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Discussion

Discussion of "Convergence of Accounting Standards and Foreign Direct Investment" $\stackrel{\wedge}{\sim}$

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1. Introduction

Although considerable accounting research is devoted to the topics of worldwide application of or convergence with the International Financial Reporting Standards (IFRS), most articles focus on the impacts or consequences of IFRS adoption at the firm level. Marquez-Ramos (2008, 2011) initially shifts the research focus from firm-level analysis to country-level analysis and examines the consequences of IFRS adoption within national economic environments. As a result, the work of Chen, Ding, and Xu (henceforth CDX) adds a refreshing research direction in this area.

CDX examines the level and the change of foreign direct investment (FDI) contributed by the conformity of national accounting standards to the IFRS and the IFRS convergence of accounting standards in Organisation for Economic Cooperation and Development (OECD) countries. These authors raise two main research questions: Is an accounting system a component of the national institution infrastructure that explains FDI? How does the IFRS convergence affect the change in FDI?

The theoretical foundation for responses to these questions can be traced to two areas of research. First, the theory of information asymmetry suggests that high-quality financial reporting can reduce information cost and facilitate investment decisions. Second, international accounting suggests that accounting harmonization can make accounting systems worldwide more understandable and comparable. Thus, convergence in accounting standards reduces

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 $[\]ddagger$ An earlier version of this paper was presented at the *International Journal of Accounting* Symposium (June 2011, Thessaloniki, Greece).

information asymmetry between domestic and foreign investors, thereby facilitating cross-border movement of capital. Although the logic behind the predicted relationship sounds straightforward, the empirical challenge lies in how to prove the relationship between IFRS convergence and FDI in the context of an economic environment affected by a variety of factors.

The key innovation of CDX is to examine this relationship as a "quasi-experimental opportunity provided by the mandatory adoption of IFRS" in European Union countries in 2005, which allows for a relatively "pure" setting of the IFRS effect. The second innovation in research design is the use of bilateral FDI flow among 30 OECD countries to proxy for the country-level outcome of IFRS convergence, which overcomes the limitation in prior work concerning the small number of country-level observations. The authors have conducted a number of robustness checks to suggest alternative explanations of the tested relationship. They provide evidence indicating a positive effect of IFRS adoption on FDI and a moderate role of accounting similarity on FDI changes.

Despite these strengths in research design and methodologies, some issues arise in linking the theory and the hypotheses to the empirical tests. My discussion focuses mainly on two issues. First, why is linking FDI with IFRS necessary, given that research in international trading and economy has reported a variety of FDI determinants? Second, what difficulties arise in examining the relationship between FDI and IFRS?

2. Why does it make sense to explain FDI by IFRS?

The literature of international trading and economy has identified numerous major factors that affect FDI. Most of the research takes the perspective of the host-country incentives (e.g., Dunning, 1998) or host-country or state characteristics (Coughlin, Terza, & Arromdee, 1991; Habib & Zurawicki, 2002), such as economic policies, cultural distance, and physical infrastructure.

Among these determinants of FDI, institutional infrastructures such as the financial and capital market development are important when studying international business activities (Dunning, 2006). While the link of a nation's financial and accounting systems with FDI is not surprising, when CDX develops their hypotheses predicting the potential relationship between IFRS and FDI, two relevant questions arise: Does an effect of IFRS on FDI make sense? Why is the association between IFRS conformity and FDI positive?

Accounting literature has voluminously documented the advantages of applying or converging with IFRS. Ball (2006) reports that the IFRS reflect economic substance more than legal form, improve accounting quality both at measurement and disclosure, reflect economic gains and losses in a more timely fashion, and so on. In particular, IFRS-based earnings are more informative because IFRS provide more useful information for investors and more accurate earnings forecasts for analysts. In extending these benefits from firm level to country level, CDX provides a general theoretical argument that accounting harmonization reduces information asymmetry between domestic and foreign investors, thereby facilitating cross-border capital movement. However, this conclusion rests on one assumption, that similarity in accounting systems is sufficiently important to affect FDI decisions. This assumption might be valid in some countries, but it does not hold in others. For instance, some developing countries tend to impose favorable national economic or trading policies to attract

FDI (Globerman & Shapiro, 1999). In such a context, accounting standards might not be important and powerful enough to affect FDI decisions.

Alternatively, the finding of a promoting effect of IFRS on FDI might be interpreted in a reverse direction—that is, the increased FDI contributed by macroeconomic or trading policies pushes companies to apply internationally accepted accounting standards, typically IFRS, to fulfill information requests of foreign investors. This reverse causality seems reasonable given the ex post consequences of information demand raised by FDI.

3. Challenges in examining the relationship between FDI and IFRS

As stated earlier, the authors claim that FDI and IFRS conformity are positively associated. However, the IFRS research at the country level suffers from several difficulties in research design and modeling, especially the difficulty of designing empirical tests that isolate macroeconomic or other national institutional circumstances in which the association is arguably attributable to improvement of accounting systems, with controls for other cofounding effects.

3.1. Research design

CDX examines the predicted relationship by selecting sample firms of 30 OECD countries. The authors argue for selection of this setting because of the availability of data on FDI and IFRS conformity and because OECD countries represent a majority of most developed economies worldwide. However, the key sample selection question is whether the OECD countries represent the global FDI flow. Officially born on 30 September 1961, OECD has led member countries to achieve spectacular progress in national wealth and economic development. However, some non-OECD countries that a few decades ago were only minor players on the world stage have emerged as new economic giants today, such as China, India, and Brazil. For historical and political reasons, these emerging countries, along with other countries that formed part of the former Soviet bloc, have not yet officially joined the OECD.

In the ranking of the United Nations Conference on Trade and Development (UNCTAD) (2009), among the top 20 countries that received the highest FDI, seven countries are non-OECD countries.¹ Thus, the coverage of 30 OECD countries might limit the investigation to developed economies, with the result that the FDI decisions and national institutional environment of these countries could be overly homogenous compared with the rest of the world. I initially pointed out this sampling issue in the presentation of *TIJA* Symposium discussion in 2011. I noticed that the authors had acknowledged this limitation but that no solution was provided. I highlight it again here because of its importance. Ignoring these countries in the sample setting may affect the generalizability of the results related to FDI determinants. It is worth expanding the sample to include those countries that belong to the "enhanced engagement" program.²

¹ www.unctad.org. The top 20 FDI but not OECD members countries are: No 1. China, No. 5 Russia, No. 7 Saudi Arabia, No. 8 India, No. 13 Brazil, No. 14 British Virgin Islands, No. 18. Singapore, and No. 20 Angola.

² According to the OECD, Russia is negotiating to become a member; Brazil, China, India, Indonesia, and South Africa are joining OECD through the "enhanced engagement" program. The expanding 40 countries account for 80% of world trade and investment.

3.2. Hypotheses

CDX develops two hypotheses to test the relationship between IFRS convergence and FDI. Hypothesis 1 (H1) examines the association between IFRS and FDI in two ways. H1a estimates the predicted relationship at absolute levels—the "level" model, prior to 2005. H1b models the relationship of changes during the period of IFRS convergence using the distance of convergence toward IFRS and the growth rate of FDI flows as variables of interest—the "change" model. The theoretical suggestion for the level model and the change model may not always be identical. However, the authors' analysis focuses mainly on the level model.

The predicted relationship of H1a and H1b can be simplified as follows:

H1a. Prior to IFRS convergence

 $FDI_{ij} = \alpha_0 + \alpha_1 CONFOM_i + \alpha_2 CONFORM_j + \delta.$

H1b. IFRS convergence period from 2001 to 2005

 $\Delta FDI_{ij} = \beta_0 + \beta_1 \Delta CONFOM_i + \beta_2 \Delta CONFORM_j + \epsilon.$

Or:

 $FDI_{ij} = \alpha_0 + \alpha_1 ACONFOM_{ij} + \delta$

 $\Delta FDI_{ij} = \beta_0 + \beta_1 \Delta ACONFOM_{ij} + \epsilon$

where the authors use the mutual IFRS conformity between partner countries (ACONFOMij) instead of individual IFRS conformity for each reporting and host country.

Hypothesis 2 (H2) predicts that whether the partner countries belong to different (the same) accounting groups moderates the relationship between IFRS conformity and FDI. That is, the partner countries from the same (different) accounting group weaken (strengthen) the positive association between IFRS conformity and FDI. H1 and H2 can be illustrated as the following:



However, the expression of H2 is ambiguous in several respects. First, it is not clear whether the underlying condition of low IFRS conformity refers to the reporting country, host country, or both—that is, mutual IFRS conformity. Second, the authors specify that H2 is tested when the degree of IFRS conformity is relatively low, which introduces

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confusion with respect to the independent variable of IFRS conformity. A statistical problem arises as to how to test an interaction model when one interacted variable should be specified as relatively low, as highlighted in the hypothesis. The tests provided in Tables 6 and 7 indicate that the authors specify the lower level of IFRS conformity by the setting of prior IFRS adoption, or T1 (2000–2002). I suggest using *prior IFRS adoption* consistently in H2, to distinguish the individual or mutual IFRS conformity level for the sample countries. This distinction may help readers understand that the interaction is set in an environment of before IFRS mandatory adoption. Third, potential overlapped effects may exist between the partner countries from the same accounting group hold a similar IFRS conformity level since the national institutional environments behind the accounting systems share the same characteristics.

3.3. Measurement

3.3.1. IFRS adoption/convergence vs. FDI

The two key variables of CDX's study are the independent variable of *IFRS convergence index* and the dependent variable of *FDI*. Although both are measured by level and by changes, the measurement units covered by these two concepts are dissimilar. For EU countries, the IFRS mandatory adoption applies only to listed companies. For other non-EU countries, this obligation does not apply to all listed companies. For instance, for the Swiss firms listed on the SIX Swiss exchanges, only those listed in the principal segment or the EU-compatible blue chips segment should apply the IFRS or U.S. GAAP. For those listed in the local segment or for real estate companies, the IFRS are not required. In 2005, of the 263 listed companies, 185 firms used IFRS as reporting standards, representing about 70% of the total listed companies.³ This percentage is far smaller if we include the approximately 400,000 registered enterprises in Switzerland (based on the estimate of the Swiss federal registration center).⁴ This example shows why the number of companies applying the IFRS might represent only a minor proportion of companies in some national economies. In contrast, FDI includes the foreign investment not only in listed companies, but also in those unlisted local companies and foreign subsidiaries. Thus, the economic units covered by IFRS application and FDI are incompatible in terms of measurement. In addition, FDI appears in different legal forms. Therefore, the accounting issue for FDI in branches, agencies, affiliates, and subsidiaries is not relevant to IFRS application or convergences, but is determined by the accounting practices of the holding company.

3.3.2. Measure of FDI level

CDX uses the total absolute value of FDI flows (i.e., the sum of the inflow FDI and the outflow FDI) to measure the FDI level, and argues that using the absolute FDI value but not the net FDI value is one of main strengths of their study. However, this measure has several disadvantages. First, the use of the absolute value reflects the movement or the activity of the FDI traffic between partner countries, which is not in line with the

³ Data source for calculation: http://ideas.repec.org.

⁴ http://www.zefix.ch/.

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arguments advanced in the hypotheses. As the authors note, the economic literature has identified the FDI determinants mostly from the perspective of host-country characteristics and motivations—that is, the host-country factors that contribute to the inflow of foreign investment. These factors might not be valid neutrally toward the outflow of FDI since the economic implications of FDI inflows are opposite to those of outflows. For this reason, the economic and trading policies, as well as the role and function of accounting systems, of countries dominated by FDI inflow might differ substantially from those that create FDI outflow to host countries.

When discussing the literature and developing the hypotheses, the authors also focus on the benefits of IFRS convergence, arguing that IFRS adoption might remove the information barrier or reduce information costs, thereby facilitating the FDI decision. Although the authors consider the difference between inflow and outflow in robustness and alternative tests by eliminating the outflow FDI observations, the results obtained in the baseline model are suspicious, because the authors model the FDI movement between partner countries rather than the FDI inflow for reporting countries. Without specification on the direction of FDI flows, the results leave an interesting question: in reporting countries, do IFRS affect FDI inflow and outflow differently? Why not estimate two equations separately, one for inflow of FDI and one for outflow of FDI, and compare the difference in results?

Second, using absolute value of FDI is not appropriate since it cannot reflect the economic nature when FDI is negative, as in the case of reverse investment or disinvestment. Third, FDI flows are mainly composed of three components of FDI: equity capital, reinvested earnings, and intra-company loans. CDX limits their attention to the first component of equity investment and ignores the latter two cases of reinvested earning and intra-company loans, which might be problematic because accounting practice plays an important role in such decisions, especially with respect to intra-company loans.

3.3.3. Measure of accounting conformity (ACONFORM_{ij})

The authors use the average value of two countries' IFRS conformity indices to proxy for the mutual IFRS conformity level between partner countries. As with the problem of the ignored directional difference between inflow and outflow of FDI, this measure assumes that the influences of accounting conformity on FDI are homogenous in the reporting and host countries. This assumption might be violated if we look at the remarkable discrepancies in accounting systems compared to IFRS among the sample countries (Table 2: IFRS conformity 2001). In addition, the use of the average of IFRS conformity indices for partner countries fails to proxy for the similarity of accounting systems between partner countries the concept central to H2-but carries the risk that the influence of individual countries' IFRS conformity index is double-counted. For instance, partner countries with a high individual IFRS conformity index will automatically receive the high mean value of mutual conformity. This problem can be observed in the correlations of $logACONFORM_{ii}$, with $logCONFORM_i$ and logCONFORM_i, which are 0.87 and 0.88 respectively (Table 4), indicating the problem of multicollinearity associated with logACONFORMij. In later robustness tests, the geographic mean of the two IFRS conformity indices (GCONFORM_{ii}) is used, but the problem inherent to this variable is not yet resolved.

3.4. Methodology

When empirically examining the relationship between FDI and IFRS, CDX faces a major challenge: how to isolate the potential confounding effect of IFRS adoption on FDI with other non-accounting effects. As Choi, Frost, and Meek (1999, p. 29) note, "[E]very nation's accounting standards and practices are the results of a complex interaction of economic, historical, institutional, and cultural factors."

CDX has attempted to solve this problem by considering various non-accounting FDI determinants labeled as the "Z" factor in Equation 2, including such determinants as real interest rate, real exchange rate, common language, and common border. However, the role of government and trading policies is ignored. Globerman and Shapiro (1999, p. 3) point out that "government policies can influence FDI by altering the relative attractiveness of the host country to foreign investors in a wide variety of ways," and often these influences are implicit rather than explicit. Brewer (1993) documents "numerous and diverse" types of FDI determinants related to government policies (p. 107). For instance, in the case of Canada, the Free Trade Agreement of the Americas (FTAA), signed in 2005, and the North American Free Trade Agreement, implemented in 1994, appear to have significantly increased the level of FDI.

Failure to consider these policy effects can result in overlapped impacts of other national institutional factors on FDI. I am aware that designing empirical research that considers policy change in 30 sample countries is quite challenging, since identifying the dates when policy starts and terminates in affecting the FDI decision can be difficult. But overall, because of its active role in FDI in most countries, the policy issue cannot be excluded.

FDI is a complex outcome of macroeconomic, political, and other national institutional factors of the home country, as well as those of host counties. A second challenge is how to solve the endogeneity of FDI in relation to other national economic factors. In economic theory, "trade and FDI can be substitutes or complements" (Globerman & Shapiro, 1999, p. 6), depending on the restrictiveness of tariff protection in domestic markets. Thus, control of the trade factor is imperative when specifying the FDI determinants in both the level model (H1a) and the change model (H1b).

Other country-level factors that have been ignored are the international specialization in several industrial sectors and the country specialization in certain economic sectors. Jackson (2012) states that in the U.S., investment from developed economies accounts for 95% of all FDI, of which 34% is in the manufacturing sector. This industry specialization effect should also be specified in time series tests because it might vary across years owing to the economic cycle.

Statistically, the above issues do not introduce strong biases into the estimated FDI determinants since CDX applies the gravity model with controls on country fixed effect and time effects, except for the industry effect. However, a comprehensive understanding of the relationship between FDI and IFRS conformity might be hampered due to these omitted variables.

Last, as stated earlier, a key contribution of the study is to address the consequences of IFRS at the country level. The authors examine the benefits of national accounting conformity on FDI but ignore the influences of the firm-level characteristics. This neglect does not fully conform to the international accounting literature (Choi et al., 1999). In

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particular, in countries with microeconomic patterns (Mueller, 1967), the role of individual companies dominates the formation of the country's economic and business environment. Within this pattern, accounting develops from the principles of macroeconomics. Therefore, an alternative approach is to aggregate firm-specific characteristics over the same period at the country level and use the country means, together with other country-level factors, to run tests. For instance, it may be advisable to control the country means of listed companies' asset growth rate, because higher asset growth can raise the firm's financing needs, thereby providing additional IFRS adoption incentives to meet investors' or debt providers' information and disclosure requests. The average firm size of one country might also need to be controlled, as internationally operating firms are more likely to apply IFRS than small firms with mainly local operations.

3.5. Results and other modeling issues

CDX has run a series of empirical tests to examine H1 and H2, with additional robustness and alternative tests. Results for baseline models appear in Tables 5, 6, and 7, and those for robustness and alternative tests appear in Tables 8, 9, and 10. However, the results in response to H1a, H1b, and H2 are presented in a mixed manner in all these tables. Given the length of the tests, the changes in modeling, and the use of different control variables, the shift in alternative measures of several key variables (i.e., accounting-related variables include individual IFRS conformity, mutual IFRS conformity, dummy variables of accounting group) may cause readers difficulty in linking the various results obtained with the related hypothesis.

To take into account the national institutional difference behind the accounting systems, the authors use the accounting group variable in tests. Two dummy variables, *BRITISH* and *CTEURO*, are used to identify the firms belonging to the British model and the continental European model, and the rest are the accounting group of the U.S. model (Frank, 1979). The dummy variables of *BRITISH* and *CTEURO* are used in baseline models reported in Table 5. However, when estimating the impact of mutual IFRS conformity on FDI, the authors introduce another dummy variable, *DA*, to indicate whether the partner countries follow the same accounting systems. The authors do not provide any reason to explain why *BRITISH* and *CTEURO* should be changed to *DA*. Furthermore, from the variable definition, it seems that accounting similarity between partner countries—*ACONFORM*— should be negatively correlated with *DA*, raising the question of the risk of collinearity between these two variables (the correlation results between these two variables is not presented in the correlation matrix in Table 4).

The results of baseline models of H2 are reported in Table 6, model 6.3, and in Table 7 (models 7.2 and 7.4). The precondition setting of the *low level of IFRS conformity* as expressed in H2 is defined as either T1 = 1 if the year is 2000–2002, or *CONVERGE* = 0 if both partner countries do not fully converge to IFRS. The authors drop off the IFRS conformity variable (*CONFORM*) in this step of the test, but use *ACONFORM* and *DA* to reflect the similarity and the difference between reporting and partner countries. From the definition of these two variables, the tested interaction is subject to mutual IFRS conformity, *ACONFORM*, or different accounting groups, *DA*, but not to individual IFRS

conformity of reporting country (*CONFORM*). In contrast to model 6.3, model 7.4 tests H2 by using the change model instead of the level model.

Furthermore, DA is excluded in the alternative test of model 6.3. Although the authors explain in footnote 19 that DA is excluded because its effect might be absorbed by country-pair dummies, from the econometric point of view this missing DA will make the estimate of interaction coefficient of $DA_{ij} * logACONFORM_{ij}$ problematic, as well as estimates with T1 and T2 period specification. The literature on econometrics has highlighted that in examinations of the interactions between a continuous and a binary variable, the exclusion of the binary variable in interaction regression assumes that the intercepts associated with the two binary values are the same (Stock & Watson, 2007). Said differently, in this case, model 6.3 assumes that the country means of FDI are the same for partner countries that belong to different or the same accounting groups, which violates the authors' initial claim in this regard. Thus, the two interacting factors should be included in modeling to avoid possible bias of the estimated coefficient.

An additional observation is that the label for mutual IFRS conformity in Table 6 seems to contain several typographical errors. From my understanding of variable definition, $logACONFORM_i$ and $logACONFORM_j$ should be $logACONFORM_{ij}$. As in Table 6, the alternative tests presented in Table 8 exclude the use of DA, but both individual IFRS conformity and mutual IFRS conformity are included in tests of H1a and H2. Similar typos present in the labels of $logACONFORM_i$ and $logACONFORM_i$ and $logACONFORM_j$.

Finally, the treatment of the countries with the U.S. model is questionable. In all hypotheses, CDX uses IFRS conformity or convergence to evaluate the accounting information quality and predict its subsequent positive outcome on FDI. The accounting quality based on the U.S. Generally Accepted Accounting Principles (U.S. GAAP) is underestimated. In reality, U.S. GAAP has been widely accepted worldwide as having high transparency and information quality. For this reason, regulators in several countries allow the use of U.S. GAAP even for companies listed in stock exchanges (e.g., the Neuer Market in Germany and the SIX stock exchanges in Switzerland). Therefore, the authors need to give more attention to the treatment of the conformity changes for the sample countries with the U.S. model from 2001 to 2005. In this study, all of the IFRS conformity of EU countries is regarded as full convergence, but the countries with the U.S. model are regarded as having a null change over this period. This treatment is not appropriate if we consider the convergence movement between U.S. GAAP and IFRS over recent years, and it might introduce bias into the estimates of H2.

4. Concluding remarks

Both FDI and accounting systems are key country-level indicators that are closely related to a nation's economy and business environments. The potential link between them is predictable, but is quite complex to prove by empirical tests. The study of CDX introduces a remarkable innovation in research design, provided in-depth analysis, and applied a strong methodology. The above discussion points out some of the challenges and limits in processing the study. My intent is not to diminish the excellence of the paper, but to remind readers to be cautious when interpreting the documented findings.

Several unexplored questions point toward future research in the relevant areas. Can the findings be generalized to other non-OECD countries, especially those with developing economies? Does the IFRS convergence affect FDI inflow and outflow differently? Does the positive impact of IFRS on FDI vary in reporting and partner countries? Furthermore, this study provides some implications related to a longstanding debate on the efficiency of the IFRS application worldwide, especially considering the challenges in applying IFRS in countries that do not have accounting professionals sufficiently qualified to make a consistent and transparent accounting judgment in applying the standards, or countries that do not have a developed national institution infrastructure to ensure the efficiency of IFRS adoption in practice. Another possibility is that the IFRS convergence may not bring real benefits to individual firms, nor to the country's macro economy. To make "principles-based" standard work in practice, all elements of a financial reporting scheme should be operating efficiently, including both firm-level and country-level internal and external mechanisms. This concern opens another question: Does the IFRS convergence represent a real improvement in accounting quality, or it is only a label change? The uncertainty on the efficiency and consequence of IFRS adoption worldwide makes the validity of the reported findings questionable, in particular in underdeveloped economies.

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