

The Effects of Relaxing the Reconciliation Requirement in Foreign Private Issuers' SEC Filings on Earnings Management Strategies: IFRS Adopters versus U.S. GAAP Adopters

美國證管會鬆綁外國公司編制調節表對採用 IFRS 或 U.S.GAAP 公司之盈餘管理策略的影響

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Abstract

We investigate the earnings management potential of allowing non-U.S. cross-listed firms to choose International Financial Reporting Standards (IFRS) reporting following the Securities and Exchange Commission's (SEC's) elimination of the IFRS-to-U.S.-GAAP reconciliation requirement in 2007. We also investigate whether differences exist between earnings management strategies for firms whose filing choice is most likely attributable to the SEC's regulatory change (i.e., firms that switched to IFRS voluntarily from local standards after the elimination) and those for firms that adopted U.S. GAAP voluntarily after the elimination. We find evidence of simultaneity and substitution between discretionary accruals and real activities manipulation (i.e., abnormal production costs and discretionary expenditures) for the two test samples of IFRS adopters and U.S. GAAP adopters. Nevertheless, in contrast to strategies for voluntary IFRS adopters after the elimination, our findings from additional analyses reveal that simultaneous (before the balance sheet date) and sequential (after the balance sheet date) decision processes (i.e., recognizing discretionary accruals and real activities manipulation in order to achieve expected earnings targets) co-exist in firms voluntarily adopting IFRS prior to the regulatory change, and that mandatory IFRS adopters do not manage earnings through discretionary accruals and discretionary expenditures simultaneously. We also provide evidence that executives' reporting incentives, which include "big bath", income smoothing, and debt covenant restrictions, appear to affect the trade-off decision between discretionary accruals and real activities manipulation. However, the existence and tightness of accounting-based debt covenants seem to play a minor role in this decision for firms that switched to IFRS voluntarily after the elimination. Our empirical results underscore the importance of incorporating reporting incentives and earnings management strategies when examining the effects of regulatory changes in accounting standards.

[Keywords] discretionary accruals, real activities manipulation, reconciliation requirement

摘要

本文旨在探討在 2007 年美國證管會允許外國公司無需在年報中揭露依美國一般公認會計原則編製之盈餘及股東權益調節數後，在美國上市之外國公司依照國際財務報導準則編製財務報表可能產生的盈餘管理活動，並比較在此新制實施後，較可能受此新制影響之公司（自願採用國際財務報導準則者）和自願採用美國一般公認會計準則之公司兩者間之盈餘管理策略是否存在差異。本研究發現前述兩類公司之裁決性應計數和實質盈餘管理（異常生產成本和裁決性費用）間具有同時發生的替代關係。然而，相較於美國證管會新制實施後自願採用國際財務報導準則之公司，本文之增額測試發現新制實施前自願採用國際財務報導準則之公司，於同時間（資產負債表日前）和前後不同時間（資產負債表日前後）認列裁決性應計數和執行實質盈餘管理來達到預期之盈餘目標，並發現被所屬國家強制要求採用國際財務報導準則之公司，不會同時運用裁決性應計數和裁決性費用來進行盈餘管理。本文並發現經理人的報導動機（如「洗大澡」、盈餘平穩化、債務契約限制）影響裁決性應計數和實質盈餘管理兩者間之取捨，但是對於在新制實施後自願採用國際財務報導準則者而言，債務契約之存在和限制對於該二盈餘管理工具間之取捨，似乎扮演微不足道的角色。本研究之實證結果可做為檢測會計制度變革之影響時，需將報導動機和盈餘管理策略做結合探討之重要依據。

【關鍵字】裁決性應計數、實質盈餘管理、編制調節表

1. Introduction

In December 2007, the U.S. Securities and Exchange Commission (SEC) adopted Securities Act Release No. 33-8879, “Acceptance from Foreign Private Issuers of Financial Statements Prepared in Accordance with International Financial Accounting Standards without Reconciliation to U.S. GAAP (SEC, 2007).”¹ The new rule applies to financial statements issued for fiscal years ending after November 15, 2007, and interim periods after the effective date. Of note is that the move indicates the SEC’s confidence that IFRS is a set of high-quality accounting standards, and that financial reports prepared under IFRS are as informative and useful as those prepared under U.S. GAAP.

Although the SEC ruling is a step toward convergence between IFRS and U.S. GAAP, the decision to waive the U.S. GAAP reconciliation requirement and provide the IFRS option is controversial. The SEC’s reconciliation requirement is often perceived as costly, unnecessary to protect investors’ interests, and potentially misleading for market participants. The need for reconciliation is predicated on the concept that financial reporting for the same accounting event is materially different under IFRS and U.S. GAAP. To the extent that the two standards are identical (that is, completely converged), a reconciliation requirement would be debatable. Although there is a substantial literature comparing properties of accounting amounts internationally as well as capital-market effects of IFRS adoption, the evidence is inconclusive regarding the relative quality of IFRS and U.S. GAAP (e.g., Barth, Landsman, Lang, and Williams, 2012; Bartov, Goldberg, and Kim, 2005; Byard, Mashruwala, and Suh, 2017; Leuz, 2003; Lin, Riccardi, and Wang, 2012; Mestelman, Mohammad, and Shehata, 2015).

This paper extends the current literature by investigating whether cross-listed non-U.S. firms trading on U.S. exchanges use the increased discretion that comes from removing the reconciliation requirement to manage their earnings and thus provide less informative financial statements. Alternatively, eliminating the reconciliation may reduce managers’ incentives to choose accounting policies closer to U.S. GAAP, allowing firms to make accounting choices that maximize the informativeness of their reported earnings (Chiu and Lee, 2013; Hansen, Pownall, Prakash, and Vulcheva, 2014). Reported earnings that exhibit

1 IFRS, overwhelmingly perceived as “principles-based” rather than “rules-based,” is a body of accounting standards issued by the International Accounting Standards Board (IASB). Approximately 149 nations and reporting jurisdictions permit or mandate IFRS for domestic listed companies; approximately 122 countries fully conform with IFRS as promulgated by the IASB.

less earnings management are perceived as higher quality (Barth, Landsman, and Lang, 2008). However, prior studies (e.g., Iatridis, 2010; Lang, Raedy, and Yetman, 2003) that compare properties of accounting amounts based on different sets of standards examine only one earnings management tool (i.e., Discretionary Accruals) in settings where earnings management is likely to occur. But given the portfolio of earnings management strategies, managers probably use multiple mechanisms to reach their earnings targets. There is substantial evidence, for example, that managers use accrual-based earnings management and real activities manipulation simultaneously to dampen income volatility (e.g., Barton, 2001; Huang, Zhang, Deis, and Moffitt, 2009). As such, our study responds to the call in Fields, Lys, and Vincent (2001) for a more integrated approach to examining accounting decisions and the existence of endogeneity/exogeneity in exploring the earnings management opportunities that come from allowing IFRS reporting in the United States.

Conversely, it is likely there is a direct substitution between the two earnings management mechanisms after the fiscal year-end due to their sequential nature (see Pincus and Rajgopal, 2002; Zang, 2012). That is, given the timing differences of the two mechanisms, managers may first undertake real activities manipulation and then manage accruals in an attempt to achieve the desired earning targets. Accordingly, this research explicitly considers the implications of timing differences between the two earnings management approaches and aims to determine whether discretionary accruals and real activities management behave as complementary or substitute mechanisms that are simultaneously or sequentially determined.

Extant research (e.g., Christensen, Lee, Walker, and Zeng, 2015) indicates that managerial reporting incentives dominate accounting standards in influencing accounting quality. The SEC's waiver of IFRS-to-U.S. GAAP reconciliation thus provides a unique setting in which to explore the relative impact of managerial incentives and accounting regulations on a firm's reporting decisions.² Prior studies (e.g., Barth et al., 2012; Lin et al., 2012) comparing accounting amounts based on, and the economic implications of, firms applying U.S. GAAP and IFRS explicitly control for factors other than accounting standards, such as enforcement and litigation environments. However, these studies focus

2 The U.S. Securities and Exchange Commission's (SEC's) comparability concerns for the accounting regulations include the effects of all factors that impact accounting amounts, including managerial incentives, enforcement, and regulatory and litigation environments (SEC, 2010).

on examining only two manifestations of earnings management—income smoothing and managing toward positive earnings. To our best knowledge, no prior studies have explicitly investigated other competing theories of managerial opportunistic behavior (e.g., taking a “big bath”). Accordingly, we also examine whether management preferences and incentives affect the trade-off between accrual-based earnings management and real activities manipulation for non-U.S. cross-listed firms electing to adopt U.S. GAAP/IFRS after the elimination of the reconciliation requirement.

Our empirical results suggest that discretionary accruals and real activities manipulation are partial substitutes for earnings management, and that their magnitudes are determined simultaneously for non-U.S. firms switching either to U.S. GAAP or IFRS voluntarily after the SEC waived the reconciliation requirement (i.e., the two test samples in this study). We also provide evidence of a trade-off decision between these two earnings management strategies as a function of executives’ reporting incentives, including “big bath,” income smoothing, and debt covenant restrictions, although the existence and tightness of accounting-based debt covenants seem to play a minor role in this decision for firms in the IFRS test sample.

We also conduct several additional analyses. First, to address the issue of small sample size, we apply the bootstrapping methods. The results are qualitatively similar and the inferences are unchanged. Second, we conduct a battery of sensitivity analyses to further validate the “income smoothing” proxy. The evidence suggests that the “income smoothing” variable is more likely picking up reporting incentive behaviors, as opposed to the underlying economics of the firm. Third, to control country effect and macroeconomic factors (i.e., GDP, foreign direct investment, or inflation rate), we repeat our analysis from two-stage least squares (2SLS) regression after including a country dummy and three macroeconomic regressors. The coefficients on most of the macroeconomic factors are insignificant. All other estimated coefficients remain virtually unchanged and all inferences remain unaffected. Fourth, for robustness check, we repeat the analysis after removing firms that domicile in countries that adopt IFRS mandatorily or have already made announcement of its adoption roadmap of the standards during the sample period. The results reveal essentially similar inferences between the samples of IFRS adopters in the primary analysis and those excluding the two types of firms, respectively. Fifth, we repeat the analyses after removing the sample firms from countries (i.e., Bermuda, Channel Islands, Marshall Islands, and British Virgin Islands) the Organization for Economic Co-operation and Development (OECD) has designated as tax havens and firms

that domicile in countries (i.e., Argentina, Channel Islands, China, Ireland, Korea, and Marshall Islands) with only one individual firm. The results are qualitatively similar and the inferences are unchanged. Sixth, to address the possibility that pre-existing differences and/or changes around the relaxation of reconciliation requirement drive the documented differences between firms voluntarily switching to U.S. GAAP and those to IFRS, we conduct similar tests for our U.S. GAAP and IFRS test samples using firm-year observations during the U.S. GAAP reconciliation sample period 2003-2006. The evidence suggests that differences in the earnings management strategies between these two groups of firms before the reconciliation elimination generally do not explain their differences after the regulatory change. Seventh, we repeat the analyses using two control samples of firms that did not domicile in countries that adopt U.S. GAAP/IFRS but that volunteer to do so prior to the change and maintain their filing choice afterward. The results generally reveal that, in contrast to our IFRS test sample, managers of firms voluntarily applying IFRS prior to the elimination adjust the magnitude of their discretionary accruals, mostly in the fourth quarter (or after the fiscal year-end but before the earnings announcement date), based on the realized level of real activities manipulation through cutting discretionary expenditures. One possible explanation for this sequential decision process is that more of the control sample of firms adopting IFRS relative to U.S. GAAP is permitted to apply the more lenient deadline for furnishing annual reports.³ Finally, additional findings provide evidence that voluntary and mandatory IFRS adopters exhibit significant differences in earnings management practices. Specifically, the earnings management strategies play different roles in firms that voluntarily adopt IFRS prior to the regulatory change, those that voluntarily switch to IFRS after the elimination, those that apply non-U.S. GAAP/non-IFRS domestic standards after the elimination, and those that domicile in countries that adopt IFRS on a mandatory basis, if ranked by the order of most positive (or least negative) to least positive (or most negative) income effect.

This study contributes to accounting literature in the following ways. First, we present the first attempt to examine the earnings management potential of allowing non-U.S. cross-listed firms to choose IFRS reporting and to compare the effects of

3 We provide more details about the due dates of the annual information forms that must be filed to the SEC or other equivalent regulatory authority in the additional analyses section.

multiple earnings management strategies on firms whose filing choice is most likely attributable to the regulatory change to those on firms that are subject to different reporting requirements. We provide evidence that removing the reconciliation requirement results in firms manipulating the increased discretion. The evidence is of interest to accounting regulators, current/future cross-listed firms, and investors. Specifically, our findings on the earnings management potential of IFRS adoption have implications for the SEC on the potential use of the standards by U.S. firms as well as for other regulators on the mandatory use of the standards throughout the world.⁴ The decision to waive the U.S. GAAP reconciliation requirement and provide the IFRS option may lead investors in non-U.S. firms to assess the implications of potential changes in firms' information environments. Second, we estimate a system of equations to explain the magnitudes of abnormal accruals and real earnings management as a function of executives' reporting incentives and other predetermined firm characteristics for firms that are subject to the SEC's elimination of the reconciliation requirement. In contrast, prior studies comparing accounting quality under various standards focus only on accrual-based earnings management and generally fail to take into account managerial incentives. Finally, we extend our research to the trade-off between accrual-based earnings management and real activities manipulation. In contrast with mainstream U.S. results in the literature, this paper documents that simultaneous and sequential decision processes co-exist in firms adopting IFRS voluntarily prior to the regulatory change and maintaining their filing choice afterward, depending on which real activities (i.e., production costs or discretionary expenditures) they alter.

The remainder of this paper is organized as follows. In the next section we discuss prior research and develop our hypotheses. Section 3 describes the proxies for discretionary accruals and real activities manipulation. This is followed by separate sections presenting the research design, sample selection and industry breakdowns, primary empirical results, and additional tests, respectively. Section 8 summarizes our results and offers directions for future research.

4 Although the near-term use of IFRS in the U.S. continues to face long odds, the passage of time may permit additional changes to be made to converge the two sets of accounting standards (i.e., U.S GAAP and IFRS).

2. Literature Review and Hypotheses Development

Prior studies that focus on the accounting differences between IFRS and U.S. GAAP can be classified into four groups. First are the papers investigating the information content of financial statements prepared under IFRS versus U.S. GAAP reconciliation requirements. Harris and Muller (1999) examine a sample of non-U.S. cross-listed firms, for example, and find that U.S. GAAP earnings reconciliation amounts are value-relevant, and that the U.S. GAAP earnings reconciliation adjustment is valued differently than earnings reported under International Accounting Standards (IAS), the predecessor of IFRS. Following Harris and Muller (1999), Henry, Lin, and Yang (2009) assess the differential market relevance of IFRS versus U.S. GAAP financial statements for EU cross-listed firms and document significant differences between results under the two standards. Chen and Sami (2008) also investigate cross-listed IAS filers and find a positive association between abnormal trading volume and the earnings reconciliation adjustment in the two-day window surrounding the release of the reconciliation. Using more recent data, Gordon, Jorgensen, and Linthicum (2011) document that U.S. GAAP-reconciled earnings are incrementally value-relevant. Similar to Chen and Sami (2008), Byard et al. (2017) use abnormal trading volume to capture the information content of earnings announcements and find that the reconciliation elimination deteriorates investors' perception of the degree of comparability between IFRS-reporting foreign firms and comparable U.S. firms. Overall, these findings suggest that investors rely on reconciliation information and perceive differences in U.S. GAAP reconciliation and IFRS amounts. However, reconciling financial statements from local standards to U.S. GAAP is different than a comprehensive application of U.S. GAAP. Therefore, inferences drawn from these studies may not truly reflect the relative differences in the information content of financial statements prepared under IFRS versus U.S. GAAP.

The second group includes studies that examine differences in IFRS and U.S. GAAP in settings where firms can choose from among multiple accounting standards. Using a sample of German firms that were allowed to choose German GAAP, U.S. GAAP, and IAS, for example, Bartov et al. (2005) find a stronger relationship between earnings and returns for IAS and U.S. GAAP over German GAAP, but they are unable to document any significant differences in the earnings/returns association between IAS and U.S. GAAP. Similarly, Van der Meulen, Gaeremynck, and Willekens (2007) find that U.S. GAAP is not superior to IFRS in terms of value relevance for a sample of German firms. Also, Leuz (2003) documents that information asymmetry and market liquidity are similar across IAS

and U.S. GAAP for a sample of German firms. Likewise, Mestelman et al. (2015) conclude that removing the reconciliation requirement does not significantly affect the value relevance of accounting data for non-U.S. firms adopting IFRS relative to U.S. GAAP. These findings provide consistent evidence that market participants see no differences in financial statements using the two standards.

The third group of studies explicitly examines whether IFRS results are comparable to those reported under U.S. GAAP, based on the notion that accounting quality is determined by the market forces and institutional factors that affect the incentives for financial reporting. Using a sample of firms in 27 countries that adopt IFRS and a sample of U.S. firms matched on size and industry, Barth et al. (2012) document that U.S. firms' financial statements exhibit greater value relevance than those of IFRS firms. Using a sample of German firms that switch from U.S. GAAP to IFRS, Lin et al. (2012) find that IFRS financial statements generally show more earnings management, less timely loss recognition, and less value relevance compared to those prepared under U.S. GAAP. These two studies provide consistent evidence that U.S. GAAP produces higher quality of financial information than IFRS. However, Lin et al. (2012) findings may not offer direct implications regarding the comparability of IFRS and U.S. GAAP, because their sample firms may not be representative of listed firms in the United States.

Recent studies on the elimination of the U.S. GAAP reconciliation requirement provide mixed evidence that permitting IFRS reporting in the United States has significant capital-market effects. Jiang, Petroni, and Wang (2010), for example, find no evidence that the elimination changed the stock market response to the release of 20-Fs by firms adopting IFRS. Also, Kim, Li, and Li (2012) provide no evidence that IFRS firms experience a greater change in market liquidity or the probability of informed trading in the year after the regulatory change, relative to non-IFRS firms. In addition, Kim, et al. (2012) find no evidence that the regulatory change has a significant impact on cost of equity, analysts' forecast error, bias and dispersion, institutional ownership, or stock price efficiency and synchronicity, implying that there is no informational loss or greater information asymmetry as a result of the regulatory change. The findings in Kim et al. (2012), however, are inconsistent with Han and He (2013), who documents significant increases in non-U.S. firms' cost of equity after permitting IFRS reporting. Moreover, Hansen et al. (2014) document that IFRS filers with stronger incentives to provide informative disclosures significantly increase the information content of their earnings after the reconciliation elimination. Chen and Khurana (2015) find that firms already

using IFRS experience a positive stock market response to the regulatory change announcement. In contrast, there are no such effects for other cross-listed firms. On the other hand, Dugan, Turner, and Wheatley (2018) document that the reconciliation elimination leads to an overall decrease in the international asset allocation for U.S. institutional investors in European Union (E.U.) firms that are cross-listed on U.S. stock exchanges.

As discussed previously, prior studies provide inconclusive evidence on the relative benefits and costs of the SEC decision to eliminate the reconciliation requirement and on the relative quality of U.S. GAAP and IFRS. The adverse impact of an accounting change could be lessened by altering the accounting numbers to meet earnings targets (Iatridis, 2010). The extensive literature on earnings management, including those comparing financial statements prepared under different sets of standards, largely focuses on discretionary accruals as the primary means by which managers smooth earnings (e.g., Lang et al., 2003; Subramanyam, 1996; Tucker and Zarowin, 2006) or take a “big bath” (e.g., Houmes and Skantz, 2010; Yin and Cheng, 2004). A smaller stream of literature provides evidence of firms altering real activities to distort earnings (e.g., Cheng, Lee, and Shevlin, 2016; Gunny, 2010). Accordingly, managers can reach earnings targets by using multiple tools. That is, to the extent that the primary motive for altering real activities is earnings management, firms may also exercise discretion over operating accruals.

Also, there is substantial evidence from prior studies that managers use accrual-based earnings management and real activities manipulation simultaneously to dampen income volatility. Barton (2001), for instance, documents that managers use interest rates, foreign exchange derivatives and abnormal accruals as partial substitutes for smoothing earnings, and that their magnitudes are determined simultaneously. Consistent with Barton (2001), Huang et al. (2009) also find a negative relation between derivative use and abnormal accruals, suggesting that derivative instruments act as partial substitutes for abnormal accruals. However, these studies assess only one form of real transactions (i.e., derivative hedging). Given the portfolio of earnings management strategies, managers probably use multiple real activities simultaneously to distort earnings. Recent research has started to examine the extent to which managers distort earnings by manipulating sales, overproducing inventory to decrease the cost of goods sold, and reducing discretionary expenditures, all of which represent deviations from optimal levels of real activity, as well as altering the magnitude of discretionary accruals for purposes of achieving short-term earnings goals (e.g., Chi, Lisic, and Pevzner, 2011; Cohen, Dey, and Lys, 2008; Cohen and

Zarowin, 2010; Zang, 2012).

Consistent with prior U.S.-based research, we therefore predict that managers use accrual-based earnings management and real activities manipulation jointly to achieve desired earnings targets for firms that switched to U.S. GAAP/IFRS voluntarily after the relaxation of the reconciliation requirement (i.e., firms whose filing choice is most likely attributable to the regulatory change). Given the lack of clear evidence in the extant literature regarding the earnings management potential of permitting IFRS reporting in the United States, we do not specify a sign of the relation. That is, firms may use these two earnings management strategies as complements or as substitutes to achieve the desired earnings targets. This leads to the following hypothesis:

H₁: The magnitude of accrual-based earnings management is associated with the magnitude of real activities manipulation for firms voluntarily switching to U.S. GAAP/IFRS from domestic standards after the SEC's removal of the reconciliation requirement.

H₁ predicts that the magnitudes of discretionary accruals and real activities management are determined jointly. However, a joint decision can imply either a simultaneous or a sequential decision. On one hand, managers can determine the magnitudes of discretionary accruals and real activities manipulation simultaneously during the fiscal year, and the extent to which managers use the two earnings management strategies is likely endogenous (Barton, 2001). On the other hand, because real activities manipulation has to take place during the fiscal year but accrual management can occur between fiscal year-end and the earnings announcement date, managers can adjust the magnitude of the latter based on the realized outcomes of the former (Zang, 2012). That is, unexpectedly high (low) level of real activities manipulation can be offset by a lower (higher) level of accrual management. Accordingly, we also assess whether our results are sensitive to the simultaneous versus sequential assumption.

Extant earnings management literature generally considers three executives' reporting incentives: big bath, income smoothing, and debt covenants. Although a few studies explore the relation between accrual-based earnings management and real activities manipulation (e.g., Barton, 2001; Pincus and Rajgopal, 2002; Zang, 2012), the evidence on this issue should be contingent upon managerial incentives, firm characteristics, and regulatory and litigation environment (see SEC, 2010). However, relevant studies fail to take into account the "big bath" incentive.

Notwithstanding the above, Christensen et al. (2015) report that managerial reporting incentives dominate accounting standards in influencing accounting quality. The extensive literature comparing international financial statements mainly examines two manifestations of earnings management across different accounting regimes: income smoothing and managing toward positive earnings. No study directly examines competing theories regarding managerial behavior in this context. Thus, after testing the putative relation between discretionary accruals and real activities manipulation, we examine whether management preferences and incentives affect the two earnings management strategies for firms that voluntarily changed their filing status to U.S. GAAP/IFRS after the relaxation of the reconciliation requirement. This leads to the following hypothesis:

H₂: The magnitudes of accrual-based earnings management and real activities manipulation are associated with managerial incentives (i.e., big bath, income smoothing, and the existence and tightness of debt covenants) for firms voluntarily switching to U.S. GAAP/IFRS from domestic standards after the SEC's removal of the reconciliation requirement.

3. Measurement of Accrual-Based Earnings Management and Real Activities Manipulation

3.1 Accrual-Based Earnings Management

Given that discretionary accruals are unobservable, we use the modified Jones model (Jones, 1991) as described in Dechow, Sloan, and Sweeney (1995) to develop a proxy. Specifically, we use a cross-sectional model to calculate discretionary accruals, where for each sample year we estimate the model for every industry classified by its two-digit SIC code as follows:⁵

5 We use the cross-sectional approach rather than the time-series approach to measure discretionary accruals. The cross-sectional approach has an advantage in that it controls for the effects of changing industry-wide economic conditions (Teoh, Wong, and Rao, 1998). Further, prior research (e.g., Bartov, Gul, and Tsui, 2000) documents that the cross-sectional approach outperforms its time-series counterpart in detecting earnings management. The assumption underlying the former is that firms in the same industry have similar operating cycles; the latter assumes that the length of a firm's operating cycle does not change over the estimation and event period (Bartov et al., 2000). The results (not reported) show that our sample firms are not much different from the average firm in their respective industry. Thus, the fact that the model coefficients estimated from cross-sectional regressions are the same for all firms in the industry should not represent a serious problem.

$$TA_{it}/Asset_{it-1} = \beta_1 I/Asset_{it-1} + \beta_2 \Delta SALES_{it}/Asset_{it-1} + \beta_3 PPE_{it}/Asset_{it-1} + \varepsilon_{it} \quad (1)$$

where for fiscal year t and firm i , TA_{it} represents total accruals, which we measure as earnings before extraordinary items and discontinued operations minus operating cash flows. $Asset_{it-1}$ is total assets. $\Delta SALES_{it}$ is the change in net sales from the prior year. PPE_{it} is the gross value of property, plant, and equipment.

We use the coefficient estimates from equation (1) to estimate the firm-specific normal accruals (NA_{it}) for our sample firms:

$$NA_{it} = \hat{\beta}_1 I/Asset_{it-1} + \hat{\beta}_2 (\Delta SALES_{it} - \Delta AR_{it}) / Asset_{it-1} + \hat{\beta}_3 PPE_{it}/Asset_{it-1} \quad (2)$$

where ΔAR_{it} is the change in accounts receivable from the prior year. The measure of discretionary accruals is the difference between total accruals and the fitted normal accruals, defined as $DA_{it} = TA_{it}/Asset_{it-1} - NA_{it}$.⁶

3.2 Real Activities Manipulation

Prior studies provide evidence that reducing the cost of goods sold by overproducing inventory and/or cutting discretionary expenditures capture real activities manipulation (e.g., Chi et al., 2011; Cohen et al., 2008; Cohen and Zarowin, 2010; Roychowdhury, 2006; Zang, 2012). Accordingly, we consider abnormally high levels of production costs and abnormally low levels of discretionary expenses as indicators of income-increasing real activities manipulations.⁷

We measure the abnormal level of production costs (RM_PROD_{it}) as the residuals from equation (3), which are estimated by year and industry identified using two-digit SIC codes:

6 We repeat our tests by using an alternative measure adjusted for a performance-matched firm's discretionary accruals. As suggested by Kothari, Leone, and Wasley (2005), we match each firm-year observation with another from the same two-digit SIC code and year with the closest return on assets in the current year, ROA_{it} (net income divided by total assets). Untabulated results using this alternate measure of accrual-based earnings management are consistent with those reported in the paper.

7 Following Zang (2012), we do not examine abnormal cash flows from operations because, as discussed in Roychowdhury (2006), real activities management affects this in different directions. Specifically, price discounts, channel stuffing, and overproduction decrease abnormal cash flows from operations, while cutting discretionary expenditures increases them. Accordingly, the net effect on abnormal cash flows from operations is vague.

$$\begin{aligned}
 PROD_{it}/Asset_{it-1} = & k_1 I/Asset_{it-1} + k_2 SALES_{it}/Asset_{it-1} + k_3 \Delta SALES_{it}/Asset_{it-1} \\
 & + k_4 \Delta SALES_{it-1}/Asset_{it-1} + \varepsilon_{it}
 \end{aligned}
 \tag{3}$$

where for fiscal year t and firm i , $PROD_{it}$ is the sum of cost of goods sold and change in inventory during the year. $Asset_{it-1}$ is total assets. $SALES_{it}$ is net sales. $\Delta SALES_{it}$ is the change in net sales from the prior year. The higher the estimated residual from equation (3), the larger is the amount of inventory overproduction, which thereby leads to an increase in reported earnings through the reduction of cost of goods sold.

We calculate the abnormal level of discretionary expenditures (RM_DISX_{it}) as the residuals multiplied by -1 from equation (4), which is also estimated by year and industry identified using two-digit SIC code:

$$DISX_{it}/Asset_{it-1} = k_1 I/Asset_{it-1} + k_2 SALES_{it-1}/Asset_{it-1} + \varepsilon_{it}
 \tag{4}$$

where $DISX_{it}$ is the discretionary expenditures (i.e., the sum of advertising, R&D, and SG&A expenses) during the year. We multiply the residuals estimated from equation (4) by -1 so that the higher the amount, the more likely it is that the firm is cutting discretionary expenditures to increase reported earnings.

In order to capture the total effects of real earnings management, we aggregate the two real activities manipulation measures, RM_PROD_{it} and RM_DISX_{it} , into one proxy, RM_SUM_{it} , by taking their sum. Because the two individual variables have different implications for earnings that may dilute any results using the composite measure alone (Cohen et al., 2008; Cohen and Zarowin, 2010), we report results corresponding to the comprehensive real earnings management measure (i.e., RM_SUM_{it}) as well as the two individual real earnings management proxies (i.e., RM_PROD_{it} and RM_DISX_{it}).

4. Empirical Design

4.1 Controlling for Self-Selection Bias

Because the decision to switch to U.S. GAAP/IFRS is voluntary, our sample firms do not represent a random sample of non-U.S. cross-listed firms applying domestic standards prior to the elimination of the reconciliation requirement. To control for the effects of self-selection, we follow the two-stage regression procedure suggested by Heckman (1979). In the first stage, we analyze the decision to voluntarily change filing status to U.S. GAAP/

IFRS after the elimination using a probit model. We match each sample firm, based on industry, size (i.e., market value of equity), and year, with a comparison firm from the same country that elects not to adopt U.S. GAAP/IFRS after the elimination and continues to report using local standards. Following prior studies such as Harris and Muller (1999) and Hung and Subramanyam (2007), we predict that the decision to adopt an internationally recognized accounting standard (i.e., U.S. GAAP or IFRS) is a function of economic factors, such as financial performance, leverage, firm sizes, and financial needs. Specifically, we conduct split-sample tests by estimating the following probit model separately for the two samples (i.e., U.S. GAAP and IFRS) and their corresponding comparison observations:

$$SELECT_{it} = \alpha_0 + \alpha_1 ROA_{it} + \alpha_2 LEV_{it} + \alpha_3 MV_{it} + \alpha_4 NMKT_{it} + \alpha_5 CS_{it} + \alpha_7 LT_DEBT_{it} + \varepsilon_{it} \quad (5)$$

where $SELECT_{it}$ is an indicator variable equal to 1 for the sample (U.S. GAAP/IFRS) firms and 0 for the comparison firms. ROA_{it} is return on assets, which equals firm i 's net income divided by total assets at the end of t . LEV_{it} is proxy for leverage, which is firm i 's total liabilities divided by total asset at the end of $t-1$. MV_{it} is firm size, which equals the natural logarithm of firm i 's market value of equity at the end of t . $NMKT_{it}$ is the number of foreign markets, excluding the U.S., in which firm i 's shares are traded during year t . CS_{it} is an indicator variable equal to 1 if there is an increase in firm i 's par value of common stock during year t . LT_DEBT is an indicator variable equal to 1 if there is an increase in firm i 's long-term debt during year t .

We obtain z_{it} , the fitted value of the probit regression index function, and calculate inverse Mills ratios ($MILL_{it}$) as $\varphi(z_{it})/\Phi(z_{it})$, where φ is the standard normal density and Φ is the normal cumulative probability. In the second stage of the Heckman (1979) procedure, we include $MILL_{it}$ in the tests of the relation between discretionary accruals and real earnings manipulation as an additional control variable to correct for biased estimates that result from a nonrandom treatment effect.

4.2 Empirical Tests: The Relation between Accrual-Based Earnings Management and Real Earnings Manipulation

To test whether managers determine the levels of accrual management and real activities manipulation simultaneously, we use the following system of equations to

explain the magnitudes of abnormal accruals and real earnings management as a function of executives' reporting incentives and other predetermined firm characteristics:

$$DA_{it} = \tau_0 + \tau_1 RM_{it} + \tau_2 BBATH_{it} + \tau_3 SMOOTH_{it} + \tau_4 DEBT_{it} + \tau_5 ST_DEBT_{it} + \tau_6 BIG_{it} + \tau_7 MV_{it} + \tau_8 EARN_{it} + \tau_9 DA_{it-1} + \tau_{10} MILL_{it} + \varepsilon_{it} \quad (6)$$

$$RM_{it} = \delta_0 + \delta_1 DA_{it} + \delta_2 BBATH_{it} + \delta_3 SMOOTH_{it} + \delta_4 DEBT_{it} + \delta_5 ST_DEBT_{it} + \delta_6 BIG_{it} + \delta_7 MV_{it} + \delta_8 EARN_{it} + \delta_9 LTGN_{it} + \delta_{10} MILL_{it} + \varepsilon_{it} \quad (7)$$

where $DA_{it(i-1)}$ is as defined previously, and RM_{it} represents the two real earnings management metrics, RM_PROD_{it} and RM_DISX_{it} , and the combined variable, RM_SUM_{it} . H_1 predicts that the coefficients of RM_{it} and DA_{it} will be significantly either positive or negative in equations (6) and (7), respectively. We include the inverse Mills ratio ($MILL_{it}$) from the probit estimation as an additional explanatory variable to control for the effect of self-selection. We devote the remainder of this section to defining the variables of interest in equations (6) and (7) and describing their measurement.

4.2.1 Factors to Affect Accrual Management and Real Activities Manipulation

Reporting incentives. Extant research (e.g., Christensen et al., 2015) indicates that managerial reporting incentives dominate accounting standards in influencing accounting quality. Specifically, management preferences and incentives influence earnings management strategies in more significant and direct ways. The empirical evidence reveals that earnings management actions are affected mainly by “big bath,” income smoothing, and debt covenant restrictions.

The big bath hypothesis suggests that firms “save up” discretionary accruals or losses and then record several in a period in which earnings are extremely low. That is, if a manager cannot manipulate earnings to reach a target level, he/she will attempt to decrease current earnings in favor of increasing future earnings and, therefore, future bonuses.⁸ Specifically, if a firm's profitability ranks relatively low in its industry, its

8 A proxy for management compensation could also be included in the analysis. However, prior research (e.g., Healy, 1985) indicates that the details of the bonus calculations vary across plans. Managers' incentives to report higher earnings in a given year may vary with these details. Because it is difficult to get enough details about compensation arrangements, more general proxies for “big bath” and smoothing incentives are used in the analyses.

managers may take the opportunity to report other discretionary bad news (i.e., taking a “big bath”) (Yin and Cheng, 2004). Accordingly, to proxy for the “big bath” incentive, we include $BBATH_{it}$, which is set to 1 when the firm’s ROE ranks in the bottom 20% of its industry, and 0 otherwise. H_2 predicts the “big bath” variable to be negatively associated with discretionary accruals as well as real activities manipulation.

Conversely, the income smoothing literature posits that managers have incentives to reduce earnings volatility. Specifically, when earnings are unusually high, firms are likely to make income-reducing accounting decisions; when earnings are unusually low, they are likely to make income-increasing accounting decisions. To measure earnings performance for a given year, we must specify a benchmark to which to compare earnings. Assuming that annual earnings follow a random walk, firms’ reported earnings in the prior year are used as the benchmark. That is, earnings performance in the following year is measured by next year’s earnings changes. To proxy for the smoothing incentive, $SMOOTH_{it}$ is defined as the difference between firm i ’s current earnings (measured before discretionary accruals and real activities manipulation) and prior-year earnings, divided by beginning total assets, when this change is either above the median of nonzero positive values or below the median of nonzero negative values of this variable, and 0 otherwise.⁹ Extant research documents a significant association between “income smoothing” behavior and accrual management without taking into account real activities manipulation (e.g., Chen, Chang, and Weng, 2017; Subramanyam, 1996; Tucker and Zarowin, 2006). H_2 asserts that the smoothing proxy is negatively associated with discretionary accruals as well as real activities manipulation.

9 In order to capture the effect of the smoothing incentive on individual versus overall real earnings management activities, we use three measures to proxy for “income smoothing” reporting ($SMOOTH_{it}$), depending on whether RM_PROD_{it} and RM_DISX_{it} , or the comprehensive metric of real activities manipulation, RM_SUM_{it} , is tested. Specifically, SM_PROD_{it} is the difference between firm i ’s earnings (measured before discretionary accruals and abnormal production costs) for year t and earnings for year $t-1$, divided by total assets at the end of $t-1$, when this change is either above the median of nonzero positive values or below the median of nonzero negative values of this variable, and 0 otherwise; SM_DISX_{it} is equal to the difference between firm i ’s earnings (measured before discretionary accruals and abnormal discretionary expenditures) for year t and earnings for year $t-1$, divided by total assets at the end of $t-1$, when this change is either above the median of nonzero positive values or below the median of nonzero negative values of this variable, and 0 otherwise; SM_SUM_{it} is the difference between firm i ’s earnings (measured before discretionary accruals, abnormal production costs, and abnormal discretionary expenditures) for year t and earnings for year $t-1$, divided by total assets at the end of $t-1$, when this change is either above the median of nonzero positive values or below the median of nonzero negative values of this variable, and 0 otherwise.

Furthermore, changes in accounting practices and regulations may influence the accounting information employed in debt covenants (Ormrod and Taylor, 2004). Lenders use financial statements to monitor compliance with the bonding terms in such covenants. Accordingly, managers of firms that are close to violating accounting-based constraints in debt covenants have an incentive to make income-increasing accounting decisions to avoid or reduce the costs associated with this possible violation (Watts and Zimmerman, 1986). Prior research suggests that firms manage accruals in order to avoid debt covenant violations (DeFond and Jiambalvo, 1994; Dichev and Skinner, 2002; Zhang, 2008). Because data on actual debt covenants are not available for our sample, we follow prior research and use leverage as a proxy for the existence of accounting-based debt covenants ($DEBT_{it}$), which is measured as the firm's total debt divided by total assets at the end of the prior year. H_2 predicts leverage to be positively associated with discretionary accruals as well as real activities manipulation.

In addition, short-term debt can affect a firm's ability to pay off long-term liabilities and drive it closer to a debt covenant violation. Specifically, firms with more short-term debt may have a greater need to renegotiate that debt on favorable terms and thus have a greater incentive to manage earnings (Chandra, Ettredge, and Stone, 2006). Accordingly, we represent the tightness of accounting-based debt covenants (ST_DEBT_{it}) as the firm's short-term debt divided by total debt at the end of the prior year. H_2 asserts that the proportion of short-term debt is positively associated with discretionary accruals as well as real activities manipulation.

Firm characteristics. Extant research documents that Big 8 audit firms (or their successors) constrain earnings management through discretionary accruals (e.g., Chi et al., 2011; Zang, 2012) and that managers prefer real activities manipulation to accrual management because auditors and regulators are less likely to scrutinize and detect real earnings management behaviors (e.g., Graham, Harvey, and Rajgopal, 2005). Accordingly, we assert that scrutiny increases with the presence of a Big 8 auditor and include BIG_{it} , a dummy variable indicating whether a firm's auditor is one of the Big 8 (or their successors). To the extent that increased audit scrutiny constrains accrual management, clients resort to real activities manipulation. Therefore, we expect the presence of a Big 8 auditor or its successor to be negatively (positively) associated with discretionary accruals (real earnings management devices).

In both equations, we also include the natural logarithm of a firm's market value of equity at year-end (MV_{it}) to control for relative firm size and return on assets ($EARN_{it}$),

defined as the ratio of earnings before extraordinary items deflated by prior period assets, to control for firm performance. We have no prediction pertaining to the coefficient on these two variables.

4.2.2 Factors to Discriminate between Accrual Management and Real Activities Manipulation

If the accruals process leads to reversals of accruals, and if accruals adjustments reverse in the subsequent accounting period, lagged accruals will be negatively associated with current accruals (Hunt, Moyer, and Shevlin, 1996). Accordingly, we include in equation (6) lagged discretionary accruals to control for accrual reversals. We predict DA_{it} to be negatively associated with its lagged value, DA_{it-1} .

The primary penalty for earnings management is litigation. As mentioned earlier, auditors and regulators are less likely to scrutinize and detect real earnings management behaviors relative to accrual management. Accordingly, greater perceived litigation penalties should increase the propensity for real activities manipulation (Cohen and Zarowin, 2010). To capture potential litigation risk, we include in equation (7) $LTGN_{it}$, an indicator variable equal to 1 if the firm is in a high litigation industry, and 0 otherwise. Following Barton and Simko (2002) and Cohen and Zarowin (2010), high litigation industries are SIC codes 2833-2836, 3570-3577, 3600-3674, 7370-7379, and 8731-8734, which correspond to pharmaceuticals/biotechnology, computers, and electronics industries, respectively. We expect $LTGN_{it}$ to be positively associated with RM_{it} .

4.2.3 Endogeneity Considerations

To test for the existence of endogeneity formally, we use the Hausman (1978) test for contemporaneous correlation between the error term and the two earnings management tools (i.e., discretionary accruals and real activities manipulation), respectively. We control for the endogeneity of management's decision to choose particular earnings management mechanisms.

5. Sample Selection and Industry Composition

We obtain the initial sample of 970 foreign firms cross-listing on the U.S. exchanges from the listings of International Registered and Reporting Companies issued by the SEC between 2007 and 2010 (SEC, 2014). We exclude firms that domicile in countries that adopt U.S. GAAP/IFRS mandatorily, because it is less likely that their filing choice is

attributable to the SEC's decision to eliminate the reconciliation requirement. We classify the remaining firms into those that voluntarily changed their filing choice to either U.S. GAAP or IFRS after the elimination and those that did not change their accounting standards (i.e., companies that voluntarily adopted U.S. GAAP/IFRS prior to 2007 and companies that applied non-U.S./non-IFRS domestic standards during the sample period 2007-2010).

We identify the accounting standards a foreign firm uses to prepare its financial statements and its industry based on an extensive manual collection of annual reports.¹⁰ Specifically, to identify each sample firm's filing choice, we examine the auditors' opinions as well as the front of the annual reports, which indicate the basis of accounting the firm used to prepare the financial statements. Moreover, to ensure that we correctly identify the firm's adoption year of its chosen accounting standards, we require, for instance, that each IFRS-reporting firm (i.e., a company that did not domicile in IFRS countries but voluntarily elected to do so during our sample period) has financial data for the year it adopts the accounting standards and for the year before.

We also require sample firms to have the necessary Compustat/Datastream data from 2002 through 2010 (i.e., the accounting periods before, during, and after the elimination of the reconciliation requirement), and not fall within the banking or financial services industries (i.e., SIC 6000-6499 and SIC 6600-6999).¹¹ We remove banks and financial services companies from the sample because their characteristics differ from nonfinancial firms, and because their motivation for earnings management is relatively unclear compared to unregulated industries (Reitenga, Buchheit, Yin, and Baker, 2002). We also exclude companies in bankruptcy or reorganization, as well as start-ups and companies with changes in their fiscal year-ends.

Our final sample consists of 161 firm-year observations representing 71 distinct firms from 16 countries, of which 31 (40) firms switched to U.S. GAAP (IFRS) voluntarily from domestic standards after the elimination of the reconciliation requirement. We limit our

10 We use the term "annual reports" to refer to all annual regulatory filings, including Forms 20-F, 40-F (for Canadian firms), and 10-K, with the SEC by non-U.S. firms.

11 The U.S. GAAP reconciliation sample years range from 2003 through 2006. The IFRS reporting sample years range from 2007 (with years ending after November 15, 2007) through 2010. The IFRS-permitted sample period is the focus of our analysis. We will examine the U.S. GAAP reconciliation sample period later in this paper. Given that some variables in our empirical analyses are measured using lagged data, all variables used in this study were gathered for the years ended 2002-2010.

sample to these firms because firms adopting IFRS no longer have to provide reconciliations, and because application of IFRS by non-U.S. firms may result in quality of accounting data that are not comparable to those resulting from application of U.S. GAAP (see Barth et al., 2012; Lin et al., 2012).¹²

We find that, during our sample period, 40 firms (83 firm-year observations) voluntarily changed their reporting standards to IFRS. Of these, 22 firms (33 firm-year observations) switched from domestic standards and 18 firms (50 firm-year observations) switched from U.S. GAAP.¹³ On the contrary, only six firms switched from IFRS to U.S. GAAP. Additionally, to the extent that the SEC believes that U.S. GAAP provides better protection to investors than IFRS (as evidenced by the slow pace of convergence of the two standards), a significant number (45%) of these 40 firms converting to IFRS from U.S. GAAP seems to be an unintended consequence of the regulatory change.

Panel A of Table 1 provides a breakdown of these sample firms by country.¹⁴ Canada has the largest number of firms (19), while six countries, including Argentina, Channel Islands, China, Ireland, Korea, and Marshall Islands, have the lowest (one). Of the sample firms that switched to U.S. GAAP (IFRS) voluntarily from their local standards after the SEC waived the reconciliation requirement, the largest number is from Canada (Brazil and Mexico).¹⁵ The sample distribution indicates that the number of unique firms vary across

12 Prior studies (e.g., Gunny, 2010; Roychowdhury, 2006; Zang, 2012) examine a setting where the manager is more likely to engage in earnings management. Specifically, they focus on firms that smooth earnings to meet various forms of earnings benchmarks (e.g., prior years' earnings, zero earnings, analyst consensus forecast). Given that this paper is also intended to examine other competing theories of managerial opportunistic behavior (e.g., taking a "big bath"), we do not limit our sample to firms just beating/meeting these benchmarks. To mitigate the concern that our smoothing proxy is not picking up the intended reporting incentive effect, we further validate the $SMOOTH_{it}$ variable by examining alternative thresholds, which incorporate various forms of benchmark beating, later in the additional analyses section.

13 Out of the voluntary IFRS adopters, the only non-U.S. firm required to use U.S. GAAP by its home jurisdiction is domiciled in Marshall Islands. Accordingly, we include this firm in the sample group that switched from local GAAP to IFRS.

14 The country-level sample distribution as shown in Panel A of Table 1 reveals that firms in countries such as Australia, Ireland, and the U.K. are required to adopt IFRS since 2005, but they voluntarily switched to U.S. GAAP after SEC's decision to eliminate the reconciliation requirement. Accordingly, we assert that the filing choice of these voluntary adopters is attributable to the elimination.

15 The use of IFRS became a requirement for Canadian public firms for financial years beginning on or after January 1, 2011. However, U.S. GAAP continues to be acceptable for U.S.-listed Canadian firms. Of the firms that switched to U.S. GAAP voluntarily from Canadian GAAP after the reconciliation elimination, we find that only one firm adopted IFRS in 2011.

the sample countries.¹⁶ Panel B of Table 1 further reports the number of companies that changed their filing choice to either U.S. GAAP or IFRS by fiscal years during our sample period.¹⁷

Panel C of Table 1 provides an industry breakdown. Communications has the largest number of sample firms (11), while five industries, including heavy construction; printing and publishing; leather products; stone, clay, and glass; and food stores, have the smallest (one). The sample distribution reveals a somewhat uneven distribution across the various industries.

Table 1 Sample Distribution

<i>Panel A. Country-level sample distribution</i>				
Country	Firm-years	Unique firms	U.S. GAAP adopters	IFRS adopters
Argentina	2	1		1
Australia	5	3	3	
Bermuda ^a	25	11	6	5
Brazil ^b	11	7		7
British Virgin Islands	4	2		2
Canada	42	19	14	5
Channel Islands	2	1		1
China	3	1		1
India	23	6		6
Indonesia	5	2		2
Ireland	4	1	1	
Israel	17	6	5	1
Korea	2	1		1
Marshall Islands	3	1		1
Mexico	9	7		7
United Kingdom	4	2	2	
Total	161	71	31	40

16 Similar to Kim et al. (2012), we use the country of incorporation, rather than the country of headquarter, in defining the countries of our sample firms. For instance, Transatlantic Petroleum Corporation is incorporated in Bermuda, but is headquartered in Turkey. This explains the large proportion of Bermuda firms in our sample.

17 The number of observations is somewhat unequal between Panel A and B because: (1) one Bermuda firm converted to U.S. GAAP in 2007 from Canadian GAAP; (2) two and one Brazilian firms switched from U.S. GAAP to IFRS in 2009 and 2010, respectively.

Panel B. Sample distribution by voluntary change of GAAP^{a,b}

Prior GAAP	New GAAP	GAAP change frequency				Total
		2007	2008	2009	2010	
U.S.	IFRS	4	4	4	6	18
IFRS	U.S.	4	2	2	3	11
Argentina	IFRS			1		1
Brazil	IFRS			2	2	4
Canada	IFRS	2			3	5
	U.S.	3	4	3	5	15
China	IFRS		1			1
Indonesia	IFRS		1	1		2
Israel	IFRS		1			1
	U.S.	2	1	1	1	5
Korea	IFRS			1		1
Mexico	IFRS			2	5	7
Total		15	14	17	25	71

Panel C. Industry distribution

Industry group	Firm-years	Unique firms	U.S. GAAP adopters	IFRS adopters
Metal mining	9	6	3	3
Heavy construction	2	1		1
Oil and gas	7	3	3	
Food products	8	5	2	3
Printing and publishing	2	1		1
Chemical products	12	4	3	1
Leather products	3	1		1
Stone, clay, and glass	2	1		1
Primary metal	7	3		3
Industrial machinery and services	15	5	4	1
Electronic equipment	13	4	3	1
Transportation	23	8	3	5
Scientific instruments	6	2	2	
Communications	17	11	3	8
Electric, gas, and sanitary services	11	6	4	2
Food stores	2	1		1
Real estate	8	4	1	3
Business services	14	5		5
Total	161	71	31	40

Note ^a: One Bermuda firm converted to U.S. GAAP from Canadian GAAP in 2007.

^b: Two and one Brazilian firms switched from U.S. GAAP to IFRS in 2009 and 2010, respectively.

6. Empirical Results

6.1 Descriptive Statistics

As stated earlier, we use a probit model (i.e., equation (5)) to analyze our sample firms' decision to voluntarily switch to U.S. GAAP/IFRS from domestic standards. Panel A (B) of Table 2 provides descriptive statistics for U.S. GAAP (IFRS) and matched domestic samples regarding the explanatory variables in the analysis. The two rightmost columns report mean and median differences between the two sample groups using a two-sample t -test and a nonparametric Wilcoxon Mann-Whitney test, respectively. Panel A shows that the mean and median differences for ROA_{it} , LEV_{it} , and CS_{it} are both significant at better than $p = 10\%$ based on the two tests, respectively. The results suggest that U.S. GAAP firms are more likely to experience poor financial performance, have higher leverage ratios, and have a lower propensity to raise capital than firms applying domestic GAAP. On the other hand, Panel B reveals that IFRS firms are more likely to exhibit better financial performance and higher leverage than firms complying with local GAAP.

Panel C of Table 2 presents descriptive statistics related to the independent variables used in our probit model for our U.S. GAAP and IFRS test samples. The results show that the mean and median values of $NMKT_{it}$ (ROA_{it} and MV_{it}) for the U.S. GAAP sample are all significantly higher (lower) than for its counterpart, suggesting that U.S. GAAP adopters receive more information demands from foreign investors and are smaller and more likely to experience poor financial performance than IFRS adopters. LEV_{it} , CS_{it} , and LT_DEBT_{it} , on the other hand, do not statistically differ between the two test samples.

Panel D (E) of Table 2 provides descriptive statistics for U.S. GAAP (IFRS) and matched domestic samples regarding the explanatory variables used in the simultaneous equations (6) and (7) to explain the relation between the magnitudes of discretionary accruals and real earnings management. Panel D shows that the mean and median differences for the proxies for real activities manipulation (i.e., RM_SUM_{it} , RM_PROD_{it} , and RM_DISX_{it}), $BBATH_{it}$, $DEBT_{it}$, and ST_DEBT_{it} are all significant at better than $p = 10\%$ based on t -tests and Wilcoxon tests, respectively. Specifically, the results suggest that U.S. GAAP adopters exhibit a higher magnitude of real activities manipulation, have a greater likelihood to take a "big bath," have a higher debt-to-asset ratio, and have a smaller proportion of short-term debt than firms applying domestic GAAP. On the other hand, Panel E reveals that IFRS firms are more likely to exhibit a higher debt-to-asset ratio, have a smaller proportion of short-term debt, and experience better financial performance than

firms complying with local GAAP. The remaining variables, however, do not statistically differ between our U.S. GAAP/IFRS firms and their corresponding matched firms.

Finally, Panel F of Table 2 reports descriptive statistics related to the variables used in the simultaneous equations for our U.S. GAAP and IFRS test samples. The results reveal that U.S. GAAP firms exhibit significantly lower means for DA_{it} and DA_{it-1} (i.e., discretionary accruals for the current and prior year, respectively) relative to IFRS firms. In addition, the mean and median value(s) of $BBATH_{it}$ (ST_DEBT_{it} , and $EARN_{it}$) for the U.S. GAAP sample is (are) significantly higher (lower) than for its counterpart, suggesting that firms that voluntarily changed their filing choice to U.S. GAAP had a greater propensity to take a “big bath,” had a smaller proportion of short-term debt, and were more likely to exhibit poor earnings performance than firms that switched to IFRS. The mean proxies for the smoothing incentive (i.e., SM_SUM_{it} , SM_PROD_{it} , and SM_DISX_{it}) are marginally higher, although the differences are insignificant, for U.S. GAAP adopters than for IFRS adopters.

Table 2 Descriptive Statistics^a

Panel A. Descriptive statistics on the variables used in the adoption choice analysis for U.S. GAAP versus matched domestic samples

Variable ^d	U.S. GAAP Observations (n = 78)			Matched Domestic Observations (n = 78)			Probability Value ^c	
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	t-test ^a	W-test ^b
$Jian$	-0.173	-0.027	0.850	0.001	0.036	0.132	0.096	0.005
LEV_{it}	0.629	0.536	0.772	0.411	0.384	0.239	0.023	0.031
MV_{it}	6.235	5.935	1.771	6.328	5.772	1.753	0.805	0.864
$NMKT_{it}$	1.460	2.000	0.894	1.560	2.000	0.625	0.454	0.135
CS_{it}	0.690	1.000	0.466	0.820	1.000	0.387	0.069	0.088
LT_DEBT_{it}	0.450	0.000	0.500	0.380	0.000	0.488	0.387	0.482

Panel B. Descriptive statistics on the variables used in the adoption choice analysis for IFRS versus matched domestic samples

Variable ^d	IFRS Observations (n = 83)			Matched Domestic Observations (n = 83)			Probability Value ^c	
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	t-test ^a	W-test ^b
ROA_{it}	0.054	0.047	0.085	-0.014	0.030	0.185	0.003	0.140
LEV_{it}	0.511	0.546	0.212	0.417	0.402	0.214	0.006	0.004
MV_{it}	7.526	7.707	2.248	7.019	7.101	2.070	0.149	0.163
$NMKT_{it}$	1.240	1.000	0.702	1.150	1.000	0.893	0.489	0.608
CS_{it}	0.630	1.000	0.485	0.610	1.000	0.491	0.745	0.452
LT_DEBT_{it}	0.490	0.000	0.503	0.440	0.000	0.500	0.527	0.632

Panel C. Descriptive statistics on the variables used in the adoption choice analysis for U.S. GAAP versus IFRS samples

Variable ^d	U.S. GAAP Observations (n = 78)			IFRS Observations (n = 83)			Probability Value ^e	
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	t-test ^a	W-test ^b
ROA_{it}	-0.173	-0.027	0.850	0.054	0.047	0.085	0.019	0.000
LEV_{it}	0.629	0.536	0.772	0.511	0.546	0.212	0.191	0.809
MV_{it}	6.235	5.935	1.771	7.526	7.707	2.248	0.001	0.000
$NMKT_{it}$	1.460	2.000	0.894	1.240	1.000	0.702	0.093	0.001
CS_{it}	0.690	1.000	0.466	0.630	1.000	0.485	0.466	0.573
LT_DEBT_{it}	0.450	0.000	0.500	0.490	0.000	0.503	0.558	0.649

Panel D. Descriptive statistics on the variables used in tests of the association between accrual-based earnings management and real activities manipulation for U.S. GAAP versus matched domestic samples

Variable ^d	U.S. GAAP Observations (n = 78)			Matched Domestic Observations (n = 78)			Probability Value ^e	
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	t-test ^a	W-test ^b
DA_{it}	-0.123	-0.057	0.483	-0.071	-0.054	0.190	0.399	0.869
RM_SUM_{it}	0.030	0.019	0.189	-0.089	-0.033	0.235	0.001	0.085
RM_PROD_{it}	0.017	0.013	0.089	-0.016	-0.005	0.135	0.090	0.079
RM_DISX_{it}	0.014	0.026	0.150	-0.059	-0.005	0.171	0.009	0.084
$BBATH_{it}$	0.420	0.000	0.497	0.280	0.000	0.451	0.075	0.096
SM_SUM_{it}	0.125	0.000	0.852	0.138	0.000	0.384	0.911	0.587
SM_PROD_{it}	0.138	0.000	0.758	0.082	0.000	0.289	0.561	0.375
SM_DISX_{it}	0.144	0.000	0.829	0.113	0.000	0.335	0.777	0.526
$DEBT_{it}$	0.296	0.293	0.260	0.186	0.133	0.184	0.004	0.013
ST_DEBT_{it}	0.220	0.090	0.289	0.368	0.274	0.362	0.009	0.058
BIG_{it}	0.880	1.000	0.329	0.850	1.000	0.362	0.587	0.408
MV_{it}	6.235	5.935	2.530	6.328	5.772	1.753	0.805	0.864
$EARN_{it}$	-0.043	0.018	0.265	0.007	0.048	0.173	0.174	0.069
DA_{it-1}	-0.143	-0.058	0.459	-0.043	-0.049	0.240	0.106	0.936
$LTGN_{it}$	0.260	0.000	0.440	0.260	0.000	0.444	0.922	0.928

Panel E. Descriptive statistics on the variables used in tests of the association between accrual-based earnings management and real activities manipulation for IFRS versus matched domestic samples

Variable ^d	IFRS Observations (n = 83)			Matched Domestic Observations (n = 83)			Probability Value ^e	
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	t-test ^a	W-test ^b
DA_{it}	-0.024	-0.042	0.117	-0.021	-0.015	0.182	0.922	0.130
RM_SUM_{it}	0.040	0.045	0.165	0.009	0.000	0.168	0.250	0.026
RM_PROD_{it}	0.012	0.004	0.108	0.003	-0.011	0.109	0.602	0.175
RM_DISX_{it}	0.029	0.027	0.098	0.015	0.015	0.126	0.459	0.220
$BBATH_{it}$	0.160	0.000	0.373	0.270	0.000	0.445	0.123	0.175
SM_SUM_{it}	0.008	0.000	0.235	0.002	0.000	0.237	0.879	0.717
SM_PROD_{it}	0.033	0.000	0.190	0.020	0.000	0.189	0.678	0.960
SM_DISX_{it}	0.025	0.000	0.191	0.012	0.000	0.208	0.700	0.644
$DEBT_{it}$	0.263	0.248	0.181	0.185	0.106	0.193	0.009	0.008
ST_DEBT_{it}	0.313	0.201	0.295	0.412	0.330	0.323	0.056	0.085
BIG_{it}	0.830	1.000	0.375	0.840	1.000	0.373	0.972	0.918
MV_{it}	7.526	7.707	2.248	7.012	7.001	2.070	0.149	0.063
$EARN_{it}$	0.106	0.085	0.109	0.045	0.050	0.174	0.010	0.046
DA_{it-1}	-0.004	-0.033	0.235	-0.020	-0.015	0.125	0.598	0.522
$LTGN_{it}$	0.220	0.000	0.414	0.100	0.000	0.304	0.046	0.075

Panel F. Descriptive statistics on the variables used in tests of the association between accrual-based earnings management and real activities manipulation for U.S. GAAP versus IFRS samples

Variable ^d	U.S. GAAP Observations (n = 78)			IFRS Observations (n = 83)			Probability Value ^e	
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	t-test ^a	W-test ^b
DA_{it}	-0.123	-0.057	0.483	-0.024	-0.042	0.117	0.078	0.292
RM_SUM_{it}	0.030	0.019	0.189	0.040	0.045	0.165	0.730	0.327
RM_PROD_{it}	0.017	0.013	0.089	0.012	0.004	0.108	0.790	0.516
RM_DISX_{it}	0.014	0.026	0.150	0.029	0.027	0.098	0.466	0.934
$BBATH_{it}$	0.420	0.000	0.497	0.160	0.000	0.373	0.000	0.001
SM_SUM_{it}	0.125	0.000	0.852	0.008	0.000	0.235	0.247	0.846
SM_PROD_{it}	0.138	0.000	0.758	0.033	0.000	0.190	0.234	0.393
SM_DISX_{it}	0.144	0.000	0.829	0.025	0.000	0.191	0.221	0.994
$DEBT_{it}$	0.296	0.293	0.260	0.263	0.248	0.181	0.373	0.375
ST_DEBT_{it}	0.220	0.090	0.289	0.313	0.201	0.295	0.051	0.043
BIG_{it}	0.880	1.000	0.329	0.830	1.000	0.375	0.433	0.375
MV_{it}	6.235	5.935	2.530	7.526	7.707	2.248	0.001	0.000
$EARN_{it}$	-0.043	0.018	0.265	0.106	0.085	0.109	0.000	0.000
DA_{it-1}	-0.143	-0.058	0.459	-0.004	-0.033	0.235	0.018	0.292
$LTGN_{it}$	0.260	0.000	0.440	0.220	0.000	0.414	0.548	0.678

Note ^a: The *t*-test examine the null hypothesis that the mean difference is zero.

^b: The Wilcoxon test, a nonparametric statistical method, examine the null hypothesis that the median difference is zero.

^c: Probability values denote the significance levels to reject the null hypothesis and accept the alternative hypothesis for two-tailed *t*-tests (Wilcoxon tests) of differences in means (medians).

^d: Variable definitions:

ROA_{it} = firm *i*'s return on assets, which equals net income divided by total assets at the end of *t*;

LEV_{it} = firm *i*'s total liabilities divided by total assets at the end of *t*-1;

MV_{it} = the natural logarithm of firm *i*'s market value of equity at the end of *t*;

$NMKT_{it}$ = the number of foreign markets, excluding the U.S., in which firm *i*'s shares are traded during year *t*;

CS_{it} = an indicator variable equal to 1 if there is an increase in firm *i*'s par value of common stock during year *t*;

LT_DEBT_{it} = an indicator variable equal to 1 if there is an increase in firm *i*'s long-term debt during year *t*.

DA_{it} = firm *i*'s discretionary accruals computed using the Modified Jones (1991) model;

RM_PROD_{it} = firm *i*'s abnormal production costs, where production costs are defined as the sum of cost of goods sold and the change in inventories;

RM_DISX_{it} = firm *i*'s abnormal discretionary expenses multiplied by -1, where discretionary expenses are the sum of advertising expenses, R&D expenses, and SG&A expenses;

RM_SUM_{it} = the sum of RM_PROD_{it} and RM_DISX_{it} ;

$BBATH_{it}$ = an indicator variable equal to 1 when firm *i*'s ROE ranks in the bottom 20% of its industry, and 0 otherwise;

SM_SUM_{it} = the difference between firm *i*'s earnings (measured before discretionary accruals, abnormal production costs, and abnormal discretionary expenditures) for year *t* and earnings for year *t*-1, divided by total assets at the end of *t*-1, when this change is either above the median of nonzero positive values or below the median of nonzero negative values of this variable, and 0 otherwise;

SM_PROD_{it} = the difference between firm *i*'s earnings (measured before discretionary accruals and abnormal production costs) for year *t* and earnings for year *t*-1, divided by total assets at the end of *t*-1, when this change is either above the median of nonzero positive values or below the median of nonzero negative values of this variable, and 0 otherwise;

SM_DISX_{it} = the difference between firm *i*'s earnings (measured before discretionary accruals and abnormal discretionary expenditures) for year *t* and earnings for year *t*-1, divided by total assets at the end of *t*-1, when this change is either above the median of nonzero positive values or below the median of nonzero negative values of this variable, and 0 otherwise;

$DEBT_{it}$ = firm *i*'s total debt divided by total assets at the end of *t*-1;

ST_DEBT_{it} = firm *i*'s short-term debt divided by total debt at the end of *t*-1;

- BIG_{it} = a dummy variable equal to 1 if the auditor is a Big 8 audit firm (or their successors), and 0 otherwise;
- $EARN_{it}$ = firm i 's earnings before extraordinary items, deflated by total assets at the end of $t-1$;
- $LTGN_{it}$ = a dummy variable equal to 1 if firm i 's SIC code is 2833-2836, 8731-8734, 7370-7379, 3570-3577, 3600-3674, and 0 otherwise;
- IND_Q_{it} = the industry-adjusted Tobin's Q, which is the log difference between Q and the median Q, measured at the end of t ; for firm i 's primary four-digit SIC classification. Q is the ratio of market value of assets to the book value of assets, where the market value of assets is the book value of assets less the book value of equity plus the market value of equity;
- TA_{it} = the natural logarithm of firm i 's total assets at the end of t ;
- IA_{it} = the sum of firm i 's annual change in inventories and the annual change in gross property, plant, and equipment scaled by lagged total assets at the end of $t-1$;
- SEG_{it} = the number of firm i 's business segments;
- CS_{it} = firm i 's net cash flows less cash dividends and capital expenditures, scaled by lagged total assets at the end of $t-1$;
- CAP_{it} = firm i 's capital expenditures to sales, measured over year t ; and
- $INDROA_{it}$ = firm i 's industry-adjusted return on assets at the end of t , defined as earnings before interest and taxes less its median industry ROA, as classified by two-digit SIC code.

Table 3 presents Pearson correlations among the variables in each set of empirical tests. Panels A and B report univariate correlations among the endogenous and other independent variables in our simultaneous equations for the U.S. GAAP and IFRS samples, respectively. We find that DA_{it} is correlated positively with all of the proxies for real activities manipulation, namely RM_SUM_{it} , RM_PROD_{it} , and RM_DISX_{it} . This correlation can be explained by firms engaging in accrual-based earnings management and real activities manipulations simultaneously, as discussed in Cohen and Zarowin (2010) and Roychowdhury (2006). Moreover, the correlations are consistent with our expectations in that most variables (i.e., $BBATH_{it}$, SM_SUM_{it} , SM_PROD_{it} , SM_DISX_{it} , $DEBT_{it}$, and ST_DEBT_{it}) that capture executives' incentives to alter the magnitudes of abnormal accruals and real activities are significantly correlated with the earnings management proxies (i.e., DA_{it} , RM_SUM_{it} , RM_PROD_{it} , and RM_DISX_{it}) in the hypothesized directions for U.S. GAAP firms. We also find that the variables that proxy for executives' reporting incentives, except ST_DEBT_{it} , are negatively correlated with the earnings management proxies for IFRS firms, although some are less significant. The identifying variables (i.e., DA_{it-1} and $LTGN_{it}$) are generally not significantly correlated with the dependent variables of the equations they identify for both categories of sample firms.

Except for variables that are mechanically correlated (e.g., RM_SUM_{it} , RM_PROD_{it} , and RM_DISX_{it} ; SM_SUM_{it} , SM_PROD_{it} , and SM_DISX_{it}), the results provide evidence of significant correlations, but to a lesser degree, between various pairs of variables.

Table 3 Correlation Matrices for the Variables in Each Set of Empirical Tests

Panel A. Variables in tests of the association between accrual-based earnings management and real activities manipulation for U.S. GAAP observations (n = 78)

Variable ^a	DA_{it}	RM_SUM_{it}	RM_PROD_{it}	RM_DISX_{it}	$BBATH_{it}$	SM_SUM_{it}
RM_SUM_{it}	0.414***					
RM_PROD_{it}	0.206*	0.621***				
RM_DISX_{it}	0.397***	0.887***	0.189			
$BBATH_{it}$	-0.295**	-0.420***	-0.190	-0.404***		
SM_SUM_{it}	-0.284**	-0.661***	-0.246*	-0.683***	0.210*	
SM_PROD_{it}	-0.242**	-0.573***	-0.238**	-0.578***	0.158	0.888***
SM_DISX_{it}	-0.271**	-0.608***	-0.144	-0.676***	0.185	0.893***
$DEBT_{it}$	0.077	0.044	0.288**	0.226*	0.141	-0.082
ST_DEBT_{it}	0.273**	0.112	0.139	0.221*	0.109	0.284**
BIG_{it}	-0.073	-0.112	-0.136	-0.060	-0.018	0.088
MV_{it}	-0.115	-0.246**	-0.229*	-0.172	-0.208*	0.130
$EARN_{it}$	0.381***	0.539***	0.149	0.588***	-0.441***	-0.481***
DA_{it-1}	-0.336***	0.133	0.065	0.127	0.131	0.574***
$LTGN_{it}$	-0.159	0.517***	0.119	0.577***	-0.061	0.101

Panel B. Variables in tests of the association between accrual-based earnings management and real activities manipulation for IFRS observations (n = 83)

Variable ^a	DA_{it}	RM_SUM_{it}	RM_PROD_{it}	RM_DISX_{it}	$BBATH_{it}$	SM_SUM_{it}
RM_SUM_{it}	0.197*					
RM_PROD_{it}	0.169	0.819***				
RM_DISX_{it}	0.144	0.775***	0.273**			
$BBATH_{it}$	-0.170	-0.292**	-0.194*	-0.277**		
SM_SUM_{it}	-0.541***	-0.649***	-0.582***	-0.615***	0.119	
SM_PROD_{it}	-0.571***	-0.499***	-0.595***	-0.177	-0.005	0.759***
SM_DISX_{it}	-0.596***	-0.467*	-0.191*	-0.573***	0.010	0.779***
$DEBT_{it}$	-0.039	-0.277**	-0.194*	-0.250**	0.140	0.079
ST_DEBT_{it}	-0.045	0.111	0.129	0.034	-0.159	-0.203*
BIG_{it}	-0.058	-0.068	0.037	-0.151	-0.054	0.147
MV_{it}	-0.091	-0.003	-0.085	0.103	-0.024	0.090
$EARN_{it}$	0.107	0.099	-0.089	0.259**	-0.240**	-0.048
DA_{it-1}	-0.077	0.182	0.126	0.166	-0.012	0.353***
$LTGN_{it}$	0.132	0.226**	0.091	0.272**	-0.188*	-0.187

Note: ***, **, * denote significance at the 0.01, 0.05, and 0.10 level, respectively.

Note^a: See Table 2 for variable definitions.

Specifically, our choice of variables takes into account concerns of multicollinearity. However, multicollinearity does not appear to be significant within our specification because the variance-inflation-factors (VIFs) on our independent variables are all less than 2.

<i>SM_PROD_{it}</i>	<i>SM_DISX_{it}</i>	<i>DEBT_{it}</i>	<i>ST_DEBT_{it}</i>	<i>BIG_{it}</i>	<i>MV_{it}</i>	<i>ROA_{it}</i>	<i>DA_{it-1}</i>
0.884***							
-0.054	-0.115						
0.282**	0.309***	-0.231**					
0.092	0.076	-0.068	0.028				
0.133	0.118	-0.118	-0.250**	0.419***			
-0.423***	-0.473***	0.070	-0.429***	-0.095	0.149		
0.571***	0.580***	0.134	-0.269***	-0.100	-0.077	0.466***	
0.137	0.105	0.472***	0.080	0.029	-0.199*	-0.168	-0.225*

<i>SM_PROD_{it}</i>	<i>SM_DISX_{it}</i>	<i>DEBT_{it}</i>	<i>ST_DEBT_{it}</i>	<i>BIG_{it}</i>	<i>MV_{it}</i>	<i>ROA_{it}</i>	<i>DA_{it-1}</i>
0.641***							
-0.001	0.055						
-0.253**	-0.204*	-0.156					
0.052	0.133	-0.009	-0.331***				
0.179	0.096	0.102	-0.249**	0.183			
0.098	-0.100	-0.336***	0.004	-0.115	0.281**		
0.314***	0.345***	-0.034	0.141	-0.031	-0.196*	0.015	
-0.087	-0.218*	-0.314***	0.346***	0.069	0.188*	0.105	0.023

6.2 Correcting for Self-Selection Bias

We estimate the probit regression on two samples, of which the first (second) comprises 78 (83) U.S. GAAP (IFRS) observations and 78 (83) comparison firm observations that applied their domestic GAAP.¹⁸ Table 4 reports estimation results for the probit model. We find that the coefficient on LEV_{it} (ROA_{it} and CS_{it}) is (are) significantly positive (negative) at better than $p = 10\%$ for the U.S. GAAP/non-U.S. domestic standards comparison, consistent with the notion that firms with poor financial performance, higher leverage, and a lower propensity to access equity markets are more likely to adopt U.S. GAAP. We also document that the coefficients on ROA_{it} and LEV_{it} are significantly positive at better than $p = 1\%$ for IFRS adopters relative to domestic GAAP filers, suggesting that firms with better financial performance and higher leverage have a greater propensity to adopt IFRS.

Table 4 Estimation of the Binomial Probit Model of the Adoption Choice

$$SELECT_{it} = \alpha_0 + \alpha_1 ROA_{it} + \alpha_2 LEV_{it} + \alpha_3 MV_{it} + \alpha_4 NMKT_{it} + \alpha_5 CS_{it} + \alpha_7 LT_DEBT_{it} + \varepsilon_{it} \quad (5)$$

Variable ^a	U.S. GAAP vs. Domestic Standards		IFRS vs. Domestic Standards	
	Parameter Estimate	χ^2 Value	Parameter Estimate	χ^2 Value
<i>Intercept</i>	0.158	0.037	1.144	2.312
ROA_{it}	-0.273	3.211*	6.427	10.458***
LEV_{it}	2.939	11.451***	3.588	11.977***
MV_{it}	-0.019	0.043	-0.091	0.819
$NMKT_{it}$	-0.106	0.184	0.150	0.348
CS_{it}	-1.152	5.902**	0.040	0.011
LT_DEBT_{it}	0.288	0.520	-0.374	0.938
No. of firm-years	156		166	
Pseudo- R^2	0.209		0.206	

Note: ***, **, * denote significance at the 0.01, 0.05, and 0.10 level, respectively.

Note^a: Variable definitions:

$SELECT_{it}$ = an indicator variable equal to 1 for the sample firms, and 0 otherwise.

All other variables are defined in Table 2.

18 Our test sample comprises companies that did not domicile in countries that adopt U.S. GAAP/IFRS but changed their filing choice to either of the standards voluntarily after the elimination of the reconciliation requirement. We match each sample firm, based on industry, size, and year, with a comparison firm from the same country that reported using domestic GAAP. Once a local GAAP firm is selected as a match, it is not considered a potential match for other sample U.S. GAAP/IFRS firms. However, a breakdown of sample firms by country shows that Bermuda, Canada, and Israel are the only countries with both U.S. GAAP and IFRS adopters (see Panel A of Table 1). Accordingly, we use another matching procedure permitting matching a comparison firm to more than one test sample firm and find that four domestic GAAP adopters (three Canadian firms and one Bermudan firm) can be matched to more than one test sample firm (i.e., one U.S. GAAP and one IFRS firms), respectively. Untabulated findings reveal that using this alternative procedure has no effect on our results and inferences.

6.3 The Relation between Accrual-Based Earnings Management and Real Activities Manipulation

Table 5 reports 2SLS regression results for the simultaneous equations (6) and (7) estimated on the samples of voluntary U.S. GAAP and IFRS adopters, respectively. The empirical results in Panels A, B, and C use RM_SUM_{it} , RM_PROD_{it} , and RM_DISX_{it} , respectively, as the measures for real activities manipulation. We find that the coefficients on DA_{it} , RM_SUM_{it} , RM_PROD_{it} , and RM_DISX_{it} are all negative and significant at better than $p = 10\%$ for both the U.S. GAAP and IFRS samples in all the panels of Table 5, consistent with H_1 .

As mentioned before, to test for the existence of endogeneity formally, we use the Hausman (1978) test for contemporaneous correlation between the error term and discretionary accruals/real activities manipulation, and we reject the null of no endogeneity at the $p = 5\%$ significance level or better across all of the models. Taken together, the results suggest that discretionary accruals and real activities manipulation are partial substitutes for earnings management, and that their magnitudes are determined simultaneously for foreign firms voluntarily switching to U.S. GAAP/IFRS from domestic standards after the SEC waived the reconciliation requirement.¹⁹

The results presented in Table 5 offer further insights into whether executives' incentives play a substantial role in determining the magnitudes of accrual-based earnings management and real activities manipulation. In accordance with H_2 , the coefficients on $BBATH_{it}$ and the proxies for "income smoothing" reporting (i.e., SM_SUM_{it} , SM_PROD_{it} , and SM_DISX_{it}) are all negative and significant at better than $p = 5\%$ for both U.S. GAAP and IFRS adopters in all the panels of Table 5, suggesting that our sample U.S. GAAP/IFRS firms with a "big bath" or income smoothing incentive have a higher propensity to use discretionary accruals as well as real activities manipulation to reach their earnings targets.

Moreover, except for $DEBT_{it}$ in equation (6) with RM_PROD_{it} as the measure for real earnings management, the results document that the coefficients on $DEBT_{it}$ and ST_DEBT_{it} are all significantly positive at better than $p = 10\%$ for the U.S. GAAP sample in all the panels. In general, this finding is consistent with the assertion that U.S. GAAP firms with

19 Note that if the extents of discretionary accruals and real activities manipulation are determined sequentially, then the negative relation will occur in equation (6) or equation (7), but not in both.

the existence and tightness of accounting-based debt covenants may have a greater need to renegotiate debt on favorable terms and thus have a greater incentive to manipulate accruals and real activities to manage earnings upward.

Conversely, the negative coefficients on $DEBT_{it}$ and ST_DEBT_{it} in equation (6) for our sample IFRS firms reveal that because accrual management is more likely to draw auditor and regulatory scrutiny, IFRS firms with higher leverage may face more restrictions that are more likely to mitigate managerial opportunistic behavior (i.e., to record income-increasing accruals). On the other hand, the insignificant coefficients on $DEBT_{it}$ and ST_DEBT_{it} in equation (7) for IFRS adopters seem to suggest that some managerial motives other than contract renegotiations are the predominant considerations in reporting real activities. The coefficient on $MILL_{it}$ is significant at better than $p = 10\%$ for both U.S. GAAP and IFRS samples in all the panels of Table 5, confirming the appropriateness of the self-selection controls. However, repeating the tests without this control does not alter the inferences.²⁰

20 We are aware that the incentives for firms that domiciled in IFRS countries switching to US GAAP may differ from firms that switch from domestic standards to US GAAP/IFRS. Panels A and B of Table 1 show that, of firms that are required to use IFRS by their home jurisdiction, 16 firm-year observations (five from Australia, four from Ireland, three from Israel (since year 2008), and four from the U.K. voluntarily switched to U.S. GAAP. In addition, 22 firm-year observations (one from Argentina, four from Brazil, five from Canada, one from China, two from Indonesia, one from Israel, one from Korea, and seven from Mexico) switched from domestic standards to IFRS, and 17 firm-year observations (15 from Canada and two from Israel (in year 2007) switched from domestic standards to U.S. GAAP. For multiple regression analyses the desired level is between 5 to 20 observations for each predictor variable (see Hair, Black, Babin, and Anderson, 2009). Accordingly, we do not repeat the analysis from 2SLS regression for these sub-samples because insufficient power resulting from an insufficient sample size may lead to a statistically nonsignificant finding.

Table 5 Results for the Estimation of the Relation between Accrual-Based Earnings Management and Real Activities Manipulation for Voluntary Adopters after the Reconciliation Elimination

$$DA_t = \tau_0 + \tau_1 RM_t + \tau_2 BBATH_t + \tau_3 SMOOTH_t + \tau_4 DEBT_t + \tau_5 ST_DEBT_t + \tau_6 BIG_t + \tau_7 MV_t + \tau_8 EARN_t + \tau_9 DA_{t-1} + \tau_{10} MILL_t + \varepsilon_t \quad (6)$$

$$RM_t = \delta_0 + \delta_1 DA_t + \delta_2 BBATH_t + \delta_3 SMOOTH_t + \delta_4 DEBT_t + \delta_5 ST_DEBT_t + \delta_6 BIG_t + \delta_7 MV_t + \delta_8 EARN_t + \delta_9 LTGN_t + \delta_{10} MILL_t + \varepsilon_t \quad (7)$$

Panel A. Real activities manipulation proxied by RM_SUM_t

Variable ^a	U.S. GAAP Observations			IFRS Observations		
	Predicted Sign	DA_t Parameter Estimate	RM_SUM_t Parameter Estimate	DA_t Parameter Estimate	RM_SUM_t Parameter Estimate	t-Statistic
Intercept	?	1.762	0.549	0.020	0.337	-1.585
RM_SUM_t	?	-4.269	-8.364***	-2.033	-11.054***	
DA_t	-	-0.653	-1.915	-0.266	-7.443***	-6.031***
$BBATH_t$	-	-0.661	-7.861***	-1.300	-13.053***	-3.298***
SM_SUM_t	-	0.144	1.532*	-0.179	-2.575***	-9.875***
$DEBT_t$	+	0.264	3.718***	0.233	6.026***	0.236
ST_DEBT_t	+	0.064	1.134	0.065	2.198**	1.179
BIG_t	-/+	-0.154	-9.536***	-0.159	-10.458***	0.360
MV_t	?	0.564	5.359***	0.413	7.471***	1.100
$EARN_t$?	-0.121	-1.455*	0.002	0.945	3.483***
DA_{t-1}	-	0.012	2.064**	0.163	4.522**	
$LTGN_t$	+	-0.661	-4.251***	0.487	6.075***	1.422*
$MILL_t$?	78	78	83	83	2.118**
No. of firm-years		0.699	0.871	0.683	0.537	
Adjusted-R ²		-7.777***	-10.358***	-9.388***	-5.052***	
Hausman t-statistic						

The Effects of Relaxing the Reconciliation Requirement in Foreign Private Issuers' SEC Filings on Earnings Management Strategies: IFRS Adopters versus U.S. GAAP Adopters

Variable ^a	U.S. GAAP Observations						IFRS Observations					
	DA _{it}			RM_PROD _{it}			DA _{it}			RM_PROD _{it}		
	Predicted Sign	Parameter Estimate	t-Statistic	Parameter Estimate	t-Statistic		Parameter Estimate	t-Statistic	Parameter Estimate	t-Statistic		
Intercept	?	1.092	1.351	0.129	1.988*		0.199	3.145***	-0.075	-0.650		
RM_PROD _{it}	?	-4.692	-1.560*				-2.794	-13.851***				
DA _{it}	-			-1.031	-2.530***				-1.715	-6.133***		
BBATH _{it}	-	-0.425	-2.334**	-0.213	-3.165***		-0.260	-10.370***	-0.151	-4.066***		
SM_PROD _{it}	-	-0.352	-2.322**	-0.150	-3.358***		-1.310	-17.742***	-0.966	-8.264***		
DEBT _{it}	+	-0.670	-1.267	0.091	1.598*		-0.266	-10.121***	0.005	0.105		
ST_DEBT _{it}	+	0.276	2.321**	0.200	2.565***		-0.065	-5.625***	0.024	1.242		
BIG _{it}	-/+	-0.115	-1.027	-0.033	-1.259		-0.001	-0.074	0.012	0.749		
MV _{it}	?	-0.042	-2.520**	-0.031	-2.591**		0.003	2.111**	0.001	0.387		
EARN _{it}	?	-0.151	-0.690	0.047	0.844		-0.266	-6.424***	0.223	3.045***		
DA _{it-1}	-	-0.119	-1.826**				-0.004	-0.266				
LTGN _{it}	+			0.035	1.451*				-0.004	-0.227		
MILL _{it}	?	-0.556	-1.923*	0.135	2.076**		0.050	2.677***	0.069	1.787*		
No. of firm-years		78		78			83		83			
Adjusted-R ²		0.385		0.552			0.762		0.512			
Hausman t-statistic		-1.697**		-2.490**			-8.359***		-3.634***			

Panel C. Real activities manipulation proxied by RM_DISX_{it}

Variable ^a	U.S. GAAP Observations				IFRS Observations				
	DA_{it}		RM_DISX_{it}		DA_{it}		RM_DISX_{it}		
	Parameter Estimate	t-Statistic	Parameter Estimate	t-Statistic	Parameter Estimate	t-Statistic	Parameter Estimate	t-Statistic	
<i>Intercept</i>	?	0.313	2.133**	-0.096	-2.014**	-0.351	-4.103***	-0.085	-0.718
RM_DISX_{it}	?	-4.088	-5.515***			-3.429	-11.091***		
DA_{it}	-			-1.828	-10.126***			-1.347	-4.969***
$BBATH_{it}$	-	-0.368	-5.774***	-0.332	-9.396***	-0.326	-8.877***	-0.137	-3.481***
SM_DISX_{it}	-	-0.546	-5.531***	-0.263	-13.064***	-1.370	-13.780***	-0.767	-6.779***
$DEBT_{it}$	+	0.363	3.095***	0.200	4.385***	-0.061	-0.982	0.001	0.021
ST_DEBT_{it}	+	0.310	3.446***	0.345	7.894***	-0.146	-4.239***	0.014	0.892
BIG_{it}	-/+	0.121	1.543	0.016	0.602	-0.098	-3.754***	-0.003	-0.270
MV_{it}	?	-0.064	-4.767***	-0.060	-8.978***	0.033	5.781***	0.004	1.522
$EARN_{it}$?	0.671	4.212***	0.306	6.788***	0.496	4.685***	0.213	4.470***
DA_{it-1}	-	-0.138	-1.285			0.001	0.024		
$LTGN_{it}$	+			0.028	2.209**			0.005	0.406
$MILL_{it}$?	0.014	2.143**	0.481	7.149***	0.482	6.731***	0.090	3.348***
No. of firm-years		78		78		83		83	
Adjusted- R^2		0.584		0.758		0.699		0.491	
Hausman t-statistic		-5.122***		-9.739***		-9.977***		-4.364***	

Note: ***, **, * denote significance at the 0.01, 0.05, and 0.10 level, respectively.

Note ^a: Variable definitions:

RM_{it} = represents the two real earnings management metrics, RM_PROD_{it} and RM_DISX_{it} , and the combined variable, RM_SUM_{it} ;

$SMOOTH_{it}$ = represents the proxy for “income smoothing” reporting, which is set equal to SM_PROD_{it} , SM_DISX_{it} , or SM_SUM_{it} ; and

$MILL_{it}$ = Inverse Mills Ratio in the Heckman two-stage regression model (Heckman, 1979). The ratio, calculated from the first-stage probit model, equals the probability density function divided by the cumulative density function.

All other variables are defined in Table 2.

7 Further Checks and Additional Analyses

7.1 Alternative Significance Tests

A potential problem with statistical inferences in small samples is the validity of the normal distribution assumption (Hung and Subramanyam, 2007). To address this issue, we apply the bootstrapping methods, which are resampling techniques for assessing uncertainties, to the estimations of the equations in Table 5 (see Efron and Tibshirani, 1993). Specifically, we use the bootstrapping procedures for the significance tests by constructing 1,000 random samples and assessing the 5% and 95% confidence limits based on 1,000 random parameter estimates. The results (not reported) are qualitatively similar and the inferences are unchanged.

7.2 Validation of “Income Smoothing” Proxies

Given the inherent difficulty in knowing managers' true motives for their behaviors, one criticism of the literature is that earnings management may be due to behavior other than managerial opportunism. A large number of studies (e.g., Dierynck, Landsman, and Renders, 2012; Gunny, 2010; Yin and Cheng, 2004; Zang, 2012) provide evidence that firms manage earnings to avoid breaching debt covenants, to take a “big bath,” or to show a smooth earnings pattern (mostly to meet internally or externally imposed earnings benchmarks such as prior year's earnings, zero earnings, and analyst consensus forecast). However, few studies (e.g., Roychowdhury, 2006; Zang, 2012) indicate that firms just meeting/beating benchmarks might not be the only firms that manage earnings. Other firms might manage earnings and still miss the aforementioned benchmarks, or they may manage earnings for other incentives or unobservable targets. Accordingly, we choose more general proxies for income smoothing in our primary analysis.

Nonetheless, we attempt to specify $SMOOTH_{it}$ better by refining the three measures for income smoothing to provide additional assurance that they are capturing the intended reporting incentives. Specifically, we redefine $SMOOTH_{it}$ (i.e., SM_PROD_{it} , SM_DISX_{it} , and SM_SUM_{it}) to equal the difference between firm i 's current earnings (measured before discretionary accruals and real activities manipulation such as abnormal production costs, abnormal discretionary expenditures, and their aggregate income effects, respectively) and prior-year earnings, divided by beginning total assets, when this change is either above the median of nonzero positive values or below the median of nonzero negative values of this variable and when firm i just meets either prior year's earnings or zero earnings

benchmark, and 0 otherwise.^{21,22} Following Gunny (2010), we define firms suspected of meeting last-year earnings as firm-year observations with change in net income scaled by lagged total assets between 0 and 0.01, and firms suspected of meeting zero earnings as firm-year observations with net income as a percentage of lagged total assets between 0 and 0.01. The inferences on $SMOOTH_{it}$ as well as the other explanatory variables are consistent with those in the primary analysis.²³ The evidence suggests that $SMOOTH_{it}$ is more likely picking up reporting incentive behaviors, as opposed to the underlying economics of the firm.

7.3 Analyses Controlling Country Effects and Macroeconomic Factors

Due to the small sample size, we are unable to control the country effect by incorporating all of the country indicator variables into the models. Instead, we examine the country effect by adding the indicator variable one by one to the models. Panel A of Table 1 indicates that Canada has the largest number of U.S. GAAP firms while the other countries have a single-digit number of either U.S. GAAP or IFRS firms. Accordingly, we re-estimate the simultaneous equations (6) and (7) after including a country dummy variable ($COUNTRY_{it}$) coded 1 for the sample firms that domicile in Canada and 0 otherwise. In untabulated results, we find that altering specifications after including $COUNTRY_{it}$ produce similar results. Specifically, the parameters and significance levels on the reporting incentive variables remain similar to those reported in Table 5. Investigating the effects of countries other than Canada will result in substantially uneven sample size at a greater extent for the two groups compared and may therefore bias the regression results. Accordingly, we do not repeat the analysis for the sample firms in other countries.

21 Given that abnormal production costs and discretionary expenditures have different implications for earnings, we first multiply the latter by -1 and then add it to the former as an aggregate measure before considering their income effect in the measurement of SM_SUM_{it} .

22 We do not examine analysts' forecasts for two reasons: (1) real activities manipulation has to take place before the fiscal year-end, and managers are unlikely to know the forecasted earnings prior to the earnings announcement; and (2) we do not have sufficient data about analysts' forecasts of earnings for our sample firms.

23 We also examine an alternative threshold for $BBATH_{it}$, which is redefined to equal 1 when earnings (adjusted for discretionary accruals and real activities manipulation) are negative and lower than the four-quarters-ago earnings, and 0 otherwise. Similar to those for $SMOOTH_{it}$, $BBATH_{it}$ is proxied by three measures (i.e., BB_PROD_{it} , BB_DISX_{it} , and BB_SUM_{it}) depending on whether the abnormal level of production costs, the abnormal level of discretionary expenditures, or the aggregate measure of real activities manipulation is used in these alternative measurements of the "big bath" incentive. The results (not reported) are qualitatively similar and the inferences are unchanged.

We also re-estimate the simultaneous equations (6) and (7) after including three macroeconomic variables: Gross Domestic Product (GDP), foreign direct investment, and inflation rate for the countries where the sample firms domicile. We have no prediction pertaining to the coefficients on these variables. Untabulated results appear consistent with those in the primary analyses. That is, the inferences on managers' trade-off decisions and the reporting incentive variables are not qualitatively different from those reported in Table 5. However, the coefficients on most of the macroeconomic factors are insignificant. Following prior relevant studies (e.g., Barth et al., 2012; Chiu and Lee, 2013; Hansen et al., 2014; Harris and Muller, 1999; Henry, Lin, and Yang, 2009; Kim et al., 2012), our primary analysis does not include explicit controls for macroeconomic factors.

7.4 Alternative Sample Selection

For a robustness check, we remove firms in countries that mandate IFRS during the sample period or announce their intent to adopt the standards; those firms' switch to IFRS may not be voluntary. Specifically, we repeat the analyses from 2SLS regression after deleting the following two groups of sample firms, respectively: (1) firms from Brazil (three), China (one), and Israel (one) that were required to use IFRS by their home jurisdiction during a sample year, and (2) firms from Brazil (four), Canada (three), and Korea (one), and Mexico (seven) that domicile in countries that have already made announcement of their adoption roadmap of IFRS in (or prior to) a sample year.^{24,25} Untabulated results reveal essentially similar inferences between the IFRS test sample in the primary analysis and those excluding the two types of firms, respectively.

7.5 Representatives of Sample

In untabulated results, we check for cross-sectional variation in the earnings management strategies, eliminating the potential confounding effect of tax avoidance. Specifically, we re-estimate equations (6) and (7) after removing the sample firms from

24 On 13 July 2007, the SEC of Brazil issued Rule No. 457 requiring listed companies to use IFRS for their financial reporting, starting with accounting periods ending in 2010. Given that three of the seven sample firms domiciling in Brazil adopted IFRS in 2010, we eliminate only these firms in this sensitivity test.

25 We do not exclude one firm that domicile in Argentina and two firms in Canada from the estimation because these firms voluntarily switched to IFRS prior to the announcement of their adoption roadmap of the standards.

countries (i.e., Bermuda, Channel Islands, Marshall Islands, and British Virgin Islands) the OECD has designated as tax havens. For robustness check, we also repeat the analysis after eliminating firms that domicile in counties (i.e., Argentina, Channel Islands, China, Ireland, Korea, and Marshall Islands) with only one individual firm. We find that parameters and significance levels on all of the variables are generally unchanged from those in Table 5.

7.6 Pre-Adoption Differences

Pre-existing differences and/or changes around the relaxation of reconciliation requirement could drive the documented differences between firms voluntarily switching to U.S. GAAP and those to IFRS. To examine that possibility, we first conduct similar tests for our U.S. GAAP and IFRS test samples using firm-year observations during the U.S. GAAP reconciliation sample period 2003-2006.²⁶ Untabulated results suggest that discretionary accruals and real activities manipulation are partial substitutes for earnings management and that their magnitudes are determined simultaneously for both samples of U.S. GAAP and IFRS firms in the U.S. GAAP reconciliation period (all significant at $p = 1\%$). However, with respect to the reporting incentives, only the proxies for “income smoothing” reporting (i.e., SM_SUM_{it} , SM_PROD_{it} , and SM_PROD_{it}) are significantly negative as predicted at $p = 1\%$ significance level for both samples. The proxies for the existence and tightness of debt covenants (i.e., $DEBT_{it}$ and ST_DEBT_{it}) are significantly positive as predicted at better than $p = 10\%$ only for the U.S. GAAP firms. The coefficient on the “big bath” variable ($BBATH_{it}$) either is insignificant or does not have the predicted sign for the two samples. The results suggest that the “big bath” incentive does not play an essential role in determining the magnitudes of accrual-based earnings management and real activities manipulation in the U.S. GAAP reconciliation period, which are inconsistent with the findings from our primary analysis, namely the IFRS reporting period. The combined evidence suggests that differences in the earnings management strategies between these two categories of firms before the SEC eliminated the reconciliation requirement generally do not explain their differences after the elimination.

26 The sample to examine the pre-existing differences consists of 83 (132) firm-year observations during the reconciliation sample period for firms changing their filing status to U.S. GAAP (IFRS) voluntarily after the elimination of reconciliation requirement.

7.7 Voluntary IFRS Firms prior to the Elimination

To examine whether other voluntary adopters also exhibit the trade-off decisions similar to our test samples', we conduct similar tests (i.e., the simultaneous equations (6) and (7)) using two control samples of firms that did not domicile in countries that adopt U.S. GAAP/IFRS but elected to adopt either of the standards voluntarily prior to the SEC's decision to waive the reconciliation requirement and have not changed their filing choice since then.²⁷ Table 6 indicates that the coefficients on DA_{it} , RM_SUM_{it} , RM_PROD_{it} , and RM_DISX_{it} are all negative and significant at $p = 1\%$ for the U.S. GAAP control sample. On the other hand, the coefficients on all of the earnings management variables, except DA_{it} in the RM_DISX_{it} equation, are negative and significant at better than $p = 1\%$ for the IFRS control sample. The Hausman (1978) test for endogeneity is also consistent with these results: we reject the null of no endogeneity at $p = 1\%$ significance level across all the models using either of the control samples except for the RM_DISX_{it} equation using voluntary IFRS observations. Taken together, the combined evidence suggests that voluntary U.S. GAAP adopters determine the levels of discretionary accruals and real activities manipulation simultaneously. The results also show evidence of simultaneity and substitution between abnormal accruals and inventory overproduction for the IFRS control sample. However, in contrast to the results in our primary analysis, the findings from the control sample tests reveal that voluntary IFRS adopters without changes in their filing status determine the abnormal level of discretionary expenditures independently of their decisions about managing discretionary accruals, but that the amount of discretionary expenditures has a negative effect on the magnitude of accrual management.

Table 6 shows that the coefficients on $BBATH_{it}$ and the proxies for "income smoothing" reporting (i.e., SM_SUM_{it} , SM_PROD_{it} , and SM_PROD_{it}) are negative and significant at better than $p = 5\%$ for both the U.S. GAAP and IFRS control samples in all the models except those in the RM_DISX_{it} equation using IFRS observations. The coefficients on $DEBT_{it}$ and ST_DEBT_{it} are significantly positive at better than $p = 10\%$ for

27 The control sample consists of 796 (116) firm-year observations representing 199 (29) distinct firms that voluntarily adopted U.S. GAAP (IFRS) prior to 2007 and continued to do so during our sample period 2007-2010. The number of U.S. GAAP control sample firms is significantly greater than that of test sample due to the SEC's waiver of IFRS-to-U.S. GAAP reconciliation for financial statements issued for fiscal years ending after November 15, 2007, and interim periods after the effective date.

both control samples in most of the models. Taken together, the combined evidence suggests that these executives' reporting incentives generally play an essential role in determining the magnitudes of accrual-based earnings management and real activities manipulation for voluntary U.S. GAAP/IFRS adopters that did not change their filing choice after the reconciliation elimination.

The negative coefficient on RM_DISX_{it} in the DA_{it} equation and the insignificant coefficient on DA_{it} in the RM_DISX_{it} equation for the IFRS control sample are consistent with managers adjusting the level of discretionary accruals after abnormal discretionary expenditures are realized at the fiscal year-end. To the extent that this sequential decision process is valid, the trade-off between the two earnings management strategies will occur in the fiscal fourth quarter, rather than in the first three fiscal quarters (Pincus and Rajgopal, 2002).

Accordingly, to assess whether the results are sensitive to the simultaneous-versus-sequential assumption, we re-estimate the simultaneous equations (6) and (7) for our IFRS control sample using the first three quarters of data from our sample period. Untabulated results show that both the coefficients on DA_{it} and the Hausman (1978) test in the RM_DISX_{it} equation are insignificant, similar to those using yearly data, but that both the negative coefficients on RM_DISX_{it} and the Hausman (1978) test in the DA_{it} equation become insignificant. This suggests that there is no direct substitution between the extent of accrual-based earnings management and the abnormal level of discretionary expenditures in the first three quarters of the year. Collectively, these results suggest that managers of the IFRS control sample firms adjust the magnitude of discretionary accruals, mostly in the fourth quarter (or after the fiscal year-end but before the earnings announcement date), based on the realized level of real activities manipulation through cutting discretionary expenditures.

A further breakdown of the two control samples shows that approximately 19% (37 out of 199) of voluntary U.S. GAAP adopters and 3% (1 out of 29) of voluntary IFRS adopters file their annual reports via Form 10-K for at least a year during the sample period. Specifically, these firms have switched status from foreign private issuers to domestic U.S. issuers, or vice versa. A foreign company that switches out of foreign private issuer status is required to furnish annual reports on Form 10-K on the same timetable as a domestic U.S. firm. Unlike foreign firms cross-listing on the U.S. exchanges, domestic U.S. issuers are subject to the accelerated filing rules, which require that large accelerated filers, accelerated filers, and non-accelerated filers provide annual

reports 60 days, 75 days, and 90 days, respectively, after their fiscal year-end. Foreign private issuers may file annual reports via Form 20-F within four months after their fiscal-year-end.²⁸ A greater portion of IFRS adopters relative to U.S. GAAP adopters permitted to apply the more lenient deadline for furnishing annual reports probably explains why we observe the sequential decision process only in the IFRS control sample.

28 The Canada-U.S. Multijurisdictional Disclosure System (MJDS) permits large Canadian firms to file annual reports on Form 40-F, which must be filed on the same day as the annual information form due to any securities commission or equivalent regulatory authority in Canada (Torys, 2009).

Table 6 Results for the Estimation of the Relation between Accrual-Based Earnings Management and Real Activities Manipulation for Voluntary Adopters prior to the Reconciliation Elimination

$$DA_t = \tau_0 + \tau_1 RM_t + \tau_2 BBATH_t + \tau_3 SMOOTH_t + \tau_4 DEBT_t + \tau_5 ST_DEBT_t + \tau_6 BIG_t + \tau_7 MV_t + \tau_8 EARN_t + \tau_9 DA_{t-1} + \tau_{10} MILL_t + \varepsilon_t \quad (6)$$

$$RM_t = \delta_0 + \delta_1 DA_t + \delta_2 BBATH_t + \delta_3 SMOOTH_t + \delta_4 DEBT_t + \delta_5 ST_DEBT_t + \delta_6 BIG_t + \delta_7 MV_t + \delta_8 EARN_t + \delta_9 LTGN_t + \delta_{10} MILL_t + \varepsilon_t \quad (7)$$

Panel A. Real activities manipulation proxied by RM_SUM_t

Variable ^a	U.S. GAAP Observations			IFRS Observations					
	DA _t	RM_SUM _t	DA _t	RM_SUM _t	DA _t	RM_SUM _t			
	Predicted Sign	Parameter Estimate	t-Statistic	Parameter Estimate	t-Statistic	Parameter Estimate			
Intercept	?	0.099	2.458**	0.011	0.446	-0.492	-4.669***	-0.496	-2.608**
RM_SUM _t	-	-2.031	-14.724***			-1.010	-9.085***		
DA _t	-			-2.097	-10.288***			-1.552	-5.006***
BBATH _t	-	-0.089	-3.763***	-0.134	-3.650***	-0.134	-4.416***	-0.155	-2.514***
SM_SUM _t	-	-1.409	-15.908***	-1.014	-17.356***	-1.003	-9.946***	-1.155	-9.267***
DEBT _t	+	0.128	2.633***	0.054	1.907**	0.562	7.342***	0.670	5.643***
ST_DEBT _t	+	0.050	1.873**	0.036	2.346***	0.102	2.616***	0.034	0.391
BIG _t	-/+	-0.016	-1.741*	0.004	1.135	0.259	3.711***	0.231	1.755*
MV _t	?	-0.014	-3.250***	-0.007	-2.863***	-0.006	-1.959*	-0.008	-1.169
EARN _t	?	0.257	4.011***	0.262	7.019***	1.155	8.858***	1.404	6.276***
DA _{t-1}	-	-0.001	-0.702			-0.084	-1.474*		
LTGN _t	+			0.001	-0.703			0.103	1.356*
MILL _t	?	0.237	4.408***	0.066	1.505*	0.509	6.437***	-0.164	-4.144***
No. of firm-years		796		796		116		116	
Adjusted-R ²		0.356		0.337		0.598		0.474	
Hausman t-statistic		-12.992***		-9.006***		-5.796***		-3.128***	

The Effects of Relaxing the Reconciliation Requirement in Foreign Private Issuers' SEC Filings on Earnings Management Strategies: IFRS Adopters versus U.S. GAAP Adopters

Variable ^a	U.S. GAAP Observations						IFRS Observations					
	Predicted			RM_PROD _{it}			DA _{it}			RM_PROD _{it}		
	Sign	Parameter Estimate	t-Statistic	Parameter Estimate	t-Statistic	Parameter Estimate	Parameter Estimate	t-Statistic	Parameter Estimate	t-Statistic	Parameter Estimate	
Intercept	?	0.060	1.898*	0.001	0.015	-0.181	-0.181	-3.457***	-0.278	-3.457***	-0.278	-2.304**
RM_PROD _{it}	-	-3.584	-17.900***									
DA _{it}	-			-2.106	-7.547***				-1.538			-6.327***
BBATH _{it}	-	-0.089	-4.826***	-0.162	-4.105***	-0.125	-0.125	-5.015***	-0.132	-5.015***	-0.132	-2.639***
SM_PROD _{it}	-	-1.517	-19.878***	-0.956	-9.883***	-1.021	-1.021	-14.416***	-1.168	-14.416***	-1.168	-8.347***
DEBT _{it}	+	0.185	4.759***	0.079	1.376*	0.454	0.454	9.136***	0.550	9.136***	0.550	5.244***
ST_DEBT _{it}	+	0.134	6.016***	0.064	1.698**	0.034	0.034	1.440*	-0.031	1.440*	-0.031	-0.574
BIG _{it}	-/+	-0.048	-2.646***	-0.004	-0.133	0.099	0.099	2.850***	0.096	2.850***	0.096	1.800*
MV _{it}	?	-0.007	-2.084**	-0.004	-0.643	-0.014	-0.014	-2.585**	-0.010	-2.585**	-0.010	-1.162
EARN _{it}	?	-0.249	-5.619***	-0.005	-0.065	0.991	0.991	11.423***	1.310	11.423***	1.310	5.705***
DA _{it-1}	-	0.003	1.076			-0.063	-0.063	-1.319*				
LTGN _{it}	+			-0.002	-0.987				0.094		0.094	1.704**
MILL _{it}	?	0.008	1.978*	0.013	3.267***	0.026	0.026	1.906*	0.027	1.906*	0.027	4.686***
No. of firm-years		796		796		116	116					
Adjusted-R ²		0.383		0.265		0.638	0.638					0.476
Hausman t-statistic		-16.881***		-7.048***		-7.959***	-7.959***					-4.259***

Panel C. Real activities manipulation proxied by RM_DISX_{it}

Variable ^a	U.S. GAAP Observations				IFRS Observations				
	DA_{it}		RM_DISX_{it}		DA_{it}		RM_DISX_{it}		
	Parameter Estimate	t-Statistic	Parameter Estimate	t-Statistic	Parameter Estimate	t-Statistic	Parameter Estimate	t-Statistic	
Intercept	?	0.134	2.386**	0.005	0.116	0.247	1.499	0.093	1.357
RM_DISX_{it}	-	-3.216	-10.348***			-6.682	-3.780***		
DA_{it}	-			-2.023	-11.735***			-0.065	-0.459
$BBATH_{it}$	-	-0.116	-3.574***	-0.122	-5.054***	-0.070	-1.908**	-0.004	-0.169
SM_DISX_{it}	-	-1.444	-11.786***	-0.988	-15.019***	-1.125	-6.426***	-0.099	-1.208
$DEBT_{it}$	+	0.187	5.531***	0.060	2.612***	0.643	4.863***	0.051	0.881
ST_DEBT_{it}	+	0.033	1.846**	0.041	3.221***	0.330	3.461***	0.040	1.670**
BIG_{it}	-/+	-0.026	-1.681*	0.004	2.159**	-0.195	-1.749*	-0.043	-0.945
MV_{it}	?	-0.019	-6.174***	-0.007	-3.525***	-0.051	-3.689***	-0.010	-2.603**
$EARN_{it}$?	0.555	11.610***	0.301	10.045***	1.347	5.796***	0.122	1.152
DA_{it-1}	-	-0.002	-1.341*			-0.170	-2.155**		
$LTGN_{it}$	+			0.001	1.353*			0.022	0.983
$MILL_{it}$?	0.016	2.179**	0.019	8.401***	0.031	2.203**	-0.020	-3.781***
No. of firm-years		796		796		116		116	
Adjusted-R ²		0.372		0.397		0.487		0.193	
Hausman t-statistic		-9.526***		-10.801***		-3.457***		-0.263	

Note: ***, **, * denote significance at the 0.01, 0.05, and 0.10 level, respectively.

Note *: All variables are defined in Tables 2 and 5.

7.8 Earnings Management Strategies among Various Groups of Non-U.S. Firms

To understand whether earnings management strategies differ among various groups of non-U.S. cross-listed firms that are subject to the SEC's decision to waive the reconciliation requirement, we re-estimate equations (6) and (7) after including four types of firms as control groups: (1) firms that voluntarily switch to either U.S. GAAP or IFRS after the change, (2) firms that voluntarily adopt U.S. GAAP/IFRS prior to the change and maintain their filing choice afterward, (3) firms that domicile in countries that adopt U.S. GAAP/IFRS on a mandatory basis, and (4) firms that apply non-U.S./non-IFRS domestic standards after the elimination. However, the only non-U.S. firms required to use U.S. GAAP by their home jurisdiction are domiciled in Marshall Islands. Out of these mandatory U.S. GAAP *adopters*, all but one firm fall within the deep-sea foreign transportation of freight industry (i.e., SIC 4412), and none of them are in a high litigation industry (i.e., SIC 2833-2836, 3570-3577, 3600-3674, 7370-7379, and 8731-8734). Due to a fairly uneven industry distribution and a zero value for $LTGN_{it}$ for mandatory U.S. GAAP adopters, we do not include this type of firms as one of the control groups in the regression analyses. On top of that, this paper is intended to capture the real effect of Securities Act Release No. 33-8879 which permits IFRS reporting for non-U.S. firms. Accordingly, we present four categories of non-U.S. cross-listed firms (excluding U.S. GAAP firms and their matched domestic firms) in the regression equations by including three dummy regressors, employing the following coding scheme:^{29,30}

29 Groups A, B, C, D consist of 83, 116, 118, and 83 firm-year observations that voluntarily switch to IFRS after the regulatory change, that voluntarily adopt IFRS prior to 2007 and maintain their filing choice afterward, that are required to use IFRS by their home jurisdiction, and that apply domestic standards and are selected as a match for the firms in Group A, respectively during our sample period 2007-2010.

30 Firms that are required to use IFRS by their home jurisdiction can be classified into two groups: (1) those (i.e., 318 firm-year observations) that mandatorily adopt IFRS prior to the reconciliation elimination and (2) those (i.e., 118 firm-year observations) that mandatorily change their filing choice to IFRS after the regulatory change. Because the 2SLS regression results (not reported) for the simultaneous equations (6) and (7) estimated on these sub-samples are qualitatively similar, we use the latter to represent the mandatory IFRS observations.

Group	<i>D1</i>	<i>D2</i>	<i>D3</i>
Voluntary IFRS observations after the regulatory change (A)	1	0	0
Voluntary IFRS observations before the regulatory change (B)	0	1	0
Mandatory IFRS observations (C)	0	0	1
Group A's matched domestic observations (D)	0	0	0

The regression models incorporating the three dummy variables (i.e., *D1*, *D2*, *D3*) are as follows:

$$DA_{it} = \tau_0 + \tau_1 RM_{it} + \tau_2 BBATH_{it} + \tau_3 SMOOTH_{it} + \tau_4 DEBT_{it} + \tau_5 ST_DEBT_{it} + \tau_6 BIG_{it} + \tau_7 MV_{it} + \tau_8 EARN_{it} + \tau_9 DA_{it-1} + \tau_{10} MILL_{it} + \tau_{11} D1_{it} + \tau_{12} D2_{it} + \tau_{13} D3_{it} + \varepsilon_{it}$$

$$RM_{it} = \delta_0 + \delta_1 DA_{it} + \delta_2 BBATH_{it} + \delta_3 SMOOTH_{it} + \delta_4 DEBT_{it} + \delta_5 ST_DEBT_{it} + \delta_6 BIG_{it} + \delta_7 MV_{it} + \delta_8 EARN_{it} + \delta_9 LTGN_{it} + \delta_{10} MILL_{it} + \delta_{11} D1_{it} + \delta_{12} D2_{it} + \delta_{13} D3_{it} + \varepsilon_{it}$$

Columns (i), (iii), and (v) of Table 7 show that the coefficients on *D1_{it}* and *D2_{it}* are all positive and significant at better than $p = 1\%$, suggesting that firms that changed their filing choice to IFRS voluntarily after the elimination and those that voluntarily adopted IFRS prior to the regulatory change manipulate accruals upward at a greater extent than firms that are required to use IFRS by their home jurisdiction and those that applied domestic standards after the regulatory change. In addition, columns (i), (iii), and (v) of Table 7 indicate that the coefficients on *D3_{it}* are all negative and significant at better than $p = 1\%$, revealing that mandatory IFRS firms “fine-tune” accruals downward at a greater magnitude than the other three groups of firms.

Columns (ii), (iv), and (vi) of Table 7 document that the coefficients on *D1_{it}* and *D2_{it}* are all positive and significant at better than $p = 10\%$, suggesting that firms that changed their filing choice to IFRS voluntarily after the elimination and those that adopted IFRS voluntarily prior to the regulatory change alter real activities to manage earnings upward at a greater extent than firms that are required to use IFRS by their home jurisdiction and those that applied domestic standards after the regulatory change. Moreover, columns (ii), (iv), and (vi) of Table 7 show that the coefficients on *D3_{it}* are all negative and significant at better than $p = 5\%$, indicating that mandatory IFRS firms engage in real activities manipulation to reduce earnings at a greater magnitude than their counterparts.

The combined evidence in Table 7 reveals that earnings management strategies (i.e., discretionary accruals and real activities manipulation) play different roles in firms that adopt IFRS voluntarily prior to the regulatory change and maintain their filing choice afterward, those that switch to IFRS voluntarily after the elimination, those that apply domestic standards after the elimination, and those that domicile in countries that adopt IFRS on a mandatory basis, if ranked by the order of most positive (or least negative) to least positive (or most negative) income effect. These results probably explain why prior studies observe lower audit fees for non-U.S. cross-listed firms that use IFRS to prepare their financial reports after the change (see Lin and Huang, 2017). Our findings also reinforce prior studies, including Barth et al. (2012) and Christensen et al. (2015). They both document that voluntary and mandatory IFRS adopters exhibit significant differences in accounting quality.

For robustness check, we re-estimate the simultaneous equations (6) and (7) for our mandatory IFRS sample. Table 8 indicates that the coefficients on all of the earnings management variables, except DA_{it} (RM_DISX_{it}) in the RM_DISX_{it} (DA_{it}) equation, are all negative and significant at $p = 1\%$. We use Hausman (1978) test for contemporaneous correlation between the error term and discretionary accruals/real activities manipulation, and we reject the null of no endogeneity at the $p = 10\%$ significance level or better across all the models except for the DA_{it} and RM_DISX_{it} equations in columns (v) and (vi) of Table 8. Taken together, the results show evidence of simultaneity and substitution between abnormal accruals and inventory overproduction for firms that are required to use IFRS by their home jurisdiction. However, in contrast to those for firms that adopted IFRS voluntarily before or after the reconciliation elimination, the findings from the additional analysis reveals that mandatory IFRS adopters do not manage earnings through abnormal accruals and discretionary expenditures simultaneously. The results provide additional evidence that the earnings management strategies of mandatory IFRS adopters differ from those of voluntary IFRS firms.

Table 7 Results for the Estimation of the Relation between Accrual-Based Earnings Management and Real Activities Manipulation Classified by Four Groups of Non-U.S. Cross-Listed Firms

$$DA_t = \tau_0 + \tau_m \text{Regressors in equation (6)} + \tau_{11} D1_t + \tau_{12} D2_t + \tau_{13} D3_t + \epsilon_t$$

$$RM_t = \delta_0 + \delta_m \text{Regressors in equation (7)} + \delta_{11} D1_t + \delta_{12} D2_t + \delta_{13} D3_t + \epsilon_t$$

Variable ^a	Predicted Sign	(i) DA_t		(ii) RM_SUM_t		(iii) DA_t		(iv) RM_PROD_t		(v) DA_t		(vi) RM_DISX_t	
		Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate
<i>Intercept</i>	?	0.138***	0.031	0.135***	0.033	0.259***	-0.037**						
<i>Regressors in equations (6)-(7)</i>		Included	Included	Included	Included	Included	Included						
$D1_t$?	0.035***	0.025**	0.089***	0.032*	0.090***	0.018*						
$D2_t$?	0.113***	0.029**	0.164***	0.038**	0.147***	0.028**						
$D3_t$?	-0.006***	-0.028**	-0.026***	-0.040***	-0.034***	-0.024***						
No. of firm-years		400	400	400	400	400	400						
Adjusted-R ²		0.489	0.393	0.503	0.323	0.414	0.304						
Hausman t-statistic		-2.364***	-2.046***	-4.432***	-5.859***	-3.509***	-4.520***						

Note: ***, **, * denote significance at the 0.01, 0.05, and 0.10 level, respectively.

Note^a: We use dummy variables to distinguish different control groups of firms in our analyses. Specifically, we present four categories of non-U.S. cross-listed firms (excluding U.S. GAAP firms and their matched domestic firms) in 2SLS regression by including three dummy regressors, employing the following coding scheme:

Group	D1	D2	D3
Voluntary IFRS observations after the regulatory change (A)	1	0	0
Voluntary IFRS observations before the regulatory change (B)	0	1	0
Mandatory IFRS observations (C)	0	0	1
A's matched domestic observations (D)	0	0	0

All other variables are defined in Tables 2 and 5.

Table 8 Results for the Estimation of the Relation between Accrual-Based Earnings Management and Real Activities Manipulation for Mandatory IFRS Firms

Variable ^a	Predicted Sign	(i) DA_{it}		(ii) RM_SUM_{it}		(iii) DA_{it}		(iv) RM_PROD_{it}		(v) DA_{it}		(vi) RM_DISX_{it}	
		Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate	Parameter Estimate
$DA_{it} = \tau_0 + \tau_1 RM_{it} + \tau_2 BBATH_{it} + \tau_3 SMOOTH_{it} + \tau_4 DEBT_{it} + \tau_5 ST_DEBT_{it} + \tau_6 BIG_{it} + \tau_7 MV_{it} + \tau_8 EARN_{it} + \tau_9 DA_{it-1} + \tau_{10} MILL_{it} + \epsilon_{it}$	(6)												
$RM_{it} = \delta_0 + \delta_1 DA_{it} + \delta_2 BBATH_{it} + \delta_3 SMOOTH_{it} + \delta_4 DEBT_{it} + \delta_5 ST_DEBT_{it} + \delta_6 BIG_{it} + \delta_7 MV_{it} + \delta_8 EARN_{it} + \delta_9 LTGN_{it} + \delta_{10} MILL_{it} + \epsilon_{it}$	(7)												
Intercept	?	0.001	-0.060	-0.008	-0.065	-0.281**	-0.040						
RM_SUM_{it}	-	-6.542***											
RM_PROD_{it}	-		-6.801***										
RM_DISX_{it}	-												
DA_{it}	-		-0.697***		-0.835***		-0.075						
$BBATH_{it}$	-	-0.415***	-0.129***	-0.144***	-0.113***	-0.170***	-0.023***						
SM_SUM_{it}	-	-4.282***	-0.815***										
SM_PROD_{it}	-			-3.015***	-0.733***								
SM_DISX_{it}	-												
$DEBT_{it}$	+	0.532***	0.108*	0.520***	0.106**	-1.615**	-0.303**						
ST_DEBT_{it}	+	0.424***	0.060*	0.402***	0.060**	0.475*	0.092**						
BIG_{it}	-/+	0.025	0.043	0.201***	0.061*	0.261*	0.052**						
MV_{it}	?	-0.012**	0.002	-0.032***	-0.001	0.001	-0.005						
$EARN_{it}$?	1.193***	0.234***	1.022***	0.254***	0.998	0.200***						
DA_{it-1}	-	-0.154*		-0.135*		-0.366**							
$LTGN_{it}$	+		-0.025		-0.012		-0.017						
$MILL_{it}$?	-0.441***	-0.144**	-0.558***	-0.147***	-0.163*	-0.015						
No. of firm-years		436	436	436	436	436	436						
Adjusted-R ²		0.420	0.457	0.654	0.284	0.074	0.289						
Hausman t-statistic		-2.286***	-1.857*	-8.560***	-4.648***	-1.321	-0.407						

Note: ***, **, * denote significance at the 0.01, 0.05, and 0.10 level, respectively.

Note **: All variables are defined in Tables 2 and 5 in the manuscript.

8. Conclusions

This paper provides empirical evidence on how the SEC's decision to eliminate the U.S. GAAP reconciliation requirement affects firms whose filing choice is most likely attributable to this decision (i.e., those that voluntarily switched to IFRS from local standards after the elimination), as well as firms that voluntarily changed their filing status to U.S. GAAP after the elimination. Our empirical tests are motivated by the argument that opportunistic firms may use the increased discretion from removing the reconciliation requirement to manage earnings and provide less informative financial statements, and that application of IFRS by non-U.S. firms may result in quality of accounting data that are not comparable to those resulting from application of U.S. GAAP (see Barth et al., 2012; Lin et al., 2012). Specifically, we investigate the earnings management potential of permitting IFRS reporting in the United States for non-U.S. cross-listed firms voluntarily switching to either U.S. GAAP or IFRS by estimating a set of simultaneous equations with discretionary accruals and real activities manipulation tested as the dependent variables.

The results generally suggest that discretionary accruals and real activities manipulation (through both overproducing inventory and cutting discretionary expenditures) are partial substitutes for earnings management, and that their magnitudes are determined simultaneously for non-U.S. firms voluntarily switching to U.S. GAAP/IFRS after the SEC waived the reconciliation requirement. However, we also document that firms applying IFRS voluntarily prior to the elimination adjust the magnitude of their discretionary accruals, mostly in the fourth quarter (or after the fiscal year-end but before the earnings announcement date), based on the realized level of real activities manipulation through cutting discretionary expenditures. In contrast to those for firms that adopted IFRS voluntarily before or after the elimination, findings from additional analyses reveals that firms required to use IFRS by their home jurisdiction manage earnings only through altering abnormal accruals and inventory overproduction simultaneously. Taken together, the combined evidence suggests that voluntary and mandatory IFRS adopters exhibit significant differences in earnings management strategies.

Our inferences contrast with Zang (2012) overall conclusion of a sequential real-activities-manipulation-then-discretionary-accruals decision process. There are three possible explanations for these different findings. First, Zang (2012) sample differs from ours; she studies whether U.S. public firms use these two earnings management strategies as substitutes in managing earnings. Second, she fails to take into account executives' reporting incentives in her research; the focus of her study is on the trade-off between the

two earnings management mechanisms due to their relative costs. Third, our smaller sample may provide less powerful tests. We believe that the difference in our inferences is most likely due to the aforementioned reasons. However, we cannot rule out the possibility that lower power tests resulting from our smaller sample size contribute to our findings.

Prior literature reports that the market attaches value to accrual-based earnings management, probably because the discretionary component increases the ability of earnings to reflect economic value (Subramanyam, 1996). Gunny (2010) also documents that real activities manipulation could be used as a way to signal superior future earnings (future firm value). Managers may use the joint signal — engaging in accrual-based earnings management and real activities manipulation — to convey future growth prospects.

Prior studies suggest that U.S. cross-listings increase firm value (Doidge, Karolyi, and Stulz, 2004; Foerster and Karolyi, 1999; Karolyi, 2006; Lang et al., 2003). In accordance with the bonding hypothesis, non-U.S. firms cross-listed in the U.S. agree to link to the higher levels of disclosure and regulation required by U.S. exchanges (Coffee, 2002; Sridharan and Soonawalla, 2011). Specifically, to the extent that management incentives are well aligned with minority shareholder interests, managers provide investors with a credible assurance to not extract the private benefits of control from the firm, which leads to a higher investors' valuation of earnings for firms that cross-list on the U.S. markets. Because that improved valuation is a major motivation for cross-listing in the U.S. and that our cross-listed IFRS firms may undertake accrual-based earnings management and real activities manipulation to enhance their firm value, these two reasons probably explain why our findings contrast with those of Doukakis (2014), who suggests that mandatory IFRS adoption for firms in European countries had no significant impact on both earnings management strategies.

Our results have potential implications for future research. First, we document that simultaneous and sequential decision processes co-exist in firms adopting IFRS voluntarily prior to the regulatory change, depending on which earnings management approach is selected. It would be interesting to examine whether managers influence accounting output (e.g., to just meet an earning benchmark) more via a simultaneous or a sequential decision between accrual-based earnings management and real activities manipulation, which, in turn, may have different implications for equity valuation. Although there are quite a few dimensions to cross-listing, the elimination of the

reconciliation requirement provides a unique setting that allows us to provide new insights into whether this regulatory change affects earnings management strategies for non-U.S. cross-listed firms across the two regimes: the U.S. GAAP reconciliation and the IFRS reporting periods. Another avenue for future research would be to examine whether the findings from our analyses also hold for all non-U.S. firms that adopt IFRS in multinational settings, given the increasing mandatory use of IFRS throughout the world.

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The Effects of Relaxing the Reconciliation Requirement in Foreign Private Issuers' SEC Filings on Earnings Management Strategies: IFRS Adopters versus U.S. GAAP Adopters