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Original sin in corporate finance: New evidence from Asian bond issuers in onshore and offshore markets*

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Abstract

We borrow from the literature on sovereign debt finance the idea of "original sin"and redefine it for use in corporate finance. In its new incarnation, original sin refers to the difficulty firms in many emerging markets have in borrowing domestically long-term, even in the local currency. We infer the nature of original sin from 5,500 financing decisions by firms in seven Asian emerging markets over a period of 11 years. Our sample period covers an episode when bond issuers had a choice between a less developed but growing onshore market, which varied across countries in the level of development, and a deep and liquid offshore market. We find that even in countries with onshore markets, it is often easier for unseasoned firms to issue offshore (in foreign currency) than to issue onshore, but structural change brought about by market development reverses this effect. In addition, once such a firm becomes a seasoned issuer, it is absolved from domestic original sin and is then able to act opportunistically and go to the market favoured by interest differentials.

Key words: bond financing, offshore markets, emerging markets, market depth, global credit

JEL: C23, E44, F32, F34, G32, O16

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1 Introduction

Firms in emerging markets often issue abroad while shunning their own local bond market.[1] Does this reflect a kind of "original sin", one that makes it difficult to issue at home? In the case of government borrowers, Eichengreen et al. (2005b) define original sin as the inability of a government to issue *offshore* in its own currency. In the case of corporate borrowers, we argue it is important to extend the concept to onshore bond issuance. Allayannis et al. (2003) suggest that many firms in emerging markets are not able to issue bonds onshore, at least not in size and not at long maturities. For these firms, original sin is the inability to issue onshore instead of offshore. Our paper addresses this issue.

The behaviour of firms in emerging Asia since the 1997 crisis offers us a natural experiment. In varying degrees, many of these firms had access to two corporate bond markets, a hard-currency offshore market and a local-currency onshore market. While the offshore market was deep and liquid from the outset, the onshore markets were initially small and illiquid (see Burger and Warnock (2006, 2007) and Burger et al. (2012)). Over time, the onshore markets grew rapidly even as they continued to vary across countries in their levels of development. To explore these matters we ask two pertinent questions: How did structural changes in the offshore and onshore markets affect the decisions of firms to issue bonds and where to issue these bonds? Can we identify firm characteristics that predict which firms would tend to issue offshore and thus avoid original sin?

In this paper, we analyse over 5,500 bond financing decisions of firms in seven emerging Asian economies–Hong Kong SAR, Indonesia, Malaysia, the Philippines, Singapore, Taiwan and Thailand. We match yearly bond issuance data to issuing firm data and to market-level and country-level data. Then we analyse financing decisions by considering three sets of factors. First, we consider the country-specific structural features of the markets, namely the depth of the onshore market, the openness of the capital account, the availability of hedging

[1] In our sample of seven Asian emerging markets, we find 320 cases of firms issuing offshore without having issued onshore.

instruments, and the economy-wide experience of firms issuing bonds abroad. Second, we consider cyclical market conditions, especially the relative interest costs between onshore and offshore markets. Finally, we consider firm-specific characteristics, including the variables that usually explain capital structure but also such variables as firm size and whether or not the firm is a seasoned issuer of corporate bonds.[2]

When it comes to the structural features of markets, we find that the choice of market is indeed influenced by onshore market development. The deeper the onshore market becomes, the less likely a given firm will issue offshore. This factor largely explains the rapid rise of onshore issuance in the decade following the 1997 Asian crisis, as documented in Figure 1.

Nonetheless, other aspects of market development seem to work in the opposite direction. An open capital account makes it more likely that the firm will issue offshore, and so does the availability of hedging instruments. By 2010, market development in emerging Asia had reached the point where many firms could behave opportunistically in choosing the market for bond finance. Cyclical factors held sway. Issuing firms chose the market favoured by interest differentials, implicitly rejecting the uncovered interest parity hypothesis. In the period since 2010, Asian firms flocked to the offshore market, taking advantage of unusually low US dollar interest rates (Figure 1).

Our results also shed light on the nature of original sin in a corporate context. Firms in emerging Asia seem to follow a sequence as they decide between onshore and offshore markets. We find that firms that issue offshore are more likely to be the unseasoned firms rather than the seasoned ones, indicating that many novices in the bond market first cut their teeth in the offshore market. Original sin seems to be related to the high fixed cost faced by a first-time issuer in a shallow and illiquid onshore market. For many firms, this fixed cost is apparently lower in the offshore market, which is deep and liquid. Once a firm manages to issue in the offshore market, this original sin is washed away. Nonetheless, even in corporate finance, domestic original sin does not seem to be absolute. Some firms are able

[2] A seasoned issuer has prior exposure to local or international markets. We will define this term more precisely in Section 3.

to go to the onshore market for their very first bond issue, especially if the onshore market is relatively well developed. Once the firm becomes a seasoned issuer, it is able to respond more sensitively to the cost advantage conferred by interest differentials when choosing the market in which to issue.

In what follows, Section 2 places our analysis in the context of the corporate finance literature. Section 3 describes the data and defines the variables used in the analysis. Section 4 characterizes the decision to issue a bond. Section 5 analyses the choice between onshore and offshore markets. Finally, Section 6 highlights the main conclusions.

2 The Context of the Literature

The literature on the overarching issue of original sin began with Eichengreen and Hausman (1999), who used the term to refer to both the inability of many sovereigns to borrow abroad in domestic currency *and* borrow at long maturities domestically. However, despite touching on the issue of domestic market impediments in Eichengreen et al. (2005a), the authors later chose to focus on the difficulty of issuing offshore in domestic currency (Eichengreen et al. (2005b, 2007)). [3] In this paper we apply the concept of original sin to corporate bond issuance and it is our contention that in the case of corporate finance, the lack of development of domestic corporate bond markets has remained binding for many firms over the sample period, and thus a broader use of the term original sin as in the 1999 paper is appropriate.

This section examines the extent to which bond market characteristics over several dimensions have affected the choice of markets in which to issue. The determinants of bond issuance, both offshore and onshore, can be largely motivated by the literature on corporate capital structure and international bond issuance Rajan and Zingales (1995), Booth et al.

[3]Hale et al. (2016) also look at corporate finance, but like Eichengreen et al (2005b, 2007) focus on the difficulty of offshore issuance in local currency. They argue that the global financial crisis encouraged greater home currency issuance offshore, particularly for firms in advanced economies with good fundamentals. In this paper, we focus on a different and more surprising phenomenon in which firms face a difficulty issuing in domestic currency even in the home market, especially in emerging markets. In our case we find original sin is washed away by improvements in local bond market depth, tax treatment and emergence of derivatives markets.

(2001) and Allayannis et al. (2003). This frames our analysis in terms of the influence of market depth and liquidity, issuance costs due to agency, transactions costs, and market interest rate conditions, as well as determinants related to capital market openness including the ready availability of hedging instruments.

Market depth and liquidity matter when firms consider their preferred market for issuance, and are typically measured by volume of outstanding securities and secondary market turnover, respectively. Asian firms have traditionally been deterred by a lack of depth in onshore corporate bond markets, issuing in offshore markets instead when they sell large, long maturity bond obligations (Allayannis et al. (2003) and Chan et al. (2011)). Indeed, Habib and Joy (2010), and Siegfried et al. (2003) show that bond markets have greater issuance volumes when they are more liquid, offer lower bid-ask spreads, higher turnover, and lower entry costs.

At the same time, the development of government bond markets can be highly complementary to developing depth and liquidity in corporate bond markets: in particular, a liquid government bond market can provide a 'benchmark effect' that facilitates the pricing of bonds for corporate borrowers. It may also be most effective for certain key parts of the yield curve to be populated by government bonds for effective pricing to occur Chan et al. (2011).[4]

At the firm level, agency costs are expected to affect costs of issuance and the capital structure decision. Extending Myers and Majluf (1984), we consider the possibility of a pecking order in the choice of onshore versus offshore markets: firms issue in highly liquid offshore markets if they can; otherwise they use smaller onshore markets. Offshore issuers may be the ones most capable of alleviating agency cost concerns. The use of collateral assets (e.g. Demirguc-Kunt and Maksimovic (1999) and Booth et al. (2001)), and signalling through greater information provision (often associated with firms of greater size) and access to high

[4]Siegfried et al. (2003) thus include measures of duration in government bond markets as an explanatory variable explaining corporate bond issuance, noting that the choice of currency for long duration bond issuance can depend on the existence of long government duration in the same currency.

quality lenders and markets (see Ross (1977); Titman and Trueman (1986)), all associated with lower agency costs, may increase offshore relative to onshore issuance.

Size of the firm is often used as a convenient proxy measure for agency, and thus transaction costs of bond issuance. That small firms find it more difficult to access international markets is consistent with the findings of Gozzi et al. (2012), who show that large firms consistently tend to be more likely to issue abroad, and at lower yield spreads than in domestic markets. Not surprisingly then, a small number of large firms account for the bulk of international capital raisings, Gozzi et al. (2010). But size can matter in domestic markets as well, for Didier and Schmukler (2013) show that while domestic bond markets are increasingly important in emerging Asia, most of the action is driven by large firms. Thus, small firms can be rationed out of domestic as well as onshore markets due to informational concerns, and it is an empirical question whether firm size impacts the likelihood of offshore as opposed to domestic issuance.

Issuance costs are also closely related to contemporaneous market factors. Since offshore issuance is nearly always in foreign currency (mostly US dollars), the role of interest rate differentials between foreign and domestic currency in determining issuance, both hedged and unhedged, is frequently examined in the literature. A wide body of empirical work points to financially sophisticated corporations taking advantage of market windows of opportunity in overseas currencies to issue and then swap the obligations back into the domestic currency, (see Graham and Harvey (2001), McBrady and Schill (2007, 2013) McBrady et al. (2010), Munro and Wooldridge (2010) and Kim and Stulz (1988)). McBrady et al. (2010) conclude from the evidence on corporate bond issuance that issuers tend "to be opportunistic with prevailing uncovered yields" while firms are less responsive to covered yields, except when they are large investment grade firms in developed markets. Differential tax treatment within jurisdictions can also affect the net cost, and thus choice, of issuance venue (Newberry (1998); Newberry and Dhaliwal (2001)).

The extent that domestic capital markets are open to foreign investment is a critical

factor in the onshore vs. offshore bond issuance decision (Burger et al. (2012)). Burger et al. (2015) document evidence of a "steady increase in US investors allocations toward emerging market local currency bonds", which was not stemmed by the global finance crisis, although investors treat EME assets differently. Broner et al. (2013) find that investor side factors play an important role in explaining the reliance on short-term maturities in foreign currency bond issuance by emerging market sovereigns. Unfavorable withholding taxes and restrictions on foreign investors can be a significant deterrent to foreign investment in local markets for foreign investors, and thus hinder the depth and liquidity of those markets, (see Chan et al. (2011)). And where countries impede cross-border investment, they will enhance the offshore market.

Capital market openness is enhanced by well-developed hedging markets. Access to swaps and derivatives to hedge interest payments on foreign currency obligations (and investors to hedge foreign currency returns) can strengthen issuance in both foreign currency and domestic currency bond markets. Gczy et al. (1997) find that the likelihood of using derivatives instruments is positively related to the exposure to FX risk and to the use of foreign currency debt. Allayannis and Ofek (2001) find that large multinationals are indifferent between use of foreign currency bonds and use of instruments to create synthetic foreign currency positions. In Asia, Allayannis et al. (2003) find that the availability of currency derivatives also makes domestic and foreign currency debt closer substitutes. At the same time, from the investor side, management of FX risks can occur more effectively if there is a well-developed derivatives market (see Froot et al. (1993) and Black and Munro (2010)).

3 Data

3.1 Data sources and definitions

Our data are drawn from bond issues in both onshore and offshore markets and from balance sheet and profit and loss information provided at the firm level for seven Asian economies.

This separates our study from the majority of studies that do not use firm-level data. We use Bloomberg to identify all corporate bonds issued by firms in Hong Kong SAR, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand from 1995 - 2012. Our sample period represents significant development phase for EM corporate bond markets, spurred by regional co-operation and the lower cost of issuance after the financial crisis. We gather information about the issue dates, denomination, currency, location and the maturity in the bonds measured.[5] Our coverage of bond issues therefore embraces firms with issues in hard currencies, which are almost exclusively US dollar denominated, and firms with local currency denominated bonds.[6] Although local currency issuance first started to capture the market's attention in the late 1990s, new issues in local currency now exceed new issues in dollars for most countries. Therefore it is important to consider both the local and international currency issues in the Asian markets. While multiple issues may be made at the same time by the same issuer, our own discussions with corporate treasurers indicates that these differ with respect to the maturity of the bond rather than the seniority, therefore tranching issues do not arise.

A further consideration that arises is whether a firm has issued previously or is a new issuer. We label the first seasoned and the second unseasoned. A seasoned firm will have paid fixed costs associated with issuing in local or international currency for the first time and will probably have established relationships with underwriters or important customers. Unseasoned firms have no prior exposure to international or local markets. We use a three year initial sample to determine the seasoned issuers at the start of our estimation period.

The Compustat Global database offers a sample of 57,236 annual observations on 5,668 companies giving balance sheet and profit and loss accounts data for firms operating in all sectors of the seven Asian economies for the years 1995-2012.

To focus on the role of market depth, we rely on updated statistics of the Bank for

[5]Our definition of corporate bonds is in line with recent studies on Asian bond markets (see Gyntelberg et al. (2005)) and includes all non-government long-term issues in a given currency.

[6]The vast majority of the bonds issued offshore are denominated in US dollars, with small residual number in yen, while bonds issued onshore are denominated in their local currency.

International Settlements (see Gruic and Wooldridge (2012)) rather than sources used by Chinn and Ito (2006), Eichengreen et al. (2006) and Mizen and Tsoukas (2014). These data were revised due to the growing disparity between international debt securities statistics and the data from other international organizations. The growing openness of local markets to foreign investors and issuers has blurred the distinction between international and domestic debt securities. Historically the data were defined as international issues if the securities were placed with international investors (including those debt securities issued in the local market by local residents) but other compilers of securities statistics did not use this definition, and a disparity emerged between the two as international investors became buyers of debt issued locally and local issuers began to issue domestic currency denominated debt abroad. The recent harmonization of the data has changed the recorded domestic and international debt securities issues over the period of our sample. The majority of the firm level variables are standard, and are defined in the Data Appendix, but market variables of particular significance are discussed below.

The size of the onshore market, denoted by $ONSHORE$, is likely to matter, because it is an indicator of depth and liquidity. At the same time, as firms in a given country issue offshore, some of the lessons of their experience are likely to be shared, in various ways, with other potential issuers in that country. This shared experience is an externality that is also likely to matter, and we measure it by the cumulative amount of offshore issuance, which we denote by $OFFEXP$.

Relative borrowing costs offer an indicator of opportunistic reasons to issue in foreign currency, following Kim and Stulz (1988), Graham and Harvey (2001), McBrady and Schill (2007), McBrady, Mortal and Schill (2010), Habib and Joy (2010) and Munro and Wooldridge (2010).[7] We measure this using short-term (3-12 month) uncovered interest differentials

[7]Other authors use a covered or uncovered long interest differential on annual average of yields on bonds of 5-10 year maturity in percentage points. We experimented with this variable, but found the short interest differential to be consistently more important. McBrady, Mortal and Schill (2010) show that for both covered and uncovered differentials the data show firms opt for currencies with lower yields when issuing bonds and this action tends to eliminate the differences over time.

(SID), although a long interest differential would give the same result.

Investor demand can be significantly influenced by tax treatment, so we define a dummy for withholding tax ($WITHTAX$) on foreign investors' holdings of local currency government bonds that is defined for each country and year, drawn from Chan et al. (2011).

The availability of hedging opportunities is linked to the scale of the foreign exchange swaps, derivative and options market in each country. We use the sum of currency swaps, FX swaps, options, outright forwards and other derivatives ($DERIV$) based on the daily average turnover in April, by location of the counterparty, currency and reporting country from the BIS Triennial Survey. We interpolate the intervening years using a semi-annual survey conducted by the BIS.

The choice between markets will most likely depend on the openness of the capital account, which we measure using the Chinn-Ito index. This variable is based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER), recorded on a country-by-country basis.[8]

We make a distinction in our paper in the final section between financial firms and non-financial firms (which is determined by information on their sector) and by firms that are seasoned issuers and those that are unseasoned. A seasoned firm has issued a bond before, while an unseasoned firm has not. Given that our bond issuance data set begins in 1995, we use an initial sample period of three years to give firms a period of time to become a seasoned issuer (otherwise all firms would be unseasoned in our initial year).

3.2 Descriptive statistics

Our data allow us to analyze how issuing behavior may have changed over time for firms in our sample as the onshore markets in the different countries developed and as they did so

[8]The Chinn-Ito is a *de jure* measure, so we have also experimented with a *de facto* measure based on Lane, Milesi-Ferreti to measure of openness (see Lane and Milesi-Ferretti (2007)). The results are very similar both quantitatively and qualitatively.

at different rates.

Table 1 shows that there is some differentiation among the onshore markets and offshore experience across countries.[9] The smallest onshore markets are found in Indonesia and the Philippines and the city states of Hong Kong and Singapore, while Malaysia and Thailand have larger onshore markets, and Korea has the largest. The experience of offshore issuance tends to be limited in Indonesia, Philippines, Malaysia and Thailand but more extensive in Singapore, Hong Kong and Korea. Stock market capitalization is large in Korea, and also in Hong Kong, and medium sized elsewhere with the exception of the Philippines. Stock market capitalization is much greater than onshore bond issuance in most cases, with the exception of Korea.

In Table 2 we show the means and medians for the firm-specific explanatory variables for all firms, issuers vs. non-issuers, onshore vs. offshore bond issuers, seasoned issuers vs. starters, and financial vs. non-financial firms separately, and p-values test of equality of the means for each comparative group (null of equality). We observe that issuers tend to be larger in size than non-issuers, more leveraged and hold more collateral assets. Issuers onshore are smaller, but also more highly collateralized and have higher investment needs than offshore issuers, thus it seems onshore bond markets require less of issuers but require greater evidence of tangible assets than offshore markets. Firms that are seasoned tend to be larger, more levered and require less investment compared to unseasoned firms, but in other respects they are very similar and do not reject equality of mean values. Financial firms too have greater size than non-financial firms, they have a lower investment over total asset ratio, greater leverage, they are generally less profitable and less collateralized and in all respects they have significantly different mean values compared to non-financial firms. These results justify further investigation of seasoned and non-seasoned firms and financial and non-financial firms separately.

[9]Later tests show that this segmentation does not lead to differentiation of underlying issuance behavior explained by a range of explanatory variables, but it does reflect the different magnitudes of the markets in each country and differences in growth rates.

The annual number of issuers both onshore and offshore are shown in Table 3, as well as the percentage of each number of firms that are unseasoned, that is, those that issued for the first time. Two stylised facts are apparent from the table. First, the percent of unseasoned issuers is a fairly steady percentage of issuance for both onshore and offshore borrowers, ranging between 37-42% for onshore borrowers, and 40-48% for offshore borrowers, with no clear trend over time. Second, offshore borrowers are consistently more likely to be unseasoned firms than are onshore borrowers, with a higher percent of unseasoned issuers in every year but one.

Regression analysis will determine whether these bivariate relationships carry over to a multivariate framework, and that is where we now turn. Our empirical analysis proceeds in two steps. First, we examine what drives the decision to issue a bond and then we consider how firms choose between the onshore and offshore markets.

4 Structural change and total corporate bond issuance

4.1 Methodology

We estimate a Probit model to explain the determinants of bond issuance by firms in each country, defining the dependent variable, $BOND_{ijt}$, as a dummy variable that equals 1 if firm i issued a bond in domestic or foreign markets, in country j, in year t, and 0 otherwise.

$Pr(BOND_{ijt} = 1) = \alpha_{1i} + \mathbf{Z}_{jt}\beta_1 + \mathbf{X}_{ijt}\gamma_{1i} + \epsilon_{1ijt}$

where market level variables are

$Z_{jt} \in \{\ ONSHORE, OFFEXP, STOCKCAP, SID, WITHTAX, DERIV\}$

and firm-level controls are

$X_{ijt} \in \{\ SIZE, INVA, LEVER, PROF, COLL, PREVDOM, PREVFOR\}$.

Our specification includes firm-specific regressors, $\mathbf{X}_{jt}$, that indicate a predisposition of the firm to issue in bond markets, and its ability to overcome agency problems through the strength of its balance sheet, following Mizen and Tsoukas (2010) and Bose et al. (2017)

we include controls for firm size, investment scaled by total assets, leverage, profitability, tangible assets (collateral).[10] We allow for a firm being a previous issuer of a domestic or foreign bond to separate those firms that are previous issuers from new entrants to the market.[11]

Our principal focus in this section is on market development indicators, $\mathbf{Z}_{jt}$, although we control for firm-specific regressors, $\mathbf{X}_{jt}$, and will return to evaluate the effects of firm characteristics later. First of all, whether market depth is important to the bond issuance decision depends on whether we obtain positive coefficients associated with $ONSHORE$ and $OFFEXP$ variables, and a negative coefficient associated with the STOCKCAP variable, which indicates the size of the equity market. We also check whether the impact of the depth of the onshore market differs depending on the size of the firm using the interaction term ONSHORE*SIZE. Larger firms may need a deeper market in which to make a large issue, therefore market size matters even more for large firms that otherwise cannot issue in large enough amounts to make onshore participation worthwhile. We then consider whether there are any offsetting effects from the degree of capital account openness by observing whether we find a positive coefficient associated with DERIV (size of the derivatives market) that makes the offshore market more attractive. Finally, we allow for cyclical factors by considering whether time-varying issuance and transaction costs matter if we obtain negative and significant coefficients associated with short interest differentials and withholding tax

[10] Variables are evaluated at time t-1 to mitigate potential endogeneity concerns. In addition, the model includes a time trend to account for macroeconomic effects and increasing internationalization over time. (see Black and Munro (2010)). We have also experimented including country and industry dummies without obtaining radically different results.

[11] As a test of robustness we have estimated a Linear IV Probit model (reported in the Appendix) which gives similar results to those of the Probit examined here. We also employed a bivariate probit model with sample selection often known as a Heckprobit model, which jointly-estimates both decisions of the firm (to issue or not and whether to issue in foreign or domestic market) in a single model. This addresses the question of selectivity bias in our model. The two equations are the selection equation - a Probit regression to explain the decision to issue and the outcome equation - a Probit regression to explain whether the firm issued in domestic or foreign market, observable only for those firms who actually issued a bond. In untabulated regressions, we find that coefficient on the Inverse Mills Ratio in the outcome equation, which is a measurement of the selectivity bias associated with the endogeneity of bond issuance, is insignificant. In other words, we show that selectivity bias is quantitatively unimportant, which validates separate estimation of these decisions in two steps.

treatment (SID and WITHTAX).

4.2 Results

The impact of the degree of market development on the probability of bond issuance is measured in Table 4.

We find that the scale measure for the domestic market, ONSHORE, has a small but positive coefficient but hardly ever significant; at the same time, the experience in the offshore market, OFFEXP, also has a much stronger positive and more often significant effect. Scale of markets matters, supporting the market depth hypothesis. As we shall see, when it comes to the choice between onshore and offshore markets there will be opposing signs on these variables, but when we ask what influences the decision to issue a bond, particularly offshore, it is scale that counts, which would tend to suggest a small onshore market is likely to restrict the ability of firms to issue onshore.

We then consider a new hypothesis that has not been discussed in the literature before where we interact the size of the firm with the scale of the onshore market (ONSHORE*SIZE). A positive and significant coefficient would show that larger firms are more likely to issue in a larger onshore market than smaller firms, which increases issuance in total. This would provide further confirmation of the market depth hypothesis since a larger the onshore market would be shown to promote migration from offshore to onshore markets as the latter increase in depth. But market depth is not the only consideration.

We include stock market capitalization (STOCKCAP), which is also a test of the pecking order theory and the static trade–off theory, because firms may prefer to raise funds in the stock market rather than in bond markets, especially if the stock market is fairly active. We expect and find a negative sign that suggests a larger stock market provides a more attractive substitute for issuance in the bond market.

When we consider the short interest differential, SID, between the onshore and offshore market we find evidence of cyclical influences on issuance. Much of the previous literature

has explored the choice between alternative markets as a cost issue (see McBrady, Mortal and Schill (2010)). Columns 2 and 4-6 of Table 4, show SID has a coefficient with a negative sign, which suggests a degree of opportunism in the timing of issuance that depends on the relative cost of borrowing onshore vs. offshore that matches the findings of Graham and Harvey (2001), McBrady and Schill (2007, 2013), McBrady et al. (2010), Munro and Wooldridge (2010) and Kim and Stulz (1988). Firms are more likely to issue when the domestic nominal interest rate is low relatively to the foreign rate. The choice of a short maturity for the interest differential is not important, since we have found in other (unreported) tests that a longer-maturity differential also has a negative sign. We do not include both variables in our regression because they are highly collinear.

Two market development indicators that influence the incentive to issue are the existence of withholding taxes (WITHTAX), which tests whether there are disincentives from withholding tax on investors, and the size of the foreign exchange swaps, derivative and options market (DERIV) in each country. The WITHTAX variable has a negative and significant coefficient as expected. We interpret this as a negative influence of investor-unfriendly policies (as discussed by Burger et al. (2012)) on the probability of issuance since it indirectly diminishes the incentives for foreign investors to hold local currency bonds, and provides evidence in favor of the static trade–off theory. The DERIV variable examined in column 6 of Table 4 raises the probability of issue consistent with the static trade–off and the risk management theories since a larger volume of swaps, derivatives and options turnover tends to provide a greater opportunity for firms as well as investors to hedge their exchange rate exposure Allayannis et al. (2003), McBrady and Schill (2007, 2013) and McBrady et al. (2010). We find there is a positive and highly significant coefficient in this model supporting previous studies. The importance of attracting international investors is underlined by the tax treatment and the derivatives market variables. Favorable conditions for investors spur issuance onshore and offshore, but also increase exposure to sentiment of asset managers and other investors.

The results reported in Table 4 control for potential endogeneity, but to be sure our results are not influenced by correlation between variables and the error terms, we re-estimate the models in Table 4 using linear IV Probit estimates, reported in Appendix Table A-1. The coefficient estimates have similar signs and levels of significance to those reported in Table 4 and support the hypotheses that market depth, cost and tax trade-offs, and hedging opportunities promote the decision to issue.

5 The choice between onshore and offshore markets

5.1 Methodology

Once a firm has decided to issue, it is important to know how it chooses the market in which to issue and to what extent market development affects this choice.[12] This lies at the heart of our original sin question for corporate borrowers. Hence, we now examine the factors that influence the firm's choice between onshore and offshore debt for those firms that did issue bonds by focusing on the probability of issuance in offshore markets for firms that are issuers. We generate the variable $FOREIGN_{ijt}$, which takes the value one if the bond is issued offshore, and zero otherwise and conduct a Probit analysis as before. Our model is written as

$$Pr(FOREIGN_{ijt} = 1) = \alpha_{2i} + \mathbf{Z}_{jt}\beta_2 + \mathbf{X}_{ijt}\gamma_{2i} + \epsilon_{2ijt}$$

where market level variables are

$$Z_{jt} \in (ONSHORE, OFFEXP, STOCKCAP, SID, WITHTAX, DERIV, CHINN - ITO, CHINN - ITO * ONSHORE, CHINN - ITO * SIZE)$$

and firm-level controls are

[12] The dependent variable is a dummy equal to one if the firm issues in an offshore market, and zero otherwise.

$X_{ijt} \in \{SIZE, INVA, LEVER, PROF, COLL, PREVDOM, PREVFOR\}$

The hypothesis that market depth matters is supported if we observe (in Table 5) opposite signs on coefficients associated with ONSHORE (expected to have a negative coefficient) and OFFEXP (expected to have a positive coefficient), and we continue to expect a negative and significant coefficient on the STOCKCAP variable, which indicates the size of the equity market. The hypothesis about capital account openness is supported if we find a positive coefficient associated with DERIV (as before) but is now supplemented by three further tests which have not been examined in the literature before. First, we expect the coefficient attached to CHINN-ITO to have a positive coefficient indicating that greater capital market openness promotes foreign bond issuance. Second, we expect the effect to diminish as the onshore market grows in size, which will be indicated by a negative coefficient for the interaction term CHINN-ITO*ONSHORE. Greater onshore market depth and the impact of capital account liberalisation should reduce the incentive to issue overseas. Furthermore, we expect the advantages of capital account openness to be mostly derived by larger firms, thus we expect the coefficient on CHINN-ITO*SIZE to be positive. Lastly, we expect cyclical influences to affect issuance if we observe negative and significant coefficients associated with short interest differentials and withholding tax treatment (SID and WITHTAX).

The sample is smaller in Table 5 compared to the previous set of results reported in Table 4 because we are now only considering issuers. Our interest is in the sensitivity of the choice of market decision to measures of market development, the relative advantage of issuing in foreign markets based on the short-term interest differentials, withholding taxes, and financial openness using the Chinn-Ito index to determine how easily an investor can engage in cross border transactions.

5.2 Results

The market indicators reveal that the absolute size of the market is a very significant factor in determining whether an issuer will go to the onshore or to the offshore market. We

find that ONSHORE and OFFEXP respectively have a significant effect on the decision to issue in offshore markets. Since we explore the issuance decision for firms that have already decided to issue, we would expect a larger onshore market to reduce issuance in the offshore market and a larger offshore exposure to increase it. This is indeed what we find. In Table 5, the coefficient associated with ONSHORE is negative while the coefficient associated with OFFEXP is positive; both are significant. As the coefficient on ONSHORE is consistently of greater absolute value than the coefficient on OFFEXP, this implies that, *ceteris paribus*, issuance offshore is diminished to a greater extent by onshore market development than it is increased by the offshore issuance experience of borrowers of the same jurisdiction. Both findings offer support for our original sin hypothesis, as well as the pecking order hypothesis, since firms issue offshore market bonds when the capacity of the local market has been exhausted, making foreign bonds complements to local bonds, but the firms revert to the domestic market as its capacity increases.

The estimated influence of cyclical variables such as relative borrowing costs also supports the static trade-off and risk management theories. The absolute size of the coefficients on SID, as shown in columns 2 and 4-7 of Table 5, reveals that the impact of the interest differential favors the market with the lower explicit borrowing cost. This is consistent with Kim and Stulz (1988), Miller and Puthenpurackal (2002), McBrady and Schill (2007) and McBrady, Mortal and Schill (2010). Such relative borrowing costs would explain the return of Asian firms to the offshore market since 2009, because this was a period of unusually low U.S. interest rates when borrowing was cheap and investors were searching for yields.

The estimates on the withholding dummy (WITHTAX) also supports the static trade-off and risk management theories. The coefficient is significant at the 1% level, with a larger coefficient in Table 5 than in Table 4. This shows tax treatment to be especially important to issuers in the offshore market, where the majority of international bonds are issued aimed at foreign investors.

The size of the swaps and derivatives markets (DERIV) has a positive and significant

effect in column 7 of Table 5 as expected, since the ability of firms to hedge their positions, supporting the risk management theory, is bound to make offshore issuance more attractive. This effect also has a high level of significance compared with the previous table, suggesting that the scale of the derivatives market is very important for the decision to issue in an offshore market. Issuers are reassured if they (and investors) are be able to easily transform payments from one currency into another. The conclusions we draw are that the choice of currency is determined by market depth, the incentives to issue and the ability to hedge risk, which support market depth, static trade-off and market risk theories.

An important influence on issuance, with a large absolute coefficient value in Table 5 is financial openness of the countries in our sample. This finding in the corporate bond market mirrors the results of Claessens et al. (2007) who found capital market openness deepens the domestic and foreign government bond markets. The influence of greater openness (a higher value of the Chinn-Ito index, CHINN-ITO) is to increase offshore bond issuance, perhaps because cross border transactions are less restricted. When we interact the Chinn-Ito index with the logarithm of the size of the onshore market (CHINN-ITO*ONSHORE), there is a small negative effect on offshore bond issuance. This shows that as the onshore market gains depth, and the market becomes more open, issuers have a greater tendency to migrate to the onshore market. The explanation may be that firms return to the onshore market when they see depth and openness improving because they think investors will feel more confident to hold domestically issued bonds when the openness of the market increases. Interactions with size (CHINN-ITO*SIZE) also have a small negative effect, suggesting larger firms participate to a lesser extent offshore when markets are more open.

Once again we test for potential endogeneity by re-estimating the models using linear IV Probit estimates in Appendix Table A-2, which support our results in Table 5.

5.3 Original sin: which firms gain the most from market development?

In this section we explore the different responses to our explanatory variables according to whether a firm is a financial or non-financial firm, and whether they are a seasoned or an unseasoned issuer using definitions given in the data section. This sheds light on the types of firms that are more likely to gain from market development. Related to this, our results help us characterize the nature of original sin.

Here we explore whether different firms are more or less likely to decide to issue when bond markets are more developed. We do so by interacting indicators of firm types (seasoned vs. unseasoned) with market development variables, Z_{jt}. This question has not been addressed using micro data for EM countries before. We begin by re-estimating the results in Table 4 with interaction terms for seasoned firms (SEAS), which are those that have previously issued, and unseasoned firms (1-SEAS). The results are reported in Table 6.[13] We also separate non-financial firms (in columns 1-5) from financial firms (in columns 6-8). The results are quite striking.

First, the results show that onshore market depth affects seasoned and unseasoned firms in different ways. Onshore market depth positively influences issuance for unseasoned firms, but not for seasoned firms, where in fact a negative relationship is estimated. This can be justified since unseasoned issuers have no pre-existing ties to any bond market, and stand to gain the most when market depth increases, but it is surprising to see how clear cut this effect is in the data. In a different study of the effects of the larger euro area market after the launch of EMU, Hale and Spiegel (2012) found unseasoned firms were more affected by the development of the euro area market than were seasoned firms, which appeals to similar reasoning as our finding that onshore market development in Asia affects unseasoned firms to a greater extent.

[13]Given that our bond issuance data set begins in 1995, to estimate the effect of previous bond issuance, we start our sample in 1999, so as to give firms at least 4 years to become a seasoned issuer.

These effects are reinforced by the interaction of onshore market size with firm size. When we consider the coefficients on the interaction term we see that the negative effects of the larger onshore market are more negative for larger seasoned firms - both financial and non-financial - and are more positive for the larger unseasoned firms - both financial and non-financial - strengthening the patterns we observed above.

Interestingly, the advantages of onshore market depth appear to be more pronounced for unseasoned issuers in the non-financial sector, for which the estimated coefficients are more consistently of the expected sign at high levels of significance than for other firms. This suggests that original sin is about the high fixed costs that first-time non-financial issuers tend to face in a shallow and illiquid onshore market. Initially, these costs seem to have been lower in the offshore market, which has always been deep and liquid. The correspondence between high fixed costs in the primary market and illiquidity in the secondary market suggests that both are related to problems of information and transparency about issuing firms.

Second, the results show that greater offshore market experience significantly increases the likelihood of bond issuance for all types of firms of a jurisdiction, seasoned and unseasoned, as well as financial and non-financial. Therefore, we conclude that while onshore market development is beneficial to unseasoned issuers and especially for financial unseasoned companies, offshore market experience is an externality that spans all firms.

Third, seasoned firms and particularly financial firms tend to be more sensitive to cyclical variables such as interest differentials than unseasoned firms. These differentials tend to influence all issuers negatively, but the response to interest differentials is larger for seasoned financial firms than for unseasoned financial firms: when the differential falls, favoring bond issuance, seasoned firms respond more than unseasoned firms. Since these firms have already incurred the fixed costs of issuing for the first time, they may need a smaller differential to justify issuing more bonds. By contrast, unseasoned non-financial firms respond more to interest differentials than seasoned firms. Tax effects are significant, but only for unseasoned

firms, and more so for unseasoned financial firms. Thus support for the static trade-off and risk management theories varies between the types of issuers and indicates the importance of breaking down the data into financial versus non-financial and seasoned versus unseasoned firms.

Fourth, the existence of an active stock market has a negative effect on issuance for seasoned and unseasoned financial firms and for unseasoned financial firms, but the coefficient estimates are positive for non-financial seasoned firms. The significance of STOCKCAP implies that equity and bond markets have greater complementarity for seasoned non-financial issuers than for others.

As an additional exercise, we estimate in Table 7 the earlier model on the choice of market, but as in Table 6 allowing for same interactions with (1-SEAS) and (SEAS) and splitting the sample into non-financial and financial firms. All firms in Table 7 are issuers, some for the first time (1-SEAS) and others after having issued before (SEAS), and the variable we are seeking to explain is the probability of issuing an offshore bond.

The absolute size of the onshore markets (ONSHORE) generally has a negative effect on offshore issuance for financial and non-financial firms as well as for seasoned and unseasoned firms; this suggests that as the onshore market grows it becomes a substitute for the offshore market. The effects are statistically significant for seasoned non-financial firms and unseasoned non-financial firms. Once again, the results are consistent with those of Hale and Spiegel (2012), who found that the emergence of a large onshore market due to the launch of EMU spurred onshore issuance by financial and non-financial firms at the expense of offshore issuance.

As for offshore market experience, this does not have a particularly strong effect on issuance in the offshore market except for seasoned non-financial firms; it is only the class of firms that is more inclined to issue offshore if the market is more familiar. Perhaps for the other classes of firms, offshore market experience for issuers of the same jurisdiction is already large enough to support the case for issuance if the firm wishes to do so. This

underlines one of the stylized facts mentioned earlier, that offshore markets available to EM issuers are longstanding and large while onshore markets are relatively new, and have only recently acquired sufficient depth and liquidity to attract corporate issuers.

Greater openness of the capital account has a positive effect on the offshore issuance of all types of companies, both seasoned and unseasoned. When we interact this variable with the size of the onshore market we find it reinforces the negative effect of a larger onshore market, that is when the country has a high value for the Chinn-Ito index and its onshore market is larger, then the non-financial firms are inclined to reduce their issues in the offshore market. This effect is larger for the unseasoned non-financial issuers than for seasoned non-financial issuers, but it is insignificant for the financial issuers. When we interact the Chinn-Ito index with the size of the firm we find that larger non-financial firms tend to issue less in the offshore market when the Chinn-Ito index is higher.

Other variables show the expected signs, but have different levels of significance. So-called opportunistic factors do matter: the interest differential (SID) has a negative influence on the propensity of financial firms to issue, and more so for unseasoned than seasoned financial firms. The withholding tax (WITHTAX) has the expected strong negative effect on all firms; in this case unseasoned financials are the exception. The size of the swaps and derivatives markets has a positive and significant effect on the likelihood of offshore issuance for all non-financial firms and seasoned non-financial firms; consistent with the desirability of offshore issuance growing as hedging markets get deeper, supporting the risk management theory.

The results reinforce several messages of the previous section - larger onshore markets attract issuance especially by unseasoned issuers, while more experience offshore spurs greater issuance all around - but significant differences exist in the sensitivity of seasoned and unseasoned issuers and financial and non-financial firms to market depth, interest differentials and transactions costs. Notably, greater market depth in onshore markets encourages *less* offshore issuance, especially if the firms are in the financial sector. Even more strikingly, capital market openness encourages unseasoned firms to issue onshore, and the more open the

capital market, the more market depth in onshore markets influences the choice of markets.

6 Conclusions

Why do firms in emerging markets so often issue abroad? We ask whether it reflects a kind of "original sin", specific to certain corporate borrowers that face an inability to issue onshore, at least not in size and not at long maturities. There is ample evidence on the prevalence of original sin in sovereign bond markets affecting the ability to issue abroad in local currency and at longer maturities but very little analysis of the corporate bond market. We make use of a natural experiment in Asia, where at least since the mid-1990s there have been two corporate bond markets, a hard-currency offshore market and a local-currency onshore market. We show that as the onshore market grew - and we know the authorities took various measures to accelerate the development of the onshore market - it expanded the issuance by firms in total and prompted firms to move onshore as original sin was removed. This suggests that structural change and original sin are closely related.

We also demonstrate that many firms in emerging Asia seem to follow a sequence as they decide between issuance in onshore and offshore markets. We find that firms that issue offshore are more likely to be the unseasoned firms, indicating that they cut their teeth first in the offshore market before migrating to the onshore market, where original sin is related to the depth and high fixed costs of first-time bond issuance.

But original sin does not seem to be absolute. Some firms are able to go to the onshore market for their very first bond issue, especially if the onshore market is relatively well developed. And once the firm becomes a seasoned issuer, it is able to join the ranks of opportunistic issuers and respond more sensitively to the cost advantages conferred by interest differentials and other factors when choosing the market in which to issue. The observed decisions of bond issuers are also consistent with the market depth, agency, static trade–off, and risk management theories of finance.

It is not necessarily the case that recent structural changes in bond markets imply more stable issuance patterns going forward. As issuers become seasoned and domestic markets become more developed, the choice between onshore and offshore markets is likely to depend more and more on which market offers lower interest costs. But even as firm financing becomes versatile, the importance of cost differentials suggests that issuance patterns will remain sensitive to episodes in which overseas investors actively search for yield and reduce borrowing costs in offshore markets.

7 Data Appendix

Firm Level Data (Source: Compustat Global)

- Firm size ($SIZE$): logarithm of the firm's total assets consistent with Calomiris et al. (1995).
- Firm investment over total assets ($INVA$) to capture the expansion of the firm, and the greater need for finance in line with Bose et al. (2017).
- Leverage ($LEVER$): long-term debt over total assets used previously by Cantor (1990), Pagano et al. (1998), Datta et al. (2000), Dennis and Mihov (2003) and Bougheas et al. (2006).
- Profitability ratio ($PROF$): earnings before interest and taxes relative to total assets to measure a firm's ability to generate profits used by Dennis and Mihov (2003).
- Collateral assets in total assets ($COLL$): tangible assets over total assets, used by Demirguc-Kunt and Maksimovic (1999) and Booth et al. (2001)
- Previous issuance ($PREVDOM$): dummy variable with a value of one for a firm that had issued at any time in the domestic market in the past, and zero otherwise.
- Previous issuance ($PREVFOR$): dummy variable with a value of one for a firm that had issued at any time in the foreign market in the past, and zero otherwise.

- Following normal selection criteria used in the literature, we exclude companies that do not have complete records for all explanatory variables and firm-years with negative sales. To control for the potential influence of outliers, we exclude observations in the 0.5 percent from upper and lower tails of the distribution of the regression variables. Finally, by allowing for both entry and exit, the panel has an unbalanced structure which helps mitigate potential selection and survivor bias.

Market Development Data (Source: BIS)

- Market size of the bond market using the amount of total debt securities outstanding in $bn at the end of each year in both onshore and offshore markets using the revised figures compiled by the Bank for International Settlements.

- Onshore market size ($ONSHORE$): logarithm of the size of the onshore market.

- Offshore market size ($OFFEXP$): logarithm of the size of the offshore market.

- Stock market size ($STOCKCAP$): logarithm of the capitalization of the domestic stock market.

- Relative borrowing costs between markets we use short-term interest differentials (SID): short-interest differential between the annual averages of local and the US nominal rates (LCY - US) on bonds of 3-12 month maturity in percentage points used by Kim and Stulz (1988), Graham and Harvey (2001), McBrady and Schill (2007), McBrady, Mortal and Schill (2010), Habib and Joy (2010) and Munro and Wooldridge (2010).

- Dummy for withholding tax ($WITHTAX$) on foreign investors' holdings of local currency government bonds: dummy defined for each country and year drawn from Chan et al. (2011).

- Size of foreign exchange swaps, derivative and options market ($DERIV$): sum of currency swaps, FX swaps, options, outright forwards and other derivatives based on the daily average turnover in April, by location of the counterparty, currency and reporting country from the BIS Triennial Survey. We interpolate the intervening years using a semi-annual survey conducted by the BIS.

- Chinn-Ito index as a measure of capital market openness ($CHINN - ITO$): based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). It is available on a country-by-country basis over our entire sample.

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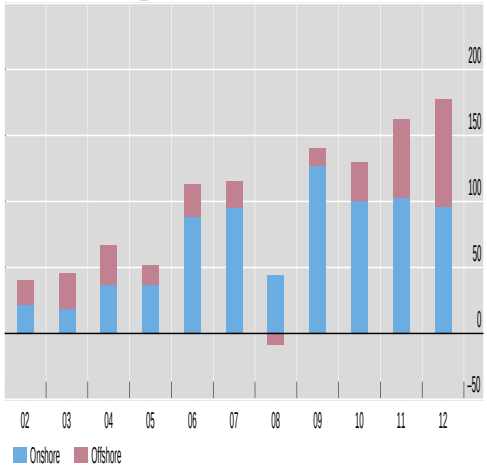
Figure 1: Corporate bond issuance in Asia



Notes: Net issues by both financial and non-financial issuers, aggregate of Chinese Taipei, Hong Kong SAR, Indonesia, Korea, the Philippines, Singapore and Thailand. Onshore is proxied by BIS domestic debt securities while offshore is proxied by BIS international debt securities. For Hong Kong SAR and Singapore, onshore is derived by subtracting BIS international debt securities from the BIS total debt securities. Units are US dollars deflated by US CPI inflation, 2012 price. Sources: BIS; authors' calculations.

Table 1: Summary Statistics of Market Development Variables by Country

	Hong Kong	Indonesia	Korea	Malaysia	Philippines	Singapore	Thailand
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ONSHORE	75.204	71.490	805.569	146.358	40.559	91.687	134.030
	(51.7)	(58.77)	(866.93)	(133.03)	(41.12)	(96.38)	(117.49)
OFFEXP	50.497	12.466	94.845	21.280	26.586	34.990	9.164
	(44.98)	(6.57)	(101.59)	(23.64)	(28.6)	(39.74)	(8.9)
STOCKCAP	846.996	147.704	708.812	243.401	78.220	247.210	149.824
	(889.6)	(91)	(835.2)	(190)	(52.1)	(276.3)	(124.9)
SID	-0.142	9.610	2.874	2.750	3.688	-1.468	0.449
	(-0.25)	(6.76)	(2.68)	(0.73)	(3.61)	(-1.19)	(0.09)
CPIS	90.580	28.569	91.110	149.438	148.463	215.231	25.753
	(97.85)	(27.60)	(95.46)	(153.23)	(149.30)	(218.52)	(27.04)
DERIV	11.581	7.017	9.530	6.710	6.335	11.708	8.107
	(11.67)	(7.13)	(6.67)	(5.99)	(11.79)	(7.52)	(8.28)
SIZE	7.947	13.203	12.614	19.471	5.871	8.502	5.511
	(7.66)	(13.46)	(12.403)	(5.63)	(8.44)	(15.32)	(5.15)
INVA	0.286	0.512	0.501	0.486	0.422	0.437	0.578
	(0.19)	(0.49)	(0.51)	(0.47)	(0.30)	(0.36)	(0.56)
LEVER	0.091	0.137	0.105	0.086	0.106	0.091	0.111
	(0.04)	(0.07)	(0.07)	(0.04)	(0.05)	(0.04)	(0.05)
PROF	0.046	0.066	0.016	0.038	0.036	0.053	0.060
	(0.04)	(0.06)	(0.04)	(0.04)	0.03)	(0.05)	(0.06)
COLL	0.203	0.326	0.323	0.318	0.270	0.272	0.328
	(0.13)	(0.30)	(0.32)	(0.30)	(0.19)	(0.23)	(0.31)

Notes: The Table reports sample means with medians in parentheses. $ONSHORE$: Onshore debt securitization in USD bn. $OFFEXP$: Offshore debt securitization in USD bn. $STOCKCAP$: Stock market capitalization in USD bn. SID: short-interest differential between local and the US nominal rates. $DEBTSEC$: Ratio of total debt securitization to GDP. $CPIS$: Foreign holdings on debt. $DERIV$: Turnover of the derivatives market. $SIZE$: Logarithm of total assets. $INVA$: Investments over total assets. $LEVER$: Long-term debt to total assets. $PROF$: Earnings before interest and taxes relative to total assets. $COLL$: Tangible assets relative to total assets.

Table 2: Summary Statistics for the Firm-Specific Variables BY Firm Type

	All firms	Issuers	Non-Issuers	Diff.	Onshore	Offshore	Diff.	Seasoned	Unseasoned	Diff.	Financials	Non-Financials	Diff.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
$SIZE$	8.365	9.874	8.286	0.000	10.154	10.598	0.000	10.465	8.257	0.000	9.505	8.257	0.000
	(7.44)	(7.15)	(11.02)		(17.32)	(11.42)		(10.98)	(7.40)		(8.7)	(7.26)	
$INVA$	0.488	0.456	0.489	0.095	0.491	0.373	0.000	0.413	0.498	0.000	0.057	0.571	0.000
	(0.46)	(0.47)	(0.47)		(0.48)	(0.38)		(0.43)	(0.47)		(0.001)	(0.55)	
$LEVER$	0.102	0.122	0.100	0.000	0.122	0.124	0.089	0.113	0.097	0.000	0.126	0.097	0.000
	(0.05)	(0.07)	(0.04)		(0.07)	(0.07)		(0.07)	(0.05)		(0.07)	(0.05)	
$PROF$	0.051	0.051	0.050	0.803	0.053	0.045	0.000	0.044	0.047	0.206	0.039	0.047	0.000
	(0.05)	(0.04)	(0.04)		(0.03)	(0.04)		(0.04)	(0.04)		(0.03)	(0.05)	
$COLL$	0.309	0.310	0.294	0.001	0.315	0.261	0.000	0.308	0.271	0.008	0.083	0.345	0.000
	(0.29)	(0.30)	(0.28)		(0.30)	(0.23)		(0.27)	(0.29)		(0.03)	(0.33)	
Observations	41,974	8,805	33,167		7,125	1,870		2,481	40,077		7,423	34,551	

Notes: The Table reports sample means with medians in parentheses. The p-value of a test of the equality of means is reported in columns labelled Diff. $SIZE$: Logarithm of total assets. $INVA$: Investments over total assets. $LEVER$: Long-term debt to total assets. $PROF$: Earnings before interest and taxes relative to total assets. $COLL$: Tangible assets relative to total assets.

Table 3: Distribution of Issuers Onshore and Offshore

	Firms Issuing Onshore (A)	% of (A) Unseasoned	Firms Issuing Offshore (B)	% of (B) Unseasoned
	(1)	(2)	(3)	(4)
1999	106	37.7%	48	41.7%
2000	135	38.5%	40	45.0%
2001	162	37.0%	42	42.9%
2002	175	38.3%	37	48.6%
2003	196	40.8%	43	46.5%
2004	211	40.3%	43	41.9%
2005	230	42.2%	47	44.7%
2006	250	39.2%	48	41.7%
2007	267	41.6%	57	43.9%
2008	291	40.2%	62	43.5%
2009	297	40.1%	62	45.2%
2010	332	39.8%	73	39.7%
2011	401	39.4%	79	41.8%
2012	378	41.0%	68	47.1%

Notes: The Table reports the distribution of issuing firms onshore and offshore.

Table 4: Bond Issuance Decision

	(1)	(2)	(3)	(4)	(5)	(6)
PREVDOM	1.424***	1.419***	1.418***	1.419***	1.423***	1.394***
	(52.01)	(51.03)	(51.12)	(51.03)	(50.48)	(49.19)
PREVFOR	0.951***	0.890***	0.894***	0.890***	0.883***	0.883***
	(17.48)	(16.19)	(16.37)	(16.19)	(16.02)	(15.99)
ONSHORE		0.002	0.073***	0.002	0.016	0.054*
		(0.07)	(2.89)	(0.07)	(0.65)	(1.90)
OFFEXP		0.176***	0.154***	0.176***	0.177***	0.161***
		(8.78)	(7.29)	(8.78)	(8.83)	(7.87)
STOCKCAP		-0.112***	-0.113***	-0.112***	-0.100***	-0.158***
		(-5.89)	(-5.72)	(-5.89)	(-5.04)	(-7.14)
SID		-0.028***		-0.028***	-0.027***	-0.028***
		(-6.02)		(-6.02)	(-5.87)	(-5.66)
WITHTAX			-0.167***			
			(-4.34)			
ONSHORE*SIZE					-0.066	
					(-1.29)	
DERIV						0.028***
						(3.54)
SIZE	0.024***	0.059***	0.054***	0.059***	0.064***	0.061***
	(6.73)	(11.83)	(11.27)	(11.83)	(9.89)	(11.87)
INVA	-0.031	0.062	0.075	0.062	0.067	0.059
	(-0.42)	(0.84)	(1.01)	(0.84)	(0.90)	(0.78)
LEVER	0.499***	0.466***	0.473***	0.466***	0.449***	0.493***
	(5.44)	(5.01)	(5.08)	(5.01)	(4.76)	(5.23)
PROF	0.083	0.116	0.108	0.116	0.099	0.108
	(0.54)	(0.72)	(0.68)	(0.72)	(0.62)	(0.66)
COLL	-0.153	-0.235**	-0.244**	-0.235**	-0.233*	-0.221*
	(-1.30)	(-1.97)	(-2.04)	(-1.97)	(-1.95)	(-1.81)
Observations	41,973	41,659	41,659	41,659	41,629	40,635
R-squared	0.270	0.278	0.277	0.278	0.278	0.278

Notes: The Table reports the effects of the variables listed on the probability to issue bonds by a Probit model. The dependent variable is a dummy equal to one if the firm is a bond issuer, and zero otherwise. All models include a time trend. Robust z-statistics in parentheses. All firm-specific variables are lagged one period. *significant at 10 %; ** significant at 5 %; *** significant at 1 %.

Table 5: Choice of Market

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ONSHORE		-0.372***	-0.128**	-0.372***	-0.338***	-0.355***	-0.446***
		(-5.99)	(-2.01)	(-5.99)	(-5.60)	(-5.72)	(-5.23)
OFFEXP		0.264***	0.018	0.264***	0.221***	0.302***	0.195**
		(3.43)	(0.24)	(3.43)	(2.98)	(3.90)	(2.46)
STOCKCAP		0.130***	-0.053	0.130***	0.215***	0.092*	0.033
		(2.61)	(-0.98)	(2.61)	(4.21)	(1.80)	(0.51)
SID		-0.041***		-0.041***	-0.024	-0.048***	-0.020
		(-2.64)		(-2.64)	(-1.57)	(-2.95)	(-1.42)
WITHTAX			-1.022***				
			(-8.77)				
CHINN-ITO	0.233***	0.120***	0.199***	0.120***	0.258***	0.534***	0.143***
	(7.67)	(3.11)	(5.50)	(3.11)	(5.78)	(3.34)	(3.41)
CHINN-ITO*ONSHORE					-0.001***		
					(-5.00)		
CHINN-ITO*SIZE						-0.039***	
						(-2.75)	
DERIV							0.097***
							(3.78)
SIZE	0.043***	0.077***	0.131***	0.077***	0.067***	0.084***	0.085***
	(4.34)	(5.49)	(8.78)	(5.49)	(4.89)	(5.69)	(6.00)
INVA	-0.656**	-0.509**	-0.327	-0.509**	-0.563**	-0.497*	-0.394
	(-2.53)	(-1.99)	(-1.32)	(-1.99)	(-2.17)	(-1.93)	(-1.55)
LEVER	0.651**	0.653**	0.496*	0.653**	0.541*	0.553**	0.551*
	(2.50)	(2.35)	(1.74)	(2.35)	(1.94)	(1.97)	(1.95)
PROF	-0.228	-0.327	-0.367	-0.327	-0.552	-0.377	-0.274
	(-0.44)	(-0.62)	(-0.69)	(-0.62)	(-1.06)	(-0.71)	(-0.52)
COLL	0.413	0.316	0.244	0.316	0.435	0.295	0.283
	(1.00)	(0.77)	(0.61)	(0.77)	(1.05)	(0.71)	(0.69)
Observations	1,925	1,921	1,921	1,921	1,921	1,921	1,849
R-squared	0.073	0.095	0.129	0.095	0.113	0.100	0.106

Notes: The Table reports the effects of the variables listed on the probability to issue in a foreign market by a Probit model. The dependent variable is a dummy equal to one if the firm issues in a foreign market, and zero otherwise. All models include a time trend. Robust z-statistics in parentheses. All firm-specific variables are lagged one period. *significant at 10 %; ** significant at 5 %; *** significant at 1 %.

Table 6: A More Detailed Breakdown for Bond Issuance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	nonfin	nonfin	nonfin	nonfin	fin	fin	fin	fin
ONSHORE*SEAS	-0.277***	-0.247***	-0.117**	-0.273***	-0.380***	-0.281***	-0.137	-0.394***
	(-7.19)	(-5.97)	(-2.55)	(-6.57)	(-4.84)	(-3.43)	(-1.32)	(-4.91)
ONSHORE*(1-SEAS)	0.394***	0.507***	0.185***	0.412***	0.167*	0.351***	-0.020	0.178*
	(7.67)	(8.13)	(3.73)	(7.04)	(1.78)	(3.08)	(-0.23)	(1.81)
OFFEXP*SEAS	0.083**	0.108***	0.132***	0.077**	0.176***	0.251***	0.201***	0.206***
	(2.50)	(2.89)	(3.92)	(2.11)	(3.16)	(3.99)	(3.55)	(3.42)
OFFEXP*(1-SEAS)	0.199***	0.132***	0.131***	0.184***	0.245***	0.134**	0.211***	0.224***
	(6.34)	(3.73)	(3.90)	(5.21)	(4.09)	(2.31)	(3.25)	(3.60)
STOCKCAP*SEAS	0.152***	0.168***	0.161***	0.149***	-0.175***	-0.187***	-0.176***	-0.149***
	(5.28)	(5.92)	(5.34)	(5.00)	(-3.75)	(-3.56)	(-3.56)	(-2.94)
STOCKCAP*(1-SEAS)	-0.174***	-0.161***	-0.179***	-0.180***	-0.366***	-0.452***	-0.366***	-0.386***
	(-6.13)	(-6.04)	(-6.04)	(-5.98)	(-6.47)	(-8.91)	(-6.20)	(-6.33)
SID*SEAS	-0.022***		-0.017**	-0.021***	-0.062***		-0.053***	-0.064***
	(-2.75)		(-2.25)	(-2.60)	(-3.59)		(-3.07)	(-3.61)
SID*(1-SEAS)	-0.027***		-0.027***	-0.026***	-0.029**		-0.031**	-0.025*
	(-3.61)		(-3.69)	(-3.51)	(-2.06)		(-2.25)	(-1.91)
WITHTAX*SEAS		0.037				0.062		
		(0.53)				(0.45)		
WITHTAX*(1-SEAS)		-0.292***				-0.708***		
		(-4.31)				(-5.87)		
ONSHORE*SIZE*SEAS			-0.431***				-0.591***	
			(-5.45)				(-3.21)	
ONSHORE*SIZE*(1-SEAS)			0.508***				0.658***	
			(6.49)				(3.66)	
DERIV*SEAS				0.0001				-0.0001
				(0.38)				(-1.26)
DERIV*(1-SEAS)				0.0001				0.0001
				(0.94)				(1.24)
SIZE*SEAS	-0.021**	-0.034***	0.021*	-0.021**	0.108***	0.066***	0.141***	0.103***
	(-2.56)	(-4.19)	(1.93)	(-2.44)	(5.94)	(3.64)	(6.35)	(5.55)
SIZE*(1-SEAS)	0.107***	0.101***	0.054***	0.107***	0.093***	0.107***	0.053**	0.093***
	(13.42)	(14.30)	(4.67)	(13.37)	(4.88)	(6.02)	(2.29)	(4.82)
Observations	35,514	35,514	35,493	35,355	6,146	6,146	6,137	6,125
R-squared	0.295	0.295	0.302	0.295	0.401	0.404	0.409	0.402

Notes: The Table reports the effects of the variables listed on the probability to issue bonds by a Probit model. The dependent variable is a dummy equal to one if the firm is a bond issuer, and zero otherwise. *SEAS* is a dummy variable that takes value 1 if the firm has previously issued in either the domestic or the foreign market, and 0 otherwise. All models include a time trend. Robust z-statistics in parentheses. All firm-specific variables are lagged one period. *significant at 10 %; ** significant at 5 %; *** significant at 1 %.

Table 7: A More Detailed Breakdown for the Choice of Market

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	nonfin	nonfin	nonfin	nonfin	nonfin	fin	fin	fin	fin	fin
ONSHORE*SEAS	-0.389***	-0.252***	-0.337***	-0.356***	-0.255***	-0.202	0.051	-0.186	-0.172	-0.066
	(-4.75)	(-3.01)	(-4.12)	(-4.26)	(-2.89)	(-1.57)	(0.40)	(-1.45)	(-1.33)	(-0.52)
ONSHORE*(1-SEAS)	-0.415**	0.207	-0.369**	-0.181	-0.041	-0.545**	-0.405*	-0.532**	-0.497*	-0.517*
	(-2.36)	(0.91)	(-2.19)	(-0.90)	(-0.19)	(-2.08)	(-1.66)	(-2.23)	(-1.82)	(-1.80)
OFFEXP*SEAS	0.532***	0.320***	0.492***	0.612***	0.229**	-0.109	-0.322*	-0.107	-0.074	-0.348*
	(4.49)	(2.98)	(4.27)	(5.17)	(1.99)	(-0.68)	(-1.94)	(-0.67)	(-0.45)	(-1.83)
OFFEXP*(1-SEAS)	0.208	-0.309	0.158	0.280	-0.334*	0.358	0.132	0.333	0.438	0.294
	(1.03)	(-1.61)	(0.81)	(1.45)	(-1.66)	(0.84)	(0.33)	(0.83)	(1.07)	(0.58)
STOCKCAP*SEAS	0.296***	0.171**	0.409***	0.229***	0.254***	0.065	-0.204*	0.110	0.014	-0.105
	(3.71)	(2.17)	(5.03)	(2.85)	(3.15)	(0.83)	(-1.79)	(1.34)	(0.17)	(-1.07)
STOCKCAP*(1-SEAS)	0.264***	0.108	0.359***	0.213**	0.082	-0.083	-0.068	-0.050	-0.318	-0.109
	(2.65)	(1.16)	(3.62)	(2.05)	(0.74)	(-0.49)	(-0.33)	(-0.28)	(-1.30)	(-0.49)
SID*SEAS	-0.003		0.026	-0.010	0.014	-0.052**		-0.049*	-0.065**	-0.033
	(-0.17)		(1.48)	(-0.57)	(0.82)	(-1.97)		(-1.81)	(-2.27)	(-1.29)
SID*(1-SES)	-0.069		-0.059	-0.090**	-0.025	-0.259**		-0.259**	-0.325***	-0.253**
	(-1.64)		(-1.45)	(-2.02)	(-0.57)	(-2.51)		(-2.51)	(-2.72)	(-2.11)
WITHTAX*SEAS		-0.690***					-1.053***			
		(-4.12)					(-3.46)			
WITHTAX*(1-SEAS)		-1.801***					-0.561			
		(-5.83)					(-0.99)			
CHINN-ITO*SEAS	-0.050	0.013	0.156**	0.650***	0.086	0.260***	0.333***	0.350***	0.755**	0.375***
	(-0.86)	(0.24)	(2.30)	(3.00)	(1.42)	(3.31)	(4.23)	(3.99)	(2.03)	(4.15)
CHINN-ITO*(1-SEAS)	0.110	0.255**	0.260*	1.148***	0.322***	0.495**	0.312*	0.568***	1.942**	0.520**
	(0.94)	(2.17)	(1.95)	(2.70)	(2.76)	(2.30)	(1.68)	(3.14)	(2.15)	(2.41)
CHINN-ITO*ONSHORE*SEAS				-0.069***					-0.042	
				(-3.47)					(-1.35)	
CHINN-ITO*ONSHORE*(1-SEAS)				-0.107***					-0.126	
				(-2.72)					(-1.64)	
CHINN-ITO**SIZE*SEAS			-0.001***					-0.001		
			(-4.67)					(-1.51)		
CHINN-ITO**SIZE*(1-SEAS)			-0.001*					-0.001		
			(-1.84)					(-0.76)		
DERIV*SEAS					0.0001***					0.0001***
					(4.63)					(3.01)
DERIV*(1-SEAS)					0.0002***					0.0001
					(5.09)					(0.34)
SIZE*SEAS	0.064***	0.111***	0.053***	0.073***	0.086***	0.113***	0.171***	0.111***	0.125***	0.153***
	(3.09)	(5.08)	(2.62)	(3.42)	(3.94)	(3.05)	(3.90)	(2.95)	(3.17)	(3.78)
SIZE*(1-SEAS)	-0.003	0.077**	-0.008	-0.000	0.040	0.194***	0.093	0.194***	0.302**	0.213***
	(-0.10)	(2.53)	(-0.23)	(-0.01)	(1.07)	(2.64)	(1.16)	(2.73)	(2.54)	(2.92)
Observations	1,488	1,488	1,488	1,488	1,474	433	433	433	433	432
R-squared	0.100	0.130	0.125	0.118	0.129	0.230	0.238	0.238	0.237	0.246

Notes: Notes: The Table reports the effects of the variables listed on the probability to issue bonds by a Probit model. The dependent variable is a dummy equal to one if the firm is a bond issuer, and zero otherwise. *SEAS* is a dummy variable that takes value 1 if the firm has previously issued in either the domestic or the foreign market, and 0 otherwise. All models include a time trend. Robust z-statistics in parentheses. All firm-specific variables are lagged one period. *significant at 10 %; ** significant at 5 %; *** significant at 1 %.

8 Appendix: Additional Results

Decision to Issue: Linear IV Probit

Results for the Linear IV Probit model are reported as a robustness check on Table 4 to be sure our results are not influenced by correlation between variables and the error terms. We report p-values for the Sargan test and Kleibergen-Paap rk LM test to establish instrument validity. The Sargan test is a test for over-identifying restrictions implying that the excluded instruments are distributed independently of the error process i.e. a joint null hypothesis that the instruments are uncorrelated with the error term and that the excluded instruments are correctly excluded from the estimated equation. Under the null hypothesis, the test has a chi-squared distribution with degrees of freedom equal to the number of over-identifying restrictions, and p-values less than 0.05 show the null can be rejected at the 5% level, hence instruments are valid. The Kleibergen-Paap test is an under-identification test to show the instruments are adequate to identify the equation. Again a p-value smaller than 0.05 suggests that the model is identified, meaning that the relationship between the included endogenous regressors and the instruments is sufficiently strong to justify inference from the results. A p-value larger than 0.05 indicates that the model is under-identified or too weakly identified to justify inference from the model. In our case we strongly reject the null in both cases, so our model is neither invalid nor underidentified as far as the instruments are concerned. Having dealt with potential endogeneity of variables in this way, we are able to conclude that the results reported in Table 4 are maintained.[14]

Choice of Market: Linear IV Probit

When we examine the choice of market using a linear IV Probit estimate in Table A-1 we find that the variables show similar signs and levels of significance with a few exceptions. The only exception is the interaction between the CHINN-ITO*ONSHORE and CHINN-ITO*OFFSHORE which are a little lower than in Table 5 and insignificant for the CHINN-ITO*OFFSHORE interaction. We report p-values for the Sargan test and Kleibergen-Paap rk LM test and establish instrument validity.

Tests of Equality in Tables

Tests of Equality of Coefficients Based on Results in Tables 6 and 7 are reported in Tables A-3 ad A-4.

[14]We have also examined the F-statistics from the first-stage estimates for the IV models and obtained p-values close to zero implying our models do not suffer from a weak instrument problem.

Table A-1: Linear IV Probit-Bond Issuance Decision

	(1)	(2)	(3)	(4)	(5)
PREVDOM	0.159***	0.154***	0.155***	0.157***	0.154***
	(21.33)	(20.84)	(20.79)	(20.83)	(20.47)
PREVFOR	0.209***	0.200***	0.205***	0.203***	0.204***
	(11.82)	(11.20)	(11.43)	(11.41)	(11.41)
ONSHORE		0.017***	0.020***	0.040***	0.043***
		(4.89)	(3.28)	(7.76)	(6.28)
OFFEXP		0.025***	0.034***	0.035***	0.028***
		(10.59)	(8.20)	(7.80)	(7.26)
STOCKCAP		-0.037***	-0.031***	-0.025***	-0.025***
		(-11.89)	(-9.99)	(-7.46)	(-6.70)
SID		-0.004***	-0.003***		
		(-7.59)	(-3.18)		
WITHTAX		-0.018***		-0.014***	-0.086***
		(-4.04)		(-2.64)	(-5.22)
ONSHORE*SIZE				-0.036***	
				(-4.59)	
DERIV					-0.014***
					(-3.83)
SIZE	0.002***	0.010***	0.010***	0.012***	0.011***
	(5.41)	(14.59)	(12.97)	(10.91)	(9.26)
INVA	0.127	0.018***	0.264**	0.306**	0.313**
	(1.17)	(2.77)	(2.02)	(2.31)	(2.25)
LEVER	0.151***	0.068***	0.199***	0.207***	0.214***
	(2.67)	(4.95)	(2.86)	(2.98)	(3.00)
PROF	0.063	0.002	0.097**	0.098**	0.101**
	(1.58)	(0.10)	(1.97)	(1.98)	(2.01)
COLL	-0.269	-0.040***	-0.523**	-0.595**	-0.606**
	(-1.27)	(-3.51)	(-2.05)	(-2.31)	(-2.25)
Observations	30,929	30,459	30,453	30,435	30,074
R-squared	0.148	0.170	0.119	0.104	0.099
Sargan	0.89	0.04	0.59	0.60	0.78
Kleibergen-Paap	0.00	0.00	0.00	0.00	0.00

Notes: The Table reports the effects of the variables listed on the probability to issue bonds by a linear IV Probit model. Instruments are the firm-level variables, lagged twice or more. All models include a time trend. Robust z-statistics in parentheses. All firm-specific variables are lagged one period. *significant at 10 %; ** significant at 5 %; *** significant at 1 %.

Table A-2: Linear IV Probit-Choice of Market

	(1)	(2)	(3)	(4)	(5)	(6)
ONSHORE		-0.145***	-0.047	-0.143***	-0.143***	-0.099**
		(-4.00)	(-1.11)	(-3.98)	(-3.94)	(-2.57)
OFFEXP		0.046*	-0.017	0.038	0.048*	0.023
		(1.67)	(-0.57)	(1.40)	(1.77)	(0.71)
STOCKCAP		0.039	-0.010	0.076***	0.037	-0.002
		(1.63)	(-0.37)	(3.10)	(1.50)	(-0.06)
SID		-0.011		-0.011	-0.011	0.005
		(-1.33)		(-1.31)	(-1.35)	(0.37)
WITHTAX			-0.220***			
			(-5.51)			
CHINN-ITO	0.056***	0.022	0.049***	0.064***	0.037	0.037**
	(5.40)	(1.54)	(3.21)	(3.61)	(0.74)	(2.27)
CHINN-ITO*ONSHORE				-0.000***		
				(-5.31)		
CHINN-ITO*SIZE					-0.001	
					(-0.32)	
DERIV						0.026***
						(2.84)
SIZE	0.011***	0.019***	0.027***	0.017***	0.019***	0.016***
	(2.97)	(3.25)	(4.83)	(2.99)	(3.33)	(2.72)
INVA	-0.198	0.005	0.217	-0.202	0.005	0.107
	(-0.26)	(0.01)	(0.32)	(-0.30)	(0.01)	(0.15)
LEVER	0.323	0.294	0.330	0.178	0.290	0.340
	(1.15)	(0.99)	(1.13)	(0.60)	(0.97)	(1.12)
PROF	-0.371	-0.445*	-0.488*	-0.504**	-0.450*	-0.435*
	(-1.50)	(-1.76)	(-1.92)	(-2.07)	(-1.77)	(-1.68)
COLL	0.075	-0.222	-0.566	0.185	-0.223	-0.404
	(0.05)	(-0.18)	(-0.46)	(0.15)	(-0.18)	(-0.32)
Observations	1,443	1,434	1,434	1,434	1,434	1,410
R-squared	0.073	0.090	0.100	0.107	0.090	0.082
Sargan	0.48	0.70	0.81	0.55	0.71	0.79
Kleibergen-Paap	0.00	0.00	0.00	0.00	0.00	0.00

Notes: The Table reports the effects of the variables listed on the probability to issue bonds by a linear IV Probit model. Instruments are the firm-level variables, lagged twice or more. All models include a time trend. Robust z-statistics in parentheses. All firm-specific variables are lagged one period. *significant at 10 %; ** significant at 5 %; *** significant at 1 %.

Table A-3: Test for the Equality of Coefficients Based on Results in Table 6

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	nonfin	nonfin	nonfin	nonfin	fin	fin	fin	fin
SIZE	0.00	0.00	0.00	0.03	0.57	0.10	0.00	0.71
ONSHORE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OFFEXP	0.00	0.62	0.98	0.00	0.38	0.08	0.90	0.82
STOCKCAP	0.00	0.00	0.02	0.00	0.30	0.00	0.00	0.00
SID	0.60		0.32	0.59	0.13		0.32	0.08
WITHTAX		0.00			0.00			
ONS*ONSHORE			0.00				0.37	
DERIV				0.69				0.07

Notes: The Table reports p-values of a test statistic where the null hypothesis is the equality of the coefficients.

Table A-4: Test for the Equality of Coefficients Based on Results in Table 7

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	nonfin	nonfin	nonfin	nonfin	nonfin	fin	fin	fin	fin	fin
SIZE	0.08	0.36	0.09	0.07	0.27	0.30	0.39	0.27	0.15	0.43
ONSHORE	0.89	0.05	0.86	0.40	0.32	0.23	0.09	0.19	0.27	0.15
OFFEXP	0.16	0.00	0.13	0.14	0.01	0.00	0.23	0.30	0.23	0.22
STOCKCAP	0.69	0.37	0.51	0.85	0.10	0.40	0.53	0.38	0.18	0.98
SID	0.14		0.11	0.05	0.40	0.01	0.05	0.04	0.03	0.07
WITHTAX		0.00			0.16		0.43			
CHINN-ITO	0.22	0.06	0.00	0.00	0.00	0.29	0.84	0.22	0.52	
CHINN-ITO*ONSHORE			0.17					0.26		
CHINN-ITO*SIZE				0.38				0.31		
DERIV					0.04					0.41

Notes: The Table reports p-values of a test statistic where the null hypothesis is the equality of the coefficients.