CHANGES IN THE CAPITAL STRUCTURE BEFORE AND AFTER IMPLEMENTING IFRS

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ABSTRACT
I CHECK WHETHER THE CAPITAL STRUCTURE, AS EXPLAINED BY THE PECKING ORDER THEORY (POT), CHANGED AFTER INTRODUCING IFRS, WITH A PANEL DATA FROM 14 EUROPEAN STATES, BEFORE AND AFTER THE ACCOUNTING RULES' SWITCH. IN EUROPE, THE POT DOES NOT HOLD. USING IFRS IS A SIGNAL OF TRUST SENT TO INVESTORS AND ALLOWS EASIER ACCESS TO DEBT OR EQUITY. THEREFORE, THERE IS EVEN LESS SUPPORT FOR THE THEORY AFTER SWITCHING TO IFRS. HOWEVER, THE EVIDENCE IS SOMEHOW MORE SIGNIFICANT IN FAVOR OF THE POT FOR LARGE FIRMS.

KEYWORDS: PECKING ORDER THEORY, CAPITAL STRUCTURE, IFRS.
JEL CLASSIFICATION: G32

Introduction

So far, leverage models in the empirical literature have a few common elements: the majority of the tests have been performed in the U.S. and they rely mostly on accounting data. However, there is still no consensus about the relation between debt and equity, whether they are substitutes or complements, and why managers choose one over the other (e.g., Demirguc-Kunt, 1992). One of the capital structure models, the Pecking order theory (POT), developed by Myers (1984), states that firms will prefer internal resources and, only after these are insufficient, debt over equity, when in need to cover their financing deficit. Previous empirical tests in the U.S. (see, for instance, Shyam-Sunder and Myers, 1999; Chirinko and Singha, 2000; Frank and Goyal, 2003) show that the POT works better than the Trade-off theory (TOT), but it became weaker over the time. Also, it is not clear if the situation is consistent around the world.

To address this aspect, I test whether or not this finding appears in the European setting, where much less research in this area has been done up to date. In a broader E.U. sample, there is an issue related to comparability, given the differences in the institutional environments or in the European accounting standards (prior to the IFRS implementation). Directive 1606/2002 regarding the application of international accounting standards states that all European public firms need to follow IFRS for their financial reports starting with 2005 (in some cases, the implementation was also allowed in 2006 and 2007).

My empirical analysis contains two main steps. First, I assess the behavior of the POT in Europe. Second, I check if switching to IFRS has an impact on the financing decisions. For that, I identify the year of change and I separate voluntary and mandatory adopters. Using public firms from 14 E.U. member states, from 1990 to 2012, I document that, contrary to the POT assumptions, the financing deficit fails to explain the variation in net debt issues. Nested in the conventional leverage equation, the financing deficit does not change the signs of the traditional leverage factors and adds little explanatory power. In line with Frank and Goyal (2003), I show that it is relevant to include it as an independent variable in a leverage model, though it is not sufficient by itself to explain variability in net debt issues. A consistent view among POT papers is that results might improve in specific subsamples. For that reason, I separate small and large firms and compare the results. I confirm previous conclusions with U.S. data and show that the coefficients are higher and significantly stronger in the case of large firms.

Next, to account for the differences that arise due to the mandatory or voluntary switch to IFRS, I include dummy variables in the original specification. Support for the theory is weaker post-IFRS and more for voluntary adopters than mandatory ones. Previous literature (e.g., Byard, Li and Yu, 2011) proves that adopting IFRS reduces the information asymmetry and my results are in line with these findings. Managers who mitigate the problem of releasing private information could be less constrained to choose debt over equity, as predicted by the POT.

However, adopting IFRS has a double implication. There are the methodological changes, on one hand, and there are the positive signals sent to investors due to employing a higher quality set of accounting standards, on the other hand. To disentangle these aspects, I check for the technical differences in the year prior to the change, for which firms provide financial reports both using local GAAPs and IFRS. These changes prove not to influence the theory, which means that the impact of the change in accounting standards comes from adopting IFRS *per se*.

My contribution is twofold. First, I test the POT in the E.U., broadly and in several subsamples. Secondly, I incorporate the impact of IFRS adoption. Even though empirical testing of the POT is not new, evidence from outside the U.S. is limited. Frank and Goyal (2003), and Gaud, Hoesli and Bender (2007) document that the theory does not hold, as previously stated by Shyam-Sunder and Myers (1999). On the other hand, the impact of switching to higher quality accounting standards has been previously addressed, but not specifically with respect to the capital structure. Overall, despite differences in institutional settings and accounting standards, my results show that the theory does not hold in Europe, similarly to what was proved in the U.S. and that the effect of switching to IFRS on the capital structure decisions is comparable across E.U. member states.

1. Literature review

By treating the two models mentioned before as contending hypotheses and testing their relative explanatory power, Shyam-Sunder and Myers (1999) find that a simple version of the POT explains more of the variation in debt ratio than the TOT. The POT (Myers (1984), Myers and Majluf (1984)) was created as an alternative to the traditional capital structure theories, explaining that, when in need to cover their financing deficit, firms prefer internal resources, and only after these become insufficient, debt is preferred over equity. It states that changes in debt ratios are the result of a need for external funds and not of the attempt to reach the optimal capital structure. Thus, at least for mature,

public firms in the tested sample, the POT provides a better explanation for the debt ratio. Shyam-Sunder and Myers (1999) argue that, even though empirical literature confirms the predictions of the TOT (reversion of the debt ratio towards the optimum level and a cross-sectional relation between debt ratios and asset risk, profitability, tax status and asset type), the statistical power of the classic tests against alternative hypotheses is not checked. Comparing these two theories, Shyam-Sunder and Myers (1999) prove that the TOT can lead to plausible and statistically significant results even when it is false while, on the other hand, the POT is correctly rejected if false.

The central point of Shyam-Sunder and Myers (1999) and the idea that was further developed in papers addressing the POT is that, given the fact that asymmetric information is the key of the POT, the debt/equity proportion depends on the net requirement for external funds. Furthermore, firms plan to use debt to finance anticipated deficits. Considering the explanatory power as a key element, they find a significantly large value for the POT within their sample of 157 (mostly large) firms with continuous data recorded between 1971 and 1989. However, they admit that the model might not work for a sample of growth companies with high investments in intangible assets.

Chirinko and Singha (2000) offer a critical view on Shyam-Sunder and Myers (1999) and state that the way of testing the POT is quite restrictive and it is likely to be rejected if the firm uses equity as a form of new capital. They recommend a milder form of expressing the theory: equity is also taken into consideration, but will be used only as a last resort. Chirinko and Singha (2000) allow the possibility of net equity issuance and accept that beta could be less than 1, but close to unity. In this case, they argue that the predicted regression coefficient should be 0.74 instead of 1.

The large vs small firms separation is subsequently addressed by Frank and Goyal (2003). They argue that since the POT does not apply to broad patterns, it is better to examine narrower sets of firms. The POT is based on adverse selection costs, so it should perform better for small high-growth firms where this issue is more severe. Also, it is shown that, contrary to what is expected from the POT, net equity tracks the financing deficit much closely than net debt does. By analyzing the summary statistics of a broader sample of firms, for a longer period of time, they notice that in some cases firms employ more equity than debt or even avoid high levels of leverage and that, over time, the importance of internal sources of financing has decreased.

It is important to understand the process of transition from the national GAAP to the international ones. According to the European directive no. 1606/2002, the objective of IFRS is to ensure that the financial reports contain high quality information which:
- are transparent for their users and comparable for all the periods;
- ensure a basis for the accountancy in accordance with IFRS;
- can be generated with a lower cost than the benefits of the users.
Also, in terms of applicability, a firm needs to use IFRS for:
- its first financial reports post-IFRS;
- each interim report, when it is the case, that it presents according to IAS 34 Interim financial reporting.
The financial reports according to IFRS are the first ones for a firm if :
- it has presented the most recent reports:
    + according to the national rules that are not totally in accordance with IFRS;
    + according to IFRS, but without a clear declaration of conformity;

+ with a declaration of conformity, but only with a part of the IFRS rules;

+ according to the national rules, that are not in accordance with IFRS, but using some IFRS to register the elements for which there is no guidance in the national legislation;

+ according to the national rules, with a reconciliation of some values with those obtained by using IFRS;

- it has presented financial reports according to IFRS, but only for internal usage, without making them public;

- if has made a package of reporting according to IFRS, for consolidation, without making the statements as IAS 1 demands;

- it has not prepared financial reports before.

Petre and Lazar (2012) discuss about the positive implications of switching to IFRS and they classify them as follows:

- efficiency of the capital markets;

- investors' protection and the guarantee of the trust in capital markets;

- fair competition between the firms for obtaining capital from national or international financial markets.

Girbina and Bunea (2007) summarize the application of IAS/IFRS and mention that firms need to prepare a balance sheet which represents the basis for the following recording in accordance with IFRS, while the date of the switch is the first time when comparable information in accordance with IFRS are presented.

To prepare the balance sheet:

- the assets and debt not recognized according to the national GAAP, but which fulfill the conditions to be recognized by IAS/IFRS will be included;

- the assets and debt previously recognized, but which do not fulfill the conditions to be recognized by IAS/IFRS will be excluded;

- the assets, debt or equity will be classified, evaluated and presented according to IFRS;

- the changements will affect, in general, the equity.

Ristea et al. (2010) analyse some particular negative aspects following the switch to IFRS. In France, the decision was extremely criticized. In a country where the state was always the one in charge of these kind of decisions, the change was a true cultural revolution. The main implications were the orientation towards the financial markets, the excessive usage of the real value and the fact that the accounting rules were not influenced by the politics, but they were controlled by the big international audit firms.

Other studies from France proved that for applying IFRS in the consolidated accounts of public firms, the accountants have used their own professional judgment, through an accounting translation and applying the significance limit principle. This fact was determined by the incompleteness of the IFRS, and many accountants say that IFRS are interpretable and not precise, thus difficult to implement.

The managers of firms that chose IFRS declare the process if expensive and sometimes complicated, and the waiting time has nothing to do with the decrease of the cost of capital. Even in these conditions, firms agree with the benefits and costs of the switch. As benefits, they can expect a decrease in results' volatility, due to the accounting convergence at a national and international level. However, the people that take these decisions say that they would not have done it if it was not mandatory, which confirms the

small number of voluntary adopters until 2005, the year when the switch became mandatory.

In the countries with a significant investors' protection, IFRS is not better than the local standards in terms of information presented and its quality. On the other hand, in countries with less investors' protection, IFRS are perceived as high quality. Therefore, IFRS are useful for the foreign investors rather than local shareholders.

Even though it might seem that there are only problems post-IFRS, the switch needs to be analyzed from all the perspectives. Still, it is obvious that choosing these rules reduces the costs and increases the investments on the foreign capital markets. Thus, after comparing the pros and cons, the conclusion of the previous literature about the impact of IFRS is rather positive.

2. Methodology

The basic concept of the POT implies that if the firm does not have enough internal resources for its investments and dividend commitments, it will issue debt rather than equity; equity will be used as a last resort, if the firm has only the choice of junk debt with high distress costs. I follow Frank and Goyal (2003) and I run the following regression:

$$\Delta D_{i,t} = \alpha + \beta_0 DEF_{i,t} + \varepsilon_{i,t} \tag{1}$$

where i, and t denote firm, and year, respectively, and

$$DEF_{i,t} = DIV_{i,t} + I_{i,t} + \Delta W_{i,t} - C_{i,t}$$

where $DEF_{i,t}$ = financing deficit, $DIV_{i,t}$ = cash dividend paid, $I_{i,t}$ = net investment, $\Delta W_{i,t}$ = change in working capital, and $C_{i,t}$ = internal cash flow.

All components of the deficit are considered exogenous if safe debt can be issued and there is no reason to switch the choice from debt to equity. Following the POT, it is expected that α=0 and β_0=1, such that the deficit will be entirely financed by debt.

Next, to test if the switch from local GAAPs to IFRS that happened in Europe during the time frame analyzed (mostly in 2005, but also before and after, due to voluntary/late adopters) influenced the behavior of the POT, I include two dummies that help disentangling the effect of a mandatory vs voluntary change. If switching to IFRS has no importance, the dummies and their interactions with the financing deficit should not be statistically significant.

$$\Delta D_{i,t} = \alpha + \beta_0 DEF_{i,t} + \beta_1 * IFRS_{i,t} + \beta_2 * IFRS_{i,t} * DEF_{i,t} + \\ \beta_3 * VOL_{i,t} + \beta_4 * VOL_{i,t} * DEF_{i,t} + \varepsilon_{i,t}$$

(2)

where $IFRS_{i,t} = 1$ if firm i uses IFRS mandatorily in year t, 0 otherwise, and $VOL_{i,t} = 1$ if firm i uses IFRS voluntarily before the mandatory introduction in 2005, 0 otherwise.

Following Harris and Raviv (1991), Rajan and Zingales (1995) and Frank and Goyal (2009), I include a set of conventional factors for leverage which contains tangibility, market-to-book ratio, firm size and profitability.

$$\Delta D_{i,t} = \alpha + \beta_0 DEF_{i,t} + \beta' X_{i,t} + \varepsilon_{i,t} \tag{1'}$$

where $X_{i,t}$ is the set of conventional leverage factors: $\Delta T_{i,t}$=change in tangibility, $\Delta MTB_{i,t}$=change in market-to-book, $\Delta LS_{i,t}$=change in log of sales, and $\Delta P_{i,t}$=change in profitability.

The conventional leverage regression is used to explain the level of leverage, while the POT addresses the change in the level of leverage. This is why the chosen factors are plugged in as first differences. This set of variables represents a setting where the deficit variable can be nested. If the deficit is the only factor impacting the debt, its coefficient should be 1, while the others, not significantly different from 0. Even if this will not be the case, it could be that this variable is still empirically relevant. However, previous research states a positive relation between debt and tangibility and size, and a negative one between debt and growth and profitability.

The general model, the one that includes both accounting standard dummies and the conventional factors, is:

$$\Delta D_{i,t} = \alpha + \beta_0 DEF_{i,t} + \beta_1 * IFRS_{i,t} + \beta_2 * IFRS_{i,t} * DEF_{i,t} + \beta_3 * VOL_{i,t} + \beta_4 * VOL_{i,t} * DEF_{i,t} + \boldsymbol{\beta}' \boldsymbol{X}_{i,t} + \varepsilon_{i,t}$$

(2')

Pooling information from several countries and time periods, with differences in the accounting standards and institutional framework is likely to create false results in the classical OLS tests. Previous studies (see, for instance, Lemmon, Roberts and Zender, 2008) have proven that variability in leverage is mainly explained by firm fixed effects. Even if it is still debatable whether or not country fixed effects are more appropriate to isolate the influence of accounting standards or legal environment, using firm fixed effects also incorporates country level factors because of the structure of the panel (one yearly observation per firm per country)[7]. Also, adding year fixed effects eliminates the potential time trends in the data and reduces the omitted variable bias. Thus, I use the least squares regression with dummy variables to implement the specifications with firm and year fixed effects (to account for the permanent component of the dependent variable), and cluster standard errors by firm to mitigate heteroskedasticity and serial autocorrelation (accounting for the transitory component).

3. Data

I use Thomson Reuters Worldscope to gather the accounting information of public firms from 14 E.U. member states: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom. The time frame analyzed is 1990-2012. Variables are expressed in euros. Following the standard procedure, financial and utility firms are excluded from the sample. The construction of all variables of interest is detailed in Appendix A.5.

Given that the collected data has a significant amount of gaps, it is almost impossible to run the tests respecting the strong condition imposed by Shyam-Sunder and Myers (1999), and to include only firms that have continuous data for the whole interval (insufficient even for an aggregate "E.U. sample"). In these conditions, I use an unbalanced panel.

For the potential missing data, it is common to directly eliminate a particular firm-year. I use a more refined approach (see Appendix A.4):

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[7] Running the specifications with firm and country fixed effects, respectively, provides slightly better results (higher explanatory power) in the former case.

1) For one part of variables (e.g. capital expenditures, depreciation), I assume the problem is related to financial reports poorly recorded in the database, so to be consistent in time and across firms, I replace it with a ratio that represents the mean of the variable scaled by total assets, for the other firms in the sample in that year, multiplied by the value of the total assets for the missing firm-year.

2) For variables with a lower impact in the model, I replace the missing values by 0, supposing they are either not reported, because of their insignificant amount or included in other variables.

3) Finally, for the variables that are crucial in the analysis (e.g. total assets, total liabilities or net income), I delete the corresponding firm-year. Additionally, I check the correspondence between regulation and the sample extracted from the database. For example, voluntary adoption was not permitted in some of the 14 European countries (France, Ireland, Italy, Netherlands, Spain, Sweden, and UK). In those countries, there should not be any firm using IFRS before 2005. According to Thomson Reuters, this issue arises from the fact that information is updated with all the available data, even pre-IPO figures. Similarly, late adoption is not allowed in countries like Germany, Italy, Netherlands, Portugal, and UK, thus firm-years with accounting information based on local GAAPs after 2005 (2006 or 2007, for late adopters) are eliminated from the sample[8].

After imposing these filters, there are 30,385 observations in the trial sample. Lastly, data is winsorized at 0.5% level to account for extremely misrecorded values or outliers.

The main focus of the paper is to test the POT in Europe, using models (2) and (2'). However, since the intention is to aggregate in one sample accounting data from different countries, with divergent local GAAPs, and IFRS, I need to make specific adjustments in the former case, so that all the assumptions converge to the IFRS set of rules. The standardization treatment implies deducting the value of the specific adjustment variable from total assets, in the countries where local rules do not comply with IFRS. After this step, the final broad sample should mimic one which is based on IFRS during the entire period (1990-2012).

4. Results
Testing the POT in Europe

The set of adjustments that have been proposed by previous researchers are related to the main differences that have been noticed between local standards and IFRS, of course, without being exhaustive. A way to check their accuracy is to run the models twice (both in adjusted and not adjusted versions) and to compare the impact of IFRS in both cases.

Table 1 provides evidence that the null hypothesis of the POT is rejected, given that the expected unit coefficient of the deficit is far away from the empirical result. Moreover, support in favour of the theory is even weaker than what Frank and Goyal (2003) discover in the U.S. for the interval 1990-1998. The explanatory power is between 6 and 9%,

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[8] Source: http://www.iasplus.com/en/jurisdictions/binary/europe/1007ias-use-of-options.pdf.

depending on the specification, which implies the relation between financing deficit and debt issuance is even more fragile in Europe than in the U.S.

[Insert Table 1 about here]

The accounting standards followed are relevant in this context. The interaction term between the financing deficit and the dummies for voluntary and mandatory switches to IFRS, respectively, are statistically significant and show that the POT holds less for firms that switched mandatorily to IFRS, compared to the ones that use local GAAPs, and the impact is even bigger in the case of voluntary adopters. Furthermore, adding these dummies slightly improves the explanatory power of the model. However, results in the two samples (with IFRS-adjusted and not adjusted data) are not statistically different. It means that either the adjustments are not accurate, failing to incorporate the real technical changes implied by using IFRS, or it is not the methodological difference related to the accounting standards that influence the capital structure decision, but rather the adoption *per se*. I come back to this aspect in the following sections.

If it is the POT that correctly explains the financing decisions, nesting in the financing deficit in the conventional leverage equation should eliminate the effect of the conventional variables. This happens only with tangibility, while the other three factors, profitability, log of sales, and market-to-book, are statistically significant and have the expected signs. The financing deficit remains significant in columns (4)-(6) and very close to the results from columns (1)-(3). Consistent with Frank and Goyal (2003), I find that even if the POT does not hold, the deficit can still be added as a factor in the traditional leverage equation.

When splitting the broad sample into mandatory and voluntary adopters, previous results are consistent. The POT performs better for mandatory adopters than for voluntary ones. IFRS improves the information environment and thus reduces the adverse selection problem that firms face when making financing decisions. Moreover, it is possible that investors consider the voluntary adopters' incentive to switch as a proof of trust; consequently, they can address either market more easily, which makes the main assumption of the POT (the preference of debt over equity) less valid. Also, in line with the intuition, the coefficient of IFRS dummy changes in the voluntary sample, compared to the broad results from Table 4. The influence of being an IFRS user when IFRS become mandatory is most likely eliminated; voluntary adopters have already experienced the benefits of changing to higher quality accounting standards, thus they face no additional impact when all the other (mandatory) firms make the change.

Frank and Goyal (2003) show that even though there is no broad pattern explained by the POT, results may be different when looking at narrower samples. They show that the behavior of the theory improves for large firms in the U.S. I run the tests again in two subsamples, small vs large firms, and report the results in Table 2. The coefficients are significant in both samples for all specifications and statistically different between samples, proving the relevance of the sample split. Even though the coefficients are higher for large firms, the values are still low, providing weak support for the correlation between financing deficit and debt issues.

[Insert Table 2 about here]

IFRS dummy is significant only for large firms, which implies that if there is an effect on the financing decisions of firms, that is more clear for large firms. Adopting IFRS *per se* does not mitigate the issues that small firms face (e.g. debt capacity), thus the mandatory switch is not significant. On the other hand, the impact of the voluntary switch

is statistically significant. Moreover, the dummy that accounts for voluntary switch to IFRS is significant and positive for small firms, which implies that net debt issues increase in their case, regardless of the financing deficit. It is more obvious for these firms that adopting IFRS voluntarily makes them more trustworthy from the investors' perspective and they take advantage of easier access to external capital.

Small firms also behave differently when introducing the traditional factors in the specifications. While all four factors are strongly significant for large firms, only market-to-book behaves in a similar way in the small-firm sample. As a proxy for growth opportunities, market-to-book is negative in both samples, consistent with Goyal et al. (2002) who find that a firm decides more towards debt financing when is has less growth opportunities.

For the other firm characteristics, however, the correlation with debt issues is far less significant. Profitability does not appear to explain the variability in financing deficit in the case of small firms, while it is strongly significant in the large-firm subsample. Even though in both cases it has the predicted negative sign, this firm characteristic has less importance for small firms because the amount of profits is relatively low to impact the level of debt issues. Interestingly, the effect of tangibility is positive for small firms and negative for large ones, statistically significant in both cases. In general, collateral supports debt. However, for large firms, with more tangible assets (including more lands or buildings), there is also an issue related to redeployability. Tangible assets that are less liquid, more likely to appear in the balance sheet of large firms, do not necessarily make it easy to issue more debt.

[Insert Table 3 about here]

To check the robustness of the results, I also include analyses year-by-year, as well as country-by-country. Skoulakis (2006) argues that, even though it is usually argued that Fama-MacBeth estimation should be used in panels with long time series and the Least Squares estimation in panels with large cross sections, both approaches should be employed to enhance the validity of the results. Furthermore, the author shows that, if the explanatory variables do not vary over time, the results provided by the two methodologies are essentially equivalent. In fact, results in Panel A of Table 3 are similar to the ones in Table 1 and the general conclusion about the behaviour of the POT remains. When the traditional leverage factors are introduced in the model, their signs are those predicted and the explanatory power of the model is improved. Panel B presents the results using the yearly cross sections. Frank and Goyal (2003) argue that the importance of the POT has declined over time by comparing roughly two decades, the 80s and the 90s. I confirm their finding with the E.U. sample. The coefficient of the financing deficit is smaller on average in the second part of the interval compared to the 90s, so the descending trend continues.

[Insert Table 4 about here]

Aggregating European data from several member states is still a delicate approach in financial literature. Even though E.U. member states have been moving towards harmonization from many perspectives (e.g. using a single currency or the same accounting standards), there is still significant heterogeneity and one of the most significant differences arises from the legal systems. Accordingly, I classify the 14 countries in the sample in four subgroups: Civil Law (Ireland and UK), Common Law – Napoleonic (Belgium, France, Italy, Netherlands, and Spain), Common Law – Germanistic (Austria, Germany, Greece, and Portugal), and Scandinavian Law (Denmark, Finland, and Sweden).

Table 4 confirms that similar patterns are observed when comparing the results by country or by group of countries, meaning that the split according to the legal code is appropriate. Although all results are significant, there is relatively more support for the POT in the UK and Common Law countries, and in Sweden and Scandinavian countries, respectively. Moreover, the interaction between the IFRS dummy and the financing deficit is, in most of the cases, negative, consistent with the outcome in the broad sample. Table 9 details the differences between small and large firms in each of the restricted samples. Again, coefficients in the large samples are generally higher and significantly stronger, and, consistent with the outcome of the broad sample, the best evidence in favour of the POT appears for large firms in the UK and Sweden.

Conclusions

I test the POT of capital structure using data from 14 E.U. countries, over the last 23 years (1990-2012). Previous studies, mainly in the U.S., prove that the theory does not hold. I reach the same result in the European case. Shyam-Sunder and Myers (1999) argue that the model cannot be generally applicable for a broad sample, but it might perform better in more homogenous subsamples. Indeed, when small firms are compared to large ones, I find higher support for the theory in the latter sample. Furthermore, there is a higher explanatory power and stronger significance of the results when the sample of large firms is employed. Similarly, including traditional leverage factors in the specifications translates into a better fit for large firms.

I extend the approach of Frank and Goyal (2003) by incorporating the impact of IFRS adoption, one of the major regulatory changes enacted during the analyzed interval. Again, there is weak support for the theory both pre- and post-IFRS adoption. Switching to IFRS reduces the information asymmetry, as well as the correlation between deficit and debt issues, as explained by the POT. Results are significant even when analyzing separately voluntary and mandatory adopters and the theory is weaker for the former ones. Investors might consider their incentive to switch to higher quality accounting standards as a proof of trust, which would allow an easier access on either of the financial markets and, consequently, work against the idea of preferring debt over equity.

When restricting the sample even more, to the prior-switch year, there is no statistical difference between the POT outcome before and after the change. It is not the different methodology *per se* that changes the financing decisions, but rather the signals sent to the investors by choosing a higher quality set of accounting standards. Interestingly, however, when testing large firms with original and restated data in the prior-switch year, the explanatory power is the best among all specifications used. This is in line with Frank and Goyal (2003), who document a stronger correlation between the financing deficit and debt issues and thus fair support for the POT for large firms; nonetheless, the intuition is that financing decisions are rather influenced by switching to IFRS *per se*, than by the technical changes, and the sample I use is extremely small, thus this strong evidence in favor of the POT should be analyzed with precaution.

Important caveats need to be kept in mind. Implementing the study in such a heterogeneous environment is problematic because of data availability, differences in institutional settings or potential sample selection bias. Moreover, the capital structure illustrates a balance between external financing elements and management's decisions, thus accounting for debt capacity or the level of stock market development, for instance, might shed light on small vs large firms' different behaviors.

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Table 1. POT tests
The following equation is estimated:

$$\Delta D_{i,t} = \alpha + \beta_0 DEF_{i,t} + \beta_1 * IFRS_{i,t} + \beta_2 * IFRS_{i,t} * DEF_{i,c,t} + \beta_3 * VOL_{i,t} + \beta_4 * VOL_{i,t} * DEF_{i,t} + \beta' X_{i,t} + \varepsilon_{i,t},$$

where $X_{i,t}$ is a set of conventional leverage factors ($\Delta T_{i,t}, \Delta MTB_{i,t}, \Delta LS_{i,t}, \Delta P_{i,t}$) and the other variables are defined in Appendix A.5. Tests are run for each of the two samples: the initial one and the IFRS-adjusted one. IFRS adjustments are performed when local GAAPs diverge from the IFRS rules and are used to ensure comparability among data from different countries and time periods. The full manipulation process is explained in Appendix A.3. Firm and year fixed effects are included. All variables are scaled by total assets. The sample period is 1990-2012. ***, **, * represent significance at 0.1%, 1%, and 5% levels, respectively. Estimations correct for heteroskedasticity and within-firm error clustering. Standard errors are reported in parentheses. Number of observations: 30,385.

	Adjusted data						Unadjusted data					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
DEF	0.062***	0.069***	0.072***	0.061***	0.068***	0.071***	0.063***	0.069***	0.072***	0.061***	0.068***	0.071***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
IFRS		0.010	0.010		0.012	0.012		0.013	0.012		0.012	0.011
		(0.012)	(0.012)		(0.001)	(0.001)		(0.011)	(0.011)		(0.011)	(0.011)
IFRS*DEF		-0.020***	-0.024***		-0.020***	-0.024***		-0.020***	-0.023***		-0.020***	-0.023***
		(0.004)	(0.005)		(0.005)	(0.005)		(0.004)	(0.005)		(0.005)	(0.005)
VOL		0.010				0.011*		0.010				0.011*
		(0.006)				(0.006)		(0.006)				(0.006)
VOL*DEF		-0.045***				-0.044***		-0.044***				-0.044***
		(0.006)				(0.006)		(0.007)				(0.006)
ΔT				0.006	0.006	0.006				0.002	0.001	0.002
				(0.015)	(0.015)	(0.015)				(0.015)	(0.015)	(0.015)
ΔMTB				-0.017***	-0.017***	-0.017***				-0.017***	-0.017***	-0.017***
				(0.001)	(0.001)	(0.001)				(0.001)	(0.001)	(0.001)
ΔLS				0.002*	0.002*	0.002*				0.002**	0.002*	0.002*
				(0.001)	(0.001)	(0.001)				(0.001)	(0.001)	(0.001)
ΔP				-0.042***	-0.041***	-0.041***				-0.041***	-0.041***	-0.040***
				(0.006)	(0.006)	(0.006)				(0.006)	(0.006)	(0.006)
Intercept	0.020***	0.020***	0.019***	0.017***	0.018***	0.017***	0.020***	0.020***	0.019***	0.017***	0.018***	0.017***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Adj-R²	6.56%	6.69%	6.86%	8.44%	8.57%	8.74%	6.60%	6.72%	6.89%	8.50%	8.62%	8.78%

Table 2. POT tests – small vs large firms
The following equation is estimated:

$$\Delta D_{i,t} = \alpha + \beta_0 DEF_{i,t} + \beta_1 * IFRS_{i,t} + \beta_2 * IFRS_{i,t} * DEF_{i,t} + \beta_3 * VOL_{i,t} + \beta_4 * VOL_{i,t} * DEF_{i,t} + \beta' X_{i,t} + \varepsilon_{i,t},$$

where $X_{i,t}$ is a set of conventional leverage factors $(\Delta T_{i,t}, \Delta MTB_{i,t}, \Delta LS_{i,t}, \Delta P_{i,t})$ and the other variables are defined in Appendix A.5. IFRS adjustments are performed when local GAAPs diverge from the IFRS rules and are used to ensure comparability among data from different countries and time periods. The full manipulation process is explained in Appendix A.3. Small/large firms are those with the value of total assets below the 25th/75th percentile of the distribution. Firm and year fixed effects are included. All variables are scaled by total assets. The sample period is 1990-2012. ***, **, * represent significance at 0.1%, 1%, and 5% levels, respectively. Estimations correct for heteroskedasticity and within-firm error clustering. Standard errors are reported in parentheses. Number of observations: 7,602.

	Small firms						Large firms					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
DEF	0.057***	0.058***	0.061***	0.057***	0.057***	0.060***	0.069***	0.083***	0.094***	0.061***	0.075***	0.084***
	(0.005)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)	(0.005)	(0.007)	(0.009)	(0.005)	(0.007)	(0.008)
IFRS		-0.005	-0.002		-0.005	-0.003		0.001	0.000		0.005	0.004
		(0.020)	(0.020)		(0.020)	(0.020)		(0.011)	(0.011)		(0.014)	(0.014)
IFRS*DEF		-0.002	-0.005		-0.001	-0.004		-0.038***	-0.049***		-0.036***	-0.045***
		(0.009)	(0.009)		(0.009)	(0.009)		(0.009)	(0.010)		(0.008)	(0.009)
VOL			0.035**			0.033**			-0.006			-0.004
			(0.012)			(0.012)			(0.008)			(0.007)
VOL*DEF			-0.043**			-0.041**			-0.065***			-0.057***
			(0.013)			(0.013)			(0.012)			(0.011)
ΔT				0.058*	0.058*	0.057*				-0.162***	-0.161***	-0.157***
				(0.027)	(0.027)	(0.027)				(0.034)	(0.034)	(0.034)
ΔMTB				-0.011***	-0.011***	-0.011***				-0.027***	-0.027***	-0.027***
				(0.002)	(0.002)	(0.002)				(0.004)	(0.004)	(0.004)
ΔLS				0.004**	0.004**	0.004*				0.010***	0.010***	0.010***
				(0.001)	(0.001)	(0.001)				(0.003)	(0.003)	(0.003)
ΔP				-0.007	-0.007	-0.007				-0.198***	-0.198***	-0.197***
				(0.008)	(0.008)	(0.008)				(0.020)	(0.020)	(0.020)
Intercept	0.004	0.004	0.002	-0.003	-0.003	-0.005	0.034***	0.035***	0.035***	0.031***	0.032***	0.032***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Adj-R²	5.24%	5.22%	5.36%	6.23%	6.21%	6.34%	9.13%	9.55%	10.07%	16.69%	17.06%	17.45%

Table 3. Testing the POT year-to-year

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
DEF	0.198***	0.089***	0.020***	0.186***	0.084***	0.118***	0.129***	0.074***	0.132***	0.152***	0.043***	0.085***
	(0.012)	(0.010)	(0.004)	(0.011)	(0.009)	(0.009)	(0.010)	(0.007)	(0.009)	(0.009)	(0.006)	(0.007)
Intercept	0.019***	0.008	-0.013***	-0.013***	-0.022	0.007**	0.006*	0.004	0.016***	0.015***	0.011***	0.003
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
N	1,055	1,175	1,269	1,338	1,435	1,452	1,491	1,491	1,585	1,485	1,538	1,588
R^2	21.03%	6.65%	2.48%	16.40%	5.44%	10.01%	10.66%	6.42%	11.07%	15.47%	2.73%	8.37%

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
DEF	0.031***	0.033***	0.085***	0.071***	0.080***	0.045***	0.071***	0.108***	0.012***	0.081***	0.080***	
	(0.004)	(0.005)	(0.007)	(0.009)	(0.008)	(0.007)	(0.007)	(0.007)	(0.003)	(0.007)	(0.011)	
Intercept	-0.014***	-0.017***	-0.008***	0.006	0.008	0.018***	0.017***	-0.011***	-0.012***	0.001	0.003	
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)	
N	1,521	1,457	1,453	670	988	1,214	1,431	1,371	1,421	1,388	569	
R^2	3.14%	3.29%	8.89%	7.97%	9.10%	3.46%	6.36%	16.32%	1.02%	9.60%	8.32%	

Table 4. POT tests country-by-country

	Panel A: Per country							
	UK		France		Germany		Sweden	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
DEF	0.152***	0.152***	0.032***	0.037***	0.036***	0.036***	0.125***	0.150***
	(0.006)	(0.007)	(0.008)	(0.011)	(0.006)	(0.006)	(0.023)	(0.026)
IFRS		0.001		-0.024		-0.036		-0.072
		(0.006)		(0.015)		(0.019)		(0.048)
*IFRS*DEF*		0.002		-0.020		-0.001		-0.071**
		(0.012)		(0.017)		(0.013)		(0.026)
Intercept	0.008*	0.008*	0.027	0.027	-0.003	-0.003	0.043	0.046
	(0.004)	(0.004)	(0.022)	(0.022)	(0.010)	(0.010)	(0.030)	(0.030)
N	18,268		1,489		1,931		722	
Adj-R^2	13.66%	13.65%	4.45%	6.35%	5.22%	5.17%	17.65%	18.60%

	Panel B: Per group of countries							
	Common Law		Civil Law - Napoleonic		Civil Law - Germanistic		Scandinavian Law	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
DEF	0.106***	0.106***	0.027***	0.026***	0.035***	0.038***	0.044***	0.049***
	(0.005)	(0.006)	(0.004)	(0.005)	(0.005)	(0.006)	(0.007)	(0.007)
IFRS		-0.011		0.090		0.090		0.002
		(0.023)		(0.020)		(0.058)		(0.020)
*IFRS*DEF*		-0.003		-0.006		-0.006		-0.015
		(0.009)		(0.010)		(0.011)		(0.011)
Intercept	0.014***	0.014***	0.027*	0.010*	0.010	0.010	0.036**	0.036**
	(0.004)	(0.004)	(0.010)	(0.011)	(0.009)	(0.009)	(0.013)	(0.013)
N	20,816		3,680		2,792		3,097	
Adj-R^2	9.83%	9.83%	4.04%	4.02%	5.11%	5.20%	7.70%	7.75%