that capital expenditure, current overinvestment, earnings persistence, stock price persistence, and the debt-to-equity ratio affect the CEOs' cognitive behaviour, having a great deal of belief in their firms' future expected performances. Furthermore, this study infers that past accounting performance accentuates the CEOs' beliefs in their defence mechanism and psychological projection (Holmes, 1968; Malancharuvil, 2004). Moreover, it argues that the CEOs' psychological projection behaviour means they expect to meet the accounting earnings targets without difficulty because they can anticipate environmental uncertainties very well. Conversely, the CEOs get their experiential values because their past performance has confirmed their expectations. Then, their beliefs increased incrementally, making them more overconfident.

Based on the self-identity theory, this research demonstrates that related parties' transactions and political connections construct the CEOs' behaviour in emerging countries regarding their certainty of achieving future earnings targets. Moreover, it highlights that these CEOs can achieve future earnings with their deferrals' or accruals' accounting policies through the medium of their related parties and political connections (Guedhami et al.,

2014; Hendratama and Barokah, 2020; Jackowicz et al., 2014; Lo et al., 2010). Thus, these CEOs can accelerate and increase their firms' revenues with their associated parties. Moreover, they can influence other firms to conduct additional trading transactions embedded in their ownership of political power. Thus, the authors infer that related parties support the CEOs' broad span of control, and the CEOs' authorities are accommodated by political connections assembled by their high self-identity. Furthermore, the authors consider that these supports and accommodations would probably occur in developing countries with high power distance (Boubakri et al., 2012; Chen et al., 2009).

Finally, based on both theories, this study explains that CEOs' self-confidence builds their self-identity in stages (Bandura, 1990). It argues that long-term job incumbency transforms the CEOs' behaviour to enhance their beliefs and then ends with self-identity. The authors assert that the construction of the CEOs' self-identity starts from self-confidence characterised by experiential values. Then, these CEOs add good experiential values by actualising them in their future earnings management. Finally, they repeat their actualised works in the next stage, thus becoming habitual. In the long run, these CEOs' habits change to an internal organisational culture that enhances their self-identity (Ali and Tauni, 2021). Therefore, this study explains that CEOs' self-confidence builds their self-identity and assembles their overconfidence to manage their firms' excessive future earnings.

This study implies the need for regulations to supervise and control the longevity of CEOs' official tenures for firms listed on stock exchanges, especially in developing countries. For example, CEOs' assignments in developed countries are usually five or six years at first and can be offered a second term, such as in the US and UK (Canyon and He, 2012; Murphy and Zabochnik, 2004). Meanwhile, CEO assignments in developing countries, such as Indonesia and China, are for five years at first, but they can be given longer terms on an ongoing basis (Lindrianasari and Hartono, 2012; Liu et al., 2023). Therefore, this research infers that the lenient regulations and official tenures support the CEOs in emerging economies to escalate their self-confidence and self-identity to perform excessive future earnings management (Li and Hung, 2013; McCarthy et al., 2017; Schrand and Zechman, 2012). Therefore, most developing countries need improved regulations to control the CEOs' official tenures and frequent settlements. Then, these regulations can protect investors and creditors from getting asymmetrical information due to the CEOs' overconfidence (Killins et al., 2021). In other words, strict regulation could maintain the conservative value of accounting information that would not directly mislead people about the information's quality.

The second consequence of this study is the influence of CEOs' overconfidence through earnings management on stock prices' glamour value (Malmendier and Tate, 2005, 2008). The authors argue that a higher variance in market values from the fundamental accounting value can mislead investors. Most investors would probably get unreal cash inflows when a misleading stock price occurs due to a CEO's overconfidence. Therefore, the simulated glamour value of the stock price has to be eliminated when the developing countries' regulators want to protect the investors' welfare. In other words, emerging countries' regulators could emphasise good corporate governance, especially fairness, in a practical way (Goel and Thakor, 2008). Consequently, these regulators can further preserve a firm's stock prices or return volatility.

Conclusion and limitations

This research supports the conclusion regarding CEOs' overconfidence in engaging in future excessive earnings management. Meanwhile, it helps to have a single proxy, such as capital expenditure and the six other proxies representing the CEOs'

overconfidence: overinvestment, earnings persistence, stock price persistence, debt to equity ratio, related party transactions, and political connections. Theoretically, this research comprehends the CEOs' overconfidence because of self-confidence, self-identity, and the combination of both theories. In particular, it infers that self-confidence, self-identity, and CEO tenure regulation play pivotal roles in shaping their risk and opportunities controls, which, in turn, influence their investment decisions and accounting policies. Furthermore, it demonstrates that multiple perspectives can explain CEOs' overconfidence and the suggestions in some extant research. Finally, this study implies the need for supervision and regulation to control CEOs' tenures, especially in some developing countries. Moreover, capital markets in emerging countries should recommend additional disclosures related to this study's measurements to reduce glamorous stock prices. This disclosure supports listed firms in achieving good corporate governance, especially concerning fairness.

This study recognises that other measurements could explain the CEOs' overconfidence and vice-versa, leading to the endogeneity problem, especially in quantitative cross-country research. Likewise, we did not test this endogeneity issue statistically. In other words, the authors acknowledge the study's limitations after finishing its research design. Then, the authors open future research possibilities to investigate earnings acceleration affecting CEOs' overconfidence. Moreover, this study poses challenges for exploring CEOs' overconfidence using experimental research designs taking these other proxies. By this means, the transformation process of each proxy measurement becomes instrumental in experimental research.

Data availability

The datasets generated during and/or analysed during the current study are available from the corresponding author upon reasonable request.

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Author contributions

All authors contributed significantly to an article and approved the submitted version. • Contributors to the concept or design of the article: SS and AN. • Contributed to the analysis and interpretation of data for the study: SS, AN, HLN, and FK. • Drafting work or critically revising it for important intellectual content: SS, HLN, and FK. • Final approval of the version to be published: SS, HLN, and FK. • Agreement to be responsible for all aspects of work in ensuring that questions regarding the accuracy or completeness of any part of work are properly investigated and resolved: SS, HLN, and FK.

Competing interests

The authors declare that they have no competing interests.

Ethics approval

This study has no ethical issues due to not using human bodies, plants, and animals.

Informed consent

This study has no ethical issues due to not using human bodies, plants, and animals.

Additional information

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