

# The Geography of European Convertible Bonds: Why Firms Issue Convertibles?

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## *Abstract*

Why firms issue convertible debt is still one of the unresolved puzzles in finance. While several theories provide different rationales for convertible issuance, empirical evidence is mixed and unclear. Another puzzling feature is that a few countries dominate the global convertible market, suggesting that country-specific factors may play an important role in the use of convertibles. The traditional convertible theories, however, assign little role to country-factors and little prior research has been done to examine their influence on the convertible issuance decision. In this paper, we study the role of country-specific factors in convertible issuance by examining the evolution of European convertible market and the cross-country variation in its development from 1990 to 2007. We find that country-specific factors have a significant impact on the likelihood of convertible issuance, after controlling for firm, industry and market-specific factors.

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## **1. Introduction**

Why firms issue convertible debt has both intrigued and puzzled financial researchers. Several theories have been proposed to explain rationale for convertible (hereafter “CB”) issuance but the empirical evidence is mixed and unclear. The puzzle deepens when one looks at the geography of CB issuance. The size and development of the CB market varies widely across countries and over time with a few countries dominating the market. The U.S. is the largest player with a steady market share of about 40% of the global market whereas most other countries have experienced dramatic changes in their market share over time. Japan, once a dominant player, has experienced a continuous decline in its market share since 1990s whereas European countries have increased their share from less than 10% in 1990 to about 25% of the global market by the end of 2005.

Why CBs find a more conducive growth environment in some countries but not in others is puzzling and a largely unexplored issue. The goal of this paper is to provide some insights into this puzzle by examining the evolution of European CB market and cross-country differences in its growth. We address the following questions: 1) What factors spurred the growth of the European CB market and why do growth patterns vary across countries? 2) What theoretical factors (related to firm, industry and market characteristics) explain these cross-country differences and do country-specific factors play a significant role after controlling for the theoretical factors? 3) Has the influence of country-specific factors diminished over time with the adoption of the Euro and is there a convergence between countries in the European Monetary Union?

The European CB market provides several attractive features for such analysis. First, it is a relatively young market that comprised only a small segment of the global market until 1990 but grew dramatically in the mid-1990s comprising about half of the global market in 1998. The growth pattern, however, varies considerably even within the European CB market,

with five countries, France, the Netherlands, the U.K., Germany, and Switzerland, comprising about 83% of the market.

Second, the European countries represent both English and Civil (French, German and Scandinavian) systems and the convertible features, markets, and regulatory environments vary widely across European countries. For example, in several Nordic countries, it is not possible to issue bonds with a maturity date longer than five years and in the UK, a firm cannot issue more than 5% of the existing equity if the issue is not justified by an acquisition. Many European firms also issue exchangeable bonds (EBs) where the options are written on securities of other firms and their issuance varies across countries with many European CBs are denominated in a currency other than the underlying equity. Lastly, Europe implemented two structural changes in its financial system in the 1990s that removed a major hurdle to the creation of a fully integrated Pan-European market: the introduction of euro and the European Monetary Union (EMU). These developments provide us a unique sample to assess the extent to which such structural changes can spur the growth of the convertible market by studying the growth patterns between EMU and non-EMU countries.

We ask questions related to the theoretical models as well as demand- and supply-side factors that may have contributed to the recent growth of CB markets. Our study complements and extends the prior research on European CBs by Dutordoir and Van de Gucht (2009, 2005). They find that unlike U.S. issues, most European CBs are debt-like securities and find evidence of market timing. We ask specifically whether country-specific factors matter after controlling for the firm, industry, and market effects using a much larger sample and time period that includes the introduction of euro. We also examine the influence of several additional variables, such as dividend payout ratio, in the likelihood of CB issuance. Brockman and Unlu (2009) show that dividend policy can be a substitute for weak creditor rights. Our preliminary results show that country-specific factors, including legal and national

economy factors, have a significant impact on the likelihood of CB issuance relative to straight debt (non-CB) issuance, after controlling for firm and market-specific factors.

The rest of the paper is organized as follows. Section 2 examines the geography of European CBs and presents the cross-country differences in the CB issuance overtime and across countries. Section 3 reviews theories and empirical implications of the factors impacting the likelihood of CB issuance. Section 4 discusses data, sample, and firm characteristics differences between CB and non-CB issuers. Section 5 includes the regression analysis and Section 6 concludes the paper and discusses future work to be done.

## **2. The geography of European convertible market**

This section presents the structure of the European CB bond market and the comparison with CB markets in other regions using data from the SDC Global New Issues database.

We map out the geography of global CB markets in Table 1. Europe is the second largest region in the World for CB issues, about half of the size of the Americas. Between 1990 and 2007, European companies issued about U.S. \$362 billion of CB debt, representing 24% of the global CB market. In particular, financial firms and government related agencies have played an active role in European CB market, accounting for about 40% of the total CB issues compared to only 18% in Americas and 12% in Japan. However, over time the percentage share of financial institutions has declined whereas that of industrial issuers has increased.

[Insert Table 1 and Figure 1 about here]

The European CB market has grown over time, increasing from annual issuance of \$4 billion in 1990 to \$34 billion in 2007 but it exhibits strong time-varying pattern relative to the Americas (Panel B).The European CB issuance surged dramatically in 1998-1999 around the introduction of euro. In 1998, European firms raised about \$30.5 billion through CBs, more than that in the Americas, accounting for about 50% of the global CB market. Between 1999

and 2003, the European firms raised over 30% of the total amount raised in global CB markets, varying from a high of 40% in 1999 to a low of 27% in 2000 and 2003. Since then, the average has varied between 13% and 24%. In contrast, the Americas have a very stable CB market share, with an average 46% of the global CB market share. Japan, on the other hand, lost its position in global convertible market, with a decline in its market share from 74% in 1990 to only 4% in 2007. Figure 1 show that the U.S. and European CB markets have strong correlation (about 74%) but the correlation has become stronger since the introduction of euro in 1999. In untabulated analysis, we also find that since 1999, the market share of the EMU countries (e.g., France, Germany) increased whereas that of the non-EMU countries (e.g., Switzerland) declined over time. This evidence indicates that the introduction of euro helped in making the European CB market from regional market to part of the global market.

In Table 2, we report the CB issuance patterns across sixteen Western European countries that account for 86% of total European CB issuances: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom. The size of CB markets varies across these countries and a few countries dominate the market. French firms are the largest issuers of convertible bonds (\$87 billion), followed by the Netherlands (\$64 billion), the U.K. (\$42 billion), Germany (\$38 billion), Switzerland (\$26 billion) and Italy (\$20 billion).

[Insert Tables 2 and 3 about here]

One of the unique features of the European CB market is the popularity of exchangeable CB debt (account for 26% of the total amount of CB issues), which differs from standard CB bonds with an embedded option to exchange the bond for the stock of a company other than the issuer. This popularity is largely driven by the European model of corporate governance that is characterized by the presence of many cross shareholdings. These cross shareholdings are owned by large shareholders (firms, families, banks, states) and have been

criticized by international investors. To address these concerns, European firms started to focus on their core business and have sold a large number of their cross shareholdings beginning in the early 1990s. Many firms used exchangeable CB bonds to sell forward these cross shareholdings that were particularly pervasive in Germany (\$24 billion), France (\$23 billion) and Netherlands (\$27 billion). It is also interesting to note that banks have issued 65 percent of the total amount of the exchangeable bonds issued. This is partially explained by the consequence of the disengagement of banks as major shareholders of European firms and is also linked to the evolution of the European Corporate Governance model discussed above.

Many theoretical models suggest that CB bonds are issued to resolve risk assessment problems associated with a firm's assets. This argument implies that the issuing firm has a certain risk profile and that they likely belong to a riskier sector (e.g., high technology). This argument appears to apply more for the U.S. firms but less for European firms since about 40% of the total CB issuances are by financial and government related agencies. There is, however, large variation across countries. For instance, non-financial firms raise only 9% and 11% of total CB proceeds in Greece and Ireland respectively, whereas these percentages are 96% and 89% in Denmark and Sweden respectively.

In Table 3, we show a detail industry composition for non-financial European and U.S. CB issuers. The U.S. CB market consists of many "new economy" firms (e.g. high-tech 23%) whereas European market has more diversified sectors. The industry composition also differs across European countries. For example, France and U.K. have similar industry compositions (high percentages in Telecom) whereas Germany, Netherlands and Switzerland are very different in industry composition.<sup>1</sup> Thus, the evidence suggests that motivations for issuing CBs may also vary widely across countries because of the composition of industry sectors.

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<sup>1</sup> There are several interesting observations specifically related to industry sectors. Telecommunication firms that represent only 4.9 percent of issuing firms have issued 17 percent of the total amount. This is explained by the fact that telecommunication firms had to acquire expensive UMTS licenses (the third generation of mobile phone

[Insert Table 4 about here]

In Table 4, we link the information of issuer's country with the marketplace where the CBs go. In Panel A, we find strong evidence that European issuers largely rely on the public CB markets whereas the U.S. issuers mostly use the private placement market. The percentage of the total amount raised in public CB market is 88% in Europe, more than twice that in the U.S. (34%). Further, Panel B shows that a vast majority of the European CBs (83%) are issued in the Eurobond market whereas most U.S. CBs are issued in the domestic market. The difference in the geography of marketplace indicates that one plausible reason for the higher volatility in the number of European CBs relative to the U.S. CB issuances over time could be that the European CB issuances are determined by both global and regional (country-specific) demand and supply factors whereas the U.S. is driven by mainly the domestic demand and supply factors.

Finally, most European convertibles (78 percent) give the issuer the capacity to call the convertible before its maturity date (Table 5). In recent years, the puttable CBs that allow the bondholder to sell the bonds to the issuer at pre-specified prices on pre-specified dates are gaining popularity comprising about 10 percent of European convertibles. The puttable CBs are considered the most successful financial innovation in the U.S. CB market in the last ten years. In the 2000s, more money was raised by issuing puttable CBs (\$122 billion) compared to ordinary CBs (\$109 billion) from 2000 to 2003 (Chemmanur and Simonyan, 2005). The European countries have also followed the U.S. trend indicating the influence of global CB market factors on European CB design.

[Insert Table 5 about here]

The differences across European countries raise questions to whether these differences are related to firm characteristics (size, risk, shareholding, etc.), to institutional or legal

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license) at the end of the 90s. In the context of the internet bubble and internet and telecommunication crises, these telecom firms have solved part of their financing problem by issuing convertible bonds.

constraints, specific market conditions or other factors (national cultures, etc.). At a minimum, the European CB market cannot be compared to the U.S. market in the sense that is not a unified single market. Each European country has its own regulator and many local legal constraints limit equity or debt issuance in many circumstances which likely to impact the firms decision to issue CB bonds. For example, in France, the rule of “10 among the 20” (the issuing stock price was at least equal to an average of 10 stock prices chosen among the last 20 days of trading) has limited the capacity of the French firms to issue equity when the market volatility was very high (which was the case in years 2001, 2002 and 2003). This means that the relative development of a national CB market will depend on the local legal constraints as well as regional and global factors. We need to untangle these different effects to better understand the development of convertible market and why European firms issue CBs.

### **3. Factors affecting the likelihood of convertible issuance**

In this section, we review the literature on the rationale for CB issuance and discuss the firm, market and country-specific factors that could affect the likelihood of CB issuance.

#### ***3.1. Firm-specific factors: agency costs and asymmetric information framework***

In most theoretical models, CBs are modeled as a substitute for debt or equity in an agency theory or asymmetric information framework.

Green (1984) argues that CBs provide the bondholders with an option to convert their bonds to the underlying stock, and consequently, reduce their concern about *ex-post* risk-shifting. Mayers (1998) uses Jensen’s (1986) framework in which managers have incentives to make inefficient investment in the presence of free cash flow (overinvestment problem). He argues that CB bonds resolve the sequential-financing problem by controlling the overinvestment problem and economizing the issuing costs by avoiding multiple issues of



debt and/or equity. The call option is valuable in Mayers' model for providing flexibility in financing future investments when funds are needed.

The asymmetric information based models argue that CBs resolve the uncertainty about the risk of the firm's current or future assets (e.g., Brennan and Kraus (1987), Brennan and Schwartz (1988)). Constantinides and Grundy (1989) and Stein (1992) develop models based on Myers and Majluf's (1984) asymmetric information framework in which managers have superior information than investors. Stein (1992) argues that firms prefer to avoid issuing equity when they privately know that their stock is undervalued, but also want to minimize the distress costs that come with debt issuance. CB debt resolves this financing problem through "backdoor equity" that has lower distress costs than debt financing but has smaller undervaluation compared to equity financing. The call feature is critical in Stein's model to force investors to exercise their conversion option early.

The U.S. evidence is generally consistent with both Mayers and Stein's models. Several studies show that high growth firms issue CBs for financing future growth opportunities whereas firms with financing difficulties use convertibles as back-door equity. Lewis (1999) finds about half of the U.S. CB sample consists of equity-like CBs (with higher than 50% conversion probability) that are used as delayed equity financing whereas the other half consists of debt-like CBs issued as sweetened debt. By contrast, Dutordoir and Van de Gucht (2009) examine a sample of 179 European CB debt issues from 1994 to 2004 and find that only four issues are equity-like based on 50% conversion probability. They also find that unlike U.S. issuers, European CB issuers tend to be large companies with small debt and equity-related financing costs and conclude that European CBs are used primarily as sweetened debt, not as delayed equity.

### ***3.2. Market-specific factors: Market timing theory***

The market timing theory argues that managers use their superior information to select the timing of security issuance opportunistically to take advantage of temporarily favorable market conditions and to capture attractive security prices. Several U.S. studies show that U.S. firms tend to cluster their seasoned equity offerings during periods when economy wide equity-related adverse selection are low (e.g., Bayless and Chaplinsky (1996) and Korajczyk and Levy (2003)). Graham and Harvey (2001) also report that U.S. CFOs try to time the market for equity and debt issuance.

Since CBs are hybrid securities, market conditions and interest rate levels are also likely to influence managers' issuance decision. Bancel and Mittoo (2004) report that the majority of European CFOs agree that a combination of low interest rate and high stock market volatility environment is an important factor in their decision to issue CBs. Dutordoir, and Van de Gucht (2007) also find that the stockholder's reactions to CB announcements are systematically less negative during hot CB markets (e.g., periods with a high CB issuance volume).

### ***3.3 Country-Specific factors: Legal and institutional environment***

A growing body of research suggests that the country's legal and institutional environment, such as financial system, accounting laws and standards, and tax systems, have a significant influence on the type of securities that firms issue. La Porta et al., (LLSV, 1997, 1998) show that strong minority shareholder protection is associated with more developed equity markets whereas strong creditor protection is related to more developed debt markets. Demirguc-Kunt and Maksimovic (1999) argue that developed stock markets provide better opportunities for diversification and motivate firms to switch from long-term debt to equity financing.

As hybrids of equity and bond contracts, CB decisions should also be influenced by the international differences in the legal and institutional environment because their design

can be adjusted to be more debt-like or equity-like. Korkeamaki (2005) examines call protection terms in a sample of 1,480 CBs with about 80% of sample consisting of U.S. and Japanese CBs and finds that firms from countries with weaker shareholder protection and/or stronger creditor protection issue CBs with stronger call protection. Lee et al., (2009) examine the convertible design and find that firms in countries with stronger shareholder rights issue CBs with a higher expected probability of converting to equity.

These differences suggest that the likelihood of CB issuance will vary systematically with the country-specific factors, all else equal. Several studies document that the announcement effects of CBs differ across countries. For example, in the U.S. and the U.K., CB issuance is generally associated with a negative stock price reaction (Dann and Mikkelson, 1984; Abhyankar and Dunning, 1999) whereas in Japan (Kang and Stulz, 1996), the Netherlands (De Roon and Veld, 1998), and Taiwan (Chang, Chen, and Liu, 2001), the stock market reaction tends to be positive.

In sum, the empirical evidence suggests that the European CBs are mostly debt-like offerings that are issued as alternative to debt. In this paper, we focus on CB debt as an alternative to straight debt (non-CBs) and examine the evolution of the European CB market over time and test whether the likelihood of CB issuance varies systematically with the country-level investor protection, after controlling for firm and market specific factors.

## **4. Data and Sample**

### ***4.1. Sample construction***

We collect CB issuance data from the SDC Global New Issues database for the period of 1990-2007. The final sample of CBs for the remaining empirical analysis is constructed as follows:

- a) We exclude financial issuers and issuers associated with government and agencies because their motivations to raise capital could be substantially different from that of industrial issuers.
- b) We extract firm-specific information from the Compustat Global database. Specifically, annual financial and accounting variables, monthly stock price and index data, monthly exchange rates are from Compustat Global Industrial, Global Issues, and Global Currency files, respectively. To match our CB dataset with the Compustat Global, we require each CB issuance with a valid SEDOL number. We also require that the issuing firm's accounting data and market value for the fiscal year-end immediately prior to the issuance date must be available on the Compustat Global.
- c) We keep only one issuance if one issuer has multiple CB issuances on the same issuance date. Furthermore, similar to Hovakimian et al., (2001) we remove dual-issuance firms who issued CBs and non-CBs in the same year. We also exclude exchangeable CB issuance from the analysis.

Our final dataset has 280 CBs issued by 238 firms. Table 6 shows the sample distribution by country. The comparison with the full CB file (Table 2) suggests that we have similar country composition in the final sample.

[Insert Table 6 about here]

To examine the likelihood of CBs, we also collect non-CB issuance from the SDC database for comparison. We follow the same sample selection procedure for the non-CB sample and have 2,149 issuances by 750 firms.

#### ***4.2. Comparison on firm-specific characteristics***

Table 7 shows that CB issuers differ from non-CB issuers in several aspects, and most of the differences are significant at the 1% level.<sup>2</sup> First, CB issuers are substantially smaller

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<sup>2</sup> To minimize the impact of outliers, we winsorize firm-specific variables in the 1% of both tails.

based on total sales and total assets. We also sort firm's total assets in each country and each fiscal year into ten size portfolio (1: smallest size; 10: largest size) in Compustat Global. The size portfolio value shows that CB issuers belong to very large firm category in the country (median value=8), but are still smaller than non-CB issuers (median value=10).

[Insert Table 7 about here]

Contrary to the prediction of theoretical literature, CB issuers in our sample have lower leverage ratios. Their market and book debt ratios are lower and interest coverage ratios are higher than non-CB issuers. CB issuers are less profitable and pay out fewer dividends than non-CB issuers. They have higher financial slacks but exhibit higher monthly stock return volatility than non-CB issuers. The measures for growth opportunities provide mixed results: Median Asset growth, Sales growth, M/B ratios suggest that CB issuers have slightly higher growth opportunities than non-CB issuers but the mean values show the opposite results, suggesting that a few extreme observations affect the mean values.

To summarize, CB issuers present some characteristics that are in line with the theoretical predictions. For example, their greater financial slack and lower dividend payout ratio imply they have more free cash flow concerns in Jensen's (1986) agency costs framework. However, their lower leverage ratios are not consistent with the theoretical predictions. Overall, the univariate evidence indicates that we need to control for these firm-specific factors in the regression analysis.

## **5. Multivariate Analysis**

### ***5.1 Variable definitions***

The focus of our empirical analysis is to examine whether country-specific factors provide additional explanation power on the likelihood of CB issuance, after controlling for the impact of firm-specific factors and market-specific factors. We use the Logit model with

robust variance estimator as our main regression. The dependent variable is a CB dummy, which equals to one for a CB issuance and zero for a non-CB issuance.

Firm-specific factors are defined as follows. Firm size is defined as the log of total assets in U.S. million dollars and is a measure for asymmetric information. Larger firms are expected to have lower concerns in asymmetric information (Brennan and Schwartz, 1988). Equity volatility (Return volatility) is calculated as the standard deviation of monthly stock return during the fiscal year prior to the issuance date. Return volatility also proxies for the firm-level of information asymmetry. Firms with smaller size and/or higher return volatility are more likely to issue CBs than non-CBs. Profitability (Profit) is calculated as the earnings before interest and taxes divided by total sales. Market debt ratio is defined as the total debt divided by the market value of assets, which is the sum of the firm's book assets minus the book value of the equity plus the market value of equity. Market-to-book assets ratio (M/B) measures issuers' growth opportunity and is calculated as the market value of total assets divided by book value of total assets. Firms with higher M/B ratios tend to have higher agency costs of debt, and are more likely to issue CBs.

We use a hot CB market dummy (HOT market) to capture the impact of market condition. On an *ex-post* basis, the aggregate number of CBs should be positively related to the likelihood of CB issuance. We first calculate the aggregate volume of CBs as a three-month moving average of the monthly number of CB issuances using our full CB dataset. We define a "hot" CB market if the monthly moving average number of CB issuances is higher than the median number of all moving average number. We also use 10-year Treasury bond yield and stock market index return volatility in each country to capture the *ex-ante* likelihood of CB issuance. The level of equity market volatility and interest rates should be positively related to the likelihood of CB issuance. A year 1999 dummy (Year99) is included in the regression to test whether the introduction of Euro impacts the likelihood of CB debt.

[Insert Table 8 about here]

We include legal dummies (French law, German law, and Scandinavian law), creditor rights and shareholder rights, rule of law, and several stock market and bond market development index to capture country-specific factors. The creditor rights and shareholders rights data is from Djankov, McLiesh, and Shleifer (2007) and Djankov, LaPorta, Lopez-de-Silanes, and Shleifer (2008), respectively, and other country-level data is from the World Bank. We report the mean values for 1990-2007 period in Table 8. France, which accounts for 39% of convertible issuance in our sample, has the lowest Creditor rights (value=0) among all European countries. This raises the question why CBs are so popular in a low creditor rights environment. The level of Capital market development also varies widely across countries. The U.K. and Switzerland have high stock market capitalization/GDP ratio but low bond market capitalization/GDP, implying a high level of stock market development. In contrast, Belgium and Italy have high bond market capitalization/GDP ratio but low stock market capitalization/GDP.

## ***5.2 Regression results***

Table 9 reports the regression results of the Logit model. We further perform two statistical tests (Somers's D and ROC) for the in-sample predictive power for each regression. The Somers's D ranges between -1.0 and 1.0 where -1.0 (1.0) represents the lowest (highest) predictive power. The ROC shows the area under the receiver operating characteristic (ROC) curve. The ROC value of 1 implies that the logit model perfectly predicts the dependent variable and a value of 0.5 implies that the logit model randomly predicts the dependent variable.

[Insert Table 9 about here]

We first estimate the impact of firm-specific factors on the likelihood of CB issuance. In column 1, four firm-level variables are statistically significant at the 1% level and only

M/B ratio is not significant at any level. The coefficients on Firm Size and Return Volatility are negative (coeff.=-0.415) and positive (coeff.=4.242), supporting the theoretical predictions that firms with smaller size and higher return volatility are more likely to issue CBs than non-CBs. The coefficient on Market Debt Ratio is -1.988 ( $t=2.91$ ), implying that firms with higher leverage are less likely to issue CBs. This result is not consistent with the delayed-equity view because a high-levered firm can lower their debt ratios through converting CBs into equity. The ROC and Somer's D values are 0.7678 and 0.5356, respectively.

Columns 2 and 3 include additional variables capturing the market condition. In column 2, we find that equity market index volatility is positive and significant, consistent with the market timing theory prediction. In column 3, we include the *ex-post* measure for the CB market condition and find the coefficient on HOT convertible market is not significant at level. Since the fit and predictability of regressions in column 2 is better than that in column 3, in the remaining regressions we include the equity market index volatility and 10-year Treasury bond yield to proxy for market conditions.

Next, we add country level variables in the regressions. In column 4, we add three law dummies – French law, German law, and Scandinavian law, and find that the coefficients on three law variables are significant. The predictive power of the model improve significantly in contrast to previous models: Pseudo  $R^2$  increased from 0.1547 in column 2 to 0.2265 in column 4; ROC value increase from 0.7750 to 0.8168; and Somer's D value increase from 0.5499 to 0.6355.

In column 5, we add creditor rights and shareholder rights. The coefficient on creditor rights is negative and significant at the 5% level. This result suggests that firms from lower creditor rights countries are more likely to issue convertibles. The coefficient on Shareholder rights is not significant at any level. In column 6, we add Rule of law, Year 99 dummy, Stock market development index, Financial intermediary development index, Listed companies per



capita, Public bond market capitalization/GDP, and International debt issues/GDP. Most of the coefficients on those additional variables are not significant except two variables. Year 99 dummy is negative (-0.68) and significant at the 5% level. International debt issues/GDP is positive and significant (1.501,  $t=2.10$ ), implying that firms from countries relying on international bond market are more likely to issue convertibles.

[Insert Table 10 about here]

We continue to explore why the coefficient on Creditor rights is negative in Table 10. Since the Creditor rights index is calculated by summing up four dummy variables (No\_autostay, Secured\_first, Restrict\_reorg, and Mgmt\_no\_stay), we include them separately in the regressions. In columns 1 to 4, although the coefficients on all four dummy variables are negative, only Mgmt\_no\_stay is statistically significant. In column 5, we include Creditor rights index and Dividend payout ratio in the regression. Brockman and Unlu (2009) argue that creditor rights influence dividend policies and low dividend payouts serve as a substitute mechanism for weak creditor rights. We find that the coefficient on Dividend payout is negative (-0.536,  $t=2.29$ ) while the coefficient on Creditor rights remain negative and significant (-0.137,  $t=1.72$ ). Overall, our evidence supports that country-specific factors significantly affect the likelihood of CB issuance after controlling for the firm and industry variables.

## **6. Summary and future work**

We use a large European convertible dataset to examine the geography of European CB bonds during 1990-2007. Prior studies using the U.S. and Japanese samples cannot investigate the influence of country-specific factors on CB markets. This study fills the gap and explicitly tests the impact of country-specific factors on the likelihood of CB issuance, after controlling for firm-specific and market-specific factors. Our results support that country-specific factors, such as legal framework, significantly impact the likelihood of CB

issuance in contrast to non-CB issuance. We plan to conduct several additional tests in future controlling for issue-specific factors (e.g., callable, maturity, debt-like or equity-like convertibles) and other country-specific variables that are important in the European context, such as the European Monetary Union (EMU) and non-EMU countries.

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**Table 1.**  
**The Geography of Global Convertible (CB) Markets**

The CB issuance data for the period of 1990-2007 is from the SDC Global New Issues database. Panel A reports the aggregate CB issues in five regions: Africa/Middle East, Americas, Central Asia/Asia-Pacific, Europe, and Japan. Industrial issuers are firms excluding financial firms and government agencies based on the SDC variable "TF Macro Description". Panel B reports the yearly aggregate CB issuance across the five regions. All issuance amounts are in \$U.S. million.

*Panel A: Aggregate CB issues around the World*

Issuer Region	All issuers		Industrial issuers only		Industrial issuers / All issuers	
	N	Amts	N	Amts	N %	Amts %
Africa/Middle East	43	12,321	34	9,412	79%	76%
Americas	3,825	676,935	3,236	554,116	85%	82%
Central Asia/Asia-Pacific	2,367	188,284	2,081	141,762	88%	75%
Europe	1,448	361,583	754	217,454	52%	60%
Japan	2,262	246,866	2,084	217,801	92%	88%

*Panel B: Yearly CB \$ amounts around the World by all issuers*

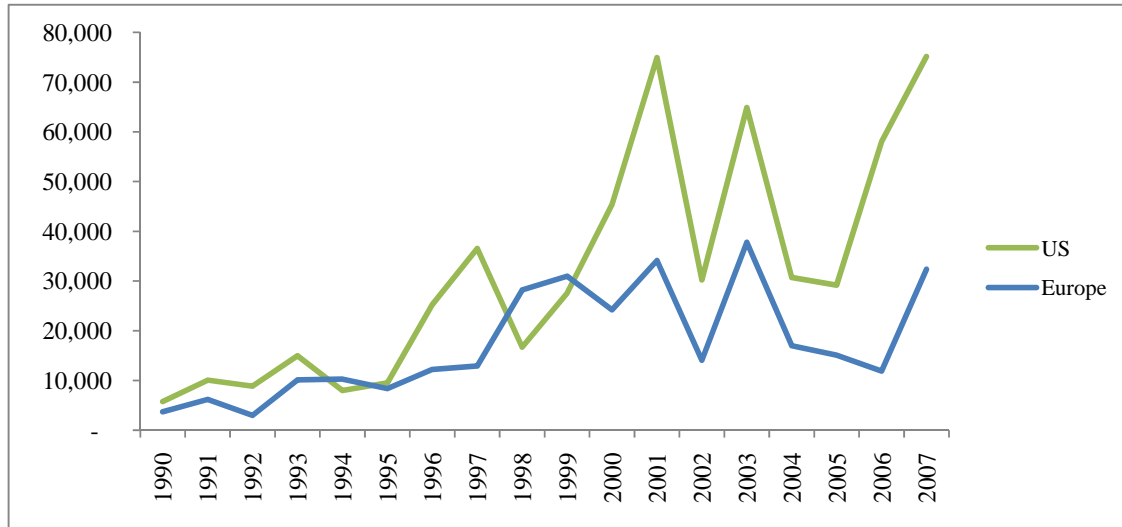
Year	Africa/Middle East	Americas	Central Asia/Asia- Pacific	Europe	Japan	Americas %	Europe %	Japan %
1990		6,602	231	3,920	30,580	16%	9%	74%
1991		11,712	1,657	6,759	10,966	38%	22%	35%
1992		10,487	589	3,030	6,590	51%	15%	32%
1993	20	20,848	5,778	10,723	20,653	36%	18%	36%
1994	420	13,993	13,409	10,428	33,010	20%	15%	46%
1995	300	17,655	4,795	8,696	10,366	42%	21%	25%
1996	298	34,368	9,340	14,290	31,546	38%	16%	35%
1997	460	43,851	12,404	16,085	2,933	58%	21%	4%
1998		24,726	4,788	30,454	2,394	40%	49%	4%
1999	100	33,143	4,907	31,541	8,801	42%	40%	11%
2000	755	52,259	9,029	25,379	6,454	56%	27%	7%
2001		83,733	11,240	43,221	4,903	59%	30%	3%
2002	62	35,297	9,658	20,112	8,910	48%	27%	12%
2003		71,072	15,233	49,023	9,573	49%	34%	7%
2004	1,402	33,834	18,946	19,887	19,360	36%	21%	21%
2005	241	31,440	10,323	17,074	12,211	44%	24%	17%
2006	2,985	66,998	21,362	17,434	20,616	52%	13%	16%
2007	5,278	84,918	34,597	33,527	7,000	51%	20%	4%
<i>Total</i>	<i>12,321</i>	<i>676,935</i>	<i>188,284</i>	<i>361,583</i>	<i>246,866</i>	<i>46%</i>	<i>24%</i>	<i>17%</i>

**Figure 1.**

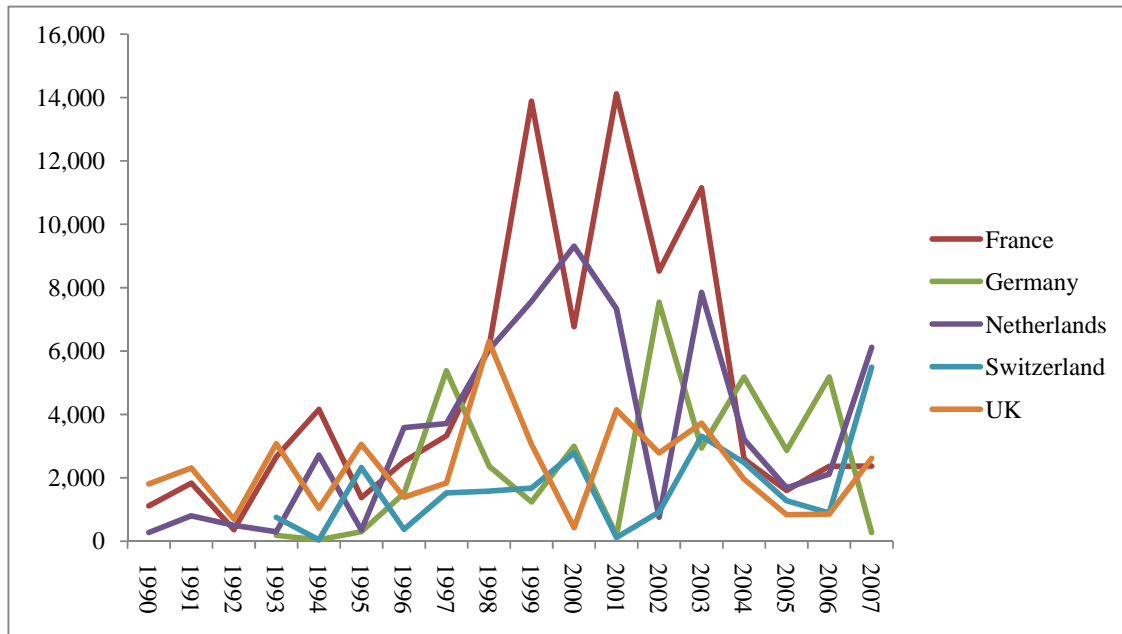
**Yearly Aggregate Convertible (CB) Bonds Issued by European and U.S. Firms**

The CB issuance data for the period of 1990-2007 is from the SDC Global New Issues database. Figure 1A shows the yearly aggregate CB issuance amount in Europe and the US. Figure 1B shows the yearly aggregate CB issuance amount in five selected European countries: France, Germany, Netherlands, Switzerland and U.K. All issuance amounts are in \$U.S. million.

*1A. The annual size of CB markets: Europe versus the U.S.*



*B. The annual size of CB markets for selected European countries*



**Table 2.****European Convertibles (CB) Issuances by All Firms, Industrial issuers, and Exchangeable CB Issues.**

The CB issuance data for the period of 1990-2007 is from the SDC Global New Issues database. Industrial issuers are firms excluding financial firms and government agencies based on the SDC variable "TF Macro Description". Exchange CB issues allow holders to exchange the CB bond for the stock of a company other than the issuer. All issuance amounts are in \$U.S. million.

Country	Issues by all firms			Exchangeable issues by all firms			Issues by industrial firms*			Exchangeable issues by industrial firms			Ratios		
	N	Amts(a)	%	N	Amts(b)	%	N	Amts(c)	%	N	Amts(d)	%	(b)/(a)	(c)/(a)	(d)/(c)
Austria	23	5,600	2%	3	921	1%	12	4,324	2%	2	620	2%	16%	77%	14%
Belgium	27	5,901	2%	6	915	1%	12	1,290	1%				16%	22%	0%
Denmark	6	367	0%			0%	5	350	0%				0%	96%	0%
Finland	60	2,776	1%			0%	40	1,945	1%				0%	70%	0%
France	245	86,845	28%	35	22,656	20%	209	71,973	38%	27	17,714	45%	26%	83%	25%
Germany	193	38,258	12%	129	23,683	21%	44	14,711	8%	7	2,444	6%	62%	38%	17%
Greece	14	5,229	2%	8	3,596	3%	7	462	0%	2	218	1%	69%	9%	47%
Ireland	11	2,478	1%	5	1,569	1%	4	280	0%				63%	11%	0%
Italy	57	20,218	6%	13	7,425	7%	21	8,097	4%	1	515	1%	37%	40%	6%
Netherlands	199	64,238	21%	78	27,210	24%	108	37,602	20%	18	11,192	28%	42%	59%	30%
Norway	23	2,923	1%	1	122	0%	14	2,518	1%				4%	86%	0%
Portugal	7	3,100	1%	3	1,531	1%			0%				49%	0%	
Spain	18	2,651	1%			0%	13	1,215	1%				0%	46%	0%
Sweden	28	3,084	1%	11	330	0%	17	2,755	1%				11%	89%	0%
Switzerland	81	25,653	8%	19	10,880	10%	50	12,069	6%	8	2,636	7%	42%	47%	22%
United Kingdom	172	41,919	13%	41	11,080	10%	101	28,910	15%	8	4,207	11%	26%	69%	15%
Total	1,164	311,238	100%	352	111,916	100%	657	188,500	100%	73	39,547	100%	26%	61%	21%

**Table 3.****Industry Composition of Non-financial Convertible Issuers: European versus the U.S. Firms**

The CB issuance data for the period of 1990-2007 is from the SDC Global New Issues database. Non-financial issuers are firms excluding financial firms and government agencies. The Industry classification is based on the SDC variable "TF Macro Description". All issuance amounts are in \$U.S. million.

Industry	U.S.		Europe all		<i>Selected European countries</i>									
					France		Germany		Netherlands		Switzerland		United Kingdom	
	Amts	%	Amts	%	Amts	%	Amts	%	Amts	%	Amts	%	Amts	%
Consumer Products and Services	17,856	4%	10,135	5%	3,872	5%	2,311	16%	2,460	7%	176	1%	850	3%
Consumer Staples	9,658	2%	9,478	5%	2,256	3%	620	4%	3,528	9%	300	2%	1,881	6%
Energy and Power	55,152	11%	25,193	13%	12,351	17%	1,205	8%	3,406	9%	419	3%	4,887	17%
Healthcare	91,061	18%	5,523	3%	561	1%	77	1%	99	0%	1,926	16%	2,303	8%
High Technology	114,652	23%	19,891	11%	6,196	9%	702	5%	8,660	23%	3,546	29%	220	1%
Industrials	44,218	9%	26,794	14%	6,340	9%	4,069	28%	5,407	14%	1,819	15%	4,262	15%
Materials	18,597	4%	18,135	10%	5,460	8%	3,522	24%	1,224	3%	3,251	27%	3,160	11%
Media and Entertainment	50,349	10%	20,165	11%	13,035	18%	406	3%	2,789	7%	0	0%	2,930	10%
Real Estate	31,698	6%	10,139	5%	1,738	2%	1,385	9%	239	1%	318	3%	2,392	8%
Retail	24,535	5%	11,127	6%	6,046	8%	418	3%	1,752	5%	213	2%	2,119	7%
Telecommunications	38,482	8%	32,780	17%	14,640	20%	0	0%	8,140	22%	101	1%	4,067	14%
<b>Total</b>	<b>496,257</b>	<b>100%</b>	<b>189,360</b>	<b>100%</b>	<b>72,493</b>	<b>100%</b>	<b>14,716</b>	<b>100%</b>	<b>37,702</b>	<b>100%</b>	<b>12,069</b>	<b>100%</b>	<b>29,072</b>	<b>100%</b>



**Table 4.**  
**Marketplace of European Non-financial Convertible (CB) Issuances**

The CB issuance data for the period of 1990-2007 is from the SDC Global New Issues database. Non-financial issuers are firms excluding financial firms and government agencies based on the SDC variable “TF Macro Description”. All issuance amounts are in \$U.S. million.

*Panel A: CB issues in public and private markets*

Country	Issues in Public Market		Issues in Private Market		Public issue	
	N	Amts	N	Amts	N %	Amts %
Austria	12	4,324			100%	100%
Belgium	10	1,220	2	69	83%	95%
Denmark	4	203	1	147	80%	58%
Finland	19	1,627	21	318	48%	84%
France	199	63,584	12	8,910	94%	88%
Germany	36	13,658	9	1,058	80%	93%
Greece	5	419	2	42	71%	91%
Ireland	4	280	1	20	80%	93%
Italy	18	7,242	3	855	86%	89%
Netherlands	94	33,418	15	4,285	86%	89%
Norway	12	2,429	2	89	86%	96%
Spain	11	940	2	275	85%	77%
Sweden	12	2,519	9	289	57%	90%
Switzerland	44	10,275	6	1,793	88%	85%
United Kingdom	84	23,963	26	5,109	76%	82%
<i>Europe total</i>	<i>564</i>	<i>166,101</i>	<i>111</i>	<i>23,259</i>	<i>84%</i>	<i>88%</i>
<i>United States</i>	<i>690</i>	<i>168,319</i>	<i>1,716</i>	<i>327,938</i>	<i>29%</i>	<i>34%</i>

*Panel B: CB issues in domestic, Euro and foreign markets*

Country	Domestic		Euro		Intl.		Domestic Amts %	Euro Amts %	Intl. Amts %
	N	Amts	N	Amts	N	Amts			
Austria	3	97	9	4,227			2%	98%	0%
Belgium	3	95	7	1,097	2	97	7%	85%	8%
Denmark	3	34	1	169	1	147	10%	48%	42%
Finland	33	1,105	7	840			57%	43%	0%
France	56	7,356	132	60,525	23	4,613	10%	83%	6%
Germany	3	580	37	12,939	5	1,197	4%	88%	8%
Greece	4	103	3	359			22%	78%	0%
Ireland	2	87	1	72	2	141	29%	24%	47%
Italy	5	1,025	15	7,021	1	52	13%	87%	1%
Netherlands	6	245	89	34,389	14	3,068	1%	91%	8%
Norway	6	272	7	2,140	1	106	11%	85%	4%
Spain	9	554	4	661			46%	54%	0%
Sweden	3	1,053	9	1,167	9	588	37%	42%	21%
Switzerland	9	1,010	11	5,107	30	5,951	8%	42%	49%
United Kingdom	2	86	90	26,335	18	2,651	0%	91%	9%
<i>Europe total</i>	<i>147</i>	<i>13,700</i>	<i>422</i>	<i>157,050</i>	<i>106</i>	<i>18,610</i>	<i>7%</i>	<i>83%</i>	<i>10%</i>
<i>United States</i>	<i>2,191</i>	<i>452,649</i>	<i>129</i>	<i>20,907</i>	<i>86</i>	<i>22,702</i>	<i>91%</i>	<i>4%</i>	<i>5%</i>

**Table 5.****European Convertible (CB) Bonds with Right to Call (or Put)**

Table 5 shows the amount of European CB issuance with right to call or put. The CB data is provided by Exane and BNP Paribas for the period of 1992-2005. We manually check this data with the SDC data and find that most issues are identical between the two sources.

Countries	# Of convertibles that include a call	% Of convertibles that include a call / Of convertibles without a call	# Of convertibles that include a put	% Of convertibles that include a put / Of convertibles without a put
Austria	4	40.0%	0	0.0%
Belgium	10	58.8%	1	5.9%
Cyprus	1	100.0%	0	0.0%
Denmark	3	75.0%	0	0.0%
Finland	7	58.3%	0	0.0%
France	196	88.7%	18	8.1%
Germany	55	73.3%	10	13.3%
Greece	6	100.0%	0	0.0%
Hungary	1	100.0%	0	0.0%
Ireland	4	100.0%	1	25.0%
Italy	53	59.6%	14	15.7%
Luxembourg	9	69.2%	2	15.4%
Netherlands	59	96.7%	1	1.6%
Norway	1	20.0%	0	0.0%
Poland	4	80.0%	2	40.0%
Portugal	4	80.0%	0	0.0%
Russia	4	100.0%	0	0.0%
Spain	11	68.8%	1	6.3%
Sweden	5	25.0%	1	5.0%
Switzerland	94	74.6%	18	14.3%
UK	85	85.9%	10	10.1%
<b>Total</b>	<b>616.0</b>	<b>77.6%</b>	<b>79.0</b>	<b>10%</b>

**Table 6.****Sample Distribution of European Convertible and Straight Debt Issuances**

This table compares the sample distribution of convertible (CB) and straight debt (Non-CB) issuances. We collect the CB and non-CB debt issuance data from the SDC Global New Issues database for the period of 1990-2007. To remain in the final sample, both CBs and non-CBs must meet the following requirements: 1) non-financial firms and non-government related agencies only; 2) the country's legal classification is available in LLSV (1997, 1998); 3) the accounting data and market value of the issuing firm must be available on Compustat Global database for the fiscal year-end immediately prior to the issuance date; 4) keep only one issuance if one issuer has multiple convertible issuances at the same date; 5) excluding exchangeable convertible issues.

	CBs		Non-CBs	
	N	%	N	%
Austria	3	1%	35	2%
Belgium	3	1%	32	1%
Denmark	4	1%	16	1%
Finland	8	3%	52	2%
France	110	39%	505	23%
Germany	16	6%	193	9%
Greece	3	1%	7	0%
Ireland	2	1%	11	1%
Italy	6	2%	96	4%
Netherlands	41	15%	112	5%
Norway	7	3%	73	3%
Portugal	0	0%	28	1%
Spain	6	2%	78	4%
Sweden	4	1%	55	3%
Switzerland	22	8%	105	5%
United Kingdom	45	16%	751	35%
Total	280	100%	2149	100%

**Table 7.****Firm Characteristics for European Convertible and Straight Debt Issuers**

This Table compares firm characteristics between European convertible (CB) and straight debt (Non-CB) issuers. We collect the firm-specific factors from the Compustat Global database. Size portfolio value: we rank total assets for the firms in each European countries within each fiscal year into ten size portfolio and assign them values 1 to 10 (1: smallest firms; 10: largest firms). Asset growth and sale growth are the annual percentage increase in total assets and net sales. M/B asset ratio is the sum of total assets minus the book value of common equity plus the market value of common equity divided by the total assets. M/B equity ratio is the market value of equity divided by the book value of equity. Asset tangibility is the net tangible assets divided by the total assets. Financial slack is the sum of cash and other short-term investments divided by the total assets. Operating margin is the operating income divided by the total sales. Net income margin is the net income divided by the total sales. Interest coverage is the operating income divided by the interest expenses. Book (market) debt ratio is the total debt divided by the book (market) value of assets. Depreciation ratio is the amount of depreciation and amortization divided by the total assets. Dividend payout ratio is the dividends divided by the net income. *t* test and Wilcoxon *z* test compare the difference in mean and median values.

	Convertibles		Straight debt issuers		<i>t</i> -test	Wilcoxon <i>z</i> -test
	Mean	Median	Mean	Median		
Total Assets (\$mil.)	83081.75	2094.34	187999.20	14075.79	**	***
Size portfolio value	7.50	8.00	9.04	10.00	***	***
Sales (\$mil.)	44786.98	1996.83	91452.10	11433.40	**	***
Assets growth	0.30	0.09	3.12	0.07	**	
Sales growth	0.65	0.09	6.08	0.06	*	**
M/B asset ratio	7.33	1.37	29.54	1.32	***	
M/B equity ratio	21.03	2.04	72.39	2.04	***	
Assets tangibility	0.29	0.25	0.41	0.37	***	***
Financial slack	0.12	0.09	0.08	0.06	***	***
Operating margin	0.06	0.07	0.11	0.09	***	***
Net income margin	0.01	0.03	0.05	0.04	***	***
Interest coverage	6.87	3.78	4.73	3.62	***	
Book debt ratio	0.27	0.26	0.31	0.29	***	***
Market debt ratio	0.19	0.17	0.22	0.21	***	***
Depreciation ratio	0.05	0.04	0.05	0.04		
Dividend payout ratio	0.16	0.00	0.32	0.28	***	***
Monthly return volatility	0.14	0.11	0.10	0.08	***	***

\*, \*\* and \*\*\* represent 10%, 5% and 1% significance level, respectively.

**Table 8.**  
**Country-level data for 16 European countries**

This table reports country-level data for 16 Western European countries. Creditor rights and Shareholders (S.H) rights are from Djankov, McLiesh, and Shleifer (2007) and Djankov, LaPorta, Lopez-de-Silanes, and Shleifer (2008), respectively. The remaining country-level data is from World Bank. We present the mean values for the 1990-2007 period. GDP and GDP per Capita are in U.S dollars. Stock market cap./GDP is the value of listed shares to GDP. Stock value traded/GDP is the total shares traded on the stock market exchange to GDP. Stock turnover is the ratio of the value of total shares traded to average real market capitalization. Stock market development is average of standardized values of market capitalization to GDP, total value traded to GDP, and total value traded to market capitalization ratios. Financial intermed. development is the average of standardized values of liquid liabilities to GDP and domestic credit for private firms to GDP ratios. Listed firms per capita is the number of publicly listed companies per capita. Bond market cap./GDP is the public domestic debt securities issued by government as a share of GDP. Int. debt issues/GDP is the international debt securities (amount outstanding) as a share of GDP.

Country	Legal system	Creditor rights	S.H rights	GDP (\$bil.)	GDP per capita	Stock market cap./GDP	Stock value traded/GDP	Stock turnover	Stock market development	Financial intermed. development	Listed firms per capita	Bond market cap./GDP	Int. debt issues /GDP
Austria	German	3	2.5	230	28643	0.20	0.09	0.48	0.26	0.93	0.13	0.31	0.41
Belgium	French	2	3	280	27246	0.57	0.17	0.25	0.33	0.76	0.17	0.96	0.48
Denmark	Scandinavian	3	4	189	35440	0.49	0.33	0.60	0.47	0.71	0.43	0.50	0.20
Finland	Scandinavian	1	3.5	144	27889	0.90	0.78	0.69	0.79	0.60	0.21	0.29	0.37
France	French	0	3.5	1611	26456	0.61	0.50	0.69	0.60	0.77	0.12	0.40	0.23
Germany	German	3	3.5	2289	27972	0.39	0.45	1.12	0.65	0.96	0.08	0.29	0.36
Greece	French	1	2	159	14609	0.39	0.24	0.44	0.36	0.55	0.23	0.59	0.22
Ireland	English	1	5	112	28467	0.60	0.29	0.50	0.43	0.80	0.18	0.30	0.47
Italy	French	2	2	1338	23270	0.34	0.36	0.83	0.51	0.63	0.04	0.87	0.20
Netherlands	French	3	2.5	451	28423	0.95	1.02	0.95	0.97	1.05	0.14	0.44	0.59
Norway	Scandinavian	2	3.5	190	42314	0.38	0.36	0.75	0.50	0.61	0.37	0.18	0.21
Portugal	French	1	2.5	129	12578	0.31	0.20	0.51	0.34	0.96	0.12	0.41	0.30
Spain	French	2	5	741	17941	0.57	0.88	1.19	0.88	0.89	0.35	0.41	0.29
Sweden	Scandinavian	1	3.5	282	31783	0.90	0.85	0.81	0.85	0.54	0.29	0.43	0.40
Switzerland	German	1	3	297	41029	1.89	1.80	0.82	1.48	1.45	0.33	0.21	0.34
United Kingdom	English	4	5	1557	26349	1.31	1.07	0.77	1.05	1.10	0.36	0.30	0.35
<i>European Average</i>		<i>1.88</i>	<i>3.38</i>	<i>625</i>	<i>27526</i>	<i>0.68</i>	<i>0.59</i>	<i>0.72</i>	<i>0.66</i>	<i>0.83</i>	<i>0.22</i>	<i>0.43</i>	<i>0.34</i>

**Table 9.**  
**Logit Regression of Likelihood of Convertible Issuance.**

This table reports Logit regression result of the impact of firm, market and country-specific factors on the likelihood of convertible (CB) issuances compared to straight debt (non-CB) issuance. The dependent variable is the CB dummy, which equals to one if it is a convertible and zero if it is a non-CB issuance. Firm size is the log of total assets in U.S. million dollars. Profit is the operating income divided by the total sales. Market debt ratio is total debt divided by the market value of assets. Return volatility is the standard deviation of monthly stock return during the fiscal year prior to the issuance date. M/B ratio is the sum of total assets minus the book value of common equity plus the market value of common equity divided by the total assets. 10-year Treasury bond yield is from the OECD statistics. Equity market index volatility is the standard deviation of monthly stock market return during the year prior to the issuance date. French law, German Law and Scandinavian Law equal to one if the country belongs to the specific legal framework outlined in LLSV (1997, 1998), and equal to zero otherwise. Creditor rights and Shareholders rights are from Djankov, McLiesh, and Shleifer (2007) and Djankov, LaPorta, Lopez-de-Silanes, and Shleifer (2008), respectively. Year99 is a dummy variable that equals to one if the issuance is after year (including) year 1999 and zero otherwise. The remaining variables are provided by the World Bank. Rule of law is from Worldwide Governance Indicators (WGI). Stock market development is average of standardized values of market capitalization to GDP, total value traded to GDP, and total value traded to market capitalization ratios. Financial intermediary development is the average of standardized values of liquid liabilities to GDP and domestic credit for private firms to GDP ratios. Listed companies per capita is the number of publicly listed companies per capita. Bond market capitalization/GDP is the public domestic debt securities issued by government as a share of GDP. International debt issues/GDP is the international debt securities (amount outstanding) as a share of GDP.

	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	1.763*** (4.83)	1.430*** (2.98)	1.817*** (4.86)	1.101** (2.40)	1.122 (1.19)	0.631 (0.24)
Firm size	-0.415*** (9.51)	-0.430*** (9.80)	-0.416*** (9.52)	-0.572*** (12.44)	-0.599*** (12.00)	-0.578*** (10.16)
Profit	-2.449*** (3.50)	-2.402*** (3.37)	-2.470*** (3.53)	-2.190*** (2.79)	-2.186*** (2.80)	-2.473*** (3.05)
Market debt ratio	-1.988*** (2.91)	-2.008*** (2.94)	-1.978*** (2.90)	-2.344*** (3.40)	-2.426*** (3.47)	-2.121*** (2.84)
Return volatility	4.242*** (5.51)	3.986*** (5.06)	4.256*** (5.51)	2.856*** (3.50)	2.617*** (3.13)	3.574*** (3.69)
M/B ratio	-0.001 (0.84)	-0.001 (0.78)	-0.001 (0.84)	-0.001 (0.77)	-0.001 (0.52)	-0.000 (0.16)
10-year treasury bond yield		-0.010 (0.24)		0.123*** (2.80)	0.136*** (3.03)	0.203*** (2.60)
Equity market index volatility		11.341*** (4.05)		6.451** (2.11)	7.853** (2.45)	7.144 (1.63)
HOT convertible market			-0.090 (0.64)			
French law				2.106*** (9.43)	1.947*** (3.90)	1.898*** (2.99)
German Law				1.080*** (4.02)	1.078** (2.38)	0.955* (1.85)
Scandinavian Law				0.693** (2.21)	0.497 (1.02)	0.608 (0.67)
Creditor rights					-0.167** (2.11)	-0.281*** (2.68)
Shareholder rights					0.146 (0.88)	0.168 (0.64)
Rule of law						-0.502 (0.73)
Year99						-0.680** (2.05)
Stock market developemnt						0.062 (0.23)
Financial intermediary development						0.952 (0.89)
Listed companies per capita						-0.157 (0.14)
Public bond market capitalization/GDP						-0.817 (0.61)
International debt issues/GDP						1.501** (2.10)
N	2199	2196	2199	2196	2196	2060
Log likelihood	-683.78	-676.88	-683.58	-619.38	-615.26	-553.81
Pseudo R <sup>2</sup>	0.1465	0.1547	0.1467	0.2265	0.2316	0.2383
ROC	0.7678	0.7750	0.7676	0.8168	0.8199	0.8252
Somer's D	0.5356	0.5499	0.5352	0.6335	0.6398	0.6504

\*, \*\* and \*\*\* represent 10%, 5% and 1% significance level, respectively.

**Table 10.****Separating the Impact of Creditor Rights on the Likelihood of Convertible Issuance**

This table reports Logit regression result of the impact of firm, market, and country-specific factors on the likelihood of convertible (CB) issuances compared to straight debt (non-CB) issuance. The dependent variable is the CB dummy, which equals to one if it is a convertible and zero if it is a non-CB issuance. Firm size is the log of total assets in U.S. million dollars. Profit is the operating income divided by the total sales. Market debt ratio is total debt divided by the market value of assets. Return volatility is the standard deviation of monthly stock return during the fiscal year prior to the issuance date. M/B ratio is the sum of total assets minus the book value of common equity plus the market value of common equity divided by the total assets. 10-year Treasury bond yield is from the OECD statistics. Equity market index volatility is the standard deviation of monthly stock market return during the year prior to the issuance date. French law, German Law and Scandinavian Law equal to one if the country belongs to the specific legal framework outlined in LLSV (1997, 1998), and equal to zero otherwise. Creditor rights and Shareholders rights are from Djankov, McLiesh, and Shleifer (2007) and Djankov, LaPorta, Lopez-de-Silanes, and Shleifer (2008), respectively. NO\_AUTOSTAY equals one if there is no automatic stay on assets, and zero otherwise. SECURED\_FIRST equals one if secured creditors are given the absolute priority claims during bankruptcy, and zero otherwise. RESTRICT\_REORG equals one if management cannot file for reorganization unilaterally, and zero otherwise. MGMT\_NOT\_STAY equals one if either creditors or courts can change the incumbent management during bankruptcy proceedings.

	(1)	(2)	(3)	(4)	(5)
Intercept	0.594 (0.67)	0.024 (0.03)	0.516 (0.50)	0.643 (0.78)	1.216 (1.29)
Firm size	-0.591*** (11.80)	-0.594*** (12.06)	-0.596*** (12.24)	-0.599*** (11.86)	-0.593*** (11.92)
Profit	-2.146*** (2.76)	-2.209*** (2.84)	-2.198*** (2.84)	-2.193*** (2.82)	-1.956** (2.55)
Market debt ratio	-2.346*** (3.39)	-2.400*** (3.44)	-2.372*** (3.40)	-2.437*** (3.49)	-2.421*** (3.48)
Return volatility	2.753*** (3.33)	2.677*** (3.22)	2.671*** (3.20)	2.621*** (3.16)	2.492*** (2.99)
M/B ratio	-0.001 (0.67)	-0.001 (0.65)	-0.001 (0.59)	-0.001 (0.49)	-0.000 (0.31)
10-year treasury bond yield	0.121*** (2.77)	0.129*** (2.89)	0.124*** (2.79)	0.136*** (3.07)	0.138*** (3.12)
Equity market index volatility	6.830** (2.21)	7.725** (2.39)	7.408** (2.33)	7.825** (2.44)	7.992** (2.46)
French law	2.168*** (4.42)	2.499*** (6.30)	2.323*** (4.43)	2.260*** (5.46)	1.845*** (3.73)
German Law	1.109** (2.21)	1.507*** (3.90)	1.448*** (3.52)	1.247*** (2.97)	1.029** (2.30)
Scandinavian Law	0.734 (1.64)	0.884** (2.06)	0.963** (2.35)	0.581 (1.28)	0.437 (0.90)
Shareholder rights	0.205 (1.43)	0.279* (1.90)	0.201 (1.13)	0.199 (1.27)	0.131 (0.80)
No_autostay	-0.381 (1.18)				
Secured_first		-0.224 (1.16)			
Restrict_reorg			-0.263 (0.94)		
Mgmt_no_stay				-0.447** (2.35)	
Creditor rights					-0.137* (1.72)
Dividend payout					-0.536** (2.29)
N	2196	2196	2196	2196	2196
Log likelihood	-616.73	-616.8	-617.04	-614.57	-611.73
Pseudo R <sup>2</sup>	0.2298	0.2297	0.2294	0.2325	0.236
ROC	0.8175	0.8185	0.8182	0.8204	0.8234
Somer's D	0.6351	0.6371	0.6364	0.6408	0.6469

\*, \*\* and \*\*\* represent 10%, 5% and 1% significance level, respectively.