Business group opportunism: the difference in real earnings management between parent firms and nonparent firms

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Abstract

Purpose – This paper aims to understand real earnings management behavior in the context of a parent–subsidiary relationship. It explores the differences between business groups and firms that do not have controlled subsidiaries and provides potential explanations for any measured difference.

Design/methodology/approach – The study uses the random-effects generalized least squares (GLS) estimation to find the difference between the real earnings management behavior of business groups, represented by the ultimate parent firms and the nonparent firms from 73 countries.

Findings – The results show that ultimate parent firms have lower abnormal production costs and abnormal discretionary expenses than nonparent firms. In contrast, parent firms have higher abnormal cash flow from operations (CFO) than nonparent firms. The results are unexpected because abnormal production costs usually have a dominant direct relationship with abnormal CFO. The results indicate that business groups use a route different from manipulating production costs and discretionary expenses.

Research limitations/implications – The results reveal that parent firms use a route different from manipulating production costs and discretionary expenses. The results can be used to extend the discussion to specific business group cases, such as tracing the route or allocation of real earnings management (REM) pressure from a parent firm to its listed and private subsidiaries, and if the consolidation of minority voting rights and the transitivity of control affect the behavior in its subsidiaries.

Originality/value – Instead of the degree of diversification or affiliation, this paper investigates REM behavior based on the parent firm's control of its subsidiaries. With this approach, the study argues that business groups prefer a route other than manipulating production costs and discretionary expenses. The results may redirect the attention of regulators to the activities of parent firms that need more policing.

Keywords Real earnings management, ICRG, Business groups, Nonparent firms, Orbis, Parent firms

Paper type Research paper

1. Introduction

The earnings management behavior in business groups is traditionally explored based on the entity's size and the degree of diversification, which is usually measured by the reporting entity's number of segments. The discussion revolves around the use of segments as a mechanism of managers to pursue while, at the same time, hiding traces of earnings management. Despite the continuous improvement in reporting standards, segment reporting remains vague. Business groups can still harness this management discretion to manage earnings, but detection models may not effectively measure the relationship.

A common approach in the literature is to use accrual-based earnings management, hereafter referred to as AEM. However, prior studies argue that AEM has been in decline because recent regulations have a more intensified focus on preventing and detecting

abnormal accruals. More regulated business groups, in particular, can be more inclined to take alternatives such as real activities manipulation or real earnings management, hereafter referred to as REM.

A second cluster in the literature involves a few recent studies that explore earnings management in business groups in the context of parent–subsidiary links, but their limitation is that AEM and REM are measured only at the subsidiary level (e.g. Bonacchi *et al.*, 2018). Those that capture the parent level or the consolidated business group financial statements estimate only the levels of discretionary accruals and not REM (e.g. Beuselinck *et al.*, 2019). If REM is ever measured, these studies define business groups in the context of diversification. Therefore, this study serves as the starting point for more exciting topics that probe the channels leading to REM behaviors in business groups.

This study postulates that business groups and firms without subsidiaries have different levels of REM, and that this difference in behavior can be examined more effectively by distinguishing a business group based on the existence of control and not merely diversification. The results confirm the expectation, but in conflicting patterns, business groups have higher abnormal cash flow from operations (CFO) but lower abnormal production costs and discretionary expenses. This pattern is unexpected because the standard view is that a higher abnormal CFO usually indicates higher abnormal production costs. A higher abnormal discretionary expense has an offsetting effect because its direction is opposite that of abnormal production costs, but the abnormal production costs should still dominate the aggregate effect. If this pattern breaks, then there must be a preference for a strategy, an opportunity outside of the realm of manipulating production costs and discretionary expenses. The results invite further investigation of the sources that business groups use, which, in turn, funnel into this pattern of behavior. There may also be a need to review policies that concern business groups, particularly whether parent firms need more intensified policing.

The rest of this paper is organized as follows: the next section reviews the prior literature, the third section develops the hypothesis, the fourth section describes the research design and the sample selection, the fifth section discusses the results, the sixth section analyzes the sensitivity of the results to other variables and approaches and the last section addresses some limitations and provides the concluding remarks.

2. Literature review

Earnings management occurs when there is an incentive, motivation or stimulus that creates the intent to engage in such behavior. With respect to business groups, the incentives to manage earnings may not be very much different from the rest of the population of firms; business groups also face market forces and the regulatory environment, which could be idiosyncratic or external. The likely difference with business groups is how the enabling environment, such as the scale, affects firm behavior. The effect of firm size on earnings management has been contradictive. On the one hand, large firms may have more means to play around the accounting rules and manipulate earnings (Richardson *et al.*, 2002). On the other hand, large firms are highly susceptible to stringent rules and public scrutiny, making it more difficult to manage earnings (Lee and Choi, 2002). Larger firms are also harder to manage, so there are more incentives tied to executive compensation (Healy and Palepu, 2001). The contradicting results indicate that the behavior does not depend entirely on size.

It is noteworthy that prior studies approach earnings management in business groups in two ways: in terms of diversification and the parent–subsidiary context. The former is partly due to the idea that earnings management finds its way along the extensive network of operating segments. In this diversification context, earnings management is usually explained as a factor of the firm's agency costs and proprietary costs. The agency costs

argument concerns managers distorting the firm's real economic results to create a better impression on stakeholders (Rajan *et al.*, 2000). In contrast, the proprietary cost argument relates to the competitive harm that transparent financial statements create as some crucial information would be revealed to the firm's competitors. The results of research about agency and proprietary costs are contrasting; for example, Berger and Hann (2007) find that with agency costs, managers fail to disclose important information about poor-performing segments. However, they find inconsistent evidence that proprietary costs hide profitable segments. Botosan and Harris (2000) also suggest no difference in proprietary costs and the frequency of voluntary segment disclosures. Even in studies that make no distinction between the incentives, some show that diversified firms have better earnings quality (e.g. Jinaporn *et al.*, 2008), while there are results that reveal the opposite (e.g. Demirkan *et al.*, 2012).

Information asymmetry is also a common concern in diversified business groups. Business groups are required to make disclosures about their operating segments to mitigate the problem. Most generally accepted accounting principles (GAAP), however, prescribe a management approach in identifying reportable segments [1]. For example, business units can be combined as long as they have similar economic characteristics. Therefore, a parent firm can disclose disaggregated information in many ways, such as according to products and services, by geography or by type of customer. This very nature of reporting requirements creates an issue about whether the properties and number of operating segments are enough to reduce information asymmetry in business groups.

Despite reporting requirements, issues about information asymmetry still linger. Richardson (2000) documents a positive association between discretionary accruals and the bid-ask spread, a proxy for information asymmetry. Krishnaswami and Subramanian (1999) find that information asymmetry decreases as segments become independent entities, suggesting that segment reporting has not made much progress in narrowing information asymmetry.

The second cluster of studies tackle business groups in terms of parent–subsidiary relationships, but these focus more on the subsidiary's earnings management behavior. For example, Bonacchi *et al.* (2018) find that AEM and REM in first-level private subsidiaries in Italy are higher if the business group's parent is suspect of earnings management. The REM in the study, however, includes the abnormal CFO but excludes the other two decompositions: abnormal production costs and discretionary expenses. Earnings management in parent firms, in this case, is measured by whether they meet or beat some earnings benchmark, such as analyst forecasts or loss avoidance. They also find that private subsidiaries of parent firms audited by a Big-4 firm have less AEM, and that the parent firm coordinates earnings management by assigning representatives on the subsidiary's board.

A related study on multinational corporations (MNCs) finds that the home country's institutional quality affects where to direct the influence to manage earnings (Beuselinck *et al.*, 2019). According to their study, in MNCs whose home country has a high institutional quality, earnings management is higher in subsidiaries domiciled in locations with low institutional quality. They also find that the transitivity of control, for example, from a parent to a level 1 subsidiary's control in a level 2 subsidiary and so on, affect the earnings management in the MNC. However, their approach ignores the potential effect of the incentives on REM. Another study on business groups finds that earnings quality is worse in subsidiaries wherein the managers have more control rights but less cash flow rights (Kim and Yi, 2006). However, its focus is on subsidiary affiliations, which may not refer to actual ownership of stocks and the consolidation of financial statements.

There appears to be a gap in the literature. Evaluating business groups in terms of their operating segments does not seem well suited because of the reporting standards' limitations. Heavy reliance on segment disclosures could be problematic because models tested on group

financial statements may not even detect earnings management as the discretion is on the disclosures not accounting.

There is also a dearth of research that examines the REM behavior in business groups, despite REM being more prevalent due to audit standards and regulations targeting AEM. Finance executives have even admitted in a survey their willingness to engage in REM despite the risks (Graham *et al.*, 2005). There are cases where REM was more prominent (e.g. Cohen and Zarowin, 2010), where REM was used in conjunction with AEM, or where REM was used as a more practical alternative depending on the firm circumstance (e.g. Cohen *et al.*, 2008). REM is particularly interesting in studying business groups because real activities are more difficult to trace, especially in transnational operations, and that any manipulation is not easily detected through their regular financial disclosures. Bonacchi *et al.* (2018) capture REM only at the subsidiary level, whereas Beuselinck *et al.* (2019) cover the parent level but only with AEM behavior. This study tries to fill this gap with an approach that entails parent level and REM behavior.

3. Hypothesis
Business groups should be studied in a way that covers their control of subsidiaries. Through this, one can explore the other features that are exclusive to business groups. For example, a business group is usually required to produce a consolidated financial statement of all the group's controlled units. In the United States, a general rule is that a parent firm that holds at least 50 percent of the outstanding voting shares is presumed to have control over a subsidiary firm [2]. This rule could be used as an alternative route for earnings management. The consolidation route does not always work in multi-segment firms, as a single subsidiary can have multiple segments, a segment can include multiple subsidiaries or a reporting company can have multiple segments but no subsidiaries at all.

The consolidated financial statements of every listed company serve the market in many ways. For one, financial analysts depend on these reports in making their earnings forecasts. The managers know that the investors respond to whether earnings meet forecasts (Kasznik and McNichols, 2002; Barth *et al.*, 1999; Skinner and Sloan, 2002), so they manage earnings to meet the earnings benchmarks. Managers may believe that the analysts will likely rely heavily on the aggregated values if segment disclosures are limited. Meanwhile, it is also reasonable to think that the market participants may believe that the consolidated reports result from earnings management within a group. However, as Dechow and Skinner (2000) explain, the literature has evidence that the market participants are "fooled" by earnings management, and the correction only appears after earnings management is revealed. Therefore, the parent firm may allocate earnings management tasks to its controlled subsidiaries. One study finds that US multinational companies allocate decision rights based on a foreign subsidiary's performance (Robinson and Stocken, 2013). Consolidating the results will allow the business group to mask each firm's earnings management.

In contrast, firms with no subsidiaries have limited options because they cannot use the consolidation route. They would have no choice but take the risk within a single entity. It appears that there is this strand of difference between the abilities of the ultimate parent [3] firms in business groups and the daughterless or nonparent firms in practicing earnings management. Hence, the hypothesis in its alternative form is stated as follows:

H1A. There is a significant difference in the degree of real earnings management between listed parent firms and listed firms with no subsidiaries.

An ultimate parent firm is preferred over just a regular parent firm because the subject is the business groups as a whole, as compared with nonparent firms. If they are different, and no

other items create an incentive that is exclusive to one but not both, then the root of the difference must be the very nature of parent firms that border nonparent firms.

4. Research design and data

4.1 Measures of real earnings management

Roychowdhury (2006) developed three models that estimate the abnormal levels of CFO, production costs and discretionary expenses. I follow this same approach by taking the difference between the actual levels and the estimated normal levels to obtain the proxies for the dependent variable REM. The following model estimates the normal level of CFO:

$$\frac{\text{CFO}_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \beta_1 \frac{\text{Sales}_t}{A_{t-1}} + \beta_2 \frac{\Delta \text{Sales}_t}{A_{t-1}} + \varepsilon_t, \tag{1}$$

where CFO_t is the cash flow from operations of the firm, A_{t-1} is the lagged total assets of the firm, Sales_t is the sales of the firm and ΔSales_t is the one-year change in sales of the firm.

The following model estimates the normal level of production costs:

$$\frac{\text{Prod}_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \beta_1 \frac{\text{Sales}_t}{A_{t-1}} + \beta_2 \frac{\Delta \text{Sales}_t}{A_{t-1}} + \beta_3 \frac{\Delta \text{Sales}_{t-1}}{A_{t-1}} + \varepsilon_t, \tag{2}$$

where Prod_t is the sum of the cost of goods sold and the change in inventory of the firm, and $\Delta \text{Sales}_{t-1}$ is the lagged change in sales of the firm.

The following model estimates the normal level of discretionary expenses:

$$\frac{\text{DisExp}_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \beta_1 \frac{\text{Sales}_{t-1}}{A_{t-1}} + \varepsilon_t, \tag{3}$$

where DisExp_t is the sum of research and development expense and other operating expenses [4] of the firm, and Sales_{t-1} is the lagged sales of the firm.

The residuals from the cross-sectional regression, with at least ten observations for every industry and year of the above models, represent the abnormal levels of REM. Low values of the residuals in models (1) and (3) are usually interpreted as indicative of high REM [5]. The values are thus multiplied by -1 such that the interpretation is the same with model (2), where a higher (lower) value indicates higher (lower) REM.

4.2 Model specification

This study takes each of the measures of REM as a dependent variable. An independent variable of interest is Parent, which is a dichotomous grouping of the firms that exhibit the innate characteristics of ultimate parent firms and firms with no subsidiaries. This distinction is important because their respective characteristics confine them from firms that are both a subsidiary and a parent. As previously noted, these firms are different from the population of listed firms in that a parent firm has control of its subsidiaries, and it consolidates financial statements and potentially earnings management results, while a firm with no subsidiaries has to rely solely on its operations and has only one set of financial reports.

Nonetheless, it is given that there must be unknown characteristics common to parent firms and absent in nonparent firms. To test the hypothesis, I have to isolate any of these potential differences between parent firms and nonparent firms that could influence their earnings management choices. What should be left that distinguishes the two is that unique feature where one group has controlled subsidiaries and the other group has none.

The model controls for variables that have been previously posited in the literature to affect earnings management decisions. These include the firm's size, FirmSize, measured by

the natural log of the firm's total assets and the degree of accrual-based earnings management, AEM, which is traditionally estimated using the modified Jones (1991) model introduced by Dechow *et al.* (1995). As discussed in the literature review, some firms may decide to use only one of the two or to complement AEM with REM. However, because of the lack of an established relationship between the two, the direction of its coefficient cannot be predicted. The absolute value of the unstandardized residuals derived from a cross-sectional regression for each industry and year of the following modified Jones (1991) model, which includes an intercept as suggested by Kothari *et al.* (2005), is the proxy for the magnitude of variable AEM:

$$\frac{\text{TACC}_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \beta_1 \frac{\Delta \text{REV}_t - \Delta \text{REC}_t}{A_{t-1}} + \beta_2 \frac{\text{PPE}_t}{A_{t-1}} + \varepsilon_t, \qquad (4)$$

where TACC_t is the total accruals or the difference between earnings after tax [6] and CFO of the firm, ΔREV_t is the change in revenues of the firm, ΔREC_t is the change in net accounts receivable of the firm and PPE_i is the net property, plant and equipment of the firm, all in fiscal year t.

Leverage is also commonly used as a proxy for the presence of debt covenants, which become tighter as firms report net losses. However, as Roychowdhury (2006) points, leverage is not the best proxy because it is not highly correlated with debt covenants' existence. Likewise, debt covenants may take effect even when the debt–equity ratio is low, and the degree of the impact of these covenants to the firm depends on the size of debt. Therefore, I use the total debt scaled by total assets to measure DebtSize, which raises the likelihood that a firm manages its earnings upward.

There is a tendency that institutional investors like banks and insurance companies reduce their investments in a certain firm once losses are incurred, which could pressure investee firms to manage earnings upward. However, more studies show that earnings quality is positively associated with institutional ownership (Jiambalvo *et al.*, 2002; Bushee, 1998) because most sophisticated investors have more tools to analyze and understand their investee firms' future growth prospects. Manipulated earnings may not fool investors into believing a firm's fabricated condition, so investee firms may be more discouraged to practice earnings management. The pressure to avoid earnings management could depend on the existence of influence of the investor. Therefore, I consider shareholders classified as banks, financial and insurance companies, private equity firms, hedge funds, venture capital or mutual funds with aggregate ownership of at least five but no more than 50% as institutional investors [7]. The total number of shareholders that meets these criteria is the proxy for institutional ownership or InstOwn.

The growth prospects of a firm could also be an incentive to manage earnings. If the market overvalues a firm, the managers may be more inclined to fulfill and maintain the firm's growth potential. To do this, the firms may commit to more earnings management. Because some firms report negative book values, I only consider zero and positive market-to-book ratio, MB, as the proxy for a firm's growth prospects.

Other than firm-specific characteristics, the firm's external environment is also an important factor influencing their behavior. Some countries may be too risky or too loose, and that operating in such an environment could adversely affect the response of managers. Because a lot of innate features are found in every country, the model must somehow account for these differences. The literature suggests that a well-functioning legal system reduces management opportunism (La Porta *et al.*, 1997; Leuz *et al.*, 2003). A dummy variable for the countries would be necessary, but it would also be worthwhile to confirm the association between the country's environment and earnings management. The International Country Risk Guide [8] or ICRG provides an updated array of risk ratings of countries. One of the

political risk rating components is law and order, which rates the strength and observance of the legal system in a country from 1 to 6, with six being the strongest. I find this score to adequately represent InstQual or the institutional factors, such as the protection of investors, enforcement of contracts, bureaucracy and the general rule of law.

Although the effect is still not apparent, the economic environment is also a reasonable control. Some studies have used the generic gross domestic product (GDP) growth rate as a proxy, but firms also tend to respond according to other economic indicators. ICRG's economic risk rating composed of five indicators—GDP per head, real GDP growth, inflation, budget balance to GDP and current account to GDP— and appears to be a better measure of the risks associated with the general macroeconomic stability of a country. This composite rating ranging from 0 to 100, with 100 being the lowest risk, is the model's proxy for the economic environment or Econ.

With reference to the discussions above, the model takes its final form as follows:

$$\begin{aligned}\text{REM}_{it} = {} & \alpha + \beta_1\text{Parent}_i + \beta_2\text{AEM}_{it} + \beta_3\text{FirmSize}_{it} + \beta_4\text{DebtSize}_{it} + \beta_5\text{InstOwn}_{it} \\ & + \beta_6\text{MB}_{it} + \beta_7\text{InstQual}_{it} + \beta_8\text{Econ}_{it} + \varepsilon_{it}.\end{aligned} \quad (5)$$

The random-effects generalized least squares (GLS) estimation of the above model is preferred as the Breusch-Pagan (1980) Lagrange multiplier test yields a significant difference with the pooled ordinary least squares (OLS) regression residuals [9]. The random-effects estimation should account for the missing variables that are specific to the firms and are not correlated with the control variables but still affect the REM behavior of the firms. Holding other variables constant while accounting for random firm effects, the coefficient of Parent should be significant if a statistical difference exists between the REM of ultimate Parent firms and firms with no subsidiaries.

4.3 Sample
The sample of firms and their financial data was obtained from Bureau van Dijk's Orbis database, while the country risk data were retrieved from ICRG. To be in the sample, the firm must be publicly-listed, should have available accounts from 2015 to 2019 and must be classified under North American Industry Classification System (NAICS) 2017 with primary codes in either manufacturing, wholesale trade or retail trade sectors.

The model requires that the sample is subdivided into parent firms and nonparent firms. To be a parent firm, it must meet the description of an ultimate owner, where at least 50 percent must be the path from a subsidiary to the ultimate owner [10]. The minimum of 50 percent limits the sample to only parent firms with controlled subsidiaries through voting rights and whose earnings are consolidated to the group financial statements. In contrast, in the sample of nonparent firms, a firm must have zero subsidiaries. Only 6,987 firms meet the criteria of a parent firm, and only 1,514 firms are categorized as nonparent firms, all from 73 countries. The Appendix (https://tinyurl.com/y3m6a9ux) lists the countries and the number of parent and nonparent firms in the sample.

Table 1 shows the results of a preliminary test of difference between the two groups in terms of the three measures of REM [11]. The abnormal CFO is higher in parent firms, but they also have lower abnormal production costs and abnormal discretionary expenses. Table 2 summarizes the descriptive statistics for the control variables. It appears that the distribution of AEM and the MB are skewed. Although the average magnitude of AEM is low, a few firms have noticeably very high levels. The average MB is also low at 0.003, but some are growth firms with a market valuation that could be four times the book value. The average number of institutional shareholders is 2.3, while many firms have none. There are a few firms that seem to be crowd-pleasers, with owners reaching a total of 54.

Table 3 presents the correlation between the variables. Consistent with Ge and Kim (2014), the table shows a positive correlation between REM1 and REM2, a negative correlation between REM1 and REM3 and a positive correlation between REM2 and REM3. The dependent variables are also correlated with the control variables, except for *MB* and *Econ* in REM1 and AEM and FirmSize in REM2.

5. Results

Table 4 presents the coefficients, robust standard errors and significance of each variable in the random-effects regression with the three REM proxies. The table shows that with regard to the control variables, first, firm size confirms the prediction only in the levels of abnormal production costs and abnormal discretionary expenses. Larger firms may have used both AEM and REM, so size has not produced a positive relation with abnormal CFO.

The results also show that debt size is positively associated with all REM proxies, which means that debt may motivate firms to manage earnings before the existing debt covenants tighten due to weak performance, say a net loss. The number of institutional owners also reduces REM in terms of abnormal production costs and abnormal discretionary expenses.

As expected, higher institutional quality reduces REM but only in terms of abnormal production costs and abnormal discretionary expenses. Similarly, a strong economy is positively associated with high levels of abnormal CFO and abnormal production costs. Interpreted differently, a weak economy has a systematic effect and does not motivate executives to manage earnings.

The results also show that a high MB reduces abnormal discretionary expenses and is not a significant predictor in the other two models. The result is not unusual because, as Cohen and Zarowin (2010) note, real activities manipulation is not a year-end earnings management option. Since the MB is a variable measured at year end, most of those executives' adjustments are likely from discretionary accruals.

Finally, back to the hypothesis, even after controlling for major factors that influence REM behavior, the results confirm the expectation that the earnings management behavior of parent firms and nonparent firms are different. The results, however, reveal that the choice of

Variable	Nonparent firms			Parent firms			Difference	$p>\lvert t\rvert$
	N	Mean	SD	N	Mean	SD		
REM1 (Ab_CFO)	3,688	−0.019	0.192	25,120	−0.002	0.194	−0.017	0.000
REM2 (Ab_Prod)	2,780	0.053	0.250	18,696	−0.009	0.217	0.062	0.000
REM3 (Ab_DisExp)	3,266	0.133	0.822	17,064	−0.015	0.743	0.148	0.000
Note(s): Assuming unequal variance								

Table 1.
Test of difference between the REM of non-parent firms and parent firms

Variable	N	Mean	SD	Min	Max
AEM	28,855	0.074	0.212	0.000	17.769
FirmSize	28,855	12.537	1.977	4.381	19.835
DebtSize	28,855	0.441	0.206	0.005	0.999
InstOwn	28,855	2.338	3.785	0	54
MB	28,855	0.003	0.031	0.000	4.115
InstQual	28,855	4.357	0.982	2	6
Econ	28,855	40.109	3.110	15	47

Table 2.
Descriptive statistics

	REM1	REM2	REM3	AEM	FirmSize	DebtSize	InstOwn	MB	InstQual	Econ
REM1	1									
REM2	0.184***	1								
REM3	−0.318***	0.382***	1							
AEM	0.202***	−0.003	−0.108***	1						
FirmSize	−0.177***	−0.004	0.061***	−0.149****	1					
DebtSize	0.234***	−0.034***	−0.134****	0.267****	−0.000	1				
InstOwn	−0.060***	−0.187***	−0.072***	−0.035****	0.456***	0.026**	1			
MB	−0.000	−0.078***	−0.041***	0.024***	−0.014	−0.000	0.032***	1		
InstQual	0.060***	−0.145****	−0.111****	−0.018*	0.190***	0.002	0.194***	−0.006	1	
Econ	0.008	−0.023**	−0.050***	−0.057****	0.166***	−0.056****	−0.048****	−0.012	0.586***	1

Note(s): $*p < 0.1$, $**p < 0.05$ and $***p < 0.01$

Table 3.
Pearson correlation

	Ab_CFO	Ab_Prod	Ab_DisExp
Parent	0.045* (0.006)	−0.079* (0.008)	−0.144* (0.017)
AEM	0.313* (0.105)	0.027 (0.030)	−0.507* (0.172)
FirmSize	−0.015* (0.002)	0.017* (0.002)	0.017* (0.004)
DebtSize	0.061* (0.012)	0.161* (0.016)	0.194* (0.033)
InstOwn	0.000 (0.001)	−0.012* (0.001)	−0.013* (0.002)
MB	0.002 (0.044)	−0.190 (0.184)	−1.129* (0.363)
InstQual	0.004* (0.002)	−0.030* (0.003)	−0.044* (0.007)
Econ	0.002* (0.001)	0.003* (0.001)	−0.001 (0.002)
Intercept	−0.027 (0.045)	−0.144* (0.042)	0.190 (0.140)
Year	Yes	Yes	Yes
Firm clusters	Yes	Yes	Yes
No. of observations	28,808	21,476	20,330
R^2	0.115	0.081	0.032
ρ	0.444	0.779	0.098
Breusch–Pagan LM test $p > \bar{\chi}^2$	0.000	0.000	0.000

Note(s): Robust standard errors in parentheses *$p < 0.01$

Table 4.
Results of regression

real activities manipulation differs between the groups. Nonparent firms have more abnormal production costs and abnormal discretionary expenses, whereas parent firms have more abnormal CFO.

It is natural to expect that a parent firm with lower abnormal production costs compared to nonparent firms would have a relatively lower abnormal CFO. Relatively lower abnormal discretionary expenses could partially offset this effect, but the net effect—to parent firms relative to nonparent firms—stays such that abnormal CFO in parent firms should still be lower. However, this is not the case here, as evident in the different signs of the coefficients. Therefore, the reversal occurs through another earnings manipulation strategy, which does not originate from production costs or discretionary expenses. For instance, this scenario could imply that parent firms, relative to nonparent firms, manipulate sales—such as in the form of expanded sales discounts and more lenient credit terms—more than production costs and discretionary expenses.

6. Sensitivity analysis
Other studies have various versions of the REM proxy by taking the sum of two (e.g. Zang, 2012) or all the three measures (e.g. Ge and Kim, 2014). Following the latter, I add the abnormal CFO, abnormal production costs and abnormal discretionary expenses to create the inclusive measure, RealREM. Table 5 shows the results of the random-effects GLS regression on the new proxy. Just like the results for the individual measures, the coefficient of the variable of interest is also statistically significant. The sign is negative, indicating that parent firms have less REM than nonparent firms. The estimated difference is not easy to interpret because, as shown in the previous regressions, the sign of two of the components varies from the other. However, what is clear is that despite an observable preference of REM and the blurring of the aggregate REM, the evidence of a difference in behavior between the groups persists.

To verify this difference, I estimate the propensity scores of each firm-year and calculate the difference between the treatment group or parent firms and the control group or nonparent firms, using the Becker and Ichino (2002) module for nearest neighbor matching method with 100 bootstrapping replicates. Table 6 shows the results for each REM proxy, including RealREM. Both abnormal production costs and discretionary expenses are lower

	Coefficient	Robust std. error
Parent	−0.154*	0.020
AEM	0.166	0.170
FirmSize	0.028*	0.005
DebtSize	0.181*	0.038
InstOwn	−0.025*	0.002
MB	−1.734*	0.577
InstQual	−0.047*	0.009
Econ	0.000	0.002
Intercept	0.204	0.128
Year		Yes
Firm clusters		Yes
No. of observations		14,964
R^2		0.058
ρ		0.537
Breusch–Pagan LM test $p > \bar{\chi}^2$		0.000

Note(s): *$p < 0.01$

Table 5.
Results of regression on RealREM

	Difference	Std. Error	t
Ab_CFO	0.005	0.008	0.621
Ab_Prod	−0.045*	0.018	−2.469
Ab_DisExp	−0.054*	0.026	−2.074
RealREM	−0.093*	0.044	−2.135

Note(s): Difference is the average treatment effect on the treated (ATT) estimated using nearest neighbor matching method. Standard errors are bootstrapped with 100 replications. *$p < 0.05$

Table 6.
Results of propensity score matching

in parent firms. The overall measure is also significantly lower in parent firms. Abnormal CFO is higher in parent firms, but this difference is not statistically significant. As previously explained, abnormal CFO is jointly affected by production costs and discretionary expenses. When combined with sales manipulation, there may be an offsetting effect that eventually reduces the significance of the difference in terms of abnormal CFO. The blurring of the statistical significance and the unexpected direction of abnormal CFO prove that the usual models do not accurately detect all real activities opportunism in business groups.

7. Summary and conclusion
This study took a different approach to understand business groups' earnings management behavior. Instead of diversification within groups, I focused the analysis on parent–subsidiary control, and instead of accrual-based earnings management, I argued that real earnings management has more applicability.

One clear limitation is that control was defined to refer only to majority voting rights. Both IFRS and the US GAAP require additional tests that demonstrate control. In some cases, even a minority shareholding has control of another firm. However, there is an attached burden of proof whenever a reporting entity claims that a minority interest has control and a majority interest has none. The traditional voting rights approach is still appropriate because the exceptions are rare, and firms generally follow the safest rule that shows the existence of control.

The results of the study are consistent with the hypothesis, but the sign of the difference poses striking new insights. The relatively higher abnormal CFO and lower abnormal production costs and abnormal discretionary expenses of the business groups could be a collective effort within the firms potentially because it is more convenient for subsidiaries in a business group to manage sales or revenues instead of manipulating production and discretionary expenses, which could be tightly intertwined with other subsidiaries. In contrast, the nonparent firms only have unconsolidated or self-sufficient, unpressured, market-driven financial reports, which are essential descriptors of the study's control group. Regulators can, therefore, use the results to determine which activities of parent firms are more prone to opportunism and will need more monitoring and control.

The results also forge new topics for future research. As it merely answers the question of what types of real earnings management occur in ultimate parent firms, the next step now is to drill down the hierarchy and explore earnings management in subsidiaries as it relates to the parent firm's REM behavior. A refined approach is to adjust and follow along the recent studies of Bonacchi *et al.* (2018) and Beuselinck *et al.* (2019). For example, the degree and choice of earnings management could depend on whether the group has publicly-listed, privately-held subsidiaries or both. Although related studies have found that private firms have poorer earnings quality, there is no evidence yet of how the aggregate REM of a parent firm channels to business groups with both public and private subsidiaries. There is also the case of the consolidation of minority voting rights of level 1 subsidiaries to gain majority control of a level 2 subsidiary and the transitivity of control from a parent to other members of the business group that may have variable associations with the parent firm's REM behavior.

Admittedly, this study could not address many questions, which should be reserved for future investigations. Nonetheless, this study, hopefully, has been able to describe the earnings management behavior of business groups in another dimension.

Notes

1. IFRS 8 also states that disclosure is based on internal management reports.

2. ASC 810-10-15 (https://asc.fasb.org/imageRoot/92/63493892.pdf).

3. Ultimate owner is used in the Orbis database to refer to the highest-level parent or technically the business group as a whole.

4. The Orbis database only provides other operating expenses, instead of selling, general and administrative expense. The absolute values were used because all expenses are negative by default.

5. Low CFO could be due to efforts to temporarily increase sales and production. In contrast, reducing discretionary costs could increase CFO. However, the net effect is likely dominated by sales manipulation and overproduction.

6. Earnings after tax is not the same as net income in Orbis and is comparable to earnings before extraordinary items.

7. Ownership of more than 50 percent excludes investors that control, instead of just influence, the decisions of the investee firm. It is also somehow not feasible because the sample includes ultimate parent firms.

8. ICRG has been a reliable resource for many policy studies. For more information, check the publisher's methodology: https://www.prsgroup.com/wp-content/uploads/2012/11/icrgmethodology.pdf.

9. Fixed-effects estimation is not an option because the variable of interest is time-invariant.

10. Voting rights is not an exclusive requirement to demonstrate control in both IFRS and US GAAP but including the other rules in this study would be difficult.

11. The total firm-year observations are different in each test because some of the *REM* estimation models require lagged values.

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(The Appendix follows overleaf)

Appendix
Sample distribution by country

Country	Nonparent firms	Parent firms	Total
Argentina	10	14	24
Australia	5	236	241
Austria	0	12	12
Bangladesh	60	15	75
Belgium	0	15	15
Brazil	4	52	56
Bulgaria	4	1	5
Canada	10	185	195
Chile	0	32	32
China	195	1,846	2,041
Colombia	1	15	16
Costa Rica	0	2	2
Croatia	1	8	9
Cyprus	0	3	3
Denmark	2	33	35
Egypt	21	20	41
El Salvador	1	0	1
Estonia	1	3	4
Finland	0	61	61
France	5	69	74
Germany	1	99	100
Ghana	4	0	4
Greece	1	15	16
Hong Kong, SAR	0	24	24
Hungary	1	4	5
Iceland	0	6	6
India	2	3	5
Indonesia	20	48	68
Ireland	0	24	24
Islamic Republic of Iran	17	5	22
Israel	3	43	46
Italy	1	34	35
Jamaica	6	9	15
Japan	5	299	304
Jordan	3	6	9
Kuwait	1	10	11
Latvia	1	1	2
Lithuania	0	3	3
Luxembourg	0	8	8
Malaysia	1	119	120
Mexico	0	20	20
Mongolia	33	1	34
Morocco	2	2	4
Netherlands	0	36	36
New Zealand	0	21	21
Nigeria	15	12	27
Norway	0	18	18
Oman	3	6	9
Pakistan	131	55	186
Philippines	2	5	7
Poland	7	73	80

Country	Nonparent firms	Parent firms	Total
Portugal	0	3	3
Qatar	1	3	4
Republic of Korea	426	519	945
Romania	12	9	21
Russian Federation	35	62	97
Saudi Arabia	8	22	30
Singapore	1	131	132
Slovakia	2	1	3
Slovenia	1	4	5
South Africa	0	30	30
Spain	0	26	26
Sri Lanka	0	1	1
Sweden	16	139	155
Switzerland	0	69	69
Taiwan	61	849	910
Thailand	34	235	269
Turkey	19	67	86
Ukraine	7	22	29
United Arab Emirates	4	6	10
United Kingdom	3	186	189
United States of America	19	797	816
Vietnam	285	175	460
Total	*1,514*	*6,987*	*8,501*

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