

IFRS Mandatory Adoption and Earnings Quality in an Emerging Market: The Case of Ecuador

Abstract: We examine changes in earnings quality following mandatory implementation of IFRS in Ecuador using difference-in-difference approach by comparing the effect of IFRS adoption for first group of adopters consisted of mainly listed companies with the non-adopters from the last group of small and medium companies. We find some evidence of decrease in accruals levels and timelier recognition of losses and no evidence of change in income smoothing, consistent with the higher flexibility of IFRS relative to extinct Ecuadorian accounting standards allowing firms to communicate higher quality information to markets for firms for which informational role of accounting has importance.

Keywords: IFRS; earnings quality; financial reporting

1. Introduction

International Financial Reporting Standards (IFRS) have been introduced in 116 countries of the world as the mandatory accounting standards for publicly listed companies since 2005. Their introduction, as an improvement in corporate governance mechanisms, has been advocated with the goal of promotion of transparent, high quality and comparable financial information that will lower uncertainty, lead to lower cost of capital, and thus promote investment and growth (e.g. Fortin et al. 2010).

We contribute to the debate surrounding IFRS mandatory adoption by examining the properties of accounting earnings (income smoothing, asymmetric timeliness and accrual aggressiveness) as measures of earnings quality in Ecuador. The possible change of recognition and measurement practices caused by IFRS is reflected in the change of earnings properties, and this change as an important channel of improvement in eventual market outcomes (cost of capital, liquidity, investment efficiency, growth, etc.). The extensive research has been done on the changes in accounting quality following the mandatory introduction of IFRS. However, the studies used mostly EU listed firms that adopted IFRS in 2005 either in cross-country context (comparing them with non-adopters around the world) or within single EU jurisdiction.¹ The choice of Ecuador offers at least two extensions to the extant literature.

Firstly, the institutional context of Ecuador is very different to the EU context which has important implications for the effect of IFRS mandatory implementation. The accounting literature suggests that heterogeneity in the institutional environment along with the heterogeneity of firm-specific incentives affects the characteristics of financial information. In general, accounting quality is found to be higher in the environment and for firms where the demand for public information is high. More specifically, those are the countries with strong legal environment and enforcement mechanisms where the primary source of funding is through capital markets, with the firms responding to capital market demand by being large,

¹ The impact of mandatory adoption of IFRS on earnings properties in cross-country context include Ahmed et al. (2013) and Capkun et al. (2012), and Christensen et al. (2015) within single EU jurisdiction.

listed, more diversified, more leveraged and internationalised, with high growth prospects and external financing needs. As the importance of financial information is high in this environment, the companies also face pressure to manage earnings in order to meet market expectations and secure higher valuation. By contrast, Ecuador has underdeveloped capital markets, with the corporate funding coming from banks, weak legal enforcement with the companies mainly with high concentration of family ownership and financial reporting responding mainly to tax pressures. Although there is wide dispersion of the importance of capital markets within EU, their development is arguably much higher than in Ecuador, rendering the evidence from the EU non-applicable to an emerging market with such different characteristics. The effect of change in accounting standards on reporting outcome may have play out differently in different institutional regimes depending on the interaction of this change with other institutional features (Hail et al., 2010) and firm-specific incentives (Isidro and Raonic, 2012).

Secondly, by using Ecuadorean context we offer some methodological advantages. Ecuador introduced IFRS in three stages: in 2010 for listed companies and auditing companies; in 2011 for large companies and in 2012 for all other companies. This gradual adoption allows us to use difference-in-difference approach within single jurisdiction by comparing the treatment group that adopted IFRS in 2010 with the control group that adopted IFRS two years later. In this way, we are able to isolate the IFRS effect more precisely because we can safely ignore institutional changes concurrent with the IFRS adoption, unless they affect the treatment and control group differentially, and the factors that may affect the evolution of earnings properties differentially across countries. The IFRS cross-country and single country literature sources out information from large databases, such as Compustat Global or Worldscope, with the information provided only on publicly-listed companies, so within-country comparison of financial information outcomes following IFRS adoption is not possible using those sources of information.

We use financial statements obtained from the supervisory body of Ecuadorean companies, the Superintendency of Companies (Superintendencia de compañías, valores y seguros) to which all registered companies have to submit the financial accounts. We estimate change in income smoothing, timeliness of loss recognition and accrual aggressiveness as the coefficients from the accrual estimation model in a difference-in-difference framework as described in the previous paragraph. We find decrease in accrual levels of 3 percentage points as a result of IFRS implementation. Loss is recognised more timely, since the IFRS contributes to less pronounced negative relation between accruals and cash flows: the accruals offsetting of cash flows decrease by 45.6 percentage points when cash flows are negative. Both of the changes are significant only at the 10% level. By contrast, we do not find evidence that the income smoothing, i.e. the magnitude of accrual offsetting of cash flows when cash flows are positive, has changed.

These results are consistent with the notion that the implementation of IFRS recognition and measurement practices has contributed to the improvement of earnings quality at least for the listed firms where role of accounting of providing information to capital markets may be important, even in the absence of an effective enforcement. As the IFRS likely increased reporting flexibility relative to the Ecuadorian standards (Normas Ecuatorianas de Contabilidad, NEC) based on the pre-2001 IAS (International Accounting Standards) (Capkun et al., 2012), the results are unlikely to be driven by constraining effect of IFRS on earnings management. Rather, these results are consistent with timelier recognition of losses in studies of voluntary adopters of IAS (e.g. Barth et al, 2008; Christensen et al., 2015). The voluntary adopters, similar to Ecuadorian listed firms, may have the biggest incentive to use new flexibility for more transparent reporting in order to attract outside capital. These results are also consistent with the evidence that the individual firm-specific incentives are more important determinant of financial reporting quality than institutional factors (Isidro and Raonic, 2012).

2. Background and hypothesis development

Measures of earnings quality

In general terms, earnings quality can be defined as the extent to which the earnings reflect the firm's true financial performance.² As the true economic performance of the firm is not observable, there is a variety of empirical proxies developed to measure the earnings quality construct. Some of them are based on the relation between earnings and market value of equity, while others are based on earnings properties. In this paper, we focus on earnings properties as the capital market in Ecuador is underdeveloped and illiquid and the research sample would result in very small number of observations. We follow the literature on the effects of IFRS on earnings properties (Ahmed et al., 2013) and use earnings smoothing, timely recognition of losses and accrual aggressiveness as proxies of earnings quality. These properties have in common that they are based on management choices of accounting policies and estimates through use of accruals (in contrast to real decisions that alter timing and magnitude of cash flows).

Earnings are less variable than the underlying cash flows. This is because earnings are based on the accrual basis, and the role of accruals is to smooth random fluctuations in the timing of cash receipts and cash outlays, making earnings more informative about performance than cash flows (Dechow, 1994). More variable earnings may occur when there is an error in estimating accruals so as to accruals do not map into past, current and future cash flows. By contrast, smoother earnings may be also indicative of earnings management. Firms may want to artificially smooth earnings using accruals in order to

² Dechow et al. (2010) argue that the defining and measuring earnings quality is conditional on the decision context and there is no single measure of earnings quality superior to others. Nevertheless, discussion on benefits and flaws of different proxies of earnings quality is beyond the scope of this paper.

appear less risky, to use accruals to conceal poor current operating performance or to use accruals to reduce higher than expected current operating performance to create reserves for the future (Leuz et al., 2003). We follow prior literature by assuming that that larger magnitude of earnings smoothing indicates incidences of earnings management, meaning that lower earnings smoothing is indicative of higher earnings quality.

Conservatism principle allows that anticipated losses are recognised earlier than anticipated gains, where “anticipated” means before corresponding cash flows are certain and realised. Commitment to timelier recognition of losses than gains is deemed to be an efficient contracting mechanism that reduce moral hazard problem (Ball and Shivakumar, 2005). Firstly, it reduces management incentives to undertake negative NPV projects because losses from such projects would be recognised early and cannot be passed to the future. Secondly, it assists in in loan pricing ex ante and triggering quicker imposition of contractual restrictions if debt covenants are violated. As a consequence of higher transparency, valuation of company may increase. By contrast, quicker recognition of losses may reflect “big bath” behaviour and strategy to reduce taxes (Garcia Lara et al., 2005). Nevertheless, in line with the existing literature, we assume that timely recognition of losses reflects higher earnings quality.

Management may use accruals to overstate earnings in order to achieve bonus targets, avoid debt covenant violations, meet earnings expectations or inflate share price prior to equity issuance (Palepu et al., 2010). By contrast, incentives to reduce earnings by using accruals include tax incentives and incentive to create reserves for the future following replacement of management (“big bath” accounting). On balance, the literature assumes that the incentives to inflate accruals (accrual aggressiveness) are more common. Therefore, lower level of accruals suggests higher earnings quality.

Factors affecting accounting quality

Hail et al. (2010) argue that the earnings quality is a result of complicated interaction between firm’s reporting incentives which are in turn shaped by wider institutional factors. In that context, accounting standards and IFRS are only one of many institutional factors that affect reporting quality. Leuz et al. (2003) find that earnings management in terms of composite measure that includes income smoothing and accrual aggressiveness is lower in economies with large equity markets, dispersed ownership, strong investor rights and strong legal enforcement, while Burgstahler et al. (2006) show that the similar measures of earnings management are higher when financial reporting and tax rules are closely aligned. Similarly, Bushman and Piotroski (2006) provide the evidence that losses are recognised more timely in code-law countries with strong investor protection, high quality judicial system and strong public enforcement. As for firm specific incentives, commitment to long-term transparency and better quality reporting is higher for large, politically visible, firms, firms with frequent debt or equity issuance, firms with greater needs for outside financings, firms with higher leverage as the

monitoring mechanism, firms with higher auditor quality, and firms with the operations abroad (Isidro and Raonic, 2012; Lang et al, 2006). Ball and Shivakumar (2005) find that the timely loss recognition is higher in publicly traded than in private firms due to higher demand for conservative accounting in former, while Burgstahler et al. (2006) find that earnings management in terms of earnings smoothing and level of accruals is higher for private firms.

Accounting standards and IFRS are only one of many institutional factors that affect reporting quality. Furthermore, the effect of IFRS also depends on the similarity to previous standards. Existing literature on IFRS and earnings properties confirms the role of context in evaluating the effectiveness of accounting standards. Ball et al. (2003) find that East Asian countries which had accounting standards close to the UK, US and IAS (International Accounting Standards) had a low level of timely recognition of losses due to other institutional and firm-reporting incentives. Barth et al. (2008) argue that IFRS can contribute to higher earnings quality by restricting alternatives for earnings management, and they confirm that hypothesis in their sample of voluntary adopters. By contrast, Ahmed et al. (2013) find an increase in income smoothing and accrual aggressiveness and decrease in timely loss recognition for mandatory IFRS adopters in countries with strong enforcement regime, consistent with IFRS giving more discretion in reporting practices compared to previous standards, and that discretion is used for earnings management purposes (Capkun et al., 2012). Christensen et al. (2015) find the same evidence focusing on Germany.

Ecuadorean institutional background

Ecuador is a code-law country with low scores on rule of law (Kaufman, 2009) and underdeveloped capital markets (Fortin et al., 2010). Ownership concentration in Ecuador is very high, and higher than in other Latin American countries: around 60% of large and medium firms have up to three shareholders, while only around 7% have more than 30 shareholders (Muñoz, 2014). Corporations (Sociedades Anonimas) and limited liability companies have the obligation to prepare financial statements as of 31 December each year and to submit them to Superintendency of Companies (Superintendencia de compañías, valores y seguros), the government regulatory body. External auditing is compulsory for firm with the asset higher than \$2 millions. The Superintendency is in charge of enforcing accounting and auditing standards. However, the enforcement is mostly formal and reactive with high level of non-compliance, at least in the first decade of 2000s (Worldbank, 2005). Financial reporting is highly aligned to tax reporting. Where specific tax requirements exist for the recognition and measurement, they have typically taken precedence in application over NEC, as is the case for depreciation, impairment and provisions (KPMG, 2009).

In the period 1999-2001 by the Ecuadorean National Federation of Accountants (Federación Nacional de Contadores del Ecuador), a self-regulated professional organization of accountants, issued twenty seven Ecuadorean accounting

standards (Normas Ecuatorianas de Contabilidad, NEC) on the basis of IAS (International Accounting Standards, predecessor to IFRS). These standards were authorized by the state tax agency and the Superintendency of Companies. They were also applied for fiscal purposes, subject to specific requirements of tax law. They have not been updated from 2001 until the start of IFRS implementation. Although based on IAS, several important standards have not been included such as standards on financial instruments, leasing and post-retirement benefits (Worldbank, 2005).

In 2006, the Superintendency of Companies (Superintendencia de compañías, valores y seguros), adopted IFRS (Superintendencia de compañías, valores y seguros, 2006) and in 2008 issued a decree clarifying the timetable of its application (Superintendencia de compañías, valores y seguros, 2008) as follows:

1. Firms subject to the Securities Exchange Act (companies that list their debt securities in Quito or Guayaquil stock exchanges) and auditing companies, from the year starting 1st of January 2010.
2. Firms with the asset larger than \$4 millions, state companies, companies in the mixed ownership (public-private) and branches and subsidiaries of foreign companies, from the year starting 1st January 2011.
3. All other companies, from the year starting 1st January 2012 and with the option to apply IFRS for small and medium enterprises.

Possible impact of IFRS on changes in earnings properties in Ecuador

In this paper, we examine the effect of IFRS on earnings quality for the first group of adopters for two reasons. Firstly, we argue that this is the group where potential for change in earnings quality is the biggest. Secondly, due to data restrictions the meaningful research design can be produced only for this group.

The Ecuadorean institutional framework indicates that the overall level of earnings quality is low, with the high incentives to smooth earnings and manage earnings downwards for corporation tax purposes. The adoption of IFRS brings a possibility of change in reporting practices due to significant differences to NEC, given the environment and firm-reporting incentives. Since the last update of NEC in 2001, the International Accounting Standards Board has amended many IAS (International Accounting Standards) and has replaced some others with International Financial Reporting Standards (IFRS) or proposed a number of new IFRS on topic not previously covered. Capkun et al. (2012) argue that the major changes have happened from 2005. While eliminating many alternatives allowed accounting treatments, new IAS/IFRS leave more room for subjective estimations and different options without providing clear implementation guidance and interpretation. This has carried over to the estimation of impairment and fair values, which are more prominent in the new IFRS.

Therefore, IFRS brings new standards on areas previously non-regulated in Ecuador, but also allows for more discretion in applying IFRS. As managers may use the increased discretion either to truly communicate the information about the companies or to manage earnings in order to achieve some opportunistic goals, the effect of the difference between NEC and IFRS on the earnings properties of adopters is unclear *ex ante*. Nevertheless, assuming low quality of earnings to start with, it is less likely that IFRS will lead to worsening accounting quality. If anything, the quality may remain the same. Nevertheless, listed companies that form the majority of firms in the first wave of adopters may actually have incentive to use new discretion to commit to higher reporting quality in order to attract better terms of financing through stock exchanges, and separate their financial reporting from tax reporting. Those are firms most likely to benefit from adoption of IFRS, and as the literature suggests, those are the firms that would have been most likely to adopt IFRS voluntarily if they had been allowed to. Consequently, our hypothesis is as follows:

H1: Earnings quality increases after adoption of IFRS for first group of adopters.

3. Research design

Difference in difference approach

To isolate the effect of IFRS adoption on the earnings properties, we exploit the feature that the IFRS has been introduced in stages in Ecuador as described in the previous section. We use difference-in-difference style design that requires comparison for the period before and after adoption IFRS between treatment and control group (that did not adopt IFRS). The comparison before and after is required to measure the effect of IFRS, and using the benchmark control group is necessary to isolate the effect of IFRS from the general time-trend and other concurrent factors that affect both groups. The difference-in-difference can be interpreted as the effect of IFRS on the earnings quality change under the assumption that without adoption of IFRS the change in earnings quality would not have been different between two groups. Our treatment group is the first group that introduced IFRS in 2010. We omit the adoption years from the tests because accounting variables used in tests in that year are calculated using the mix of current IFRS numbers and last year's NEC numbers. As our sample goes from 2007 to 2012, the only meaningful pre and post IFRS comparison can be made with the third group that we use as a control (see Figure 1 for illustration). Therefore, pre-IFRS period includes years 2008 and 2009, and post-IFRS period is restricted to the year of 2011.

Estimation of earnings quality measures

Unlike the comparative studies of Barth et al. (2008) and Ahmed et al. (2013), we estimate our three properties of earnings quality (earnings smoothing, timely loss recognition and accrual aggressiveness) using a single regression equation. Our

regression model is based on Ball and Shivakumar (2005) model for estimating timely loss recognition in the private firms, modified to reflect the impact of IFRS, and augmented with firm-specific incentives from Barth et al. (2008) and firm fundamentals affecting accruals from McNichols (2002). The estimates equation is as follows:

$$\begin{aligned}
 ACC_{i,t} = & \beta_0 + \beta_1 IFRS_i + \beta_2 Post_t + \beta_3 Post_t \times IFRS_i \\
 & + \beta_4 CFO_{i,t} + \beta_5 IFRS_i \times CFO_{i,t} + \beta_6 Post_t \times CFO_{i,t} + \beta_7 Post_t \times IFRS_i \times CFO_{i,t} \\
 & + \beta_8 DCFO_{i,t} + \beta_9 IFRS_i \times DCFO_{i,t} + \beta_{10} Post_t \times DCFO_{i,t} + \beta_{11} Post_t \times IFRS_i \times DCFO_{i,t} \\
 & + \beta_{12} DCFO_{i,t} \times CFO_{i,t} + \beta_{13} IFRS_i \times DCFO_{i,t} \times CFO_{i,t} + \beta_{14} Post_t \times DCFO_{i,t} \times CFO_{i,t} \\
 & + \beta_{15} Post_t \times IFRS_i \times DCFO_{i,t} \times CFO_{i,t} + \sum_{k=16}^{22} \beta_k Controls_{i,t} + \sum_{k=23}^{39} \beta_k Industry_{i,t} + \epsilon_{i,t}
 \end{aligned}$$

where

ACC is accruals calculated as: Δ Inventories + Δ Receivables + Δ Prepayents + Δ Other current assets - Δ Payables – Δ Income tax payables – Δ Other current liabilities – Depreciation and amortization

CFO is cash flow from operations calculated as: Net income – Accruals

DCFO is a dummy variable that equals 1 if $CFO < 0$ and equals 0 otherwise.

IFRS is a dummy variables that equals 1 if the firm-year observation belongs to the treatment group (group 1), and 0 otherwise

Post is a dummy variable that equals 1 if the year is 2011 (IFRS post-adoption year) and 0 otherwise.

Controls is a set of additional time-varying variables to control for the effect of firm fundamentals and firm's incentives on the level of accruals that may be correlated with the adoption of IFRS. These include: *AREV* is a change in revenue; *GPPE* is gross property, plant and equipment; *SIZE* is a natural logarithm of total assets; *CISSUE* is change in ordinary share capital; *LEV* is a leverage calculated as total liabilities divided by book value of equity; *DISSUE* is change in debt calculated as change in total liabilities; *BTD* is an absolute difference between earnings before taxes and taxable income, where taxable income is approximated as income tax divided by statutory tax rate (25% in 2008 and 2009 and 24% in 2011). *LISTED* is a dummy variable that equals 1 if a firm has debt securities or shares listed in Quito or Guayaquil stock exchange, and 0 otherwise.

Industry is the industry fixed effects based on the aggregate level of National Classification of Activities (Clasificación Nacional de Actividades) CIU 4.0 (Instituto Nacional de Estadística y Censos, 2012)..

CFO, *ACC*, *AREV*, *GPPE*, *CISSUE*, *DISSUE* and *BTD* are scaled by average total assets. *ACC*, *CFO*, *CISSUE*, *DISSUE* and *BTD* are winsorized at -1 and +1, while *AREV*, *GPPE* are winsorized at 1% and 99% level, and *LEV* at the 99% level, to control for outliers.

Our controls include two additional variables in comparison to the literature that tests IFRS effect on earnings quality (Barth et al., 2008 and Ahmed et al., 2013). We control for book-to-tax difference to control for shifting tax-induced incentives of earnings management. Prior to the adoption of IFRS the accounting was driven by tax demands, which resulted in high book-to-tax conformity. After introduction of IFRS, the book-to-tax conformity has increased and the financial reporting has been somewhat decoupled from tax reporting. Without controlling for this effect, we may erroneously attribute any change of earnings quality by tax shifting incentives to the IFRS adoption. We control for listing status as it is required for IFRS firms to be listed. If firms have listed in the year 2010 in order to implement IFRS, than without control for listing status we may overestimate the effect of IFRS that is otherwise attributable to listing of debt securities or stocks.

Coefficients on *CFO* represent measure of earnings smoothing. As accruals are expected to covary negatively with accruals as a result of the matching principle and potential manipulation, the base coefficient for control group β_4 on *CFO* is expected to be negative. The coefficient β_5 measures the average difference in smoothing between treatment and control group in the base year. The coefficient β_6 measures any change in earnings smoothing due to time-trend, while coefficient β_7 measures any change in earnings smoothing incremental to time-trend as the result of IFRS adoption. If IFRS improves earnings quality, earnings smoothing should be reduced and the coefficient β_7 should be positive. In our model, the conservatism should not affect earnings smoothing coefficients, as it is separately controlled for in the regression.

Timely loss recognition is measured through coefficients on *DCFO x CFO*. If economic losses are more likely to be contemporaneously reflected in accounting earnings than economic gains due to conservatism, then the negative association between accruals and cash flows should be smaller. Therefore, the base coefficient for control group β_{12} on *DCFO x CFO* should be positive. The coefficient β_{13} measures the average difference in timely loss recognition between treatment and control group in the base year. The coefficient β_{14} measures any change in timely loss recognition due to time trends, and the coefficient β_{15} measures any change in timely loss recognition incremental to time-trend as a result of the IFRS adoption. Increase in timeliness of loss recognition due to IFRS should lead to positive coefficient β_{15} .

Accrual aggressiveness is measured through coefficients that reflect the variations in the level of accruals. The intercept β_0 measures the average level of accruals of control group in the base year, controlling for other factors. The coefficient β_1 measures the average difference in accruals between treatment and control group in the base year. The coefficient β_2 measures any change in accruals due to time trends, and the coefficient β_3 measures any change in the level of accruals

incremental to a change due to time trend as a result of the IFRS adoption. Increase earnings quality should result in accruals decrease, so the coefficient β_3 should be negative.

The difference-in difference regression approach we use may not control for all factors correlated with the adoption of IFRS if there are changes in economic environment or policy interventions that affect differently treatment and control group in the year of IFRS adoption. We are not aware of any such factors.

4. Sample and descriptive statistics

Sample

We obtained financial statements data as of 31 December for the years 2007-2012 from the Superintendency of Companies. All incorporated companies have to submit their financial statements to this institution. The individual accounts of the balance sheet and the income statement in the pre-IFRS period are coded according to the codes in the corporation tax return. In the IFRS period, the Superintendency developed new coding system to reflect changes introduced by IFRS. We reconcile two sets of accounts using the manual of tax collection agency (Servicio de Rentas Internas) (SRI, 2012). We then aggregate accounts into standardised format of the income statement and the balance sheet, as presented in Figure 1.

[Figure 2 around here]

We eliminate firm-year observations with zero sales, with inconsistency between the aggregate accounts and corresponding sum of the disaggregate accounts as presented in the original data from the Superintendency and inactive firms. To be included in the final sample, the firms have to have the data necessary to run the regression (1) in all of the sample years. We also eliminate micro firms and keep only small, medium and large companies in the sample. These are the companies with sales larger than \$100,000, assets larger than \$100,000 and with more than 10 employees. We also eliminate brokerage houses, fund managements and all the other companies belonging to the industry sector “K” which includes financial and insurance firms, according to the classification of economic activities issued by the Ecuadorian statistical office (Instituto Nacional de Estadística y Censos, 2012). Table 1 presents details of the sample formation.

[Table 1 around here]

Final balanced sample contains 16,505 observations from 3,301 different firms. In the difference-in-difference regression tests we use 5,436 observations: 208 from 1st group (treatment) and 5,228 observations from 3rd group (control).

Our sample has limitation of being based on individual non-consolidated financial reports. It includes the reports of subsidiaries and members of group. The reports of subsidiaries and individual parent company’s reports are internal reports of group whose economic role is likely different (Ball and Shivakumar, 2005).

Descriptive statistics

Table 2 presents means of the variables used in the regression tests for the IFRS treatment group and control group in pre-adoption years (2008 and 2009) and post-adoption year (2011).

[Table 2 around here]

The treatment and control group are very different. Control group is more profitable driven mostly by larger cash flows from operations. In pre-adoption period, between 28% and 31% firms in both samples had negative cash flows. In post-adoption period, 38% of IFRS treatment firms had negative cash flows, while it is the case for only 26% of control group firms. As for control variables, firms from control group grow faster, are much smaller (which is the natural result of the way the timetable of IFRS of adoption is done) and more leveraged. Naturally, there are a very small number of listed firms in the control group.

5. Results

Table 3 presents results of our main tests. First column presents our experimental regression with pre-adoption year 2009 and post-adoption year 2001. Second column presents results from “placebo” control experiment regression tests, where both years are pre-adoption years 2008 and 2009. For our difference-in-difference estimation to be valid, the coefficients of interest β_3 , β_7 and β_{15} should not be statistically significant.

[Table 3 around here]

We observe high level of income smoothing. The coefficient β_4 on *CFO* is -0.843 implying that on average 84.3% of cash flows from operations are offset by accruals, when cash flows are positive for the control group in 2009. The treatment group smooth earnings equally as the control group in 2009 as the coefficient β_5 on *IFRS x CFO* is not statistically significant. The coefficient β_6 on *POST x CFO* is positive but small in magnitude suggesting the marginal decrease in earnings smoothing from 2009 to 2011 for the control group. However, the coefficient of interest β_7 on *POST x IFRS x CFO* is not systematically different from zero suggesting that IFRS did not affect earnings smoothing practices of treatment group.

Turning to timely loss recognition, the Ecuadorean firms in the regression years do not seem to recognise losses on timelier basis than gains. The coefficient β_{12} on *DCFO x CFO* is not statistically significant. Moreover, the firms that adopted IFRS, seem to smooth earnings even more when cash flows are negative, and delay losses, since the coefficient β_{13} on *IFRS x DCFO x CFO* is negative (-0.484). There is also a fall in timely loss recognition between 2009 and 2011 for the control group, since the coefficient β_{14} on *Post x DCFO x CFO* is negative (-0.127). Nevertheless, the coefficient of interest

β_{15} on *Post x IFRS x DCFO x CFO* is 0.456 but statistically significant at only 10%. This suggests that IFRS contributed to timelier loss recognition and that accruals offsetting of cash flows decrease by 45.6 percentage points when cash flows are negative.

Controlling for other factors, the accrual levels of IFRS adopters are for 9 percentage points lower than those for the control group in 2009 (the coefficient β_1 on *IFRS* is 0.09). The level of accruals for control group fall by 1 percentage point from 2009 to 2011 (the coefficient β_2 on *Post* is 0.09). IFRS contribute even more to the decrease in accruals, since the coefficient of interest β_3 on *Post x IFRS* is -0.030, suggesting the decrease of accruals of 3 percentage points. Nevertheless, this coefficient is significant only at the 10% level.

Overall, we find statistically weak but economically important evidence of timelier loss recognition and accrual aggressiveness as the result of the introduction of IFRS, but no such evidence for the income smoothing.

Column 2 validates our difference-in-difference approach. If IFRS is indeed the reason for changes in earnings quality, then we should not observe the statistically significant coefficients of interest β_3 , β_7 and β_{15} when we estimate the same regression model using both the base year of 2008 and the experiment year 2009 before the adoption of IFRS. In other words, we want to validate that the effect of IFRS that we observe in column 1 is not simply the result of different time trends for the control and treatment group. Indeed, difference-in-difference coefficients of interest β_3 , β_7 and β_{15} are not statistically different from zero, while most of the other coefficients are comparable between column 1 and 2.

6. Conclusion

We examine the effect of mandatory adoption of IFRS on earnings quality in Ecuador for the first wave of adopters, mainly listed companies. These companies are most likely to benefit from the adoption of IFRS because they may be able to distinguish themselves from the rest of companies that are likely to have low quality earnings given the Ecuadorean institutional context and to commit to transparent reporting in order to attract better terms of financing through stock exchange. We exploit adoption of IFRS in stages and use difference-in-difference approach by comparing change in accounting quality of first group of adopters in year 2010 pre and post IFRS adoption (years 2009 and 2011) with the control group consisting of the small and medium firms that adopted IFRS in 2012. We operationalize earnings quality through three measures: earnings smoothing, timely recognition of losses and accrual aggressiveness. Following the adoption of IFRS, earnings smoothing has not changed. However, we find the economically significant evidence of timelier recognition of losses: the accruals offsetting of cash flows decrease by 45.6 percentage points when cash flows are negative. Similarly, accruals decrease by 3 percentage points as a result of adoption of IFRS. However, these two results are

statistically significant only at the 10% level. We interpret these results as consistent with the improvement in earnings quality, consistent with other cross-country and individual country studies of effect of IFRS on earnings quality. Nevertheless, these results are also consistent with the increase in earnings management downwards to reduce a tax bill. Although unlikely given the incentives of listed companies, additional evidence is needed to rule out this explanation.

Our research has focused on earnings properties, i.e. the effect of recognition and measurement practices in financial reports. The alternative channels of improvement in transparency of accounting reports are through comparability and better quality of disclosures in notes to the financial statements. An important unresolved issue is whether the improvement in earnings properties actually translates in the improvement of market outcomes, as proponents of IFRS suggest. It could still be the case that the different/better financial reporting outcomes as a result of mere application of IFRS are not necessary where there is no demand for such information, while companies bear costs of implementing new rules. These issues we leave for the future research.

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Figure 1
Composition of sample across years along IFRS adoption dimension

Available accounting variables	IFRS adoption		
	1st group	2nd group	3rd group
2008	Pre	Pre	Pre
2009	Pre	Pre	Pre
2010		Pre	Pre
2011	Post		Pre
2012	Post	Post	

Figure 2
Standardised formats of Balance Sheet and Income Statement

BALANCE SHEET	
ASSETS	EQUITY AND LIABILITIES
Cash and cash equivalents	Short-term debt and notes payable
Receivables	Accounts payable
Inventories	Income taxes payable
Prepayments	Other current liabilities
Other current assets	Total current liabilities
Total current assets	Long-term debt
Property, Plant and Equipment	Other liabilities
Gross PPE	Total non-current liabilities
Accumulated depreciation	Total liabilities
Property, Plant and Equipment, net	Common stock
Intangibles	Capital surplus
Other investments	Retained earnings
Deferred charges	Total equity
Other assets	Total liabilities and equity
Total non-current assets	
Total assets	

INCOME STATEMENT
Sales
Cost of goods sold
Gross margin
Selling, general and administrative expenses
Operating income before depreciation
Depreciation and amortization
Operating income after depreciation
Special items
Operating income
Non-operating income and expenses
Earnings before interest, taxes and employee participation
Interest expense
Earnings before taxes and employee participation
Employee participation
Earnings before taxes
Income taxes
Net income before discontinued operations
Discontinued operations
Net income

Table 1
Sample Formation

	2007	2008	2009	2010		2011	2012		
	NEC	NEC	NEC	NEC	IFRS	NEC	IFRS	IFRS	Total
Initial sample	47,768	52,042	53,210	49,838	361	40,439	2,834	40,987	287,479
Less: Observations with sales = 0	-18,273	-21,048	-20,855	-17,201	-18	-11,826	-68	-10,498	-99,787
	29,495	30,994	32,355	32,637	343	28,613	2,766	30,489	187,692
Less: Observations where the difference between codes of total current assets, net PPE, total non-current assets, total assets, total current liabilities, total non-current liabilities, total liabilities, total equity, total equity and liabilities, total revenues, total cost, earnings before tax and employee participation and net income and the sum of their respective components is higher than 5%	-832	-197	-38	-121	-1	-79	-5	-22	-1,295
	28,663	30,797	32,317	32,516	342	28,534	2,761	30,467	186,397
Less: Inactive firms	0	0	-2,835	-1,260	-5	-776	-35	-540	-5,451
	28,663	30,797	29,482	31,256	337	27,758	2,726	29,927	180,946
Less: Observations without all necessary variables to conduct regression tests	-28,663	-6,307	-5,100	-5,338	-27	-4,167	-1,279	-7,901	-58,782
	0	24,490	24,382	25,918	310	23,591	1,447	22,026	122,164
Less: Observations for micro-firms: sales less than \$100,000, total assets less than \$100,000 and less than 10 employees		-11,712	-17,991	-17,494	-149	-15,496	-351	-14,175	-77,368
		12,778	6,391	8,424	161	8,095	1,096	7,851	44,796
Less: Observations from firms in financial sector "K" (brokerage houses, fund management, etc.)		-92	-42	-36	-21	-32	-30	-57	-310
		12,686	6,349	8,388	140	8,063	1,066	7,794	44,486
Less: Firms which do not have observations for the entire 2008-2012 period		-9,385	-3,048	-5,191	-36	-5,449	-379	-4,493	-27,981
Final sample		3,301	3,301	3,197	104	2,614	687	3,301	16,505

IFRS adoption groups	Number of Firms	Number of obs.	Used in experimental regression tests
1 st group	104	520	208
2 nd group	583	2,915	
3 rd group	2,614	13,070	5,228
TOTAL	3,301	16,505	5,436

Notes:

NEC are Normas Ecuatorianas de Contabilidad.

IFRS are International Financial Reporting Standards.

Table 2
Means of the variables for the IFRS Treatment Sample and Control Sample in Pre-Adoption and Post-Adoption Years

	Pre-IFRS						Post-IFRS		
	2008			2009			2011		
	IFRS	Control	IFRS-Control	IFRS	Control	IFRS-Control	IFRS	Control	IFRS-Control
NI	0.060	0.074	-0.014 **	0.061	0.064	-0.003	0.050	0.103	-0.053 **
ACC	-0.022	-0.030	0.008	-0.006	-0.041	0.035 **	0.004	-0.022	0.026
CF	0.083	0.103	-0.020	0.066	0.104	-0.038 **	0.046	0.125	-0.079 **
DCF	0.308	0.313	-0.005	0.279	0.285	-0.006	0.385	0.262	0.123 **
<i>Control variables</i>									
ΔREV	0.295	0.575	-0.280 **	0.038	0.153	-0.115 **	0.142	0.285	-0.143 **
GPPE	0.529	0.548	-0.019	0.548	0.551	-0.003	0.513	0.567	-0.054
SIZE	16.327	13.512	2.815 **	16.407	13.599	2.808 **	16.764	13.771	2.993 **
CSISSUE	0.027	0.024	0.003	0.029	0.015	0.014 **	0.011	0.019	-0.008
LEV	0.658	0.687	-0.029 *	0.636	0.677	-0.041 **	0.614	0.662	-0.048 **
DISSUE	0.132	0.141	-0.009	0.027	0.048	-0.021	0.054	0.069	-0.015
BTD	0.024	0.030	-0.006	0.022	0.030	-0.008 *	0.030	0.106	-0.076 **
LISTED	0.462	0.000	0.462 **	0.567	0.000	0.567 **	0.750	0.002	0.748 **
Observations	104	583		104	583		104	583	

Notes:

** and * denote statistical significance at the 5% and 10% levels, respectively, for a two-tailed *t*-statistic test. All variables are defined on the page 8 of the paper.

Table 3
The impact of IFRS on measures of earnings quality

	Experiment of interest, years 2009 and 2011	Control experiment, years 2009 and 2011
	(1)	(2)
Intercept	0.090 (4.29)	0.192 *** (9.13)
IFRS	-0.025 * (-1.74)	-0.032 ** (-2.47)
Post	-0.010 ** (-2.03)	-0.002 (-0.45)
Post x IFRS	-0.030 * (-1.93)	0.014 (0.89)
CFO	-0.843 *** (-50.02)	-0.862 *** (-44.10)
IFRS x CFO	0.087 (1.00)	0.078 (0.90)
Post x CFO	0.076 ** (2.76)	0.024 (0.94)
Post x IFRS x CFO	0.027 (0.24)	0.018 (0.14)
DCFO	0.004 -0.54	0.006 (1.09)
IFRS x DCFO	-0.031 (-1.12)	0.011 (0.69)
Post x DCFO	0.000 (-0.02)	-0.003 (-0.35)
Post x IFRS x DCFO	0.052 (1.55)	-0.031 (-1.28)
DCFO x CFO	-0.038 (-0.77)	-0.035 (-1.21)
IFRS x DCFO x CFO	-0.484 *** (-2.85)	-0.196 (-1.30)
Post x DCFO x CFO	-0.127 * (-1.89)	-0.092 ** (-2.22)
Post x IFRS x DCFO x CFO	0.456 * (1.94)	-0.063 (-0.32)
ΔREV	0.026 *** (9.56)	0.032 *** (14.36)
GPPE	-0.051 *** (-12.46)	-0.050 *** (-13.88)
SIZE	0.005 *** (3.35)	-0.001 (-0.41)
CSISSUE	-0.114 *** (-3.24)	-0.052 ** (-2.01)

LEV	-0.165 *** (-17.03)	-0.169 *** (-23.12)
DISSUE	0.022 *** (3.38)	0.018 *** (3.31)
BTD	0.329 *** (5.68)	-0.556 *** (-9.81)
LISTED	0.011 (1.11)	0.016 ** (2.01)
Industry fixed effects	YES	YES
Observations	5436	5436
R^2	81.6%	86.7%
Adjusted R-square	0.8141665	0.8657366

Notes:

***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively, for a two-tailed t -statistic test using White heteroskedasticity robust standard errors.

The regression model is described on page 8 of the paper.

All variables are defined on page 8 of the paper.