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IAS/IFRS Mandatory Adoption and Cross-Border M&A

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Abstract

This study investigates the effect of the mandatory implementation of IAS/IFRS on cross-border M&A activity. I test the hypothesis that the improvement in the comparability of financial statements among the adopting countries facilitates cross-border transactions. According to the expectations, I find support for enhanced cross-border M&As following the mandatory adoption of IFRS due to a likely increase in the comparability of financial reports. Additionally, listed targets from IFRS adopting countries do experience stronger positive influence on foreign M&A transactions than unlisted target from adopting countries and listed targets from IFRS non-adopting countries.

1. Introduction

The IFRS Foundation and the IASB were established in 2001 with the purpose of banding together a uniform set of high quality, relevant, understandable and internationally accepted financial reporting standards. The idea of *convergence* – i.e. all major capital markets using the same accounting principles - is not new and it dates back to the late 1950, as a reaction to the upsurge of cross-border capital flows due to the post World War II economic integration (FASB, 2015). Evolving from such belief, the objective of the IAS/IFRS is to provide a global framework setting out the concepts for the preparation and presentation of financial statements to external users.

The 2005 represented a significant crossroads for the European countries, as the regulation of the European Parliament and of the Council (No. 1606/2002) explicitly ruled the adoption and use of IFRS: as of January 1st 2005, all the companies exposed to the Member States' law "shall prepare their consolidated accounts in conformity with the international accounting standards". Specifically, the mandatory adoption only applies to all European companies whose debt or equity securities trade in a regulated market, although unlisted companies are allowed to voluntary adopt the principles.

In this research, I test the hypothesis that the mandatory implementation of IFRS is likely to improve the comparability of financial statements among adopting countries, smoothing the evaluation of the reported information, thus facilitating and enhancing cross-border corporate transactions. It is reasonable to predict increased foreign investment activity due to the criticality of analyzing financial reports in M&A transactions. Indeed, the enforced IFRS adoption is expected to ease acquirers in

recognizing investment opportunities, identifying possible targets, analyzing financial reports over the due diligence process, and integrating after the acquisition.

The choice of considering M&As rather than foreign portfolio investments is motivated by the possibility to discriminate between listed and unlisted firms and use the listing status as a detection mean, since IFRS adoption is only mandatory for listed companies. Moreover, M&As are preferred to foreign direct investments as the latter also include greenfield investments[1] for which the reporting principles in the target country are not as relevant as in the case of M&As. (Henock and Oktay, 2014).

The goal of the study is to test the effect of the IFRS adoption on cross-border mergers and acquisitions, given the mandatory amendment in financial reporting in the EU and other countries. The evidence in Henock and Oktay (2014) is used as reference point and benchmark for the comparison of the results, though the current analysis sets sights on completing and deepening the explanations of the authors' outcomes by widening the range of the results and performing the test over different and broader samples.

The results are consistent with the hypothesis concerning the enhancement of cross-border M&As due to a probable increase in the comparability of accounting reports following the mandatory adoption of IFRS. The evidence supports Henock and Oktay (2014) results that the odds of cross-border acquisitions of listed companies in the IFRS adopting countries rise significantly after the IFRS obligatory implementation. These findings are hardened when compared with those concerning unlisted targets from IFRS

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[1] Foreign direct investments where parent companies set up new ventures in a foreign country. As reported by Henock and Oktay (2014), these investments need careful asset valuation, however companies involved in foreign transactions tend to continue using the domestic accounting principles. Hence, the accounting rules of the host countries are not as relevant as M&A transactions.

adopting countries and listed targets from IFRS non-adopting countries. Lastly, I find evidence for a greater increase in cross-border investments in the IFRS adopting countries than non-adopting countries.

2. Related Studies

During the last decade an increasing number of countries adopted the IAS/IFRS accounting principles or agreed to implement them in the near future. However, even if the compulsory adoption for listed targets represented a milestone in the accounting history of many countries, a number of researches investigate the potential benefits and the economic consequences of the IFRS adoption affecting firms and markets.

For instance, Daske, Leuz et al. (2008) find that both market liquidity and companies' cost of capital increase when the IFRS are introduced. In particular, there is evidence for capital markets positive effects only in those countries with greater incentives to provide transparent and higher quality information. Naranjo, Saavedra and Verdi (2012) direct instead their attention towards the theory that information asymmetry can impact on firms' financing decisions, showing that after the IFRS adoption companies are more willing to look for external financing and to issue equity rather than debt instruments.

Besides, several studies focus their empirical research to give evidence for an increased comparability of financial reports due to the mandatory adoption of IFRS. Similarly to the analysis conducted in this paper, De Fond, Hu et al. (2010) state that dictating a single set of accounting rules can improve financial statements comparability and foster cross-border investments. However, they perform their test taking into account foreign

mutual fund investments rather than M&As. The observation here is that in many foreign funds, investment decisions are made both by fund managers and individuals: while the first are assumed to be experienced investors, the funds' definitive target countries are likely to be chosen by the less experienced individuals. By contrast, in M&A transactions only qualified executives carry deep assessments on the acquired firms' financial reports (Henock and Oktay, 2014). Nevertheless, they find evidence for increased foreign mutual fund ownership following the mandatory adoption of IFRS in those countries showing sounder credibility to properly apply the principles.

Relatedly, Yip Wing-yue and Young (2012) study the effect of IFRS mandatory adoption on information comparability in 17 European countries by looking at the "similarity of accounting functions, the degree of information transfer and the relationship between earnings and the book value of equity". They observe improved comparability due to higher quality information resulting from the IFRS adoption.

In contrast, Rossi and Volpin (2004) argue that improved quality of reporting heads to a reduction of cross-border M&As. Even so, this statement actually reinforce the results obtained in the research presented in this paper, as the increase in cross-border M&A activities can merely be attributed to the increased comparability of financial statements rather than to the improved quality of reporting.

Though, Christensen, Lee and Walker (2008) offer an interesting insight that is worth mentioning. According to their results, the IFRS adoption does not necessarily translate into higher quality accounting information. The reason is that the IFRS are principle-based, thus meaning that there could be more chances for misreporting, given the broader range of reporting possibilities (Henock and Oktay, 2014).

3. Sample data selection and description

This research examines completed M&A transactions whose announcement date ranges between January 1, 2000 and December 31, 2010. The deals are collected for the period considered through the Thomson One Database, distinctly selecting domestic and cross-border mergers and acquisitions. With the intention to study and compare different samples, I portioned the transaction to combine listed and unlisted target companies from IFRS adopting countries and from IFRS non-adopting countries. Specifically, a higher number of observations are collected compared to Henock and Oktay's research (2014) by considering a larger number of IFRS adopting and non-adopting countries. Also, specific attention is directed towards the classification of the acquirers involved: the dataset only contains M&As whose acquirer is a publicly traded company in order to avoid potential bias due to going-private transactions or to M&As carried out by shell companies (Henock and Oktay, 2014).

The sample in the base model refers to 9,713 completed deals of listed targets from the IFRS adopting countries. Next, the set of listed and unlisted target companies from IFRS adopting countries (27,713 deals) are benchmarked with transactions involving listed and unlisted targets from IFRS non-adopting countries (41,360 deals).

In addition, annual macroeconomic variables are also collected. Data concerning GDP growth, population growth and inflation rate are gathered through the World Bank dataset, while statistics relative to currency exchange rate and the GNP to GDP ratio are obtained via Penn World Tables. Interbank rates are collected using the OECD online statistics and missing information relative to this variable are filled with the available statistics provided by the World Bank dataset.

Table A.2 (reported in the Appendix) shows the distribution of the sample across years and across countries. The time-series distribution[2] for listed and unlisted targets companies from the IFRS adopting countries presents an intensification of M&A activities in 2000 and 2001 and in 2007 and 2008. In particular, before 2007 there is a higher concentration of M&As of unlisted targets, but the pattern is then reversed from 2008. The inverted trend may be credited to the mandatory adoption of IFRS in 2005, thus providing one first possible indication for a positive effect driven by the predicted improved comparability of financial statements.

Following, considering the sample distribution for IFRS adopting countries and the sample distribution for IFRS non-adopting countries[3], it is possible to observe a higher number of deals carried out by Australia and UK among the adopter countries, and by the United States, Japan and Canada among the non-adopter countries. Given the strong concentration around these nations, countries effects are taken into account when estimating the impact of IFRS adoption on cross-border transactions so as to obtain and interpret within-country estimates.

4. Methodology

4.1 Research Design

In order to capture the effect of the of the IAS/IFRS mandatory adoption in the EU and other countries, the probability of an M&A deal being a cross-border transaction, carried out for target firms in the IFRS adopting countries, is compared before and after the mandatory adoption of the accounting principles in 2005. That is, the amount of

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[2] Refer to Panel 2.A in the Appendix for more details.
[3] Refer Panel 2.B and Panel 2.C respectively in the Appendix for further details.

investments in IFRS adopting companies realized from abroad before 2005 is compared to the amount realized after 2005.

With the purpose of measuring the odds of cross-border M&As, a regression analysis is conducted with the use of the logit model. Because the dependent variable of the model is a dummy variable taking the value one if the transaction observed is realized overseas and zero otherwise, the logit method allows the estimation of the probability to exclusively assume values between 0 and 1. Indeed, the logit model uses an iterative estimation technique that is particularly employed for equations that are non linear in the coefficients, known as "maximum likelihood" (ML). The advantage of using the binomial logit relies on several properties: with large samples, as in this case, ML produces normally distributed coefficients, giving unbiased and minimum variance and allowing for the use of the traditional hypothesis testing procedure. (Studenmund, 2011)

As reported by Henock and Oktay (2014), different methods have been applied in the literature. For instance, Francis et al (2014) use the gravity model to show a higher increase in cross-border M&A transactions for "paired-adopting countries" compared to "non-paired adopting countries" following the adoption of IFRS in 2005. However, this approach is not appropriate to address the research question investigated in the present paper as the gravity model only seizes the total amount of investments between two countries. Therefore, it cannot provide an estimate for the probability of a cross-border transaction by simultaneously considering all the IFRS adopting countries.

Alternatively, the average change in the values of the transactions, before and after 2005, can also be analyzed. Nonetheless, this approach entails the necessity to control

for endogenous factors that could impact on the value of the deals. Moreover, using the transaction value as the dependent variable may lead to ambiguous interpretations, since the result would not only comprise the effect of the improved comparability of financial statements, but also the impact of a changed quality of reporting. (Henock and Oktay, 2014).

4.2 The base model: a control approach

Provided that mergers and acquisitions are not of equal size, the value of each transaction is included in the model so as to seize and isolate the influence of IFRS on overseas transactions. In this way, following the same approach used by Henock and Oktay (2014), it is possible to liken the odds of a cross-border acquisition of an IFRS adopting company, before and after the enforced adoption, while controlling for the size of the deal.

The estimates are modeled using the following logit regression equation and the statistical software STATA:

$$CB_i = \beta_0 + \beta_1 ANND + \beta_2 TVAL + control\ variables + \varepsilon_i \qquad (1)$$

CB is the dependent dummy variable assuming value one when deals are carried overseas and zero when they are completed in the domestic country.

ANND is the explanatory variable taking the value one for M&As whose announcement date is made in the post-adoption period between July 1, 2006 and December 31, 2010 and zero for announcements done in the pre-adoption period, between January 1, 2000 and December 31, 2004. I exclude the transactions completed during 2005 due to the fact that financial annual reports under the IFRS rules are not available before March

31, 2006 and the gathering of financial information for M&A objectives usually requires a discrete amount of time.

The estimation obtained by the coefficient on *ANND* gives the difference between the logit likelihood of a cross-border transaction before and after the IFRS implementation. Indeed, since the model considers the deals as given, a positive β_1 reasonably explains increased cross-border M&As, keeping constant their relative transaction values.

TVAL is the explanatory variable embodying the value (in U.S. dollars) of each transaction. Specifically, the values have been rescaled and expressed in natural logarithm amounts so as to facilitate the comparison of a large range of values.

Besides, it is necessary to control for possible factors that can influence the amount of deals occurred in a given country. For this purpose, the control variables entered refer to economic factors and test for the GDP growth, the population growth, the inflation rate, the currency exchange rate, the ratio of GNP to GDP and the inter bank rate in every year and in every country included in the sample examined.

Furthermore, observing the effect of IFRS adoption on cross-border M&As over different time periods might bear a problem known as "spurious regression", that is a strong statistical relationship between two or more variables not driven by any underlying casual connection (Studenmund, 2011). Variables following a steadily change over time may lead to false results. As a consequence, to solve the issue and take into account a possible trend started before the IFRS mandatory adoption, a time trend variable is included in the regression.

Finally, country and year fixed effects are also included in the model, carefully dropping the time trend and other specific variables in order to avoid collinearity issues when those are introduced. They allow controlling for specific factors and differences across units, whether observable or unobservable, which are constant over time. Including them into the regression partially removes one source of possible omitted variables bias (Berry, 2011). Namely, country fixed effects permit to control for constant effects that influence the deals in a given country throughout the period considered, and the year fixed effects control for effects occurring in a given year having an impact on the deals.

Despite the economic control variables, the time trend and the fixed effects, there could still be causes not related to the IFRS adoption that may have the effect of increasing the odds of a cross-border transaction. Accordingly, to better stand the improved comparability of accounting reports after the IFRS adoption, the companies' listing status is used as an identification tool: given that IFRS is only mandatory for listed firms, the listing status can be useful to identify the IFRS adoption effect and to eliminate residual sources of ambiguous results that the control variables and the fixed effects are not able to detect.

Lastly, target companies from IFRS non-adopting countries are taken into consideration as a control sample (Henock and Oktay. 2014). As a result, the base model is extended to be compared with the control groups as follows:

$$CB_i = \beta_0 + \beta_1 ANND + \beta_2 TVAL + \beta_3 LISTED + \beta_4 ADOPT + \beta_5 ANND*LISTED +$$

$$\beta_6 ADOPT*LISTED + \beta_7 ANND*ADOPT + \beta_9 ANND*LISTED*ADOPT +$$

$$+ \text{control variables} + \varepsilon_i \qquad (2)$$

LISTED is a dummy variable taking the value one for listed companies and zero otherwise and *ADOPT* is also a binary variable, assuming the value one if the target being acquired is from IFRS adopting countries and zero if not.

The *ANND*LISTED, ADOPT*LISTED, ANND*ADOPT* and *ANND*LISTED*ADOPT* interaction terms are included in order to discern between the direct and the indirect effect that each variable carries on the odds of cross-border M&As and to deepen the explanations concerning the effect of the IFRS adoption.

In particular, the coefficients relative to each variable, taken as stand-alone terms, explain the direct effect, while the coefficients relative to the interaction terms describe the indirect effect (Studenmund, 2011). For instance, *ANND* gives the difference between the effect of a cross-border transaction before and after the IFRS implementation and *ANND*LISTED* measures the same difference by also comparing listed and unlisted target firms. That is, for each value of *LISTED* (zero or one) there is a different marginal effect of *ANND* on *CB*.

To conclude, heteroskedasticity is also taken into consideration. Although it is more likely to occur in cross-sectional models rather than in time-series, it is not always realistic to assume constant variance for different observations of the error term (homoscedasticity). The violation of this assumption does not lead to biased estimates of the β_i, but to biased relative standard errors. A simple method to solve the potential heteroskedasticity is to regress the equation with heteroskedasticity-robust standard errors (Studenmund, 2011).

5. Results

5.1 Univariate analysis

This section compares cross-border M&A deals, before and after the IFRS mandatory adoption, assessing the effect triggered by one single explanatory variable, the *ANND* variable. The coefficient on this term (β_1) is able to capture the difference in foreign transactions before and after 2005. Specifically, I predict a positive coefficient due to an increase in cross-border activities.

The two-sided hypotheses test is run over three samples: listed targets from IFRS adopting countries, unlisted targets from IFRS adopting countries and listed targets from IFRS non-adopting countries. The first group is compared against the other two so as to obtain a measure of the effect that the common set of accounting principles have on the likelihood of cross-border M&As.

Table 5.1 below reports, for the treated samples, both the proportion of acquisitions completed overseas, before and after the IFRS adoption, and the results of the univariate regression analysis. It is possible to observe a considerable higher proportion of cross-border M&As of listed targets from IFRS adopting countries after the principles adoption. The ratio, equal to 0.539 (54%) is higher when compared to foreign acquisitions of unlisted targets from IFRS adopting countries (49.5%), but lower when contrasted to those of listed targets from IFRS non-adopting countries (58%).

Nevertheless, the estimated coefficients confirm the predicted positive effect of the IAS/IFRS adoption: the odds of foreign M&A activities is statistically significant higher for the listed targets from the IFRS adopting countries, equal to 0.504, than for the

unlisted targets from IFRS adopting countries, 0.278, and listed targets from IFRS non-adopting countries, 0.422.

However, implementing the logit regression model requires particular attention when interpreting the results of the equations: the absolute size of logit coefficients is different from those estimated with the OLS model, given the same data and the same regression equations[4]. One way to obviate and facilitate the interpretation is to divide by four the logit coefficients to directly analyze the marginal effect of the variables. In this way it is possible to state that, all else equal, the effect of IFRS adoption increased the odds of cross-border M&As of listed firms from adopting countries by 11.7%, a higher probability than those of unlisted adopting companies and listed targets from non-adopting countries, equal to 6.2% and 6.3% respectively.

Table 5.1: *Cross-border M&A deals before and after the IFRS mandatory adoption*

	Listed targets from IFRS adopting countries (N = 9,713)	Unlisted targets from IFRS adopting countries (N = 18,001)	Listed targets from IRS non-adopting countries (N = 16,486)
Pre-adoption proportion	0.461 (N = 4474)	0.505 (N = 9087)	0.420 (N = 6924)
Post-adoption proportion	0.539 (N = 5239)	0.495 (N = 8914)	0.580 (N = 9562)
annd (Logit likelihood)	**0.504 (0.000)**	**0.278 (0.000)**	**0.422 (0.000)**
annd (marginal effect)	**0.117 (0.000)**	**0.062 (0.000)**	**0.063 (0.000)**

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[4] The reason relies on the fact that the dependent variable is a logit equation is different from the one used in linear probability models. The change in probability that the estimated dependent variable is equal to 1, caused by a one-unit increase in the independent variable, varies as it moves from 0 to 1.

5.2 Multivariate analysis

Although the univariate analysis provides a positive evidence for the effect investigated in this research, a definitive inference cannot be performed without considering the values of the deals and the control variables. With this purpose, this section runs the extended version of the base model over a set of different samples: listed targets from IFRS adopting countries, listed and unlisted targets from IFRS adopting and non-adopting countries.

Table 5.2 below displays the results for the M&A transactions involving only listed targets from the IFRS adopting countries[5]. The association between the IFRS adoption and the likelihood of a cross-border transaction is now examined conditional to the deal values, the macroeconomic control variables and the time trend. In addition, column (2) reports the estimates accounting for the country fixed effects to control for possible constant influences affecting the deals in a given country throughout the period analyzed.

The estimated coefficient on *ANND* under column (1) shows a significant positive effect on the odds of foreign M&A activities. Now the estimate is equal to 0.333, everything else kept constant. This means that the probability of a transaction being completed overseas, after the adoption of IFRS, is roughly equal to 8%. Moreover, the evidence still holds when country fixed effects are included in the regression: the within-country difference in the logit odds of cross-border M&A before and after the IFRS adoption is positive and statistically significant, equal to 0.296, equivalent to a 7.4% probability.

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[5] Refer to Table A.1 in the Appendix for a detailed description of the variables included in the regression equation.

Table 5.2: *The effect of the IFRS mandatory adoption - Base model*

Listed targets from IFRS adopting countries
(N = 9,713)

	(1)	(2)
annd	**0.333** (0.000)	**0.296** (0.000)
tval	0.141 (0.000)	0.149 (0.000)
gdp_g	0.008 (0.353)	0.003 (0.762)
pop_g	-0.021 (0.497)	0.091 (0.052)
infl_r	0.031 (0.001)	0.015 (0.182)
exch_r	0.002 (0.060)	-0.009 (0.309)
gnp_gdp	0.0003 (0.522)	0.0005 (0.000)
inter_r	-0.007 (0.148)	-0.003 (0.568)
time_trend	-1.32e-10 (0.014)	-1.19e-10 (0.036)
Country fixed effects	No	Yes
Year fixed effects	No	No
Pseudo R^2	0.0274	0.0478

Marginal effects are not reported so as to simplify the comprehension and the structure of the table.

Following, the model is run over the whole set of listed and unlisted IFRS adopters, which is then benchmarked against the whole sample of listed and unlisted targets from IFRS-non adopting countries. In this way, it is possible to capture the incremental effect of listed IFRS adopting targets relative to the unlisted ones. As previously explained, the outcome is given by the interaction term *ANND*LISTED*. For this reason, the

attention is now directed towards the interpretation of the interaction term coefficient and its comparison between the IFRS adopting and non-adopting firms.

The results are reported in Table 5.3 below, where the estimates obtained including the year fixed effects are shown under column (3). In particular, the *ANND* and the time trend variables must be dropped when considering those effects, which potentially occur every year in the examined countries and that may impact on the deals comprised in the dataset. Indeed, their effect is already explained by the year fixed effects and including the three terms simultaneously would lead to collinearity issues.

Looking at the outcomes attained for the listed and unlisted companies from IFRS adopting countries it is possible to observe positive coefficients both on *ANND* (0.224 ≈ 5.6%) and on the interaction term *ANND*LISTED* (0.092 ≈ 2.3%), thus confirming the increased likelihood of cross-border M&As after the mandatory IFRS adoption. In particular, it is relevant to notice that once the country and year fixed effects are taken into account, the effect measured by *ANND*LISTED* increases when compared to the base model: if the company is a listed adopting target, the odds of a transaction completed overseas after the IFRS adoption is higher, equal to 4.5% and 4.1% respectively, than the probability of cross-border M&As of unlisted adopting targets.

The evidence is in turn strengthened when the estimates are benchmarked against the listed and unlisted targets from IFRS non-adopting countries. Despite reporting positive and higher coefficients on the *ANND* variable, those relative to the *ANND*LISTED* are lower than the estimates obtained for the IFRS adopting sample, thus meaning lower

odds of foreign transactions carried in the IFRS non-adopting countries, equal to 1.2%,

and to 2.9% and 3.5% including country and year fixed effects respectively.

Table 5.3: *The effect of the IFRS mandatory adoption. Benchmarking against listed and unlisted targets from IFRS non-adopting countries.*

	Listed and unlisted targets from IFRS adopting countries (N = 27,713)			Listed and unlisted targets from IFRS non-adopting countries (N = 41,360)		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
annd	0.224 (0.000)	0.148 (0.004)	-	0.226 (0.000)	0.382 (0.000)	-
listed	-0.049 (0.221)	-0.128 (0.003)	0.148 (0.000)	-0.298 (0.000)	-0.364 (0.000)	0.099 (0.000)
tval	0.160 (0.000)	0.149 (0.000)	-0.124 (0.004)	0.095 (0.000)	0.102 (0.000)	-0.365 (0.000)
gdp_g	0.022 (0.000)	0.009 (0.128)	0.004 (0.600)	0.051 (0.000)	0.006 (0.305)	-0.002 (0.786)
pop_g	-0.086 (0.000)	0.067 (0.027)	0.064 (0.041)	0.434 (0.000)	0.219 (0.114)	0.096 (0.506)
infl_r	0.033 (0.000)	0.013 (0.071)	0.006 (0.471)	0.048 (0.000)	0.002 (0.766)	-0.014 (0.110)
exch_r	0.004 (0.000)	-0.002 (0.590)	-0.002 (0.656)	0.000 (0.000)	-0.0004 (0.005)	-0.0003 (0.028)
gnp_gdp	0.000 (0.498)	0.013 (0.233)	0.015 (0.168)	-0.040 (0.000)	-0.005 (0.241)	-0.007 (0.143)
inter_r	-0.011 (0.001)	-0.004 (0.268)	-0.002 (0.610)	0.0049 (0.000)	-0.012 (0.173)	-0.015 (0.130)
time_trend	-9.67e-11 (0.002)	-9.37e-11 (0.003)	-	-7.95e-11 (0.016)	-3.09e-10 (0.000)	-
annd*listed	**0.092 (0.048)**	**0.165 (0.003)**	**0.164 (0.004)**	**0.047 (0.042)**	**0.115 (0.031)**	**0.129 (0.016)**
Country fixed effects	No	Yes	Yes	No	Yes	Yes
Year fixed effects	No	No	Yes	No	No	Yes
Pseudo R^2	0.0265	0.0572	0.0578	0.0505	0.0814	0.0825

Marginal effects are not reported so as to simplify the comprehension and the structure of the table.

To conclude, the analysis is conducted over the sample combining listed and unlisted firms both from IFRS adopting and non-adopting countries, thus providing an additional benchmark to support the evidence observed so far. As a result, it is now possible to include the dummy variable *ADOPT*, taking the value one if the targets firm is from IFRS adopting countries and zero if otherwise. In this way, the sample provides the opportunity to build additional interaction terms so as to extend the measurement of the IFRS mandatory adoption over the odds of cross-border M&As.

The *ADOPT*LISTED* gives a measure of the incremental effect of the listed IFRS adopting firms, relative to the unlisted ones, the *ANND*ADOPT* captures the incremental effect of the IFRS adopting companies, relative to the non-adopting, and lastly, the *ANND*LISTED*ADOPT* provides the measures of the incremental effect of the listed targets from IFRS adopting countries.

Table 5.4 below reports the results obtained running the test on the latest extended version of the base model. Column (2) and (3) shows the outcomes comprising country and year fixed effects, and the appropriate variables are dropped so as to avoid collinearity bias each time one of the interaction terms already describes the relative explanatory effect.

Once more, the results prove the positive effect of the IFRS mandatory adoption: the whole set of interaction terms present significant positive coefficients. Specifically, the estimate on *ANND*LISTED*ADOPT*, the most interesting variable to observe now, is equal to 0.95% in the base model under column (1), which however is not particularly high. Nevertheless, when country and year fixed effects are taken into account, the measures considerably improve: the odds of cross-border M&As after the adoption of

the IFRS are higher, equal to 2.7% and 2.65% respectively, than the likelihood of foreign transactions carried by companies from IFRS non-adopting countries.

Table 5.4: *The effect of the IFRS mandatory adoption. Benchmarking against listed and unlisted targets from IFRS non-adopting countries.*

	Listed and unlisted targets from the IFRS adopting and non-adopting countries (N = 69,074)		
	(1)	**(2)**	**(3)**
annd	0.195 (0.000)	-	-
listed	-0.353 (0.000)	-0.439 (0.000)	-0.381 (0.000)
adopt	0.576 (0.000)	-	-
tval	0.123 (0.000)	0.125 (0.000)	0.122 (0.000)
gdp_g	0.049 (0.000)	0.003 (0.422)	-0.005 (0.363)
pop_g	0.030 (0.060)	0.108 (0.000)	0.082 (0.005)
infl_r	0.060 (0.000)	0.009 (0.078)	-0.003 (0.619)
exch_r	0.0001 (0.000)	-0.0004 (0.005)	0.0003 (0.017)
gnp_gdp	0.000 (0.736)	0.0009 (0.718)	0.0005 (0.132)
inter_r	0.003 (0.668)	-0.0009 (0.792)	-0.002 (0.653)
time_trend	-1.23e-10 (0.000)	-7.43e-11 (0.000)	-
annd*listed	**0.227 (0.043)**	**0.181 (0.000)**	**0.092 (0.062)**
adopt*listed	**0.349 (0.000)**	**0.277 (0.000)**	**0.284 (0.000)**
annd*adopt	**0.079 (0.076)**	-	-
annd*listed*adopt	**0.038 (0.027)**	**0.108 (0.047)**	**0.106 (0.058)**
Country fixed effects	No	Yes	Yes
Year fixed effects	No	No	Yes
Pseudo R2	0.0476	0.0872	0.0886

Marginal effects are not reported so as to simplify the comprehension and the structure of the table.

6. Observations to the model

The study conducted and presented above provides a valuable support to the expected positive influence of the IAS/IFRS mandatory adoption on the probability of cross-border M&A transactions. Nevertheless, given the complexity of the dataset construction and the vast literature behind the topic, it is wise to ponder possible limitations of the model and consider some features of the research that could be improved.

One possible source of bias in the obtained estimates could be recognized in the way the dataset is built. Indeed, when analyzing the effect of IFRS adoption on firms belonging to IFRS adopting countries two issues should be taken into account.

First, the directive ruling the mandatory adoption of the accounting principles in 2005 only comprised companies in the EU. Thus, it is necessary to construct the database so as to include non-EU countries that adopted the IAS/IFRS system either in 2005 or few years later (Panel 2.B in the appendix reports the adoption year for each country)[6]. Otherwise, the difference between the pre and the post adoption moment would have been harder to capture.

Second, it should be observed that the results obtained for the M&A deals completed in IFRS adopting countries might slightly underestimate the positive effect of the IFRS adoption on cross-border M&A. The reason is that most likely some of the adopting countries already implemented accounting rules similar to the IAS/IFRS principles, or it is possible that convergence processes had previously started. In that case, the

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[6] Singapore is included in the sample, despite the adoption of the IAS/IFRS principles in 2003. Given the limited number of observations concerning this country and the necessity to consider a time lag before the possibility to examine the IFRS adoption effect, the bias is retained to be negligible.

difference between the pre and the post adoption date might be less evident and the true effect of an increased comparability of financial statement might be underrated.

Relatedly, the model could be further extended following Henock and Oktay's approach (2014). They also test if the positive effect of the mandatory adoption of IFRS on EU members can be attributed to parallel financial reporting enforcements, and whether the increased cross-border transactions is driven by higher economic activities within the EU registered between 2004 and 2007[7]. They find no evidence supporting that the IFRS effect is due to M&A transactions into the EU countries, and they also suggests that a stronger regulatory environment could actually complicate foreign investments, thus having a negative influence.

Another way to further extend the research would be analyzing the effect of the IFRS adoption looking at the acquirer companies. The dataset would be built so as to combine samples involving M&A deals for target firms from IFRS adopting countries completed overseas by adopter or non-adopter acquirers. Again, the test over the hypothesis that the improvement in the comparability of financial statements among the adopting countries enhances cross-border activity would be run.

To conclude, it is worth explaining that the corporate tax-rate for each country would have represented a valuable control variable to comprise in the model, as the corporate taxation system can considerably vary across country, having different influences on the completion of M&A transactions. However, data are not available for the countries examined during the period considered.

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[7] Between 2004 and 2007 the EU experienced a massive expansion, as Bulagria, Cyprus, Czech Republic, Estonia, Hngary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia joined the EU.

7. Conclusion

This research tests the hypothesis that the mandatory implementation of IAS/IFRS is likely to improve the comparability of financial statements among adopting countries, facilitating and enhancing cross-border corporate transactions.

With this purpose, a logit model is run over a set of different samples so as to benchmark the attained results: listed and unlisted targets from IFRS adopting countries are examined, as well as listed and unlisted targets from IFRS non-adopting countries. Indeed, since the IFRS adoption is only mandatory for listed firms, the target firms' listing status is used as detection mean to properly identify the IFRS adoption effect.

The attained results support the predicted enhancement of cross-border M&As following the mandatory adoption of IFRS and reinforce the evidence proved in Henock and Oktay (2014). Specifically, the current analysis sets sights on completing the explanations of the authors' outcomes by analyzing the deals in a greater number of countries and by additionally running the model over the combined set of listed and unlisted targets from adopting and non-adopting countries. In this way, the target firms' "adopting status" is used to catch the incremental effect on the likelihood of overseas transaction of listed IFRS adopting companies, relative to the non-adopting ones.

To sum up, the control approach highlights a stronger positive influence on the odds of foreign M&A transactions for listed targets from IFRS adopting countries compared to unlisted adopting targets and listed non-adopting targets. Furthermore, the outcome is strengthened by the indication that the increase in overseas investments is greater for the IFRS adopting countries than for the IFRS non-adopting countries.

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Appendix

The tables relevant for the comprehension of the work are already included in the text. Here further information is reported in order to provide additional insights to the research.

Table A.1: Variables description.

annd	Dummy variable taking the value one for cross-border M&A transaction and zero for domestic transactions.
listed	Dummy variable taking the value one for listed target firms and zero for unlisted target firms.
adopt	Dummy variable taking the value one for target firms from IFRS adopting and zero for target firms from IFRS non-adopting countries.
tval	Natural logarithm of the transactions total value (US dollars).
gdp_g	Annual growth rate in the GDP of the target's country.
pop_g	Annual growth rate in the population of the target's country.
infl_r	Annual inflation rate of the target's country.
exch_r	Annual exchange rate fluctuations of the target's currency relative to US dollars.
gnp_gdp	Annual ratio of the target's annual economic activity over the annual GDP rate.
inter_r	Annual interbank lending rate of the target's country.
time_trend	Natural logarithm of 1 plus the difference between the M&A announcement date year and 2000.

Table A.2: Sample distributions

Panel 2.A: Target companies from IFRS adopting countries. Distribution by year.

	Listed		Unlisted	
Year	*Frequency*	*Percentage*	*Frequency*	*Percentage*
2000	972	10.01%	2560	14%
2001	876	9.02%	1815	10%
2002	791	8.14%	1355	8%
2003	942	9.70%	1525	8%
2004	893	9.19%	1832	10%
2006	576	5.93%	1348	7%
2007	1309	13.48%	2725	15%
2008	1198	12.33%	2089	12%
2009	1080	11.12%	1256	7%
2010	1076	11.08%	1496	8%
Total	9713	100%	18001	100%

Source: Thomson One Database

Panel 2.B: Distribution by IFRS adopting countries.

IFRS adopting countries

	Listed		Unlisted		Year of adoption
Country	*Frequency*	*Percentage*	*Frequency*	*Percentange*	
Australia	2534	26.09%	2546	14.14%	2005
Austria	54	0.56%	76	0.42%	2005
Belgium	114	1.17%	218	1.21%	2005
Denmark	113	1.16%	258	1.43%	2005
Finland	99	1.02%	241	1.34%	2005
France	740	7.62%	1185	6.58%	2005
Germany	461	4.75%	774	4.30%	2005
Greece	113	1.16%	137	0.76%	2005
Hong Kong	1034	10.65%	928	5.16%	2005
Hungary	40	0.41%	72	0.40%	2005
Ireland-Rep	54	0.56%	303	1.68%	2005

	Frequency	Percentage	Frequency	Percentage	Year
Israel	127	1.31%	195	1.08%	2008
Italy	306	3.15%	901	5.01%	2005
Netherlands	180	1.85%	332	1.84%	2005
New Zealand	208	2.14%	297	1.65%	2007
Norway	334	3.44%	345	1.92%	2005
Philippines	137	1.41%	133	0.74%	2005
Poland	189	1.95%	381	2.12%	2005
Portugal	117	1.20%	201	1.12%	2005
Singapore	429	4.42%	624	3.47%	2003
South Africa	220	2.27%	303	1.68%	2005
Spain	302	3.11%	1108	6.16%	2005
Sweden	264	2.72%	637	3.54%	2005
Switzerland	159	1.64%	183	1.02%	2005
Turkey	76	0.78%	171	0.95%	2006
United Kingdom	1309	13.48%	5452	30.29%	2005
Total	9713	100.00%	18001	100%	

Source: Thomson One Database

Panel 2.C: Distribution by IFRS non-adopting countries.

IFRS non-adopting countries

	Listed		Unlisted	
	Frequency	*Percentage*	*Frequency*	*Percentage*
Argentina	80	0.49%	225	0.90%
Canada	2265	13.74%	2924	11.75%
China	811	4.92%	2314	9.30%
India	1239	7.52%	739	2.97%
Indonesia	256	1.55%	282	1.13%
Japan	4187	25.40%	2739	11.01%
Malaysia	368	2.23%	1045	4.20%
Mexico	88	0.53%	204	0.82%
Pakistan	20	0.12%	11	0.04%
Peru	64	0.39%	68	0.27%
South Korea	625	3.79%	1020	4.10%

Taiwan	213	1.29%	238	0.96%
Thailand	392	2.38%	483	1.94%
United States	5877	35.65%	12584	50.59%
Total	16485	100.00%	24876	100.00%

Source: Thomson One Database

Table A.3: Descriptive statistics for IFRS adopting countries.

Pre-adoption

	Listed (N = 4,474)				Unlisted (N = 9,087)			
Variable	Mean	St. Dev.	Min	Max	Mean	St. Dev.	Min	Max
tval	16.78	2.51	6.91	25.05	15.50	1.98	6.91	22.91
gdp_g	3.18	2.12	-5.7	9.55	3.29	1.86	-5.7	9.55
pop_g	0.79	0.63	-1.47	2.73	0.75	0.58	-1.47	2.73
infl_r	2.17	4.36	-3.69	54.92	2.07	3.27	-3.69	54.92
exch_r	5.06	22.17	0.55	286.49	3.50	18.34	0.55	286.49
gnp_gdp	101.39	143.93	83.12	9724	99.36	2.79	83.12	107.55
inter_r	5.79	7.97	0.09	183.2	5.05	5.77	0.09	183.2
time_trend	9.43e+08	5.83e+08	0	1.61e+09	8.59e+08	6.18e+08	0.00e+00	1.61e+09

Post-adoption

	Listed (N = 5,239)				Unlisted (N = 8,914)			
Variable	Mean	St. Dev.	Min	Max	Mean	St. Dev.	Min	Max
tval	16.88	2.67	8.85	25.31	15.87	1.99	6.91	23.28
gdp_g	2.27	3.10	-8.77	15.2	2.07	3.08	-8.77	15.2
pop_g	1.16	0.87	-0.28	5.47	0.96	0.80	-0.28	5.47
infl_r	2.66	1.58	-4.48	11.54	2.69	1.63	-4.48	11.54
exch_r	3.36	10.69	0.5	210.39	2.86	11.70	0.5	210.39
gnp_gdp	99.16	2.94	82.89	107.71	99.55	2.99	82.89	107.71
inter_r	3.84	2.41	-0.5	17.5	3.68	2.53	-0.5	17.5
time_trend	2.20e+09	1.45e+08	1.95e+09	2.40e+09	2.17e+09	1.47e+08	1.95e+09	2.40e+09