

Cross-listing Across European Markets and Accruals Management

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January 2011

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ABSTRACT

The present study investigates whether there is a significant association between the exercise of managerial discretion in financial reporting in terms of discretionary working capital accruals and the cross-listing across European markets. The empirical evidence establishes that cross-listing across European markets has a significant effect on earnings management taking into account that those firms become subject to significantly different circumstances in terms of analysts and investors scrutiny than firms that are listed only in their own jurisdiction.

KEYWORDS: Cross-listing, Earnings Management

Introduction

The present study investigates whether there is a significant association between managerial discretion in financial reporting in terms of discretionary working capital accruals and cross-listing across European markets. Existing empirical evidence on the positive association between earnings quality and cross-listing in the US attributes this association to the stricter regulatory and disclosure requirements imposed by SEC (Lang, Ready and Yetman, 2003; Lang, Ready and Wilson, 2006; Leuz, 2006). On the other hand, firms that cross-list across Europe expose themselves to a variety¹ of regulatory and disclosure requirements which are not shown to have a particularly significant influence on the level of earnings management (Caban-Garcia, 2009). Here it is argued that a commitment to a stricter regulatory regime is not the sole determinant of the quality of financial statement information when firms address capital markets beyond their own local jurisdiction. These firms become also subject to scrutiny by a wider audience of outsider shareholders and analysts and consequently, need to commit voluntarily to lower earnings management levels catering to the concerns of those monitors. The present study examines this research question in the European setting before the IFRS adoption. In this setting, firms are motivated to cross-list not in order to reduce agency costs by becoming subject to strict investor protection arrangements but instead, with an aim to circumvent the local constraints in terms of visibility and ownership structure (Bancel and Mittoo, 2001; 2009). Consequently and as it is shown here, they differentiate themselves from firms listed only in their own jurisdictions by acquiring a larger analyst following and demonstrating more widely held ownership structures. Insofar increased monitoring has implications for the degree of managerial discretion in financial reporting (Yu, 2008; Haw *et al.* 2004), firms which cross list across Europe commit themselves to less earnings management in order to respond to increased transparency requirements imposed not by stricter investor protection requirements but rather, by the monitors' demand for it. In this context, given the different nature of cross-listing across Europe and cross-listing in the US and especially in the more regulated markets (e.g., NYSE, NASDAQ), it is still an open question whether monitoring and regulation as earnings management constraints are substitutes. In other words, it is a question whether the established effect of the cross-listing in regulated US markets on earnings management persists after controlling for the European cross-listing effect or even

further, after taking into account as well, the overall monitoring effect by analysts and outsider investors.

More particularly, employing a sample of European local and cross-listed firms before 2005², it is shown here that the listing across European jurisdictions matters as a constraint of earnings management. The methodology employed here takes into account also the extent of the cross-listing since European firms tend to cross-list in one or more European capital markets outside their own local jurisdiction. The empirical evidence reported in this study shows that a single European cross-listing is not sufficient as a constraint of earnings management and that European cross-listing becomes significant in this respect only when the firm expands its presence to more than one foreign European capital markets. On the other hand, there is consistent evidence on the importance of the cross-listing in the regulated US markets which according to the empirical evidence in this study is a distinctive incremental effect over the influence of the European cross-listing or the overall monitoring of the firm by analysts and outsider investors. Consistently with prior research, a similar effect is not observed with respect to the cross-listing in the OTC US markets pointing out to the role of a strong investor protection environment as a constraint of earnings management. While the present study also confirms prior evidence on the role of monitoring as a constraint of earnings management, it is furthermore shown that firms which cross-list with a view to become more visible and to change their ownership structure towards a more widely held shareholder base commit also to less earnings management even in the absence of strong investor protection arrangements in place.

2. Cross-listing across European markets and earnings management

Early evidence in Pagano et al.(2002) suggests significant differences between the European firms that cross-list in the US and firms that cross-list across Europe. They argue that cross-listing in the US appears to be driven by the need to fund growth and foreign sales expansion while these motives are less common for firms that cross-list on other European markets. Furthermore, Pagano et al.(2002) find that cross-listed firms either in

the US or European markets are larger than the firms that do not cross-list and they are usually recently privatized which in their opinion, alludes to the intention to sell a large number of their shares. Moreover, Bancel and Mittoo (2001) report that European managers consider enhanced visibility and the ability to attract new investors as the most important benefit of listing on foreign exchanges. Similarly, more recent evidence by Bancel and Mittoo(2009)³ show that managers are motivated to cross-list mainly by the increased visibility, investor recognition and financial flexibility for growth associated with raising equity and to a lesser extent by corporate governance concerns, benefits of external monitoring, cost of capital, liquidity and valuation issues (e.g., mergers and acquisitions). On the other hand, there is empirical evidence which suggests that firms derive benefits in the form of reducing agency costs by “bonding”, i.e., by cross-listing to a stricter regulatory regime (Doidge, Karolyi and Stulz, 2004). Nevertheless, more recent evidence which addresses a more comprehensive set of cross-listing destinations (e.g., Roosenboom and Van Dijk, 2009; Abdallah and Goergen, 2008)⁴ shows that the benefits derived from bonding are generally identified with cross-listing in the US, while the evidence on similar benefits associated with cross-listing in the European markets is debatable. It could be then concluded that cross-listing across European markets appears is driven mostly by visibility and investor base considerations which potentially enable equity and external funding while reducing agency costs by becoming subject to a stricter regulatory regime appears to hold mostly as a motivation for the cross-listing in the US markets

To the extent that cross-listing benefits are perceived in relation to enhanced visibility and the expansion of the investor base with a view to enable equity and external funding, as it seems to be the case for European cross-listings, then, extensive scrutiny and the need to avoid potential adverse reputation effects are likely factors which may constrain earnings management among cross-listed firms⁵. There is ample evidence that analyst coverage increases around cross-listing (Baker, Nofsinger and Weaver, 2002; Lang, Lins and Miller, 2003; Crawford, 2007; Abdallah, 2008). An increase in analyst following is also shown to be associated with less earnings management (Yu, 2008) as analysts’ scrutiny increases transparency making it more difficult for managers to engage in asset transfers, excessive

perquisite consumption, or the outright theft of earnings (Lang, Lins and Miller, 2003) or just to “borrow” earnings from the future by means of discretion upon accruals.

A second potential motivation for cross-listing across Europe mentioned in the research literature is the widening of shareholder base for liquidity reasons or as part of the controlling shareholder exit strategy. The positive relationship between ownership concentration and earnings management is theoretically supported by the Dye (1988) model which implies that managers under more concentrated ownership structures may have more opportunities for earnings management with the support of the controlling shareholders, as long as controlling shareholders are in the same time able to resolve information asymmetries via ‘insider access’; empirical evidence along these lines is reported by Leuz (2006) and Haw *et al.*(2004). It follows that to the extent that cross-listing in European markets is motivated by shareholder base concerns, it could be expected that these firms would exhibit less earnings management.

The analysis here suggests that both higher levels of investor recognition and more dispersed shareholder base structures are assumed to be associated with the cross-listing choice, especially across Europe. Moreover, there is ample evidence on the impact of these factors on earnings management. The analysis here establishes that the investigation of the relation between cross-listing decision and earnings management should consider visibility and ownership concentration not only as covariates but also as drivers of the cross-listing decision.

3. Research Methodology

The managerial discretion in financial reporting is represented here by means of the absolute value of discretionary working capital accruals. Prior research has shown that current accruals are more prone to managerial manipulation with a view to achieve certain performance objectives (DeFond and Jiambalvo,1994) and more specifically, in order to increase earnings (Burgstahler and Dichev,1997). Overstatement of working capital accounts has also been reported as a means of inflating earnings in cases of restatement

(Ettredge et al.2010). Consistent with the evidence in prior research, managerial discretion is furthermore examined here by means of income increasing discretionary working capital accruals. This reflects the concept of earnings management by “borrowing” earnings from the future using accruals and in particular, working capital accruals. This variable is of interest here since those are easily observable, known to revert and their use for income increasing purposes well understood by the analysts’ community to cause future earnings deflation (and thus, the adverse reputation effects). However, we don’t consider total accruals which involve depreciation as depreciation rates before the IFRS adoption across Europe were subject to substantial tax regulation and administrative cross-jurisdictional differences.⁶

The study estimates three earnings management indicators based on three versions of the modified Jones model of discretionary accruals (Dechow et al., 1995: *DAC_1*; Ball and Shivakumar, 2006: *DAC_2*; Cohen, Dey and Lys, 2008: *DAC_3*, see details in the Appendix).⁷ Besides the initial modified Jones modeling of accruals (*DAC_1*), we also draw upon Ball and Shivakumar (2006) who argue that the modeling of accruals should take into account conservatism in terms of the asymmetric recognition of gains and losses (*DAC_2*); since the study addresses an international sample and although country, industry and year controls are employed, this approach is preferred so that the results will not reflect conservatism that is due to differences in accounting conservatism across jurisdictions. Another more interesting approach is given by Cohen, Dey and Lys (2008) who adopt the McNichols(2002) suggestion that firms that grow have more accruals (*DAC_3*). The last proxy of discretionary accruals is of more interest in this study as cross-listing is associated with growth; *DAC_3* models growth within the normal accruals so that the estimate of discretionary accruals is relatively free of the a particular growth influence associated with cross-listed firms⁸.

In the present study, it is argued that an important determinant of the managerial discretion in the financial reporting of firms that are listed across European jurisdictions is the extent of the cross-listing. Here, this is captured by partitioning the sample into observations referring to firms that are listed only in the home jurisdiction during the period of the

study, observations referring to firms that are cross-listed to one European jurisdiction and observations referring to firms that are cross-listed to more than one European jurisdictions. Furthermore, the present study considers alternative cross-listing avenues in the US markets since prior research (Lang, Ready and Yetman, 2003) suggests that firms that cross-list in the US tend to exhibit lower levels of earnings management than firms that do not cross-list in the US. The research design here takes into account this evidence and also makes the distinction between listing in the regulated NYSE/Nasdaq markets and the unregulated OTC and private placements market. The controls include also fixed year, country and industry effects. Here, it is acknowledged that the level of earnings management can be subject to legal and institutional arrangements which vary across countries (Leuz et al., 2003). While the validity of various proxies for these institutional arrangements employed in prior research is not debated here, it has to be noted that these indicators are rather static and might not capture the dynamics of integrating European markets in the period examined here. This role then is left to the fixed effects included in the present research design.

The objective of testing (2) as defined below, is to identify the effect of both European and US cross-listings controlling for each others' influence and establishing to which extent and when they become significantly different from locally only listed firms in terms of earnings management.

However, a more informed specification would acknowledge other variables that are also likely to determine the level of earnings management. In this respect, the controls in (2) should further include various determinants which prior research has shown that are significantly associated with managerial discretion in financial reporting. Such controls would include analysts following (Yu,2008), ownership structure (Haw *et al.*,2004), high quality accounting standards (Barth et al., 2008), size, leverage and audit quality.

$$DAC_{-\gamma} = a_0 + bECL + Controls + \varepsilon_t \quad (2)$$

where,

$DAC_{-\gamma}$ are discretionary accruals and for $\gamma = 1$: Dechow et al., 1995; $\gamma = 2$: Ball and Sivakumar, 2006; $\gamma = 3$: Cohen, Dey and Lys, 2008;

ECL is a binary variable that takes the value of 1 if:

for $ECL > 1$, the firm cross-lists in more than one foreign European market and 0 otherwise;

for $ECL = 1$, the firm cross-lists in only one foreign European market and 0 otherwise;

for $ECL = 0$, the firm is listed only in the home jurisdiction during the period of the study and 0 otherwise, the default category;

Controls include a binary variable that takes the value of 1 if:

for *RUS*, the firm cross-lists in NYSE/Nasdaq and 0 otherwise; and,

for *UUS*, the firm cross-lists in OTC or other unregulated markets and 0 otherwise.

Country/Industry/Year fixed effects.

Further controls include:

Analysts following proxied by the average analysts' following for the year (IBES); ownership concentration is proxied by the percentage of closely held shares; high quality standards is a binary variable that takes the value of 1 if the accounting standards followed are IAS or US GAAP; size is proxied by the natural log of market capitalization in US\$, leverage stands for the sum of long and short term debt to equity; audit quality is a binary variable that takes the value of 1 if the firm is audited by a Big-5 auditor; accounting standards is a binary variable that takes the value of 1 if the firm reports under IAS or US GAAP. The source of the data is Worldscope unless otherwise specified.

Despite controlling for various determinants of earnings management the evidence in (2) might be misleading insofar cross-listing is endogenous. This is a point of particular interest since unlike the evidence on the cross-listing in the US, there is no particularly strong evidence on the impact of cross-listing across Europe on earnings management as a result of regulatory requirements (Caban-Garcia, 2009). On the other hand, it is understood that firms that cross-list around Europe self-select, in other words, they choose to do so in order to enhance their visibility and expand their ownership base (Bancel and Mittoo, 2001 and 2009). Thus, a two-step approach is then proposed, whereby (2) is informed by the cross-listing choice. Note that along with the variables that are included in both stages since they are deemed as determinants of both earnings quality and the cross-listing decision across Europe, modeling the cross-listing choice should include also *exogenous* variables that in theory at least, should not determine the level of earnings management. In this respect, prior literature (Doidge *et al.* 2004) suggests that the cross-listing decision is determined by growth opportunities which here is proxied by the growth in sales; furthermore, it may be assumed that cross-listing could be associated with foreign operations which render the firm known to foreign investors and analysts, proxied here by the percentage of foreign sales to total sales. This two-stages procedure yields an informed variable *ECL'* which answers what is the average effect of European cross listing on earnings management conditional on the control variables.⁹

$$\begin{aligned}
DAC_{-\gamma} &= a_0 + bECL' + Controls + \varepsilon_t \\
ECL &= c_0 + Exogenous + Controls + u_t
\end{aligned}
\tag{3}$$

where

DAC₋ are discretionary accruals and for $\gamma = 1$: Dechow et al., 1995; $\gamma = 2$: Ball and Sivakumar, 2006; $\gamma = 3$: Cohen, Dey and Lys, 2008;

ECL is a binary variable that takes the value of 1 if the firm cross-lists in one or more foreign European markets and 0 otherwise.

Exogenous variables include the percentage of foreign sales and the growth in revenues.

Controls include a binary variable that takes the value of 1 if:

for *RUS*, the firm cross-lists in NYSE/Nasdaq and 0 otherwise; and,

for *UUS*, the firm cross-lists in OTC or other unregulated markets and 0 otherwise.

Country/Industry/Year fixed effects.

Further controls include:

Analysts following proxied by the average analysts' following for the year (IBES); ownership structure is proxied by the percentage of closely held shares; accounting standards is a binary variable that takes the value of 1 if the accounting standards followed are IAS or US GAAP; size is proxied by the natural log of market capitalization in US\$, leverage stands for the sum of long and short term debt to equity and audit quality is a binary variable that takes the value of 1 if the firm is audited by a Big-5 auditor; . The source of the data is Worldscope unless otherwise specified.

The choice regression includes most of the controls specified above, namely, analysts following, ownership concentration, accounting standards, size, leverage, audit quality and industry, year and country fixed effects. As already discussed, it is expected that cross-listed firms are larger, employ cross-listing as a means to expand their ownership base and become more liquid (Bancel and Mittoo, 2001 and 2009), use high quality accounting standards either as a requirement or as a means to signal accounting quality to foreign investors, employ a Big-5 auditor as they are likely to be more complex, and eventually they are more leveraged, as long as they employ cross-listing as a means to rise external capital. The industry, year and country fixed effects here reflect the idea that firms from certain countries (for example, firms in countries with less developed institutional arrangements or financial markets), industries (e.g. technology, utilities) and in certain years characterized by significant economic growth may tend to cross-list more than others.

4. Data

The sample for this study consists of European firms that are either listed in their home market only during the period examined by the study, or cross-listed elsewhere in Europe, or listed in both European and US ADR markets.¹⁰ The information regarding cross listing

was collected initially using Worldscope, and then the precise dates and locations of all cross-listings were collected from Datastream (based on the exchange ticker declared). Following that, the information was cross-checked with local European stock-exchanges and the Bank of New York ADR database yielding a dataset which is comprehensive in cross-section and specific in its timing. The inclusion of firms listed in their home market only provides a benchmark, against which to compare the earnings quality of firms that are cross-listed.

Across the exchanges, Table 1 shows that Frankfurt exchange is the most attractive amongst European cross-listing firms. By 2004, Swiss firms were the most numerous on the Frankfurt exchange (70 firms), followed by those from the UK (61). The second most popular destination is London. This is interesting, given that La Porta et al.(1998) characterize the situation in Germany as one with an inferior level of investor protection to the UK. However, as already mentioned considerable change has taken place, particularly within the German institutional environment, that has enhanced the investor protection level. The attraction of the German market could also attributed to the geographic, cultural, economic and industrial proximity for Swiss or Austrian firms (Sarkissian and Schill, 2004). Pagano et al. (2001) also suggests that common language and similar institutions foster a “neighbourhood” effect in cross-listing. This clustering suggests that firms will tend to cross-list in countries geographically or linguistically close to their own domicile.

The full population of European cross-listed firms had reached 637 by 2004. After excluding financial firms and controlling for data censoring, the discretionary accruals estimation, the total sample of 273 cross-listed firms (1,014 firm-year observations) and 2,822 firms (11,736 firm-year observations) that are listed only in their home markets.

Table 2a presents the descriptive statistics for the main three measures of discretionary accruals employed in this study (DAC_1 , DAC_2 , DAC_3), It can be seen that the magnitude of discretionary accruals reduces monotonically as firms cross-list in more European markets. For instance, the medians of DAC_1 decrease from 0.037 for firms listed in their own jurisdiction only ($CL=0$) to 0.026 for firms that are listed in one foreign

European jurisdiction ($CL=1$) and 0.019 for firms that cross-list in more than one European jurisdictions ($CL>1$). Moreover, it can be seen that this decrease of discretionary accruals is parallel to the increase of the firm level of analysts following from 5.167 for ($CL=0$) to 9.333 for ($CL=1$) and to 18.583 for ($CL>1$). Similarly, the firm level of closely held shares decreases as firms become cross-listed in more markets from 38.840% ($CL=0$) to 30.511% ($CL=1$) and 26.539% ($CL>1$) for multi-listed firms. A conjecture based on this initial evidence is that firms that cross-list around Europe consist an apparently distinct group of firms with different characteristics in terms of ownership and visibility from the group of locally only listed firms. Cross-listed firms tend also to be larger and somehow more leveraged. However, they tend to exhibit slower growth rates, probably since they are quite large already (median sales growth for the $CL=0$ group is 8.090%, 6.710 for the $CL=1$ and 4.432% for the $CL>1$ group). On the other hand, most of the activities of the cross-listed firms generate revenues abroad (59,994% of the total revenues for the $CL>1$ and 61.390 % for the $CL=1$ group) while it seems that the operations of the $CL=0$ group are mostly focused within the local jurisdiction. However, and especially with regard to analyst following and ownership structure, it is an open question whether these statistics reflect the influence of the listing in the US rather than the intrinsic influence of the European cross-listing. This issue is taken further in the discussion of the findings reported in Table 4.

In the Table 2b, the reported correlations confirm that DAC_1 and DAC_2 (0.998) estimates are practically identical implying that any variation in the level of conservatism which is involved in the estimation of DAC_2 hardly affects the estimated discretionary accruals. On the other hand, growth is a more pertinent issue as the growth adjusted discretionary accruals DAC_3 appear to correlate less with both DAC_1 and DAC_2 (0.753 and 0.769 respectively). The main relationship of interest here is between analysts following and discretionary accruals, whereby it is seen to be negative and significant (-0.112,-0.112 and -0.116 respectively for DAC_1 , DAC_2 and DAC_3). A similar relation is also established between discretionary accruals and size; this is not surprising given the high correlation between size and analysts' following (0.637) denoting that the main driver of earnings management appears to be the visibility to investors and analysts. On the other

hand, there are two rather counter-intuitive results, discretionary accruals have only a weak relation with the ownership concentration, albeit in the predicted direction (0.061, 0.061 and 0.035 respectively for DAC_1, DAC_2 and DAC_3). Finally, it is hard to explain the relation between the growth rate and discretionary accruals as these are already orthogonalised with respect to the change in sales (scaled by total assets). A possible speculation here would suggest that this relation captures efficiency issues that are not controlled for in the discretionary accruals estimation.

5. Analysis of the results

The estimates reported in Table 3a inform further the descriptive statistics in Table 2 where it is seen that the magnitude of discretionary accruals decreases across firms that listed in their own jurisdiction only (CL=0), firms that cross-list at one foreign European jurisdiction (CL=1) and firms that cross-list at more than one foreign European jurisdiction (CL>1). The model presented in (2) allows us to test for the differences between these groups taking into account the eventual influence of the listing in the US markets as well as year, industry and sector effects. The findings provide initial evidence that managerial discretion is constrained when firms cross-list across European jurisdictions but this result depend on the extent of the cross-listing as suggested by the statistically significant coefficient of (CL>1) with respect to DAC_1 -0.0119 (p-value 0.002) and DAC_3 -0.0105 (p-value: 0.005) and the positive but insignificant coefficient of (CL=1:) with respect to DAC_1 -0.0028 (p-value 0.366) and DAC_3 -0.0034 (p-value: 0.203). Unreported estimates confirm that the difference between the (CL=1) and (CL>1) coefficients is significant across all three discretionary accruals definitions. On the other hand, the US listing matters as a determinant of earnings management, as already established by previous research and confirmed here by the statistically significant and negative coefficient with respect to firms listed in NYSE and Nasdaq , in other words to regulated capital markets as opposed to less regulated markets whose listing influence is estimated to be insignificant. More particularly, the coefficient of RUS takes the value of -0.0149 (p-value:0.000) with respect to DAC_1 and -0.0062 (p-value 0.070) with respect to

DAC_3. Since the US listing is a covariate here, a significant coefficient for (CL>1) denotes that this effect is likely to be valid independently of the influence of the US listing which is controlled for. On the other hand, the US listing and more particularly, the listing in regulated markets, appears to be significant above and over the European listing implying the role of regulation in constraining managerial discretion. The results reported in Table 3b are qualitatively similar, with the only difference that now the coefficient of (CL=1) is also significant with respect to DAC_1 (p-value: 0.016) and the very similar definition of DAC_2 (p-value: 0.022) but not with respect to DAC_3 (p-value: 0.167) implying a weak evidence of the European cross-listing even at the level of listing in one foreign jurisdiction. Unreported tests confirm that the extent of cross-listing, i.e., the difference between the coefficients of (CL=1) and (CL>1) is not statistically significant. It has to be noted that the particular emphasis in positive accruals in Table 3b is consistent with the hypothesis that managers of cross-listed firms exercise less discretion with respect to income increasing, positive accruals. In other words, the evidence here confirms that managers of cross-listed firms exhibit restraint in “borrowing earnings from the future” as this practice might have adverse reputation effects. This is more likely to be so if the firm is under significant scrutiny by investors and analysts, circumstances that characterize especially the cross-listed firms and likely to guide managers’ decisions with respect to earnings management levels. In this regard, table 3c examines another version of the model described in (2) which tests for the influence of these circumstances (outsider ownership, size and analysts following) along with other factors that are likely to influence the levels of earnings management.

Quite predictably, the results in Table 3c suggest no particular effect of the European cross-listing as this is possibly captured by the introduced factors of size and analysts following which are estimated to be significant and with the predicted negative sign consistently with prior research. Interestingly, the only cross-listing variable that remains significant after considering for the scrutiny by investors and analysts is the listing in regulated US markets with respect to DAC_1 (p-value: 0.016) and the very similar definition of DAC_2 (p-value: 0.015) but not with respect to DAC_3 (p-value: 0.699), suggesting possibly a regulatory effect over and above the market forces included here are

explanatory variables. Since there is no particular evidence on these market forces with respect to the effect of European cross-listing so far, Table 4 reports the findings of a regression of various cross-listing types and venues on analyst following, ownership, size and leverage. This piece of evidence is meant to clarify the indications provided by the descriptive statistics in Table 2a and address the question whether these statistics reflect the influence of the listing in the US rather than the intrinsic influence of the European cross-listing. The evidence reported in Table 4 shows that indeed, there is a significant intrinsic influence of the European cross-listing with respect to analysts following, ownership concentration and size. These findings confirm our initial hypothesis that firms which cross-list around Europe have to face significantly different levels of scrutiny from analysts, are more visible and are accountable to a more widely dispersed ownership. Unfortunately, we can't ascertain to which extent these differences involve foreign investors and analysts; however, the extent of cross-listing denoted by the differences between the coefficients of (CL=1) and (CL>1) with respect to analysts following and size are strongly significant ($p\text{-value}<0.001$) implies that the influence of foreign investors and analysts might affect these estimates. The influence of the US listing is not to be ignored as it is significantly associated with the analysts following, ownership and size and to a extent, it seems that it drives the indications in Table 2a. Finally, there is no evidence that cross-listed firms across Europe or the US exhibit significantly different levels of leverage from locally only listed firms.

Since prior research suggests that firms which cross-list around Europe self-select, in other words, they choose to do so with the view to enhance their visibility and expand their ownership base and given the consistent evidence in Table 4, the question of the effect of European cross-listing is revisited in Table 5 under a treatment effects methodology. The empirical evidence which is based on (3) attempts to answer what is the average effect of European cross listing on earnings management conditional on the control variables, after modeling the European cross listing choice.

Based on the estimates in Table 5, it can be seen that there is evidence that cross-listing across European jurisdictions is associated with analysts following and size. Moreover, it

is also observed that cross-listing is associated with ownership concentration and the amount of revenue generated abroad¹¹ as well as following an international set of accounting standards. Having considered these determinants of cross-listing in the second stage, European cross-listing is associated with less earnings management, a result that was not obvious in a similar regression in Table 3c. This finding confirms that the restraint exhibited in financial reporting by managers of cross-listed firms is associated with the choice of these firms to be subject to a wider and more diverse pool of current and potential investors and analysts. An incremental effect is still exhibited by the firms which cross-list in the US regulated markets, pointing to a potential effect of the stricter enforcement observed in these markets. While this result is valid with respect to the DAC_1 and DAC_2 specification of discretionary accruals, the estimates with respect to the DAC_3 specification suggest that there is no significant evidence of self-selection. Combining this indication with the results in Table 3c, results under this specification of abnormal accruals may cast doubts on the premise that European cross-listing (or US cross-listing) matters for financial reporting quality. The special characteristic of the DAC_3 specification of discretionary accruals controls for accruals related to growth options. When interpreting this counter-intuitive evidence¹², it might be suggested that this specification captures the variation in financial reporting related to growth-related issues that distinguish cross-listed firms from local firms.

6. Conclusion

The present study provides evidence on the impact of cross-listing across European for managerial discretion in financial reporting. Prior research investigates the impact of differences in institutional arrangements as a determinant of earnings management in a similar setting and establishes a rather weak evidence in this respect. The evidence reported here contributes by highlighting that firms which cross-list across Europe self-select and become subject to significantly different circumstances in terms of analysts and investors scrutiny. These market forces then distinguish these firms from the locally only listed firms and this distinction is associated with significant implications for the levels of earnings management as represented here. Moreover, we observe a persistent and strong

incremental effect associated with the listing in the regulated US markets which appears not be explained by the analysts and investors scrutiny; based on the prior evidence, this confirms the role of adhering to stricter regulation as a constraint of earnings management. Contemporaneous debates on regulation (e.g. Leuz, 2010) point out to the need for addressing “global players” (e.g. firms that have an international shareholder base, operate in many jurisdictions, raise finance internationally) separately. Leuz (2010) argues that based on the evidence we have from US listing, “global players” seek commitment to greater transparency. The evidence in the present study complements this argument showing that cross-listing across Europe is also associated with a similar commitment to greater transparency as cross-listing in the regulated US markets.

Table 1
Origins and destinations of cross-listed European firms in 1994 and 2004
Panel A: 1994

		<i>Destinations</i>																		
<i>Origin</i>	<i>N</i>	AUT	BEL	CHE	DEU	DNK	ESP	FIN	FRA	GBR	GRC	IRL	ITA	LUX	NLD	NOR	PRT	SWE	USA	
AUT	2		0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
BEL	2	0		0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
CHE	8	0	1		5	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
DEU	26	0	3	13		0	2	0	4	1	0	0	2	0	1	0	0	0	0	6
DNK	2	0	0	0	1		0	0	0	1	0	0	0	0	0	0	0	0	0	2
ESP	5	0	0	2	2	0		0	1	0	0	0	0	0	0	0	0	0	0	5
FIN	5	0	0	0	2	0	0		1	1	0	0	0	0	0	0	0	0	1	2
FRA	16	0	4	3	7	0	0	0		2	0	0	0	0	0	0	0	0	0	6
GBR	18	0	2	4	7	0	0	0	2		0	3	0	0	0	0	0	0	0	30
GRC	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
IRL	18	0	0	0	2	0	0	0	0	16	0		0	0	0	0	0	0	0	6
ITA	4	0	0	0	3	0	0	0	1	0	0	0		0	0	0	0	0	0	6
LUX	3	0	2	0	0	0	0	0	0	1	0	0	0		0	0	0	0	0	2
NLD	36	0	6	13	7	0	0	0	6	1	0	0	0	3		0	0	0	0	13
NOR	2	0	0	0	0	0	0	0	1	1	0	0	0	0	0		0	0	0	1
PRT	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0		0	0	0
SWE	4	0	1	0	2	0	0	0	1	0	0	0	0	0	0	0	0		0	4
Total	152	0	19	35	41	0	2	0	18	24	0	3	2	4	2	0	0	0	2	86

Panel B: 2004

Origin	<i>N(Europe)</i>	AUT	BEL	CHE	DEU	DNK	ESP	FIN	FRA	GBR	GRC	IRL	ITA	LUX	NLD	NOR	PRT	SWE	USA
AUT	18		0	0	17	0	0	0	0	1	0	0	0	0	0	0	0	0	4
BEL	16	0		0	7	0	0	0	1	2	0	0	0	4	2	0	0	0	4
CHE	97	0	1		70	0	0	0	3	20	0	0	1	0	0	0	0	2	22
DEU	65	1	3	14		0	2	0	6	26	0	0	2	3	8	0	0	0	26
DNK	3	0	0	0	2		0	0	0	1	0	0	0	0	0	0	0	0	2
ESP	31	0	1	2	11	0		0	1	11	0	0	2	0	2	0	1	0	8
FIN	11	0	0	0	6	0	0		1	2	0	0	0	0	0	0	0	2	5
FRA	79	0	7	4	41	0	0	0		21	0	0	1	1	4	0	0	0	27
GBR	79	0	2	4	61	0	0	0	4		0	4	0	1	2	0	0	1	72
GRC	5	0	0	0	2	0	0	0	0	2		0	0	1	0	0	0	0	5
IRL	41	0	0	0	6	0	0	0	0	35	0		0	0	0	0	0	0	16
ITA	47	0	1	0	27	0	1	1	2	14	0	0		0	1	0	0	0	16
LUX	19	0	2	0	6	0	0	0	3	2	0	0	1		1	2	1	1	9
NLD	96	4	7	13	30	0	1	0	13	22	0	0	0	6		0	0	0	32
NOR	4	0	0	0	2	0	0	0	1	1	0	0	0	0	0		0	0	3
PRT	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0		0	2
SWE	21	0	1	0	11	0	0	1	1	7	0	0	0	0	0	0	0		8
Total	637	5	25	37	304	0	4	2	36	167	0	4	7	16	20	2	2	6	261

Table 2a
Summary statistics

Number of observations (N): 12,750; number of firms (C): 3,054; number of years: 11

		Discretionary Accruals			ANALYSTS	OWNERSHIP	SIZE	LEVERAGE	SALES	FOREIGN
		(DS&S)	(B&S)	(CD&L)	<i>FOLLOWING</i>	<i>CONCENTRATION</i>			<i>GROWTH</i>	<i>SALES %</i>
		<i>DAC_1</i>	<i>DAC_2</i>	<i>DAC_3</i>						
<i>ECL=0</i>	Mean	0.057	0.056	0.051	7.486	39.813	5.562	0.767	13.642	38.412
N=11,736	St.Deviation	0.065	0.063	0.053	6.442	24.966	1.530	1.049	33.220	30.892
C=2,822	Median	0.037	0.036	0.035	5.167	38.840	5.490	0.488	8.090	36.767
<i>ECL=1</i>	Mean	0.043	0.042	0.041	11.450	34.137	7.033	0.946	14.154	57.875
N=778	St.Deviation	0.051	0.051	0.049	7.975	23.742	1.721	1.174	41.197	28.065
C=206	Median	0.026	0.026	0.027	9.333	30.511	7.186	0.677	6.710	61.390
<i>ECL>1</i>	Mean	0.030	0.029	0.031	17.735	28.904	8.320	0.910	6.581	60.040
N=236	St.Deviation	0.032	0.030	0.027	8.327	20.918	1.107	0.968	22.329	23.990
C=67	Median	0.019	0.019	0.024	18.583	26.539	8.484	0.647	4.432	59.994

Notes:

DAC_ are discretionary accruals and for $\gamma = 1$: Dechow et al., 1995; $\gamma = 2$: Ball and Sivakumar, 2006; $\gamma = 3$: Cohen, Dey and Lys, 2008;

ECL is a binary variable that takes the value of 1 if:

for $ECL > 1$, the firm cross-lists in more than one foreign European market and 0 otherwise;

for $ECL = 1$, the firm cross-lists in only one foreign European market and 0 otherwise;

for $ECL = 0$, the firm is listed only in the home jurisdiction during the period of the study and 0 otherwise, the default category;

Analysts following proxied by the average analysts' following for the year (IBES); ownership concentration is proxied by the percentage of closely held shares;

size is proxied by the natural log of market capitalization in US\$ mil., leverage stands for the sum of long and short term debt to equity; The source of the data is

Worldscope unless otherwise specified.

Table 2b
Correlations

	<i>(DS&S)</i> <i>DAC_1</i>	<i>(B&S)</i> <i>DAC_2</i>	<i>(CD&L)</i> <i>DAC_3</i>	<i>ANALYSTS</i> <i>FOLLOWING</i>	<i>OWNERSHIP</i> <i>CONCENTRATION</i>	<i>SIZE</i>	<i>LEVERAGE</i>	<i>SALES</i> <i>GROWTH</i>
<i>(B&S)</i> <i>DAC_2</i>	0.998							
	0.000							
<i>(CD&L)</i> <i>DAC_3</i>	0.753	0.769						
	0.000	0.000						
<i>ANALYSTS</i> <i>FOLLOWING</i>	-0.112	-0.112	-0.116					
	0.000	0.000	0.000					
<i>OWNERSHIP</i> <i>CONCENTRATION</i>	0.061	0.061	0.035	-0.092				
	0.000	0.000	0.000	0.000				
<i>SIZE</i>	-0.148	-0.149	-0.144	0.637	-0.141			
	0.000	0.000	0.000	0.000	0.000			
<i>LEVERAGE</i>	-0.001	-0.001	-0.029	0.040	0.043	0.022		
	0.920	0.933	0.001	0.000	0.000	0.013		
<i>SALES</i> <i>GROWTH</i>	0.184	0.184	0.186	-0.055	-0.025	0.046	-0.024	
	0.000	0.000	0.000	0.000	0.005	0.000	0.007	
<i>FOREIGN</i> <i>SALES %</i>	-0.055	-0.054	-0.035	0.205	-0.020	0.209	0.089	-0.034
	0.000	0.000	0.000	0.000	0.022	0.000	0.000	0.000

Notes:

DAC_ are discretionary accruals and for $\gamma = 1$: Dechow et al., 1995; $\gamma = 2$: Ball and Shivakumar, 2006; $\gamma = 3$: Cohen, Dey and Lys, 2008;

Analysts following proxied by the average analysts' following for the year (IBES); ownership concentration is proxied by the percentage of closely held shares; size is proxied by the natural log of market capitalization in US\$ mil., leverage stands for the sum of long and short term debt to equity. The source of the data is Worldscope unless otherwise specified.

Table 3a
The impact of the extent of European cross-listing on discretionary accruals

	<i>DAC_1</i> (DS&S)		<i>DAC_2</i> (B&S)		<i>DAC_3</i> (CD&L)	
	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>
<i>Constant</i>	0.0426	0.000	0.0411	0.000	0.0322	0.000
<i>ECL=1</i>	-0.0028	0.366	-0.0027	0.376	-0.0034	0.203
<i>ECL>1</i>	-0.0119	0.002	-0.0117	0.002	-0.0105	0.005
<i>RUS</i>	-0.0149	0.000	-0.0148	0.000	-0.0062	0.070
<i>UUS</i>	-0.0078	0.131	-0.0078	0.121	-0.0001	0.992
<i>Country/Industry/Year</i> <i>controls</i>	Yes		Yes		Yes	
<i>R-square</i>	0.0626		0.0629		0.0722	
<i>F-stat (p-value)</i>	16.36	0.000	16.23	0.000	14.87	0.000
<i>N</i>	12,750		12,750		12,750	

DAC are discretionary accruals and for $\gamma = 1$: Dechow et al., 1995; $\gamma = 2$: Ball and Sivakumar, 2006; $\gamma = 3$: Cohen, Dey and Lys, 2008;

ECL is a binary variable that takes the value of 1 if:

for *ECL*>1, the firm cross-lists in more than one foreign European market and 0 otherwise;

for *ECL*=1, the firm cross-lists in only one foreign European market and 0 otherwise;

for *ECL*=0, the firm is listed only in the home jurisdiction during the period of the study and 0 otherwise, the default category;

Controls include a binary variable that takes the value of 1 if:

for *RUS*, the firm cross-lists in NYSE/Nasdaq and 0 otherwise; and,

for *UUS*, the firm cross-lists in OTC or other unregulated markets and 0 otherwise.

Country/Industry/Year fixed effects.

Table 3b
The impact of the extent of European cross-listing on positive discretionary accruals

	<i>DAC</i> ₁ >0 (DS&S)		<i>DAC</i> ₂ >0 (B&S)		<i>DAC</i> ₃ >0 (CD&L)	
	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value
<i>Constant</i>	0.0475	0.000	0.0438	0.000	0.0340	0.000
<i>CL</i> =1	-0.0090	0.016	-0.0083	0.022	-0.0042	0.167
<i>CL</i> >1	-0.0112	0.044	-0.0109	0.039	-0.0100	0.023
<i>RUS</i>	-0.0140	0.003	-0.0142	0.002	-0.0046	0.280
<i>UUS</i>	-0.0057	0.376	-0.0062	0.319	-0.0040	0.438
<i>Country/Industry/Year</i> <i>controls</i>	Yes		Yes		Yes	
<i>R-square</i>	0.0663		0.0678		0.0649	
<i>F-stat (p-value)</i>	10.71	0.000	10.88	0.000	11.8	0.000
<i>N</i>	6,379		6,537		7,788	

DAC are discretionary accruals and for $\gamma = 1$: Dechow et al., 1995; $\gamma = 2$: Ball and Sivakumar, 2006; $\gamma = 3$: Cohen, Dey and Lys, 2008;
ECL is a binary variable that takes the value of 1 if:
for *ECL*>1, the firm cross-lists in more than one foreign European market and 0 otherwise;
for *ECL*=1, the firm cross-lists in only one foreign European market and 0 otherwise;
for *ECL*=0, the firm is listed only in the home jurisdiction during the period of the study and 0 otherwise, the default category;
Controls include a binary variable that takes the value of 1 if:
for *RUS*, the firm cross-lists in NYSE/Nasdaq and 0 otherwise; and,
for *UUS*, the firm cross-lists in OTC or other unregulated markets and 0 otherwise.
Country/Industry/Year fixed effects.

Table 3c
The impact of the extent of European cross-listing on discretionary accruals
taking into account firm characteristics

	<i>DAC_1</i>		<i>DAC_2</i>		<i>DAC_3</i>	
	(DS&S)		(B&S)		(CD&L)	
	<i>Coefficient</i>	<i>p-value</i>	<i>Coefficient</i>	<i>p-value</i>	<i>Coefficient</i>	<i>p-value</i>
<i>Constant</i>	0.0527	0.000	0.0518	0.000	0.0443	0.000
<i>CL=1</i>	0.0017	0.592	0.0018	0.571	0.0001	0.967
<i>CL>1</i>	-0.0005	0.895	-0.0005	0.902	-0.0016	0.670
<i>RUS</i>	-0.0092	0.016	-0.0092	0.015	-0.0014	0.699
<i>UUS</i>	-0.0019	0.710	-0.0020	0.688	0.0044	0.454
<i>ACC. STANDARDS</i>	0.0052	0.081	0.0052	0.074	0.0063	0.018
<i>ANALYSTS FOLLOWING OWNERSHIP CONCENTRATION</i>	-0.0009	0.000	-0.0008	0.000	-0.0006	0.000
<i>SIZE</i>	0.0000	0.137	0.0000	0.178	0.0000	0.504
<i>AUDIT QUALITY</i>	-0.0019	0.002	-0.0020	0.001	-0.0017	0.001
<i>LEVERAGE</i>	0.0010	0.563	0.0009	0.594	-0.0018	0.231
<i>Country/Industry/Year controls</i>	0.0012	0.065	0.0012	0.064	-0.0002	0.732
<i>R-square</i>	Yes		Yes		Yes	
<i>F-stat (p-value)</i>	0.0766		0.0772		0.0856	
<i>N</i>	16.48	0.000	16.48	0.000	15.49	0.000
	12,750		12,750		12,750	

DAC are discretionary accruals and for $\gamma = 1$: Dechow et al., 1995; $\gamma = 2$: Ball and Sivakumar, 2006; $\gamma = 3$: Cohen, Dey and Lys, 2008; *ECL* is a binary variable that takes the value of 1 if:

for $ECL > 1$, the firm cross-lists in more than one foreign European market and 0 otherwise;
for $ECL = 1$, the firm cross-lists in only one foreign European market and 0 otherwise;
for $ECL = 0$, the firm is listed only in the home jurisdiction during the period of the study and 0 otherwise, the default category;
Controls include a binary variable that takes the value of 1 if:
for RUS , the firm cross-lists in NYSE/Nasdaq and 0 otherwise; and,
for UUS , the firm cross-lists in OTC or other unregulated markets and 0 otherwise.
Country/Industry/Year fixed effects.

Further controls include:

Analysts following proxied by the average analysts' following for the year (IBES); ownership structure is proxied by the percentage of closely held shares; high quality standards is a binary variable that takes the value of 1 if the accounting standards followed are IAS or US GAAP; size is proxied by the natural log of market capitalization in US\$mil., leverage stands for the sum of long and short term debt to equity and audit quality is a binary variable that takes the value of 1 if the firm is audited by a Big-5 auditor. The source of the data is Worldscope unless otherwise specified.

Table 4
The impact of cross-listing on firm characteristics

	<i>ANALYSTS FOLLOWING</i>		<i>OWNERSHIP CONCENTRATION</i>		<i>SIZE</i>		<i>LEVERAGE</i>	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
<i>Constant</i>	7.1048	0.000	56.6324	0.000	5.2522	0.000	1.1754	0.000
<i>CL=1</i>	3.5602	0.000	-4.6141	0.031	0.9398	0.000	0.0017	0.985
<i>CL>1</i>	8.3826	0.000	-8.0615	0.010	2.0219	0.000	-0.0394	0.763
<i>RUS</i>	3.7628	0.000	-9.6837	0.002	1.2978	0.000	0.2652	0.086
<i>UUS</i>	4.6125	0.000	-9.4648	0.004	0.9853	0.000	-0.0111	0.941
<i>Country/Industry/Year controls</i>	Yes		Yes		Yes		Yes	
<i>R-square</i>	0.2424		0.2999		0.2040		0.0449	
<i>F-stat (p-value)</i>	30.41	0.000	45.75	0.000	43.93	0.000	6.41	0.000
<i>N</i>	12,750		12,750		12,750		12,750	

DAC are discretionary accruals and for $\gamma = 1$: Dechow et al., 1995; $\gamma = 2$: Ball and Sivakumar, 2006; $\gamma = 3$: Cohen, Dey and Lys, 2008;

ECL is a binary variable that takes the value of 1 if:

for *ECL*>1, the firm cross-lists in more than one foreign European market and 0 otherwise;

for *ECL*=1, the firm cross-lists in only one foreign European market and 0 otherwise;

for *ECL*=0, the firm is listed only in the home jurisdiction during the period of the study and 0 otherwise, the default category;

Controls include a binary variable that takes the value of 1 if:

for *RUS*, the firm cross-lists in NYSE/Nasdaq and 0 otherwise; and,

for *UUS*, the firm cross-lists in OTC or other unregulated markets and 0 otherwise.

Country/Industry/Year fixed effects.

Analysts following proxied by the average analysts' following for the year (IBES); ownership structure is proxied by the percentage of closely held shares; size is proxied by the natural log of market capitalization in US\$, leverage stands for the sum of long and short term debt to equity. The source of the data is Worldscope unless otherwise specified.

Table 5a
The determinants of the European cross-listing choice
(treatment effects)

<i>First Stage</i> <i>(Dependent variable: ECL)</i>	<i>DAC_1</i> <i>(DS&S)</i>		<i>DAC_2</i> <i>(B&S)</i>		<i>DAC_3</i> <i>(CD&L)</i>	
	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>
<i>Constant</i>	-4.0032	0.000	-4.0038	0.000	-4.0016	0.000
<i>ACCOUNTING STANDARDS</i>	0.4950	0.000	0.4950	0.000	0.4890	0.000
<i>ANALYSTS FOLLOWING</i>	0.0383	0.000	0.0383	0.000	0.0390	0.000
<i>OWNERSHIP CONCENTRATION</i>	-0.0054	0.011	-0.0054	0.011	-0.0053	0.012
<i>SIZE</i>	0.3050	0.000	0.3051	0.000	0.3033	0.000
<i>AUDIT QUALITY</i>	0.1024	0.466	0.1023	0.467	0.1036	0.468
<i>LEVERAGE</i>	0.0221	0.495	0.0220	0.496	0.0220	0.499
<i>SALES GROWTH</i>	-0.0008	0.547	-0.0008	0.555	-0.0004	0.775
<i>FOREIGN SALES %</i>	0.0056	0.001	0.0056	0.001	0.0055	0.001
<i>Country/Industry/Year controls</i>	Yes		Yes		Yes	

Table 5
The impact of the European cross-listing on discretionary accruals
(treatment effects)

<i>Second Stage</i>	<i>DAC_1</i> (DS&S)		<i>DAC_2</i> (B&S)		<i>DAC_3</i> (CD&L)	
	<i>Coefficient</i>	<i>p-value</i>	<i>Coefficient</i>	<i>p-value</i>	<i>Coefficient</i>	<i>p-value</i>
<i>Constant</i>	0.0523	0.000	0.0515	0.000	0.0441	0.000
<i>ECL(Treatment effect)</i>	-0.0173	0.004	-0.0165	0.006	-0.0099	0.238
<i>RUS</i>	-0.0075	0.068	-0.0076	0.060	-0.0006	0.882
<i>UUS</i>	-0.0004	0.936	-0.0006	0.907	0.0051	0.381
<i>ACCOUNTING STANDARDS</i>	0.0069	0.024	0.0068	0.022	0.0072	0.009
<i>ANALYSTS FOLLOWING</i>	-0.0008	0.000	-0.0008	0.000	-0.0006	0.000
<i>OWNERSHIP</i>						
<i>CONCENTRATION</i>	0.0000	0.223	0.0000	0.278	0.0000	0.616
<i>SIZE</i>	-0.0013	0.029	-0.0014	0.017	-0.0014	0.009
<i>AUDIT QUALITY</i>	0.0008	0.649	0.0007	0.679	-0.0019	0.205
<i>LEVERAGE</i>	0.0013	0.051	0.0013	0.051	-0.0001	0.791
<i>Country/Industry/Year controls</i>	Yes		Yes		Yes	
		<i>St. error</i>		<i>St. error</i>		<i>St. error</i>
<i>Rho</i>	0.1786	0.041	0.1752	0.041	0.1132	0.081
<i>Sigma</i>	0.0616	0.001	0.0601	0.001	0.0505	0.001
<i>Lambda</i>	0.0110	0.003	0.0105	0.003	0.0057	0.004
		<i>p-value</i>		<i>p-value</i>		<i>p-value</i>
<i>Wald test of independent equaltions (Ho: Rho=0)</i>	18.5	0.000	17.26	0.000	1.91	0.167
<i>N</i>	12,750		12,750		12,750	

DAC_ are discretionary accruals and for $\gamma = 1$: Dechow et al., 1995; $\gamma = 2$: Ball and Sivakumar, 2006; $\gamma = 3$: Cohen, Dey and Lys, 2008;

ECL is a binary variable that takes the value of 1 if:

Controls include a binary variable that takes the value of 1 if:

for *RUS*, the firm cross-lists in NYSE/Nasdaq and 0 otherwise; and,

for *UUS*, the firm cross-lists in OTC or other unregulated markets and 0 otherwise.

Country/Industry/Year fixed effects.

Further controls include:

Analysts following proxied by the average analysts' following for the year (IBES); ownership structure is proxied by the percentage of closely held shares; accounting standards is a binary variable that takes the value of 1 if the accounting standards followed are IAS or US GAAP; size is proxied by the natural log of market capitalization in US\$, leverage stands for the sum of long and short term debt to equity and audit quality is a binary variable that takes the value of 1 if the firm is audited by a Big-5 auditor.

Exogenous variables include the growth in sales and the percentage of foreign sales.

The source of the data is Worldscope unless otherwise specified.

References

Abdallah, A. (2008). 'Do regulations matter? The effects of cross-listing on analysts' coverage and forecast errors: A comparative analysis' *Review of Accounting and Finance*, 7(3), 285-307.

Abdallah, W., & Goergen, M. (2008). Does corporate control determine the cross-listing location? *Journal of Corporate Finance* 14: 183–199.

Baker, H.K., Nofsinger, J. & Weaver, D. (2002). International cross listing and visibility. *Journal of Financial and Quantitative Analysis*, 37(3), 495–521.

Ball, R & Shivakumar, L., (2006). The Role of Accruals in Asymmetrically Timely Gain and Loss Recognition. *Journal of Accounting Research*, 44: 207–242.

Ball, R. & Shivakumar, L. (2008) Earnings quality at initial public offerings, *Journal of Accounting and Economics* 45: 324–349.

Bancel, F. & Mittoo, C. (2001). European Managerial Perceptions of the Net Benefits of Foreign Stock Listings. *European Financial Management*, 7: 213–236

Bancel, F. & Mitto, U.R. (2009) Why do European firms go public? *European Financial Management*, 15: 844-884.

Barth, M., Landsman, W, & Lang, M.. (2008). International accounting standards and accounting quality. *Journal of Accounting Research*, 46, 467-98.

Burgstahler, D., & Dichev, I., (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics* 24, 99–126.

Caban-Garcia M.T.(2009). The impact of securities regulation on the earnings properties of European cross-listed firms. *The International Journal of Accounting*, 44(3), 279-304.

Christensen, H., Lee, E. & Walker, M. (2009), Do IFRS reconciliations convey information? The Effect of debt contracting. *Journal of Accounting Research*, 47, 1167–1199.

Cohen, D., Dey, A., & Lys, T.Z. (2008), Real and accrual-based earnings management in the pre- and post-Sarbanes Oxley periods. *The Accounting Review*, 83(3), 757-788.

Crawford, S.C. (2007). The role of market forces and legal institutions in bonding cross-listed firms. Working paper, Rice University.

Dechow, P.M., Sloan, R.G., & Sweeny, A.P. (1995). Detecting earnings management. *The Accounting Review*, 70(2), 193-225.

- DeFond, M.L., & Jiambalvo, J., (1994). Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics* 17, 145–176.
- Doidge, C., Karolyi, G., & Stulz, R. (2004). Why are foreign firms listed in the US worth more? *Journal of Financial Economics*, 71(2), 205-238.
- Dye, R., (1988). Earnings management in an overlapping generations model. *Journal of Accounting Research* 26, 195–235
- Enriques, L., (2006). EC company law directives and regulations: How trivial are they? *University of Pennsylvania Journal of International Economic Law*, 27(1), 1–78.
- Enriques, L., & Volpin, P. (2007). Corporate governance reforms in continental europe. *Journal of Economic Perspectives*, 21(1), 117–140
- Haw, I., Hu, B., Hwang, L., & Wu, W., (2004). Ultimate ownership, income management, and legal and extra-legal institutions. *Journal of Accounting Research*, 42(2), 423-462
- Ettredge, M., Scholz, S., Smith, K. R. & Sun, L. (2010), How Do Restatements Begin? Evidence of Earnings Management Preceding Restated Financial Reports. *Journal of Business Finance & Accounting*, 37: 332–355.
- Jaafar, A., & McLeay, S. (2007). Country effects and sector effects on the harmonization of accounting policy choice. *Abacus*, 43(2), 156-189.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R.W. (1998). Law and finance, *Journal of Political Economy*, 106(6), 1113-1155.
- Lang, M., Smith Raedy, J., & Yetman, M. (2003). How representative are firms that are cross-listed in the United States? An analysis of accounting quality. *Journal of Accounting Research*, 41(2), 363-386.
- Lang, M., Lins, K., & Miller, D., (2003). ADRs, analysts, and accuracy: does cross listing in the U.S. improve a firm's information environment and increase market value? *Journal of Accounting Research*, 41, 317–345.
- Lang, M., Lins, K., & Miller, D. (2004). Concentrated control, analyst following, and valuation: Do analysts matter most when investors are protected least? *Journal of Accounting Research*, 42(3), 589-623.

Lang, M., Raedy, J., & Wilson, W. (2006). Earnings management and cross listing: Are reconciled earnings comparable to U.S. earnings? *Journal of Accounting and Economics*, 42(1/2), 255-283.

Leuz, C. (2006). Cross listing, bonding and firm's reporting incentives: A discussion of Lang, Raedy and Wilson (2006). *Journal of Accounting and Economics*, 42(3), 285-299.

Leuz, C. (2010). A New Approach to Global Reporting Convergence: The Global Player Segment, Working Paper, University of Chicago.

Leuz, C., Nanda, D., & Wysocki, P. (2003). Earnings management and institutional factors: An international comparison. *Journal of Financial Economics*, 69(3), 505-527.

McNichols, M.F. (2002). Discussion of 'The quality of accounting and earnings: The role of accrual estimation errors'. *The Accounting Review*, 77 (Supplement), 61-69.

Pagano, M., O. Randlm, A. A. Roell and J. Zechner (2001) 'What Makes Stock Exchanges Succeed? Evidence From Cross-listing Decisions', *European Economic Review* 45, 770–82.

Pagano, M., Röell, A. A. & Zechner, J. (2002), The Geography of Equity Listing: Why Do Companies List Abroad?. *The Journal of Finance*, 57: 2651–2694.

Roosenboom, P., & Van Dijk, M. (2009), The market reaction to cross-listings: does the destination market matter? *Journal of Banking and Finance* 33: 1898–1908.

Sarkissian, S., & Schill, M. (2004). *The overseas listing decision: new evidence of proximity preference*, *Review of Financial Studies*, 17, 769–810.

Yu, F. (2008). *Analyst coverage and earnings management*. *Journal of Financial Economics*, 88(2), 245-271

APPENDIX

Estimation of discretionary accruals (DACC)

Here, we focus on current discretionary accruals as a proxy for earnings quality. Current accruals (CAC) for firm i and year t are defined as:

$$CAC_{i,t} = (\Delta CA_{it} - \Delta CASH_{it}) - (\Delta CL_{it} - \Delta STDEBT_{it})$$

where:

- ΔCA_{it} = firm i 's change in current assets in year t ,
- ΔCL_{it} = firm i 's change in current liabilities in year t ,
- $\Delta CASH_{it}$ = firm i 's change in cash and cash equivalent in year t ,
- $\Delta STDEBT_{it}$ = firm i 's change in short-term debt in year t ,

Next, to estimate the non-discretionary component of accruals for a given year, we regress current accruals on the change in sales for each industry-year, as follows:

$$\frac{CAC_{it}}{TAsset_{it-1}} = \beta_1 \frac{1}{TAsset_{it-1}} + \beta_2 \frac{\Delta REV_{it}}{TAsset_{it-1}} + \omega_{it} \text{ (DACC}_1\text{- Dechow et al., 1995)}$$

and the non-discretionary component is estimated as the predicted value from the above regression as:

$$NDA_{it} = \hat{\beta}_1 \frac{1}{TAsset_{it-1}} + \hat{\beta}_2 \frac{(\Delta REV_{it} - \Delta AR_{it})}{TAsset_{it-1}}$$

Where ΔAR_{it} is firm i 's change in accounts receivables in year t ,

Discretionary accruals are then estimated as

$$DACC_{it} = \frac{CAC_{it}}{TAsset_{it-1}} - NDA_{it}$$

The alternative definitions of discretionary accruals employed in the study are estimated based on the following regressions:

Ball and Shivakumar (2006) propose an improvement to the above model by incorporating the asymmetric timeliness of loss versus gain recognition.

$$\frac{CAC_{it}}{TAsset_{it-1}} = \beta_1 \frac{1}{TAsset_{it-1}} + \beta_2 \frac{\Delta REV}{TAsset_{it-1}} + \beta_3 CFO_{it} + \beta_4 D_{it} + \beta_5 D_{it} * CFO_{it} + \omega_{it}$$

(DACC₂-Ball and Sivakumar, 2006)

Where CFO is Cash Flow from Operations measured as earnings before extraordinary items and preferred dividends less total accruals where total accruals equal total accruals minus the depreciation and amortization expense. D is a binary variable that takes the value of 1 if CFO is negative and 0 otherwise.

Finally, since accruals are changes in working capital accounts, one would expect fast growing firms to have larger accruals (McNichols 2000, 2002). In line with this prediction Cohen, Dey and Lys(2008) include the book-to-market ratio (*BM*) as a proxy for expected growth in firm's operations. *BM* is measured as the ratio of the book value of common equity to the market value of common equity:

$$CAC_{it} = \beta_1 \frac{1}{TAsset_{it-1}} + \beta_2 \frac{\Delta REV}{TAsset_{it-1}} + CFO_{it} + BM_{it} + \omega_{it}$$

(DACC₃- Cohen, Dey and Lys,2008)

¹ Enriques (2006) notes that although the EU has the power to enact binding regulations and directives in corporate law matters, it has traditionally had a low impact on European companies' corporate governance. On the other hand, Enriques and Volpin (2007) discuss numerous reforms that European legislators and more particularly law reforms in France, Germany, and Italy enacted in order to strengthen the mechanisms of internal governance, empower shareholders, enhance disclosure requirements, and toughen public enforcement with special emphasis on empowering minority shareholders. This evidence points to the absence of a central regulatory mechanism analogous to SEC but also identifies a harmonization trend across European jurisdictions.

² Observing these effects in the pre-IFRS adoption period allows us to establish these relations without having to unravel the implications of a high quality set of accounting standards.

³ More specifically, the authors investigate the determinants for an IPO based on a survey on European CEO's. The authors find the survey responses for an IPO at the firm's origin are not different from the responses for the cross-listing decision and therefore, they don't discuss them separately.

⁴ Roosenboom and Van Dijk(2009) examine the economic benefits of cross-listing in the eight major stock exchanges in the US, the UK, continental Europe, and Japan; Abdallah and Goergen (2008) examine the determinants of cross listing choice drawing upon 19 markets.

⁵ A similar argument is put forth by Ball and Shivakumar (2008) in the IPO context for UK based firms. It is assumed here that a parallel argument on the relation between the supply of earnings quality and changing listing status could be safely borrowed since Bancel and Mittoo (2009) find that the motivation for an IPO and the motivation for cross-listing are not realistically different for European firms.

⁶ Jaafar and McLeay (2007) provide an analysis of the pre-IFRS differences in accounting policy adoption that may be attributed to country main effects, particularly with regard to depreciation and goodwill.

⁷ Other versions of the discretionary accruals modeling (e.g. Dechow and Dichev,2002) involve determinants that span a number of years. Given that a considerable part of the cross-listing sample consists of firms that expand their listing exposure across the examined period, such models might capture managerial discretion associated with the circumstances of the year examined together with the effects of prior or subsequent listings. Moreover, in the present study, the use of such models reduces dramatically the available firm-year estimates of discretionary accruals.

⁸ Doidge et al.(2004) also argue that cross-listed firms tend to exhibit higher growth and support an argument for modeling this parameter when measuring the implications of cross-listing.

⁹ This two-stages procedure is computed by STATA as MLE treatment effects estimated using clustered errors on the firm level. A related straightforward discussion on endogeneity and sample selection bias can be found on the STATA FAQs

¹⁰ Firms that are listed in overseas markets except the US (e.g., Australia, Japan, South America etc) are rare and are excluded from the sample as we don't have any particular predictions for this type of global listing.

¹¹ This variable is also significantly associated with discretionary accruals based on the evidence in correlations reported in Table 2b. Such an association is assumed to reflect the underlying cross-listing decision.

¹² For instance, the evidence in Table 3c under the *DAC_1* and *DAC_2* specification of discretionary accruals suggest a significant role for the US listing as established in the prior research while the evidence with respect *DAC_3* specification rejects this hypothesis.