World Markets for Raising New Capital

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December 12, 2003

Abstract

Financial markets are increasingly integrated globally. We examine the extent to which firms from countries around the world rely on different sources of capital, the locations where they raise capital, and the factors that affect these choices during the 1990-2001 period. Firms raised about $25.9 trillion of new capital, including $4.7 trillion from abroad. International debt issuances are substantially more common than equity, accounting for over 90% of the international security issues, and about 20% of all public debt issues. In contrast, international equity issues account for about 4.4% of all international security issues, and about 6% of all equity issues during our sample period. Market timing considerations appear to be very important in security issuance decisions. Firms all around the world are more likely to issue equity prior to periods of low market returns. Most of the cross-border equity is issued in the U.S. and the U.K., and these issues tend to occur in 'hot' markets and prior to relatively low market returns. Finally, firms issue more debt when interest rates are lower, and issue debt overseas when interest rates in the place of issue are lower than they are at home.

We thank David Weisbach, Jeff Wurgler and participants in presentations at Columbia University, Georgetown University, the University of Central Florida, the University of Illinois, and the University of Toronto for helpful suggestions. The authors can be reached via email at bjhndrsn@uiuc.edu, Narasimhan_Jegadeesh@bus.emory.edu, and weisbach@uiuc.edu.

1. Introduction

The financial markets are increasingly integrated globally. Corporations now have tremendous amounts of flexibility in deciding on the type of securities that they can issue to fund their investments, and also on the locations where they can issue these securities. For instance, firms in Europe can issue bonds, convertible bonds, or stocks in the U.S. or in Japan to raise capital. However, we know very little about the extent to which firms make use of this wide array of financing choices in practice, and how the practice varies internationally. For example, we do not have hard empirical evidence to answer the following questions: How do firms across the world raise capital to fund their investments? To what extent do firms rely on capital domestically, and to what extent do they raise capital internationally? Are some countries more dependent on foreign capital than the others? Do firms find it easier to raise some form of capital, such as debt, more easily outside their borders than other forms of capital, such as equity? To what extent do the conditions of the financial markets, and factors such as interest rates and equity valuations affect the decision of what security to issue, and where to issue that security?

The answers to these questions will broaden our understanding of corporate finance in a globally integrated environment. In perfectly frictionless markets, the fundamental Modigliani and Miller (1958) theorem implies that just as the type of securities a firm issues is irrelevant, the location where these securities are issued is also irrelevant. However, market frictions and a less than perfect integration of capital markets make the choice of marketplace an important consideration for practitioners. Understanding this choice, i.e., which geographic market a firm should use when it acquires capital, is an important issue that has received little attention in the corporate finance literature.

In an international context, Stulz (1999) points out that expanding the shareholder base internationally improves risk sharing, and thereby lowers the cost of capital. Of course, shareholders can diversify their portfolios internationally, and hence in perfectly integrated markets it would not be necessary for firms to raise capital from outside their borders to expand their base of shareholders. However, because of investors' home-bias, regulatory frictions, and tax considerations, firms sometimes have to directly raise capital from abroad to take advantage of any lower cost-of-capital abroad. In fact,

Edison and Warnock (2003) document that foreign ownership increases after firms cross-list their shares abroad.

There are also several other advantages in raising capital abroad. As Coffee (1999) and Reese and Weisbach (2002) point out, when firms issue stocks in countries with strict capital market regulations and tighter reporting standards than in their home countries, they commit to abide by these higher standards. Also, when foreign secondary markets are more liquid, firms can take advantage of the better liquidity when they raise capital in these markets (see Pagano, Roell, and Zechner, 2002). These benefits in turn potentially allow firms to lower their cost of capital.

Although we know many of the advantages of raising capital internationally from a theoretical perspective, we do not have empirical evidence on the extent to which firms rely on foreign markets relative to domestic markets for their capital needs. Several recent papers, including Alexander, Eun, and Janakiraman (1988), Bancel and Mittoo (2001), Pagano et al. (2002), and Sarkissian and Schill (2003), examine the characteristics of firms that list their equity abroad, and the price effects of cross-listings. These papers typically focus on the effects of cross-listing a firm's equity, rather than on raising new capital. In contrast, we focus on the amount of new capital that firms in countries across the world raise abroad. In addition, most of the existing academic literature focuses on cross-listings of equity, neglecting international issuances of other types of securities such as debt.

This paper addresses a number of questions about where and what kinds of securities firms issue to raise capital. We examine all forms of public securities that are issued to raise new capital. Specifically, we examine the amount of capital that firms in different countries raised in the 1990-2001 period, and the forms of securities that they issue to raise the capital. We also examine the extent to which firms rely on domestic capital relative to foreign capital to fund their investments. We evaluate the importance of different factors that affect their choice of when and where to issue different kinds of securities.

The extant literature finds that one of the important factors that influence issuance of new securities is market timing. For example, Ritter (1991), Spiess and Affleck-Graves (1995) and Loughran

and Ritter (1995) find that firms are more likely to issue stocks prior to a decline in their value. At the aggregate level, Baker and Wurgler (2000) document that firms in the U.S. tend to issue a larger proportion of equity relative to debt when the market as a whole is overvalued.

This paper examines whether, internationally, firms time the market when they issue new equity. In addition, we also examine whether firms time debt issuances the same way as they appear to time equity issuances. Specifically, we examine at the aggregate level whether firms issue more debt when interest rates are relatively low and are expected to rise. We examine whether firms are more likely to issue debt when issuing equity is relatively unattractive because the market is undervalued.

Furthermore, the ability to raise capital internationally allows firms an added dimension of timing opportunity. Firms can raise capital in countries when the cost of a particular form of capital is relatively low. We examine the extent to which firms take advantage of this opportunity.

We find that firms raised about $25.9 trillion of new capital during the period 1990 – 2001. International security issues are common, amounting to a total of $4.7 trillion. International issuances of debt securities are substantially more common than international equity issuances. For instance, 20.24% of corporate bonds (about $4.2 trillion), are issued outside the home country of issuing firms, compared with 6.09% of public equity offerings (about $0.2 trillion) that is issued outside the home country. During our sample period, the percentage of equity issued abroad increased from 4.7% in 1991 to 9.9% in 2001. The percentage of debt issued abroad, however, decreased from 26.6% in 1991 to 18.6% in 2001.

A number of cross-country patterns are evident from the data on international security issues. First, companies are drawn to the most liquid markets; the U.S. and the U.K. are by far the most popular sources of new cross-border equity. Firms from countries with illiquid equity markets issue a larger fraction of new equity outside their countries than do firms from countries with relatively liquid and well-developed equity markets. Proximity seems important; firms are more likely to issue securities in countries geographically close to them. European debt markets are more attractive to foreign issuers than are their equity markets. Finally, firms in the U.S. and Canada are by far the largest issuers of non-convertible preferred stocks, while convertible bonds are popular in Japan. Large fractions of both

preferred stocks and convertibles are issued internationally, although the absolute magnitude of these securities is relatively small compared to common equity and non-convertible debt.

Our next set of tests examine whether firms attempt to time the market when they issue debt and equity from two perspectives. First, we examine the relation between security issues and contemporaneously observable market conditions. We find that firms issue more equity domestically, both in absolute magnitude and as a fraction of total capital, following a run-up in the domestic stock market. Similarly, firms issue more debt when domestic interest rates are low. Firms also issue more debt abroad when the foreign rates are low relative to domestic interest rates.

The second dimension of timing that we examine is whether new debt and equity issues predict future changes in these markets. We find that firms successfully time their equity issues when the stock market appears to be overvalued. Specifically, we find that stock market returns are abnormally low following periods of high equity issues. International equity issues also predict future market returns in the countries where firms issue equity. However, we find only weak evidence that debt issues successfully time future changes in interest rates. Although firms do tap into the debt market when the contemporaneous rates are low, large debt issues do not necessarily precede a rise in interest rates.

The remainder of the paper proceeds as follows: Section 2 describes the sample and the data sources. Section 3 analyzes the securities that firms in different parts of the world issue to raise new capital, and where they issue them. Section 4 examines the correlation of new security issues across countries. Section 5 examines the extent to which firms time the market, both domestically and internationally, when they issue equity. Section 6 investigates the relationship between debt issuances and interest rates, both domestically and internationally, and the relation between debt issues and future equity market and interest rate movements. Section 7 concludes the paper.

2. Data Sources

Our primary data source for security issues is Security Data Corporation's (SDC) new issues database. SDC maintains an international transaction-level database on new issues of common equity,

preferred equity, and bonds with original maturities greater than one year dating back to 1990. SDC collects the data from a variety of different sources in each country. For example in the U.S., SDC collects new issues data from SEC filings, prospectuses, news sources, wires, and daily surveys of underwriters and financial contacts. In contrast, SDC collects the Asia-Pacific database from "more than 200 English and foreign language news sources, trade publications, wires, foreign stock exchange filings, and proprietary surveys of investment banks and other advisors."

Our sample period is from 1990 to 2001. The SDC database contains 195,375 observations of security issues during this period, which includes both public and private offerings. For a few countries, however, the SDC data are incomplete in 1990. Therefore we conduct some of our later analyses within the 1991 to 2001 sample period.

The other data sources that we use are the following: We obtain aggregate market capitalization and GDP data from the Global Market Information and the WDI databases, which are both produced by the World Bank. We obtain inflation data from the International Financial Statistics database and interest rate swap data from Datastream. We use the Datastream "total return" indices to measure the stock market returns for the larger countries in our sample. For the smaller countries, we use the regional value-weighted total return indices that Datastream provides. For example, for the "Other Asia'' category in our sample, we use the Datastream value-weighted index for "Other Asia excluding Japan'' as the market index.

To rank the general market environment of each country, we use the *Euromoney* ratings of country risk and measures of market openness. *Euromoney* conducts an annual survey of 30 economists from "leading financial and economic institutions" and ranks 180 countries on their relative country risks. This index aggregates the score in nine categories for each country: Political risk (25%), economic performance (25%), debt indicators (10%), debt in default or rescheduled (10%), credit ratings (10%), access to bank finance (5%), access to short-term finance (5%), access to financial markets (5%), and discount on forfeiting (5%). The *Euromoney* total index score and access to financial markets score are our measures of market openness.

3. Security Issues: Who issues what securities and where?

This section provides an analysis of the locations where firms from various countries raise capital, and the forms of capital that they raise domestically and internationally. We start by characterizing the trends in capital raising activities across countries and the extent of globalization over our sample period. Our analysis here will help us understand the important factors that affect the demand and supply of capital across countries. We also investigate whether some types of securities are more suitable for global issues than other types of securities.

3.1. Global Capital Markets

Table 1 presents the aggregate statistics on international capital markets in the countries in our sample during our sample period. We report the market size, GDP, and a measure of market openness compiled by *Euromoney* in 1997 for each region. We report the results for the Group of Seven (G7)[1] most developed countries separately and we aggregate the results for the other countries into 'regions.'

Table 1 also reports the *Euromoney* country risk and openness ratings for each country or region. The *Euromoney* index is clearly correlated with the level of financial development. The developed countries all have market openness ratings at or close to 5 (the maximum possible rating) while the developing countries have lower rankings. The developed countries also receive a better overall risk rating than the developing countries. In later analyses, we examine the relation between the *Euromoney* ratings and the extent to which countries rely on outside capital or the extent to which they supply capital.

3.2. Trends in Capital-Raising

We first examine the magnitude of capital that firms raise during the 1991 to 2001 sample period. We consider both public and private issues of all securities except debt less than one year to maturity. Firms typically rely on bank debt or commercial paper for short-term debt, and SDC does not collect complete data on these types of short-term debt. Table 2 presents the magnitudes of security issues over

[1] The group of most developed seven countries, commonly called the G7 countries, comprise Britain, Canada, France, Germany, Italy, Japan and the United States.

time. The amount of capital raised increases from $931 billion in 1991 to over $3.8 trillion in 2001, about 4.1 times as much. Both domestic and international issues increase substantially over the sample period, but the magnitude of domestic issues increase proportionately faster. Specifically, the capital raised domestically increases by 4.36 times during this sample period, compared with the growth of 3.14 for capital raised internationally. Therefore, although the extent to which firms go abroad to raise capital has increased in magnitude, the amount of new foreign capital as a proportion of total new capital has declined over time.

Table 2 also breaks down security issuances by type of security. Non-convertible bonds are by far the most common type of security that firms issue to raise capital. Firms issued over $20.81 trillion of debt over the 1990-2001 period, representing over 82% of total capital raised. In comparison, firms raise only $3.408 trillion, or 13.5% of total capital by issuing equity. Of course, the magnitude of debt issues is not directly comparable to the magnitude of equity issues because unlike equity, bonds have finite maturities. Firms typically roll over bonds at maturity, and hence a part of the debt issues go towards refinancing old debt and only the remaining part is new capital. Although we do not observe these components of debt issues separately, we can estimate the division between these two components if we were to assume a growth rate of capital raised from outside sources. If we were to assume a growth rate of five to ten percent, then with the appropriate adjustments (see Appendix III for details), the amount of new debt that firms raised during this period is between $5.6 trillion to $7.4 trillion. Therefore, debt provides a significantly larger fraction of the external financing used by firms in our sample than does equity.[2]

In addition to being the more important source of new outside funding, debt is also more commonly issued abroad than is equity. In our sample period, over 20% of debt is issued internationally, compared to only about 6.1% of equity. Among the bond issues, firms raise more international debt for long-maturity bonds than for short-maturity bonds. For example, 23% of bonds with maturities longer

[2] Consistent with these findings are the results from Rajan and Zingales (1995), who find that in an earlier sample period (1984-1991), debt provides the majority of new financing for firms in all G-7 countries except France.

than five years are issued internationally, compared with 17% of the shorter-term bond issues. Quite likely, firms go abroad more frequently for bonds with longer maturities because of the incremental fixed costs associated with issuing securities abroad.

The greater internationalization of debt markets than equity markets is especially striking when we consider the fact that cross-border issues of debt do not offer many of the advantages of cross-listings of equity that the papers in the literature discuss.[3] For example, Karolyi (1998) notes that cross-border equity issues increase issuers' visibility in the foreign markets, and Coffee (1999) and Reese and Weisbach (2002) emphasize the governance implications of cross-listing of a firm's equity in well-regulated markets such as the U.S. In contrast, cross-border debt issues do not offer increased visibility for the issuer, and also, regulations typically do not require that the debt issuers abide by the reporting standards in the country of issues.[4]

Cross-border debt issues, however, do offer some advantages that cross-border equity issues do not provide. One important advantage of foreign debt is the potential to hedge exchange rate risk. For example, firms that have significant revenues in foreign currencies can hedge their exchange rate risks by issuing debt in those currencies. Since, unlike bonds, equity does not promise fixed periodic cash flows, it is not suitable for hedging cash flow risks. Therefore, it is likely that firms with significant foreign exchange risk will issue foreign debt in the currency to which they have exposures.[5]

There are also important tax considerations in the decision of where to issue debt. The ability to utilize an interest deduction in an international context depends on a number of factors, including the location of the income and the interest payment. The process for "allocating" the interest deduction depends on where the bond is issued. The ultimate choice of the optimal place to issue a bond from a tax

[3] The debt instruments have finite maturities and hence the fixed costs associated with foreign issues would tend to favor issuance of equity.
[4] The rating agencies in the country of issue may require accounting and other disclosures that are more stringent than the regulations in the issuer's home country. However, these are private disclosures, and they do not lend credibility to the same extent as public disclosures mandated by regulatory bodies.
[5] Of course, firms can issue domestic debt, and enter into exchange rate swaps to separately hedge their exchange rate risk exposures. This hedge, however, entails additional transactions in the swap market. In addition, the tax implications of issuing domestic debt and swapping currencies are substantially different from issuing debt overseas.

perspective depends on a firm's distribution of incomes across countries, and companies that derive significant foreign income would likely issue debt in the countries that generate the income.[6]

In addition, debt is also more suitable than equity for taking advantage of cheaper financing opportunities that may be available abroad. Firms issue new equity at the prevailing market prices regardless of whether they issue the equity at home or abroad, and hence the cost of equity is the same both locally and abroad. However, interest rates vary across countries and firms can issue debt in countries where the rates are the cheapest. The extent to which they are able to do so is an unexplored empirical issue that we address in a later section.

Finally, potential informational asymmetry would also favor cross-border debt issues over cross-border equity issues. Bond prices are much less sensitive to any information about firm value than are stock prices, and hence informed investors are more likely to trade in stocks than in bonds. Since domestic investors are likely to have an informational advantage, foreign investors would be more receptive to cross-border bond issues than to cross-border stock issues.

Among these factors, a survey of chief financial officers by Graham and Harvey (2001) lists the hedging consideration as the most important factor for issuing foreign debt, followed by tax considerations and interest rate timing. Graham and Harvey's survey does not address the importance of potential asymmetry of information, perhaps because this factor is not specific to any particular firm, but it does affect the investor acceptance of a particular type of security. Overall, our evidence indicates that the advantages of cross-border debt issues are much more important for the issuers than the advantages of cross-border equity issues.

Other types of securities, such as preferred stocks and convertible bonds, are much less frequently issued than either equity or debt in all countries. Issuers used either debt or equity to raise about 96 percent of the new capital during our sample period. Convertible bond and preferred stock issues account for 2.6 percent and 1.4 percent of the new capital, respectively. Interestingly, however, a bigger fraction of preferred stocks and convertible bonds are issued abroad than stocks. Specifically, 15.9 percent of

[6] For a detailed discussion of the tax codes, see Shaviro (2001).

preferred stocks and 23.8 percent of convertibles are issued overseas. The markets for these securities are not particularly well developed in many countries and hence firms are likely to go abroad (particularly to the U.S.) when they issue these securities.

Figure 1 plots the time series of the fraction of various forms of securities that firms issue abroad. Although on average we find the smallest fraction of international issues for equities among all types of securities, cross-border equity issues have increased over time. For example, only 4.8% of equity was issued outside its home country in 1991, compared with 9.9% in 2001. In contrast, the fraction of the debt issued internationally has actually declined from 26.6% in 1991 to 18.6% in 2001.

There are several factors that have contributed to the growth of international equity issuances. First, the U.S. and the U.K. markets grew faster than the rest of the world during this period. Therefore, these two markets, which are the primary sources of cross-border equity capital, were able to supply more capital internationally. Second, the financial crises of the 1990s in many countries have been attributed to corporate governance failures (see for example Johnson et al., 2000). Since cross-listing in the U.S. and the U.K. pre-commits the firms to more stringent disclosure standards and corporate governance practices, the perceived benefits of listing abroad increased during this period. Finally, issuing equity across borders was a relatively new practice in the early 1990s. Investor acceptance and the success of the early issues likely led to the growth of cross-border equity issues over the next decade.[7]

3.3. Foreign and domestic sources of capital across countries

This section examines the extent to which firms in different countries rely on domestic capital and foreign capital. Table 3 presents the quantity of each security raised by each country or region, both inside and outside the region. Panel A presents the data for equity, Panel B for debt, Panel C for preferred stocks, and Panel D for convertibles. The first column of each panel presents the quantity of capital raised by firms in each region inside their home country. The second column presents the amount of

[7] La Follette et al. (1992) describes the case of Compania de Telefonos de Chile, which issued one of the first South American ADRs in 1990. In this case, the authors describe how there was much uncertainty about whether it would be possible for a South American firm to issue substantial quantities of equity outside its home country. After the success of this ADR, it became common for South American firms to raise capital from the U.S. with ADR issues.

capital raised by foreign firms in each region and the third column presents the amount of equity that the firms from each country raise abroad.

Equity Markets. Panel A indicates that over the entire sample period, firms raised over $3,201 billion by issuing equity domestically, and $207 billion through cross-border equity issues. The U.S. ranks as the most desirable location for cross-border equity issues. Foreign firms raised $153 billion in the U.S., which is about 74 percent of the total amount of global cross-border equity issues. Of course, it is not surprising that the U.S. ranks first in the volume of foreign equity issues since it is the largest market. However, the U.S. share of cross-border issues is almost twice the size of the U.S. market relative to the world market. It is also twice the fraction of new equity issues by domestic firms in the U.S. relative to domestic new issues in all countries.

The U.K. is the second-largest country for cross-border equity issues, accounting for about ten percent of the cross-border equity capital raised by foreign firms. Both the U.S. and the U.K. are the dominant markets for foreign equity capital, and their importance has grown over time. In an earlier study, Pagano et al. (2002) examine the importance of different stock exchanges across the world and conclude that Britain has gradually lost its attractiveness for foreign companies to cross-list their stocks. However, our results indicate just the opposite trend.[8] The U.K. share of cross-border equity issues increased from 4.4% in 1991 to 9.6% in 2001. The dominance of U.S. and U.K. here indicates that the size of the market is by far the most important factor in determining the country where firms raise cross-border equity.

Among the group of seven most developed countries, Japan and Italy attract the least amount of foreign equity issuers relative to the size of their domestic issues (0.26% in Japan and 0.29% in Italy). Italy *Euromoney* market openness score of 3.9 is the lowest among all G7 countries,[9] and the lack of market openness likely resulted in the low volume of foreign equity issues here. Japan, however, has a large and open market but yet does not attract many foreign issuers. Perhaps, the geographic distance

[8] Our sample includes all firms while Pagano et al.'s sample includes only manufacturing firms.
[9] The G-7 countries other than Italy all have a close to perfect score of 5 for market openness.

form the countries that need new capital and language barriers are partly responsible for Japan's marginal role. Future research that compares institutional and regulatory differences between Japan and other countries, particularly the U.K., could potentially shed light on the factors other than market size that are important for attracting issuers from abroad.

The fourth column in the table presents the ratio of the amount of new equity capital that firms raise in their home countries to the amounts that they raise abroad. This ratio provides a measure of the extent to which firms in each country rely on foreign capital for funding their investment demands. The U.S. has the lowest ratio of .63 percent, and both the Central American and Caribbean and the Middle East countries have the highest ratios of 102.66 percent and 113.68%, respectively. A striking pattern that we observe here is that this ratio is significantly smaller for the developed countries than for the other countries. Also, the correlation between this ratio and *Euromoney* market openness rating is -.68 and with the country risk rating is -.63. Both these correlation coefficients are reliably less than zero. This evidence indicates that the countries that close their markets to foreign investors end up starving the domestic firms of the capital they need, and the firms in these countries are forced to incur the additional costs of going abroad to raise funds.

The fifth column in this panel presents the ratio of equity capital that firms in each country raise abroad to the amount of equity capital that foreign firms raise in that country. A ratio greater than one for any country indicates that more foreign capital in the form of new equity flows into that country than the amount that the domestic investors invest in new equity abroad. In other words, a ratio greater than one indicates that the country is a net importer of new equity capital, and a ratio less than one indicates that the country is a net exporter of new equity capital.

The U.S and Britain are the only countries that are net exporters of new equity capital. For all the other countries, the ratio is greater than one. The extent to which a country's market is open is clearly an important determinant of net import of new equity from that country. The correlation between the new equity import ratio and *Euromoney* market openness score is -.65, which is reliably less than zero.

Therefore, firms in countries with closed markets gradually increase their foreign ownerships cross-border equity issues.

Debt Issues. Panel B presents the amount of new debt issued by firms in various countries. Firms raised $16.2 trillion of debt domestically and $4.2 of debt from abroad. The debt markets are much more international than equity markets, with about 20.3% of debt being issued overseas compared with only about 6.1% of equity. In addition, the pattern of foreign issues of debt across countries is substantially more dispersed than of equity.[10]

The Eurobond market is far more popular than the U.S. for foreign debt, although the U.S. has the largest domestic market. The popularity of the European markets for foreign debt issues is also evident when we consider the amount of foreign debt raised in the U.K. and Germany. For example, the domestic debt issues in the U.S. is almost six times as that in the U.K., but the foreign debt issues in the U.S. is only about ten percent more than that in the U.K. However, the U.S. is still a net exporter of debt, and the import to export ratio for new debt is 86.4%. In comparison, the corresponding ratio for new equity is only 5%. The U.K. is a large exporter of debt, exporting about 3 times as much debt as it imports. Germany is the only other net exporter of debt (excluding the "other Europe'' category, which includes all Eurobond issues) with an import to export ratio of 94.7%.

The results in Panel B indicate that the markets for public debt are not well developed in many of the developing countries. Firms in Africa, Eastern Europe, the Middle East, and South America issue virtually no public debt in their home countries. They do, however, have demands for public debt but they rely mostly on foreign issues to meet this demand.

Preferred and Convertible Issues. Panels C and D present the comparable statistics on preferred equities and convertible debt. These markets are much smaller than the market for common equity and nonconvertible debt, but are more commonly issued internationally. Slightly over 20% of preferred

[10] An important issue in studying international debt issues is how one classifies Eurobonds. SDC classifies most Eurobonds as being listed on Luxembourg exchange. However, these bonds are issued all over the continent and, as in the U.S., most of the secondary market trades take place over the counter. We include the Eurobonds in the foreign issue category, although we do not assign the issue to any particular country from which firms raise capital.

equity is sold internationally and over 30% of convertible securities are sold overseas. The United States is the biggest destination for international issues of preferred stock, while the Other Europe region is the biggest issuer of convertibles.

4. Correlation of new issues across countries

This section examines the correlation of new capital issues across countries. The time series correlations across countries reflect the extent to which the supply and demand for capital tend to move together. We also examine whether the preference for the form of new capital (either debt or equity) is correlated across countries.

Panel A of Table 4 presents the time-series correlations of the quarterly equity share of all new issues across countries. In this panel, 66 out of the 105 pairwise correlations are positive. The probability that at least 71 estimates out 105 estimates are positive, under the hypothesis that the correlations equal zero, is less than 1 percent. Therefore, when firms decide to raise capital, their preference for whether to raise it in the form of debt or equity is correlated across countries. If managers perceive the costs of debt and equity as irrelevant or constant over time, then there would be no reason to expect their preferences to be correlated across countries. Our evidence, therefore, indicates that the relative costs of debt and equity capital, at least as perceived by the issuers, tend to move together across countries.

Panel B of Table 4 presents the volume of equity issues, normalized by the GDP in the contemporaneous quarter. Panels C and D report the correlations for new debt issues and for all new capital issues respectively. In all cases, we find that the correlations are predominantly positive. For example, we find that 93 out of the 105 pairwise correlations are positive for new equity issues. In all three panels, binomial tests reject the hypothesis that the correlations are equal to zero. This evidence confirms our general intuition that investment opportunities, and hence the demand for new capital, tend to move together across countries.

5. Equity Market Timing

The results we present in the previous section indicate that the capital-raising activities of firms around the world are strongly correlated. A natural explanation for this phenomenon is that the investment opportunities are correlated across countries. It is also possible that a part of this inter-country relation is driven by predictable changes in cost of capital. For example, when firms anticipate lower cost of equity they would tend to accept more projects by issuing equity than otherwise, and the cost of capital may be correlated across countries.

We examine whether market timing influences new debt and equity issues from two perspectives. First, we examine the relation between security issues and contemporaneous market conditions such as the past market returns or interest rates. Second, we examine whether firms are able to issue debt or equity prior to a downturn in these markets. We examine the timing considerations for both domestic and international issues of debt and equity. [11]

5.1. Domestic Equity Issues.

5.1.1 Equity issues and past returns

We first examine the extent to which firms' decisions to issue new equity are driven by changes in investment opportunity sets, both at home and abroad. We use the past one-year domestic-market return to proxy for changes in the domestic investment opportunities, and the difference between the past world returns and domestic returns to proxy for changes in the investment opportunity set globally that are not captured by changes in home country returns.

We estimate two regression specifications to examine the relation between equity issues and changes in investment opportunity sets. The first specification is:

$$\frac{E_{i,t}}{GDP_{i,t}} = a + bR12_{i,t-1} + \varepsilon_{i,t} \qquad (1)$$

[11] There is already a substantial literature on market timing. A number of papers have documented that firms tend to issue equity when it appears to be overvalued; see Baker and Wurgler (2002) and Ritter (2002) for surveys. The literature on debt is much older; see Bosworth (1971), White (1974), Taggart (1977), and Marsh (1982). A recent related paper focusing on timing considerations in debt maturity (as opposed to debt levels) is Baker, Greenwood,

where $E_{i,t}$ and $GDP_{i,t}$ are the amount of new equity issued in region *i* in month *t*, and the region's GDP, respectively, and $R12_{i,t-1}$ is the stock market return for region *i* and over the 12-month period from *t-12* to *t-1*. For any region made up of more than one country, the market return is the market capitalization weighted average of the domestic stock market returns in the constituent countries. We estimate this regression individually for each country or region, and we also estimate it globally, allowing for region-specific fixed effects.

Regression (1) examines whether the total amount of new equity is related to past returns. In the second specification, we examine whether the share of equity in total new capital is related to past returns. Specifically, our second regression specification is:

$$\frac{E_{i,t}}{E_{i,t} + D_{i,t}} = a + bR12_{i,t-1} + \varepsilon_{i,t} \qquad (2)$$

where $D_{i,t}$ is the total new debt in region *i* in month *t*. We fit these regressions with monthly observations. Since the quantity of new debt and equity that firms raise tend to be serially correlated, we use the Hansen and Hodrick (1980) approach to estimate the standard errors used in computing the *t*-statistics for the regression coefficients.[12]

Panel A of Table 5 presents the estimates of these equations. While the estimates vary somewhat across regions, the coefficients on past domestic returns are mostly positive in each specification. These coefficients are statistically significant in the pooled specification and using the Fama-Macbeth statistics using Specification (1) and are marginally significant using Specification (2). These results indicate that the amount of equity that firms raise increases as the domestic investment opportunities become more attractive.

5.1.2. Equity issues and future returns

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and Wurgler (2003). This part of our analysis extends this prior work to countries besides the U.S., and it focuses on both domestic and international issues.

[12] For detail on how we applied the Hansen/Hodrick procedure, see Appendix 4.

This subsection examines whether the amount of new equity that firms issue is related to future stock market returns. To do so, we estimate the following regressions for each country or region individually, and for all regions pooled:

$$FR_{i,t} = a + b\left(\frac{E_{i,t}}{GDP_{i,t}}\right) + e_{i,t}, \qquad (3)$$

where $FR_{i,t}$ is the future 12-month market return in region *i* from month *t* to *t+12*.

We also examine whether the share of equity issues in total new capital is related to future returns using the following regression:

$$FR_{i,t} = a + b\left(\frac{E_{i,t}}{E_{i,t} + D_{i,t}}\right) + e_{i,t}. \qquad (4)$$

We estimate both Regressions (3) and (4) with monthly observations. Because we use overlapping 12-month returns as the dependent variable, we again use the Hansen and Hodrick standard errors to compute the *t*-statistics.

Panel B of Table 5 presents the estimates of Regressions (3) and (4) for each region, and for the pooled regression with country fixed effects. In addition, the table also presents the estimates of a 'global' regression. In the global regression, we aggregate all issues across the world to compute the independent variables, and use the value-weighted world market return as the dependent variable.

The coefficients on total equity issues in Regression (3) are negative in 10 out of 13 regions. Additionally, the slope coefficient is significantly less than zero in the pooled regression. These results indicate that, across the world, firms tend to issue more equity when they expect future returns to be lower. We find that the slope coefficient is significantly negative in the global regression as well. Therefore, as with domestic market returns, the world market return also tends to be low following periods of high new equity issues.

The slope coefficients in Regression (4) are also negative in 11 out of 13 regions. The slope coefficient in the global regression, however, is only marginally significant. Overall, the results indicate that across all countries, the share of new equity capital rises when firms expect market returns to be

lower, although this evidence is weaker than the relation between aggregate equity issues and future stock returns.

To assess the economic significance of the timing of equity issues, we examine the market performance following periods of high and low equity issues. We classify the months with equity issues below and above the sample median as low and high issue periods, respectively. Figure 2 plots the average returns in the 12-month period after low and high equity issues. In every region except 'Other Asia', the returns are higher in the period after low equity issue months than after high equity issue months.

As we discussed earlier, equity issues may predict future market returns either because firms tend to issue more equity when the market is overvalued, or because firms issue more equity when the market rationally demands lower return on equity. Baker and Wurgler investigate the relative merits of these explanations for the U.S. evidence, and they conclude that their results support the market overvaluation explanation.[13] The difference between the future returns following high and low issues in the U.S. during our sample period is similar in magnitude to that in Baker and Wurgler. The average return differences for the other countries are also of a similar magnitude. Therefore, our findings would likely provide support for the overvaluation hypothesis internationally, but we leave any direct tests to differentiate between these hypotheses for future research.

Overall, our results indicate that the relation between equity issues and future returns is a global phenomenon. In addition to predicting returns within individual countries and regions, we find that world equity issues predict world market returns. For example, the world market returns following high and low issue periods are 2.2% and 13.4% respectively. Of course, it is likely that many of the managers of the issuing firms do not have special skills individually to predict world market returns. Most likely, managers only factor in their assessment of the extent to which their respective firms are overvalued in their equity issue decision. However, when a large number of firms decide to issue equity at any point in

time, then their collective decision indicates that the overvaluation is not entirely firm specific. Therefore, large equity issues signal aggregate market overvaluation, and predict low future returns, even though each individual manager is focused only on his or her specific firm.

5.2. Cross-border Equity Offerings.

So far, our results indicate that firms attempt to time their domestic markets when they issue equity. With increased globalization, firms also have the choice of timing the markets globally. For example, firms that issue equity in initial public offerings (IPOs) would likely get higher prices in a foreign market if the market abroad is overvalued relative to their domestic markets. Of course, if a firm issuing seasoned equity were to raise new capital, the issue price abroad would be linked to the domestic stock price because of arbitrage between the two markets. However, if the cost of equity capital were lower in a foreign country, either because that foreign market is overvalued or because investors in that country rationally require lower returns on equity, firms would likely find it easier to sell their stocks abroad since they would be more attractively priced relative to the stocks in that country.[14]

In this section we examine whether firms time the foreign markets when they issue new equity. Since we find that most of the cross-border equity issues occur in the U.S. and the U.K., we examine the extent to which foreign equity issues in these countries predict their future stock market returns. To do so, we fit the following regressions:

$$FR12_{i,t} = a + b \frac{FE^{i}_{t-1}}{GDP^{i}_{t-1}} + e_{i,t}, \text{ and} \tag{5}$$

$$(FR12_{i,t} - FR12_{w,t}) = a + b \frac{FE^{i}_{t-1}}{GDP^{i}_{t-1}} + e_{i,t}, \tag{6}$$

[13] Ritter (1991), Spiess and Affleck-Graves (1995), Loughran and Ritter (1995) examine stock issues by individual firms and find that firms issue new equity when their stocks are overvalued. Baker and Wurgler (2000) complement these studies and examines the relation between aggregate stock issues and future market returns.

[14] Of course, investors could directly invest abroad if they find that the foreign stock market offers higher returns. In practice, however, investors exhibit a home bias in investments and do not seek out investments abroad. Edison and Warnock (2003) find evidence suggesting that firms get over investors home bias when they list in the investors' home market.

where, FE_t^i is the total foreign equity issue in country *i* (either the U.S. or the U.K.) in month *t*, and $FR12_{i,t}$ and $FR12_{w,t}$ are the stock market return in country *i*, and the world market return over the 12-month return from month *t* through *t*+11, respectively. We fit these regressions separately for the U.S. and the U.K. Within each market, we fit the regressions with FE equal to all new foreign equity, and also with FE equal to aggregate IPOs from abroad. As before, we estimate these regressions using monthly data on issues, and we use the Hansen and Hodrick standard errors to compute the *t*-statistics.

Table 6 presents estimates of these regressions. The slope coefficients are significantly negative in all regressions, both in the U.S. and the U.K. They are also negative regardless of whether all equity issues, or only IPOs are used as the independent variable. We include ADR issues when we consider all equity issues and the price of these issues is determined by the underlying stock prices at home and does not reflect the valuation of the foreign markets. At least for these issues, the issuers choose to issue abroad rather than at home perhaps because the foreign market is more active, or "hot," for new issues, than the domestic markets.

Figure 3 evaluates the economic significance of the relation between aggregate foreign equity issues in the U.S. and U.K. and future returns. As before, we classify months with below and above median equity issues in each country as low and high issue months. Figure 3 plots the average 12-month market returns, and market returns in excess of the world market returns, after the low and high issue periods. In all cases, the returns are higher following low issue periods than high issue periods. This figure emphasizes the interpretation that foreign companies issue equities internationally in relatively 'hot' markets.

6. Debt Market Timing.

6.1. Domestic Debt Issuance.

Early papers by White (1974) and Taggart (1977) examine new debt and equity issues by individual firms, and find that firms are more likely to issue debt than equity when interest rates are low.

More recently, in Graham and Harvey's (2001) recent survey, CFOs claim that they actively attempt to issue debt at times of low interest rates. This subsection empirically tests this claim and examines whether, at an aggregate level, firms do issue more debt when interest rates are low. Unlike White and Taggart, we examine the relation between debt and interest rate at an aggregate level rather than at the level of individual firms. In addition, we examine whether firms' propensity to issue debt in a low interest rate environment allows them to time the market and raise more debt prior to increases in interest rates.

We use the fixed-rate paid in an interest rate swap contract as our measure of corporate interest rates.[15] Since we are able to obtain swap rate data only for the G7 countries, we restrict our analysis of the effect of interest rates on debt issues to these countries.

We fit the following regressions to examine the relation between debt issues and interest rates:

$$\frac{D_{i,t}}{GDP_{i,t}} = a + b\, SR_{i,t}^{nomnal} + e_{i,t}, \text{and} \qquad (7)$$

$$\frac{D_{i,t}}{GDP_{i,t}} = a + b\, SR_{i,t}^{real} + e_{i,t}, \qquad (8)$$

where $SR_{i,t}^{nomnal}$ is the domestic swap rate in country *i* at the end of month *t*, and $SR_{i,t}^{real}$ is the real rate. We compute the real rate from the nominal swap rate as:

$$SR_{i,t}^{real} = \frac{1 + SR_{i,t}^{nomnal}}{1 + Inf(t-11,t)} - 1,$$

where, *Inf(t*-11*,t)* is the *ex-post* inflation over the 12-month period ending in month *t*. Ideally, we would like to use expected inflation data to determine the real rate. However, since we do not have expectations data, we use the realized level of inflation as a proxy for expected *ex ante* inflation. Therefore, our real rate estimates contain measurement errors and the results of Regression (8) should be interpreted with this in mind.

[15] The swap rate equals the yield on a par bond issued by firms with the highest credit rating. Firms with lower credit rating, therefore, will not be able to borrow at the swap rate. For our purposes, however, the swap rate is more

We fit these regressions within each G7 country individually, and in a pooled regression across all countries containing country fixed-effects. Panel A of Table 7 presents the regression estimates, with the ten-year swap rate as the independent variable. We find a negative relation between the level of interest rates and the amount of debt issues in all countries, and in most cases this relation is statistically significant. The slope coefficients are negative when we use either the nominal or the real rates as the independent variable. The slope coefficients are generally larger in magnitude for the regressions with nominal rates than with real rates. This finding suggests that managers may focus more on nominal yields than on real yields when they make decisions about debt issues. It is also possible that the slope coefficients are biased downward from errors-in-variables because we use the realized inflation as a proxy for expected inflation.

To check the robustness of our results, we also estimated Regressions (7) and (8) separately for short-term debt (original maturity of one to five years), and long-term debt (original maturity greater than five years). We used the two-year swap rate short-term debt regressions and the ten-year swap rate in the long-term debt regressions. In unreported results, we found that in all these regressions the coefficients on interest rates are negative and generally significantly different from zero. Both long-term and short-term debt issues appear to be negatively related to their respective interest rates. Therefore, firms time their debt issues for both long-term and short-term bonds.

One limitation of these results is that they are from a relatively short time series. While the data we use are the longest time series available for a number of different countries, for the U.S., it is possible to obtain a longer time series. The debt issues exhibit a secular increase during this period, going from an average of 1.81 percent of the U.S. GDP in the 50s to an average of 7.20 percent of the U.S. GDP in the nineties. To account for this secular increase, we include decade-specific dummy variables and reestimate Regression (7). The equation below presents the estimated coefficients:

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appropriate than the rates paid by individual firms since it reflects the overall level of interest rates in particular countries, and it includes a credit spread above government bonds.

$$\frac{D_{i,t}}{GDP_{i,t}} = 0.041 \cdot I_{1950s} + 0.051 \cdot I_{1960s} + 0.076 \cdot I_{1970s} + 0.115 \cdot I_{1980s} + 0.123 \cdot I_{1990s} - 0.006 \cdot SR_{i,t}^{Nominal}, \quad (9)$$

(7.351) (7.010) (6.722) (7.384) (11.626) (-5.060)

where the dummy variable I_{1950} equals one in the 1950s and zero otherwise, I_{1960} equals one in the 1960s and zero otherwise, and so on. The estimated coefficients on the dummy variables increase over time because of the secular increase in debt issues. We also find that the slope coefficient on the interest rate is negative and significantly different from zero. This finding is once again consistent with the view that managers issue more debt during periods of low interest rates even over the longer sample period in the U.S.

Firms could conceivably issue more debt when interest rates are low for two reasons, which are not mutually exclusive. First, firms are likely to have more positive net present value projects when interest rates are lower, leading to an increased demand for new capital to finance these projects. Second, firms may substitute debt for equity when the rates are low. To examine whether firms indeed substitute debt for equity, we estimate the following regressions:

$$\frac{D_{i,t}}{D_{i,t} + E_{i,t}} = a + b\, SR_{i,t}^{nominal} + e_{i,t} \quad (10)$$

$$\frac{D_{i,t}}{D_{i,t} + E_{i,t}} = a + b\, SR_{i,t}^{real} + e_{i,t}. \quad (11)$$

Panel B of Table 7 presents the regression estimates. The coefficients on interest rates are generally negative, and they are significant for some countries. However, in the pooled specification, the coefficient is only marginally significant using the nominal interest rate as the explanatory variable, and not significant using the real rate. These results suggest that debt issues increase when interest rates are low mainly because firms have a larger capital demands, and the substitution of debt for equity is of secondary importance.

<u>Instrumental Variables Estimation:</u> Another econometric approach to differentiate between the 'demand for capital' and 'supply of capital' explanations for the relation between debt issues and interest rates is to use instrumental variables to isolate the effect of the exogenous component of interest rates on the

issuance of debt securities. Intuitively, the interest rate is affected by the demand for capital, while at the same time, the quantity of capital demanded is affected by its cost. The two effects combine to determine both the interest rate and the quantity of debt issued. The instrumental variables approach allows us to isolate the demand effect, and measure how much the demand for capital is affected by exogenous changes in interest rates.

Using the instrumental variables approach requires instruments that are related to a particular country's interest rates, but are unrelated to the residual from the 'demand for capital' equation. Such a variable is the contemporaneous interest rate in the rest of the world, which generally moves with a country's interest rate, but is unlikely to be affected by a shock to demand in one country, especially a relatively small one. Therefore, we use the contemporaneous swap rate averaged across all the other G7 countries but the one in question as the instrument for a particular country's swap rate. When we estimate the equation (7) using this approach, the results are very similar to those reported in Panel A of Table 7. In particular, the coefficients on swap rates remain negative and statistically significantly different from zero at all conventional levels using short-term debt, long-term debt, or total debt as the dependent variable in the pooled equations, and in the majority of individual country equations. These findings suggest that the endogeneity of interest rates are not the driving force behind the relation between debt issuances and interest rates.

Future interest rates and debt issues:

Why do firms issue more debt when interest rates are low? Perhaps, managers perceive the cost of debt capital to be low when they see low interest rates, and hence take on new debt-financed projects that would not have been undertaken in a high interest rate environment. Alternatively, managers may view periods of low interest rates as opportune times for issuing new debt, and therefore issue debt to acquire capital prior to increases in interest rates. If managers are able to time debt issuances successfully, then at the aggregate level the quantity of new debt issued would predict future changes in interest rates. To examine whether firms are indeed able to successfully time their debt issues prior to interest rate increases, we estimate the following regressions:

$$\Delta SR_{i,t} = a + b\frac{D_{i,t}}{D_{i,t} + E_{i,t}} + \mathrm{e}_{\mathrm{i,t,}} \tag{12}$$

$$\Delta SR_{i,t} = a + b\frac{D_{i,t}}{GDP_{i,t}} + \mathrm{e}_{\mathrm{i,t,}} \tag{13}$$

where $\Delta SR_{i,t}$ is the change in the 10-year swap rate over the 12-month period from month t to t+11. We fit the separate regressions for each of the G7 countries and we also estimate a pooled regression allowing for country fixed-effects.

We present estimates of this equation in Table 8. Using specification (12), the estimated coefficient on *b* is positive and significantly different from zero for three of the G7 countries (Japan, the U.K., and the U.S.). For the other four countries, the slope coefficients are close to zero and insignificant. In the pooled specification, the estimate of *b* is .196, with a marginally significant *t*-statistic of 1.6. When we estimate specification (13) the effect is still weaker. The estimates of *b* are generally positive, although the coefficient in the pooled equation is not significantly different from zero.

As a further check, we also examined the relation between debt issues and future changes in corporate bond rates in the U.S. over the 1950 to 1999 period using the data we described earlier. Here again, we did not find any statistical relation between debt issues and future changes in interest rates, once we control for the secular increase in debt issues over time. These results are consistent with the results in Table 8 and indicate that debt issues do not reliably predict future changes in interest rates.

Our findings raise an interesting question. Why are aggregate debt issues not able to predict changes in interest rates while aggregate equity issues predict futures stock market returns? It is hard to find a definitive answer, although one possible explanation is the following: Firms base their debt issue decision on the level of interest rates, which is the same for all firms with similar levels of credit ratings. The firms' borrowing rates are public information, and the firms have no unique information to assess the likely direction of future changes in interest rates. However, firms do have superior information about their own future cash flows. When their information indicates that the firm is overvalued, insiders would

issue equity rather than debt since the value of equity is much more sensitive to such inside information than debt. Therefore, insiders' assessments of their respective firm values that lead to equity issue decisions are collectively more useful for predicting equity returns than for predicting bond returns.

6.2. International Debt Issues.

As we document earlier, firms raise large amounts of debt from outside their own country. In Graham and Harvey's (2001) survey, CFOs claim that they are more likely to issue debt abroad when foreign interest rates are lower than domestic interest rates. In this subsection, we empirically examine the extent to which foreign debt issues are related to the interest rates abroad in practice.

If the markets were perfectly integrated and efficient, promised interest rates could differ across countries but the expected, currency-adjusted rates would be the same in each country, and the principle of uncovered interest parity would hold. In this scenario, shareholders would be indifferent about where their firms issued debt. However, extensive empirical evidence in the literature indicates that the uncovered interest rate parity does not hold in practice (see Froot and Thaler (1990) for a review of this literature). In fact, this literature finds that not only does uncovered interest rate parity fail to hold, but exchange rates tend to move so as to exacerbate nominal interest rate differences. In other words, this literature finds that the currency from the country with a lower rate depreciates on average, making borrowing in that country even more attractive. Thus, the strategy of issuing bonds internationally in countries with lower interest rates is likely to add value to the shareholders by lowering borrowing costs.

Another possibility is that firms could use swaps or other derivatives to hedge exchange rate risk, and that these instruments implicitly adjust for differences in interest rates across countries. We cannot observe these transactions, so we cannot measure their impact directly. The use of derivative instruments to offset differences in interest rates across countries would mitigate any advantages of issuing debt in different countries because of interest rate differences. However, managers themselves overwhelmingly cite interest rate differences as an important reason for choosing a location for issuing debt. Whether or not they in fact do so despite the fact that some derivative contracts could offset this advantage therefore like a good subject for empirical inquiry.

As we report earlier, aside from the Eurobond market, firms typically issue foreign debt either in the U.S. or in the U.K. Therefore, we examine the relation between cross-border bond issues in the U.S. and the U.K. by firms in the G7 countries, and the domestic interest rates in these countries. To do so, we estimate the following equations:

$$\frac{FD_{i,t}^{j}}{GDP_{i,t}} = a + b \cdot SR_{t}^{j} + c \cdot \left[SR_{t}^{j} - SR_{i,t}^{j}\right] + e_{i,t}, \qquad (14)$$

where, $FD_{i,t}^{j}$ is the debt issue in country *j* (the U.S. or the U.K.) by firms in country *i* in month *t*, and $SR_{i,t}$ and SR_{t}^{j} are the swap rates in countries *i* and *j*, respectively.

Table 9 presents the regression estimates. The coefficients on the U.S. swap rate and on the difference between the U.S. rate and the home rate in Panel B are both negative and significantly different from zero, using both nominal and real interest rates in the pooled specification. This finding holds for both short-term and long-term debt, as well as for total debt. Therefore, firms are more likely to issue debt in the U.S. when the U.S. rate is low at an absolute level, and also when it is low relative to the home country interest rate.

The results for the U.K. also follow the same general pattern, although the results are not as consistent across specifications as for the U.S. The U.K. swap rate is negative and significant in all specifications, but the difference between the home country rate and the U.K. rate is negative and significant in the nominal rate specification but not in the real rate specification. Overall, however, the findings from these two panels are consistent with the survey evidence suggesting that one reason why firms issue debt overseas is to take advantage of the lower interest rates abroad.

7. Conclusions

When firms decide to raise capital from public markets, they have discretion over the type of securities they can issue, as well as the location of the source of capital, and the timing of the capital-raising activity. We examine the extent to which firms from countries around the world rely on different sources of capital, the locations of various sources of capital, and the factors that affect these choices during the 1990-2001 period.

Globally, firms raised about $25.9 trillion of new capital during the period from 1990 to 2001. International security issuances are fairly common, and they account for about $4.6 trillion of new capital. International debt issues are much more common than equity issues, accounting for over 90% of the international security issues, and about 20% of all public debt issues. In contrast, cross-border equity issues account for only about 4.4% of all cross-border security issues, and about 6% of all equity issues during the our sample period.

Firms are drawn to the most liquid and well-regulated markets when they issue new securities. The U.S. and the U.K. are by far the most common locations for cross-border equity issues, and are the only 'net exporters' of new equity capital. These two countries also attract significant cross-border debt issues, but they are not as dominant for cross-border debt as they are for cross-border equity.

Timing considerations appear to be particularly important in security issuance decisions. Firms all around the world are more likely to issue equity preceding low market returns and more likely to issue debt preceding high market returns. Foreign equity issues tend to occur in 'hot' markets, and the market returns are low following periods of high equity issues from abroad. Finally, firms issue more debt when interest rates are lower, and issue debt overseas when interest rates in the country of issue are lower than they are at home.

An important caveat when interpreting these results is that they are obtained over a fairly short time period, and one that was unusual for capital markets. However, this is the only period for which security issue data are available for most of the countries outside the U.S. Therefore, as a robustness check, we supplement our timing tests over a longer sample period with the U.S. data. The timing results

that we find with the U.S. data for the longer sample period are consistent with those we find across the global markets over the shorter sample period from 1990 to 2001. Although the timing results withstand the robustness check with the U.S. data, the extent to which these findings hold internationally over other periods, and are likely to hold in the future, is an open question.

Firms have a much wider set of choices when they issue securities than typically is emphasized in corporate finance textbooks. In addition to the choice of the *type* of securities they use, firms can decide *where* and *when* they should issue the securities. As markets continue to become more globally integrated, these choices will become increasingly important for firms. Thus, the importance of studying these issues is likely to grow. This paper provides a first look at the way in which firms across the world raise new capital and at the factors that influence firms' choices of when and where to issue securities. We expect that subsequent analysis of these issues will build on this work, and provide additional insights into how firms raise capital in a globally-integrated environment.

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Figure 1: The Fractions of Foreign Issues to Total Issues of Each Security Type

The following plot reports the fraction of total equity, non-convertible debt, preferred stock, and convertible securities which were issued in foreign markets for each sample year. For example, the Foreign Equity plot reports the percentage of total equity issues in each year that were issued by companies across borders.

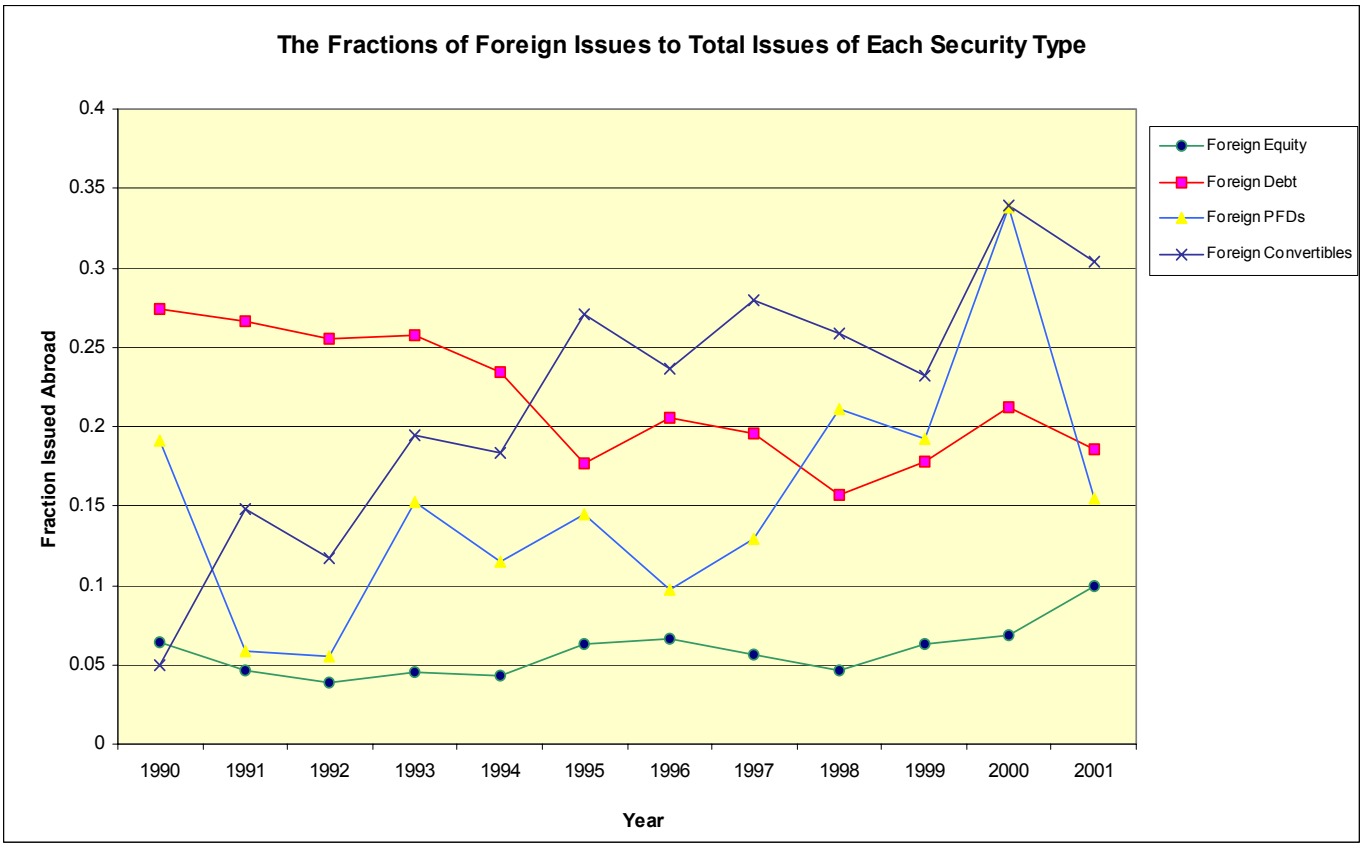

Figure 2: Average Annual Equity Returns Following Above/Below Median Equity Shares of New Issues

The following plots present the average value-weighted future annual returns for each of the G7 countries and the geographic regions following quarters of above and below median equity issues. For each country, we only consider domestic equity issues. Following quarters when domestic equity issues are above the sample median for that county/region, we average the future one-year domestic equity returns. The same is done for returns following quarters of below-median equity issues. We define the level of equity issues in each domestic country/region as the equity share of new debt and equity issues E/(E+D).

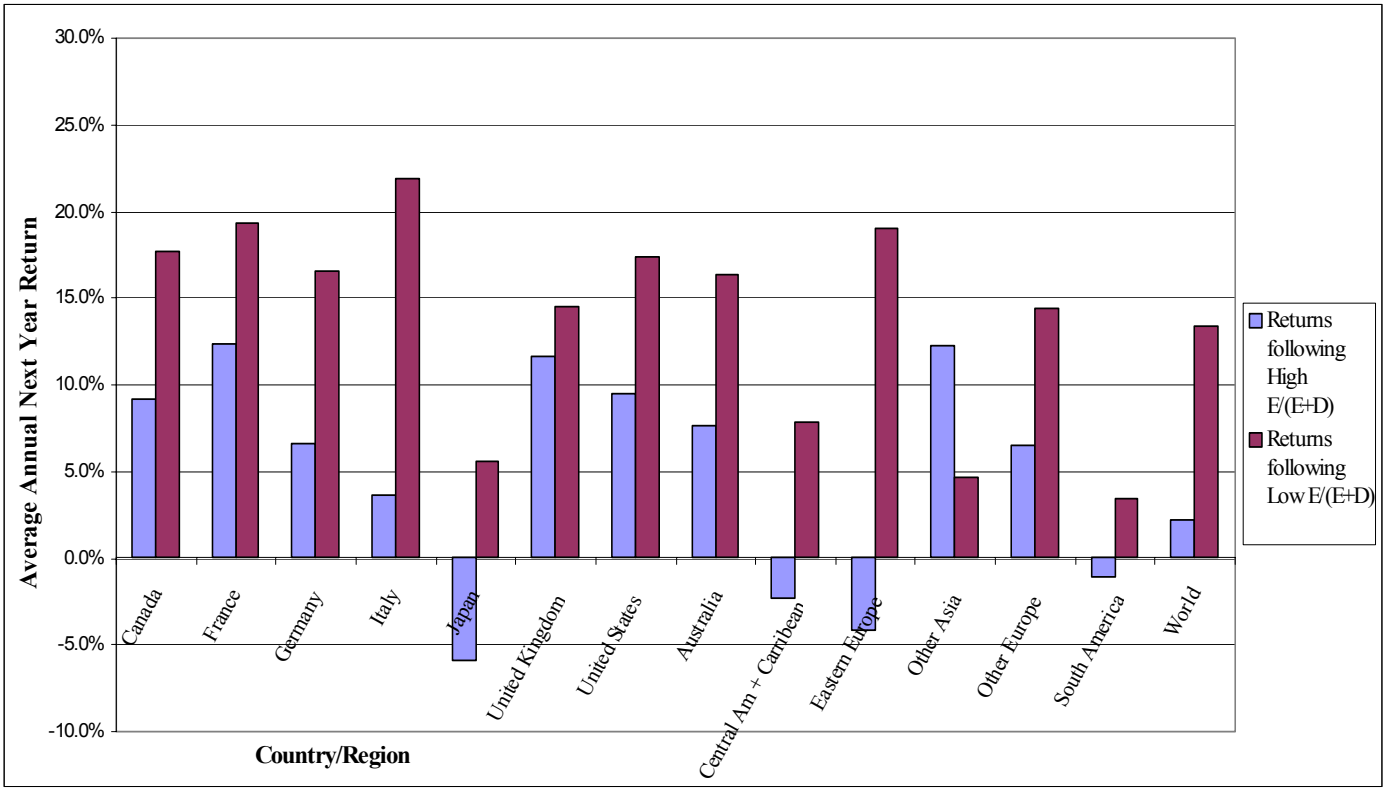

Figure 3: Foreign Timing of US and UK Equity Markets

The following plots present aggregate one-year equity market returns following quarters when foreign equity issues in the US and UK markets are above and below their median level. We define the level of foreign equity issues in the US market as the dollar value of equity proceeds raised in the US by foreign firms divided by the US GDP. We compute this for all foreign equity offerings and for all foreign IPO offerings. Quarters where issues are above the median for our sample are considered to be high issue months. For the quarters when foreign equity issues are above median, we calculate the average value-weighted annual return for the following 12 months. The same is done for below median equity issues. In addition to calculating the average US and UK returns following quarters in which foreign equity issues in their domestic markets were above and below average, we calculate the excess returns experience by the US and UK domestic markets in excess of value-weighted world returns.

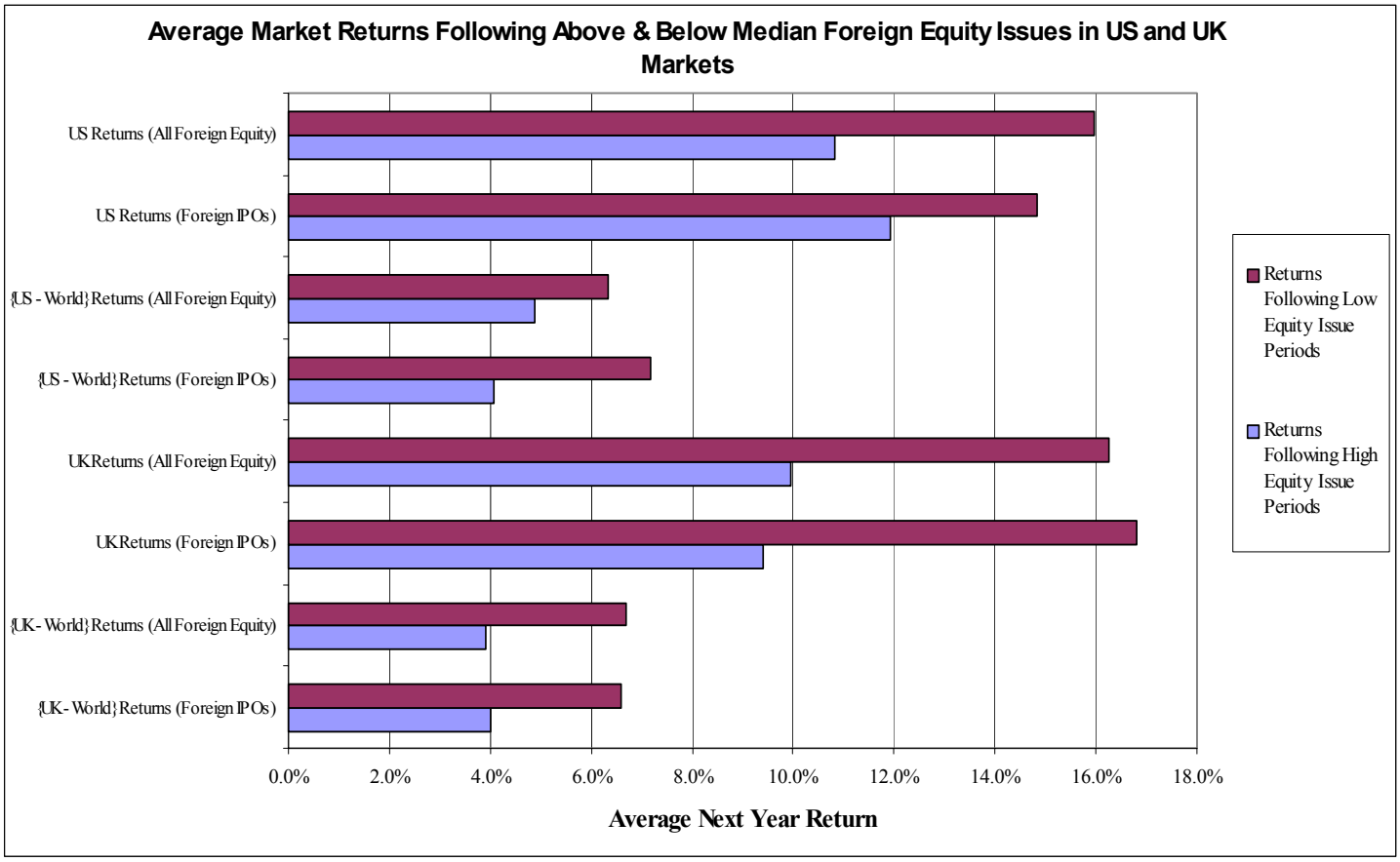

Table 1
Sample Characteristics

Our sample of new capital issues is drawn from the SDC database for the years 1990-2001. The following table presents the sample descriptive statistics. Observations are classified into the G7 countries or the geographical region of the issuing country. The market capitalization and GDP numbers are from the World Bank data and are in current US dollars. The reported Euromoney market openness rating is the reported category "access to capital markets" from the March 1997 edition of Euromoney's annual report. Each year, Euromoney reports overall country risk scores for 180 countries. One component of the annual report is a score for "access to capital markets." This score is on the interval [0,5] where a score of 5 indicates that a country imposes no restrictions to any investors investing capital in that country. The Euromoney measures presented in the table below are the weighted average score of the Euromoney measures for each country of each geographical region using each country's GDP as its weight in the region.

Country/Region	Number Observations		1997	
Canada	21,556	Market Capitalization (in millions US$)	567,635	
		GDP (in millions US$)	627,595	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	94.400	4.900
France	6,672	Market Capitalization (in millions US$)	674,368	
		GDP (in millions US$)	1,406,120	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	92.400	5.000
Germany	12,480	Market Capitalization (in millions US$)	825,233	
		GDP (in millions US$)	2,110,965	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	94.650	5.000
Italy	3,008	Market Capitalization (in millions US$)	344,665	
		GDP (in millions US$)	1,166,795	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	85.390	3.900
Japan	16,371	Market Capitalization (in millions US$)	2,216,699	
		GDP (in millions US$)	4,313,229	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	93.040	5.000
United Kingdom	6,793	Market Capitalization (in millions US$)	1,996,225	
		GDP (in millions US$)	1,327,798	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	95.730	5.000
United States	38,314	Market Capitalization (in millions US$)	11,308,779	
		GDP (in millions US$)	8,256,500	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	97.090	5.000
Africa	478	Market Capitalization (in millions US$)	255,959	
		GDP (in millions US$)	355,195	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	52.465	2.460
Australia, New Zealand	9,431	Market Capitalization (in millions US$)	326,296	
		GDP (in millions US$)	482,409	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	91.680	4.986
Central America & Caribbean	11,259	Market Capitalization (in millions US$)	161,600	
		GDP (in millions US$)	524,058	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	55.869	2.830
Eastern Europe	1,123	Market Capitalization (in millions US$)	241,591	
		GDP (in millions US$)	1,025,218	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	50.484	2.988
Middle East	773	Market Capitalization (in millions US$)	121,123	
		GDP (in millions US$)	325,307	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	63.553	2.966
Other Asia	31,285	Market Capitalization (in millions US$)	1,077,652	
		GDP (in millions US$)	2,678,451	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	74.187	3.728
Other Europe	27,736	Market Capitalization (in millions US$)	2,172,168	
		GDP (in millions US$)	2,666,545	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	89.638	4.747
South America	8,096	Market Capitalization (in millions US$)	441,140	
		GDP (in millions US$)	1,479,853	
		Euromoney Ratings: (Overall Risk, Market Openness Rating)	59.285	3.315

Table 2
Aggregated Proceeds From New Capital Issues

The following table reports the annual proceeds of capital raising activities in our sample. The new issues data are taken from Security Data Corporation's (SDC) New Issues Databases. Each observation of a capital raising activity in our dataset is identified as either equity, non-convertible debt, non-convertible preferred, or convertible instrument. Securities are classified as either "Domestic," indicating that the securities are sold in the domestic market of the issuing firm, or as "International," indicating that the proceeds are raised in a marketplace outside the issuer's home country. Debt securities are broken into three categories based on their original term-to-maturity: Less than one year, One to five years, or Greater than five years. A few debt issues in our sample do not have a stated maturity date in the SDC database and are included in the total amount of debt issued but not in the categories which specify the original term-to-maturity.

	Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Total
Equity	Domestic	47,719.9	124,766.4	134,169.3	260,087.9	261,305.0	214,644.4	280,174.7	336,909.3	323,247.4	442,827.3	491,524.4	283,309.9	3,200,685.9
	International	4,357.1	6,124.3	5,465.2	12,413.4	11,765.4	14,304.0	20,022.5	20,000.0	15,823.5	29,730.9	36,172.2	31,246.1	207,424.6
	Total	52,077.0	130,890.7	139,634.5	272,501.3	273,070.4	228,948.4	300,197.2	356,909.3	339,070.9	472,558.2	527,696.6	314,556.0	3,408,110.5
Non-Convertible Debt (Original Maturity < 1year)	Domestic	833.9	2,382.9	4,578.7	1,620.8	14,787.9	3,615.3	13,050.9	5,229.5	7,026.0	194,976.2	223,531.9	184,403.1	656,037.1
	International	192.3	270.0	0.0	25.4	40.1	244.2	740.5	295.6	370.0	5,149.5	9,048.0	10,625.9	27,001.5
	Total	1,026.2	2,652.9	4,578.7	1,646.2	14,828.0	3,859.5	13,791.4	5,525.1	7,396.0	200,125.7	232,579.9	195,029.0	683,038.6
Non-Convertible Debt (Original Maturity 1-5years)	Domestic	83,297.1	135,705.2	142,756.4	239,182.8	333,907.6	392,681.3	489,464.1	653,572.8	901,935.2	1,398,288.0	927,807.4	1,189,874.7	6,888,472.6
	International	47,402.1	53,588.3	43,939.1	61,379.7	95,009.2	77,976.3	116,698.0	118,069.7	107,093.5	257,587.6	224,330.3	222,030.6	1,425,104.4
	Total	130,699.2	189,293.5	186,695.5	300,562.5	428,916.8	470,657.6	606,162.1	771,642.5	1,009,028.7	1,655,875.6	1,152,137.7	1,411,905.3	8,313,577.0
Non-Convertible Debt (Original Maturity > 5years)	Domestic	157,651.8	412,633.2	499,366.5	718,106.0	585,979.4	692,811.8	883,424.0	914,323.2	1,317,569.8	792,784.2	891,263.4	1,195,219.1	9,061,132.4
	International	96,880.2	145,431.5	178,191.2	271,901.3	191,595.7	155,154.3	241,594.3	262,376.0	305,063.6	248,768.0	314,203.5	349,987.4	2,761,147.0
	Total	254,532.0	558,064.7	677,557.7	990,007.3	777,575.1	847,966.1	1,125,018.3	1,176,699.2	1,622,633.4	1,041,552.2	1,205,466.9	1,545,206.5	11,822,279.4
All Non-Convertible Debt	Domestic	241,782.8	550,520.4	646,701.6	958,704.6	934,580.9	1,088,878.3	1,385,739.9	1,573,125.5	2,226,337.0	2,386,039.8	2,042,190.3	2,565,424.3	16,600,025.4
	International	144,474.6	199,289.8	222,130.3	333,306.4	286,645.0	233,374.8	359,032.8	380,695.7	412,520.2	511,495.1	547,535.0	581,788.2	4,212,287.9
	Total	386,257.4	749,810.2	868,831.9	1,292,011.0	1,221,225.9	1,322,253.1	1,744,772.7	1,953,821.2	2,638,857.2	2,897,534.9	2,589,725.3	3,147,212.5	20,812,313.3
Preferred Stock	Domestic	7,932.4	20,466.5	28,291.1	26,149.2	15,650.3	11,963.6	23,420.6	35,982.2	31,563.5	27,005.9	21,486.3	36,624.2	286,535.8
	International	1,868.1	1,280.3	1,637.0	4,710.2	2,036.9	2,019.7	2,522.7	5,341.9	8,453.1	6,414.8	10,976.1	6,715.2	53,976.0
	Total	9,800.5	21,746.8	29,928.1	30,859.4	17,687.2	13,983.3	25,943.3	41,324.1	40,016.6	33,420.7	32,462.4	43,339.4	340,511.8
Convertibles	Domestic	30,236.3	22,364.7	19,112.0	43,498.7	53,030.4	27,765.6	67,137.7	40,162.9	39,976.4	51,260.9	37,878.3	72,363.7	504,787.6
	International	1,576.2	3,874.7	2,533.7	10,531.7	11,910.8	10,301.5	20,822.7	15,595.5	13,918.6	15,487.9	19,441.5	31,616.9	157,611.7
	Total	31,812.5	26,239.4	21,645.7	54,030.4	64,941.2	38,067.1	87,960.4	55,758.4	53,895.0	66,748.8	57,319.8	103,980.6	662,399.3
All Capital	Domestic	328,505.3	720,500.9	832,852.7	1,290,061.2	1,279,354.5	1,346,867.2	1,769,523.8	1,991,409.4	2,628,150.3	3,102,110.1	2,816,611.2	3,142,125.2	21,248,071.8
	International	152,468.3	210,839.1	231,766.2	360,987.1	312,398.2	260,244.2	403,141.2	421,928.7	451,085.4	568,278.2	623,172.8	661,992.3	4,658,301.7
	Total	480,973.6	931,340.0	1,064,618.9	1,651,048.3	1,591,752.7	1,607,111.4	2,172,665.0	2,413,338.1	3,079,235.7	3,670,388.3	3,439,784.0	3,804,117.5	25,906,373.5

Table 3
Domestic and Cross-Border Security Issues

Panel A. Equity Issues

The following table reports the aggregated amounts of equity capital raised by firms in the G7 countries and by firms in non-G7 regions for our sample period of 1990-2001. Equity data for Italy, as well as for Australia and New Zealand, are not available until 1991 so the numbers reported below are for 1991-2001 for these countries. Column [a] reports the gross proceeds raised by firms who issued equity in their domestic marketplace during the sample period. Column [b] reports the gross proceeds of equity capital raised in each of country/region by firms from other countries/regions. Column [c] reports the gross proceeds from the sale of equity securities by firms from the home country/region in markets which are not their home market.

Equity Issues, Publicly Sold and Privately Placed Equity 1990 - 2001 (Converted to millions of US$)

Country	Total Issues in own Market [a]	Foreign Issues in this Market [b]	Home Firms' Foreign Issues [c]	Size of Foreign Issues Relative to Home Issues [c] / [a]	Measure of Net Importers of Equity Capital [c] / [b]	Size of Foreign Issues In Home Market Relative To Home Market Issues [b] / [a]
Canada	130,462.6	5,009.3	20,096.2	15.40%	401.18%	3.84%
France	133,409.3	8,859.4	10,402.4	7.80%	117.42%	6.64%
Germany	163,949.9	6,566.7	7,756.6	4.73%	118.12%	4.01%
Italy	130,506.8	342.9	1,511.9	1.16%	440.92%	0.26%
Japan	289,956.4	833.1	7,638.0	2.63%	916.82%	0.29%
United Kingdom	278,261.7	20,015.1	14,979.6	5.38%	74.84%	7.19%
United States	1,209,244.0	153,322.3	7,668.1	0.63%	5.00%	12.68%
Africa	7,110.9	5.8	3,550.4	49.93%	61213.79%	0.08%
Australia and New Zealand	82,505.3	2,919.6	6,471.4	7.84%	221.65%	3.54%
Central Am + Caribbean	29,752.8	391.8	30,544.5	102.66%	7795.94%	1.32%
Eastern Europe	12,956.0	234.6	4,079.7	31.49%	1739.00%	1.81%
Middle East	6,770.8	47.2	7,697.0	113.68%	16307.20%	0.70%
Other Asia	338,427.3	869.5	21,336.0	6.30%	2453.82%	0.26%
Other Europe	323,752.6	7,976.8	59,975.7	18.53%	751.88%	2.46%
South America	63,619.5	30.5	3,717.1	5.84%	12187.21%	0.05%
Sum	3,200,685.9	207,424.6	207,424.6			
% of Equity sold in foreign markets		6.086%				

Table 3 (contd.)

Panel B. Debt Issues (non-convertible)

The following table reports the aggregated amounts of Debt sold by firms in the G7 countries and by firms in non-G7 regions for our sample period of 1990-2001. Debt data for Italy's domestic debt market are not available until 1991 so the numbers reported below for Italy in Column [a] are for the years 1991-2001. Additionally, domestic debt market issuance data for Australia and New Zealand are available starting in 1997 so the number reported for Australian and New Zealand in column [a] is for the period 1997-2001. Column [a] reports the gross proceeds raised by firms who issued debt in their domestic marketplace during the sample period. Column [b] reports the gross proceeds of debt capital raised in each of country/region by firms from other countries/regions. Column [c] reports the gross proceeds from the sale of debt securities by firms from the home country/region in markets which are not their home market.

Non-Convertible Debt Issues, Publicly Sold and Privately Placed Debt Proceeds 1990 - 2001 (Converted to US$)

Country	Total Issues in own Market [a]	Foreign Issues in this Market [b]	Home Firms' Foreign Issues [c]	Size of Foreign Issues Relative to Home Issues [c] / [a]	Measure of Net Importers of Debt Capital [c] / [b]	Size of Foreign Issues In Home Market Relative To Home Market Issues [b] / [a]
Canada	506,264.4	3,591.8	312,364.3	61.70%	8696.60%	0.71%
France	450,945.1	77,281.2	343,216.2	76.11%	444.11%	17.14%
Germany	2,101,925.8	420,709.5	398,498.7	18.96%	94.72%	20.02%
Italy	721,465.1	4,999.0	242,666.6	33.64%	4854.30%	0.69%
Japan	1,426,906.7	60,544.5	252,847.0	17.72%	417.62%	4.24%
United Kingdom	667,952.4	766,104.5	262,612.6	39.32%	34.28%	114.69%
United States	7,719,959.0	836,577.3	722,907.4	9.36%	86.41%	10.84%
Africa	119.1	0.0	19,818.7	16640.39%	N/A	0.00%
Australia and New Zealand	60,365.8	3,179.8	159,042.9	263.47%	5001.66%	5.27%
Central Am + Caribbean	39,919.4	357.8	336,145.5	842.06%	93947.88%	0.90%
Eastern Europe	12,912.3	36.3	88,324.9	684.04%	243319.28%	0.28%
Middle East	0.0	0.0	31,004.6	N/A	N/A	N/A
Other Asia	287,975.0	40,694.3	151,940.7	52.76%	373.37%	14.13%
Other Europe	2,503,627.4	1,998,148.2	671,483.3	26.82%	33.61%	79.81%
South America	99,687.9	63.7	219,414.5	220.10%	344449.76%	0.06%
Sum	16,600,025.4	4,212,287.9	4,212,287.9			
% of Debt sold in foreign markets		20.239%				

Table 3 (contd.)

Panel C. Preferred Equity Issues (non-convertible)

Non-Contertible Preferred Equity Issues, Publicly Sold and Privately Placed Preferred 1990 - 2001 (Converted to millions of US$)

Country	Total Issues in own Market [a]	Foreign Issues in this Market [b]	Home Firms' Foreign Issues [c]	Size of Foreign Issues Relative to Home Issues [c] / [a]	Measure of Net Importers of Preferred Equity Capital [c] / [b]	Size of Foreign Issues In Home Market Relative To Home Market Issues [b] / [a]
Canada	16,652.20	226.60	3,035.80	18%	1340%	1%
France	89.60	0.00	619.20	691%		0%
Germany	4,186.20	627.60	1,533.80	37%	244%	15%
Italy	207.40	0.00	925.70	446%		0%
Japan	0.00	0.00	0.00			
United Kingdom	5,079.90	2,433.00	15,079.20	297%	620%	48%
United States	234,252.30	38,020.10	1,390.50	1%	4%	16%
Africa	0.00	0.00	0.00			
Australia and New Zealand	138.40	17.40	1,361.90	984%	7827%	13%
Central Am + Caribbean	445.50	0.00	15,653.40	3514%		0%
Eastern Europe	5.50	0.00	0.00	0%		0%
Middle East	0.00	0.00	53.30			
Other Asia	3,659.30	0.00	4,556.10	125%		0%
Other Europe	7,880.30	12,651.30	7,781.40	99%	62%	161%
South America	13,939.20	0.00	1,985.70	14%		0%
Sum	286,535.8	53,976.0	53,976.0			

% of Preferreds sold in foreign markets 15.851%

Table 3 (contd.)

Panel D. The following table reports the aggregated amounts of convertible securities, both debt and preferred stock, sold by firms in the G7 countries and by firms in non-G7 regions for our sample period of 1990-2001. Convertible data for Italy, Australia, and New Zealand's domestic market are not available until 1993. Thus, the numbers reported below for Italy, Australia, and New Zealand in Column [a] are for the years 1993-2001. Column [a] reports the gross proceeds raised by firms who issued convertible securities in their domestic marketplace during the sample period. Column [b] reports the gross proceeds of convertibles raised in each country/region by firms from other countries/regions. Column [c] reports the gross proceeds from the sale of convertible securities by firms from their home country/region in markets which are not their home market.

Contertible Preferred Equity and Debt Issues, Publicly Sold and Privately Placed 1990 - 2001 (Converted to millions of US$)

Country	Total Issues in own Market [a]	Foreign Issues in this Market [b]	Home Firms' Foreign Issues [c]	Size of Foreign Issues Relative to Home Issues [c] / [a]	Measure of Net Importers of Convertible Capital [c] / [b]	Size of Foreign Issues In Home Market Relative To Home Market Issues [b] / [a]
Canada	10,171.00	72.40	5,878.90	57.8%	8120.0%	0.7%
France	26,967.10	1,287.10	13,876.80	51.5%	1078.1%	4.8%
Germany	6,669.50	9,588.40	4,858.00	72.8%	50.7%	143.8%
Italy	3,254.20	60.30	6,789.50	208.6%	11259.5%	1.9%
Japan	130,786.10	1,104.90	12,305.80	9.4%	1113.7%	0.8%
United Kingdom	25,058.40	15,218.90	8,392.30	33.5%	55.1%	60.7%
United States	215,668.10	29,889.40	15,753.20	7.3%	52.7%	13.9%
Africa	18.90	0.00	1,082.80	5729.1%		0.0%
Australia and New Zealand	14,153.40	0.00	1,320.80	9.3%		0.0%
Central Am + Caribbean	424.80	114.10	27,914.50	6571.2%	24464.9%	26.9%
Eastern Europe	1,876.60	0.00	610.70	32.5%		0.0%
Middle East	183.40	0.00	727.00	396.4%		0.0%
Other Asia	17,955.20	1,158.60	38,965.40	217.0%	3363.1%	6.5%
Other Europe	44,990.60	99,117.60	16,472.00	36.6%	16.6%	220.3%
South America	6,610.30	0.00	2,664.00	40.3%		0.0%
Sum	504,787.6	157,611.7	157,611.7			

Table 4
Correlations of Capital Issues

The following tables report the time-series correlations of the capital-raising activities of firms in our sample countries and regions. In Panel A, we define the equity share of new issues as the proceeds (converted to US$) from equity issues divided by the proceeds from both equity and debt issues by firms from each country and region. The tables report quarterly correlations. In Panel B, the total equity proceeds raised by firms from each country and region are normalized by the GDP of that particular country or region and the time series correlations between countries are computed. In Panel C, the total debt proceeds raised by firms from each country and region are normalized by the GDP of that particular region and the correlations of these time-series are presented. In Panel D, the total proceeds from all forms of security issues are aggregated as a measure of the total capital raised by firms in each country and region. The total proceeds are normalized by that country's GDP and the time-series correlations are reported in Panel D.

PANEL A: Correlation Matrix The Equity Share of New Issues

	Canada	France	Germany	Italy	Japan	United Kingdom	United States	Africa	Australia and New Zealand	Central Am & Caribbean	E. Europe	Middle East	Other Asia	Other Europe	South America
France	-0.035	1.000													
Germany	0.318	0.043	1.000												
Italy	0.280	0.383	0.249	1.000											
Japan	-0.122	0.109	-0.275	-0.023	1.000										
United Kingdom	-0.293	0.170	-0.385	0.042	0.320	1.000									
United States	0.523	-0.053	0.487	0.422	-0.085	-0.265	1.000								
Africa	-0.037	0.200	-0.035	0.228	-0.200	0.069	-0.076	1.000							
Australia and New Zealand	0.025	0.449	0.170	0.389	0.177	0.031	0.161	0.036	1.000						
Central Am & Caribbean	0.001	-0.214	0.339	0.114	-0.215	-0.309	0.524	-0.103	0.212	1.000					
E. Europe	-0.387	0.059	-0.203	0.000	0.047	0.463	-0.348	-0.062	-0.048	-0.259	1.000				
Middle East	0.103	0.028	0.324	0.398	-0.306	-0.082	0.550	0.039	0.103	0.466	-0.017	1.000			
Other Asia	0.267	-0.152	0.216	0.325	-0.082	-0.175	0.517	-0.165	0.141	0.584	0.005	0.423	1.000		
Other Europe	0.037	0.574	-0.073	0.337	-0.036	0.134	-0.180	0.267	0.488	-0.260	0.137	-0.113	-0.113	1.000	
South America	0.041	0.135	0.105	0.162	0.316	0.096	0.215	-0.098	0.272	0.233	-0.065	0.002	0.046	-0.061	1.000

PANEL B: Correlation Matrix of Total Equity Issues Normalized by GDP

	Canada	France	Germany	Italy	Japan	United Kingdom	United States	Africa	Australia and New Zealand	Central Am & Caribbean	E. Europe	Middle East	Other Asia	Other Europe	South America
France	0.225	1.000													
Germany	0.179	0.577	1.000												
Italy	0.141	0.589	0.405	1.000											
Japan	0.016	0.107	0.141	0.264	1.000										
United Kingdom	0.057	0.306	0.123	0.164	0.147	1.000									
United States	0.596	0.464	0.449	0.500	0.244	0.173	1.000								
Africa	0.024	0.465	0.275	0.169	0.216	0.370	0.240	1.000							
Australia and New Zealand	0.048	0.425	0.302	0.810	0.278	0.151	0.485	0.236	1.000						
Central Am & Caribbean	-0.039	-0.011	0.030	-0.068	-0.164	-0.220	0.065	-0.052	0.048	1.000					
E. Europe	-0.069	0.296	0.273	0.457	0.324	0.255	0.286	0.550	0.537	-0.081	1.000				
Middle East	0.096	0.326	0.357	0.414	0.199	0.421	0.497	0.431	0.375	-0.071	0.536	1.000			
Other Asia	0.281	0.606	0.371	0.550	0.411	0.252	0.478	0.281	0.397	-0.010	0.381	0.462	1.000		
Other Europe	0.095	0.650	0.697	0.619	0.425	0.392	0.524	0.378	0.524	-0.102	0.487	0.443	0.566	1.000	
South America	0.111	0.096	-0.066	0.008	0.153	0.133	0.129	0.463	0.126	0.055	0.248	0.165	0.284	0.051	1.000

Table 4 (contd.)

Panel C: Correlation Matrix of Total Debt Issues Normalized by GDP

	Canada	France	Germany	Italy	Japan	United Kingdom	United States	Africa	Australia and New Zealand	Central Am + Caribbean	E. Europe	Middle East	Other Asia	Other Europe	South America
France	0.423	1.000													
Germany	0.259	0.364	1.000												
Italy	0.339	0.252	0.635	1.000											
Japan	0.089	0.421	0.678	0.503	1.000										
United Kingdom	0.517	0.636	0.710	0.575	0.635	1.000									
United States	0.408	0.528	0.759	0.708	0.763	0.781	1.000								
Africa	0.013	0.202	0.090	0.044	-0.031	0.208	0.010	1.000							
Australia and New Zealand	0.260	0.395	0.644	0.502	0.391	0.601	0.544	0.051	1.000						
Central Am + Caribbean	0.469	0.510	0.584	0.563	0.463	0.672	0.747	0.279	0.589	1.000					
E. Europe	0.389	0.520	0.493	0.443	0.495	0.619	0.543	0.308	0.351	0.677	1.000				
Middle East	0.519	0.227	0.355	0.392	0.323	0.622	0.470	0.121	0.461	0.394	0.286	1.000			
Other Asia	0.409	0.123	0.526	0.759	0.368	0.518	0.626	0.035	0.483	0.571	0.418	0.494	1.000		
Other Europe	0.570	0.714	0.509	0.430	0.200	0.628	0.479	0.237	0.414	0.513	0.487	0.289	0.220	1.000	
South America	0.326	0.434	0.576	0.553	0.467	0.658	0.643	0.249	0.463	0.752	0.740	0.440	0.532	0.482	1.000

Panel D: Correlation Matrix of Total Capital Issues Normalized by GDP

	Canada	France	Germany	Italy	Japan	United Kingdom	United States	Africa	Australia and New Zealand	Central Am + Caribbean	E. Europe	Middle East	Other Asia	Other Europe	South America
France	0.481	1.000													
Germany	0.203	0.471	1.000												
Italy	0.281	0.408	0.645	1.000											
Japan	0.061	0.389	0.669	0.547	1.000										
United Kingdom	0.483	0.666	0.704	0.590	0.532	1.000									
United States	0.402	0.636	0.747	0.674	0.732	0.748	1.000								
Africa	0.111	0.245	0.232	0.252	0.059	0.313	0.159	1.000							
Australia and New Zealand	0.170	0.402	0.542	0.627	0.450	0.518	0.505	0.206	1.000						
Central Am + Caribbean	0.414	0.550	0.469	0.441	0.355	0.576	0.644	0.370	0.475	1.000					
E. Europe	0.364	0.534	0.536	0.509	0.485	0.578	0.598	0.463	0.526	0.599	1.000				
Middle East	0.491	0.357	0.443	0.436	0.348	0.713	0.479	0.469	0.410	0.481	0.493	1.000			
Other Asia	0.359	0.390	0.535	0.741	0.427	0.600	0.575	0.312	0.592	0.595	0.552	0.578	1.000		
Other Europe	0.571	0.780	0.613	0.522	0.346	0.676	0.613	0.311	0.303	0.436	0.530	0.401	0.421	1.000	
South America	0.326	0.415	0.539	0.536	0.423	0.555	0.590	0.497	0.484	0.702	0.721	0.585	0.685	0.497	1.000

Table 5
Domestic Equity Market Timing

Panel A: Domestic Equity Market Timing

We estimate the following regressions using monthly observations of new issues for each of the G7 countries and geographic regions in our sample.

$$\frac{E_{i,t}}{GDP_{i,t}} = a + bR12_{i,t-1} + \varepsilon_{i,t}, \qquad (1)$$

$$\frac{E_{i,t}}{E_{i,t} + D_{i,t}} = a + bR12_{i,t-1} + \varepsilon_{i,t}, \qquad (2)$$

The dependent variable in (1) is the level of domestic equity issues in each of the countries and is calculated as the amount (in US$) of equity issues by firms in their domestic market divided by the GDP of the domestic country. The explanatory variables are the lagged 12-month returns for the domestic equity markets. The return time series are value-weighted indices from Datastream. The dependent variable in (2) is the equity share of new issues, defined as the equity proportion of new issues (equity and debt) proceeds for issues by firms in their domestic marketplace. We use Hansen and Hodrick (1980) estimators to adjust for the serial correlation induced by overlapping observations.

	Specification (1)		Specification (2)	
	a	b	a	b
Canada	0.0163	0.0198	0.2230	0.1212
	(4.58)	(1.48)	(0.96)	(1.36)
France	0.0066	0.0170	0.1750	0.2458
	(15.10)	(2.34)	(0.92)	(1.74)
Germany	0.0061	0.0122	0.1595	-0.0984
	(15.44)	(1.43)	(0.42)	(0.92)
Italy	0.0089	0.0229	0.2817	0.1395
	(37.90)	(3.95)	(2.59)	(1.74)
Japan	0.0047	0.0043	0.1557	0.1013
	(12.70)	(1.60)	(1.26)	(1.33)
UK	0.0145	0.0057	0.2783	-0.1106
	(5.85)	(1.01)	(0.98)	(1.03)
US	0.0107	0.0121	0.0974	0.1579
	(36.05)	(2.37)	(2.10)	(2.12)
Australia, New Zealand	0.0157	0.0232	0.2263	0.2664
	(7.65)	(1.80)	(4.47)	(1.64)
Eastern Europe	0.0150	0.0061	0.6074	-0.1187
	(38.42)	(8.07)	(3.35)	(0.43)
Latin American and Caribbean	0.0220	0.0022	0.2677	0.0818
	(27.41)	(3.96)	(2.22)	(1.34)
Other Asia	0.0162	-0.0051	0.6026	0.1201
	(17.06)	(1.06)	(1.75)	(1.17)
Other Europe	0.0076	0.0189	0.0985	0.1494
	(3.85)	(1.23)	(1.21)	(1.38)
South America	0.0053	0.0168	0.3150	0.0632
	(0.02)	(1.48)	(1.66)	(1.29)
Fama-MacBeth Statistics	0.0111	0.0124	0.1814	0.1768
	(12.57)	(2.81)	(3.72)	(1.55)
Pooled, Fixed Effects	0.0096	0.0117	0.2507	0.0817
	(25.30)	(3.85)	(5.88)	(1.76)

Table 5 (contd.)

Panel B: Domestic Equity Market Timing

We estimate the following regression specifications using monthly observations of equity issues for each of the G7 countries and other geographic regions in our sample.

$$FR_{i,t} = a + b\left(\frac{E_{i,t}}{GDP_{i,t}}\right) + e_{i,t}, \qquad (3)$$

$$FR_{i,t} = a + b\left(\frac{E_{i,t}}{E_{i,t} + D_{i,t}}\right) + e_{i,t}. \qquad (4)$$

The independent variable in the first equation is calculated using total proceeds from domestic equity issues by firms for each country, normalized by that country's nominal GDP. The independent variable in the second equation represents the equity portion of capital raised domestically each month. The dependent variables are the future 12-month home market returns. For the regions, the home market returns are market capitalization weighted averages of the domestic returns. The Hansen and Hodrick (1980) approach is used to adjust the covariance matrix for the serial correlation induced by overlapping observations.

	Specification (3)		Specification (4)	
	a	b	a	b
Canada	0.1292	-1.2166	0.1445	-0.1556
	(5.45)	(1.58)	(5.66)	(1.88)
France	0.1393	-3.1883	0.1462	-0.1691
	(7.09)	(2.34)	(6.52)	(2.17)
Germany	0.0936	-2.5196	0.0801	-0.0328
	(5.45)	(2.17)	(4.45)	(0.50)
Italy	0.0710	-0.3171	0.0785	-0.0129
	(2.66)	(1.31)	(2.54)	(1.19)
Japan	0.0078	0.2157	0.0326	-0.1200
	(0.24)	(0.07)	(0.89)	(0.95)
UK	0.1393	-1.1657	0.1123	-0.1244
	(7.91)	(1.98)	(5.22)	(1.23)
US	0.2596	-9.2805	0.1151	-0.1575
	(8.15)	(4.12)	(4.23)	(2.28)
Australia, New Zealand	0.1261	-1.3253	0.1553	-0.1677
	(7.09)	(2.70)	(5.88)	(2.48)
Eastern Europe	0.0526	-2.4135	0.0978	-0.0813
	(2.26)	(0.74)	(2.56)	(1.76)
Latin American and Caribbean	0.0213	-1.2131	-0.0184	0.1657
	(0.60)	(1.15)	(0.46)	(1.53)
Other Asia	0.0834	1.0430	0.0943	0.0018
	(2.94)	(1.03)	(1.21)	(1.07)
Other Europe	0.1389	-3.6532	0.1349	-0.2917
	(7.62)	(3.40)	(6.14)	(2.18)
South America	0.0016	0.7582	0.0789	-0.3129
	(1.63)	(0.76)	(1.50)	(2.31)
Fama-MacBeth Statistics	0.1050	-1.6340	0.0950	-0.1206
	(4.69)	(3.02)	(3.68)	(1.97)
Pooled, Fixed Effects	0.1001	-1.6037	0.0927	-0.0879
	(13.97)	(4.29)	(6.05)	(1.85)
Global Regression	0.1523	-7.3134	0.1385	-0.3617
	(5.92)	(3.18)	(3.24)	(1.88)

Table 6
International Equity Market Timing

Panel A: Foreign Equity Issues In US Equity Markets

We estimate the following two regression specifications using monthly observations of foreign equity issues in the US Equity markets. The dependent variable in specification (5) is the future 12-month equity return of the US Equity Market. The dependent variable in specification (6) is the difference in the future 12-month equity return in the US and the average return in the rest of the world where the weights assigned to the "weighted average future foreign return" are the amount of equity a particular country issues in the US. The dependent variable is calculated as the gross proceeds from foreign equity issues in the US markets normalized by US GDP. Additionally, we estimate both specifications (5) and (6) using only IPO issues.

$$FR12_{i,t} = a + b\,\frac{FE^{i}_{t-1}}{GDP^{i}_{t-1}} + e_{i,t}, \qquad (5)$$

$$(FR12_{i,t} - FR12_{w,t}) = a + b\,\frac{FE^{i}_{t-1}}{GDP^{i}_{t-1}} + e_{i,t}, \qquad (6)$$

Panel A: Foreign Equity Issues In US Equity Markets

		All Equity Issues		IPO Issues Only	
		a	b	a	b
Independent Variable:	Coefficient	0.1256	-8.0385	0.1180	-22.4870
Future 12-month US Equity Returns	t-stat	(5.81)	(2.29)	(6.42)	(2.25)
Independent Variable:	Coefficient	0.0795	-21.8892	0.0500	-42.6088
Future 12-month (US - World) Equity Returns	t-stat	(2.89)	(2.75)	(2.10)	(1.82)

Panel B: Foreign Equity Issues In UK Equity Markets

We estimate the following two regression specifications using monthly observations of foreign equity issues in the UK Equity markets using the same approach as in Panel A.

$$FR12_{i,t} = a + b\,\frac{FE^{i}_{t-1}}{GDP^{i}_{t-1}} + e_{i,t}, \qquad (5)$$

$$(FR12_{i,t} - FR12_{w,t}) = a + b\,\frac{FE^{i}_{t-1}}{GDP^{i}_{t-1}} + e_{i,t}, \qquad (6)$$

Panel B: Foreign Equity Issues In UK Equity Markets

		All Equity Issues		IPO Issues Only	
		a	b	a	b
Independent Variable:	Coefficient	0.1390	-7.8795	0.1283	-15.8029
Future 12-month UK Equity Returns	t-stat	(8.79)	(2.04)	(9.34)	(1.85)
Independent Variable:	Coefficient	0.1234	-11.8217	0.1020	-13.9345
Future 12-month (UK - World) Equity Returns	t-stat	(8.14)	(3.19)	(7.57)	(1.78)

Table 7
Domestic Debt Market Timing

Panel A: Domestic Debt Regressions: Level of New Debt Issues

The dependent variable in the following regression is calculated as the aggregate US dollar proceeds raised by each G7 country in their home market divided by that country's home GDP. We use monthly observations in our estimates. The swap rates for each G7 country come from Datastream and are end of month observations. We use ten-year swap rates for the domestic swap rates in each country. We estimate these regressions individually for each G7 country and as panel data with fixed effects.

Regression Specifications:

$$\frac{D_{i,t}}{GDP_{i,t}} = a + b\,SR_{i,t}^{nomnal} + e_{i,t} \qquad (7) \qquad\qquad \frac{D_{i,t}}{GDP_{i,t}} = a + b\,SR_{i,t}^{real} + e_{i,t} \qquad (8)$$

		Nominal Rates		Real Rates	
Panel A Regression Results		a	b	a	b
Canada	Coefficient	1.0582	-0.0443	0.7519	-0.0045
	t-stat	(6.36)	(2.03)	(6.55)	(0.22)
France	Coefficient	0.3844	-0.0144	0.3949	-0.0216
	t-stat	(4.46)	(1.13)	(4.29)	(1.17)
Germany	Coefficient	3.1789	-0.3521	1.1619	-0.0773
	t-stat	(11.21)	(8.46)	(5.30)	(1.59)
Italy	Coefficient	1.2102	-0.0753	1.1137	-0.1157
	t-stat	(6.23)	(3.54)	(5.64)	(2.96)
Japan	Coefficient	0.3865	-0.0553	0.5279	-0.1214
	t-stat	(11.76)	(7.17)	(15.26)	(10.94)
UK	Coefficient	0.9530	-0.0658	0.4627	-0.0091
	t-stat	(12.79)	(7.35)	(6.28)	(0.57)
US	Coefficient	2.6670	-0.2681	1.4882	-0.1826
	t-stat	(17.73)	(12.77)	(8.10)	(3.98)
Pooled, Fixed Effects	Coefficient	1.1989	-0.0948	0.8181	-0.0638
	t-stat	(20.61)	(11.67)	(14.92)	(5.27)

Panel B: Domestic Debt Regressions: Debt Share of New Issues

The following table reports the regression results for the following regression:

$$\frac{D_{i,t}}{D_{i,t} + E_{i,t}} = a + b\,SR_{i,t}^{nominal} + e_{i,t} \qquad (10) \qquad\qquad \frac{D_{i,t}}{D_{i,t} + E_{i,t}} = a + b\,SR_{i,t}^{real} + e_{i,t} \qquad (1$$

The dependent variable is calculated using the gross proceeds from new debt and equity issued domestically by each of the G7 countries. We estimate the regression using monthly observations and use Hansen-Hodrick estimates with 12 period lags to account for serial correlation. The above regression is run for each of the G7 countries individually and then as a panel regression with fixed effects. The Home Swap Rate variable on the right-hand side of the equation is the prevailing swap rate in the

		Nominal Rates		Real Rates	
Panel B		a	b	a	b
Canada	Coefficient	0.6918	-0.0132	0.7396	-0.0111
	t-stat	(14.29)	(1.65)	(25.83)	(1.14)
France	Coefficient	0.6803	0.0162	0.5306	0.0503
	t-stat	(7.02)	(1.08)	(5.40)	(1.62)
Germany	Coefficient	1.1341	-0.0463	0.7387	-0.0569
	t-stat	(9.86)	(2.64)	(1.42)	(2.61)
Italy	Coefficient	0.7623	-0.0071	0.6492	-0.0109
	t-stat	(7.23)	(0.59)	(5.42)	(0.97)
Japan	Coefficient	0.6554	-0.0337	0.8242	-0.0173
	t-stat	(13.74)	(1.72)	(14.40)	(0.96)
UK	Coefficient	0.6578	-0.0079	0.6602	-0.0129
	t-stat	(7.04)	(0.66)	(10.13)	(0.93)
US	Coefficient	0.9299	-0.0160	0.8451	-0.0112
	t-stat	(18.96)	(2.26)	(20.32)	(1.61)
Pooled, Fixed Effects	Coefficient	0.6918	-0.0132	0.7396	-0.0111
	t-stat	(14.29)	(1.65)	(25.83)	(1.14)

Table 8
Debt Issues and Future Interest Rate Changes

The following table reports the results for regression equations (12) and (13) from the text.

$$\Delta SR_{i,t} = a + b\frac{D_{i,t}}{D_{i,t} + E_{i,t}} + \mathrm{e}_{\mathrm{i,t,}} \qquad (12)$$

$$\Delta SR_{i,t} = a + b\frac{D_{i,t}}{GDP_{i,t}} + \mathrm{e}_{\mathrm{i,t,}} \qquad (13)$$

We estimate each of the above equations individually for the G7 countries and as a panel including country-specific fixed effects. The dependent variable represents the future one-year change in the 10-year swap rate for each of the G7 countries. The independent variable in equation (12) is the debt share of new issues which is calculated as the amount of gross proceeds firms in country i raised in their home market as a percentage of their domestic market new equity and debt issues. We use monthly observations and correct the serial correlation by using Hansen-Hodrick estimation of the standard errors.

		Specification (12)		Specification (13)	
		a	b	a	b
Fixed Effects Regression	Coefficient	-0.509	0.196	-0.436	0.214
	t-stat	(3.97)	(1.60)	(8.67)	(1.28)
Canada	Coefficient	0.435	-0.099	-0.090	-0.301
	t-stat	(1.18)	(0.30)	(0.47)	(1.32)
France	Coefficient	-0.439	0.298	-0.457	0.324
	t-stat	(1.06)	(1.19)	(2.57)	(0.65)
Germany	Coefficient	-0.302	-0.029	-0.455	-0.032
	t-stat	(1.16)	(0.10)	(4.47)	(0.16)
Italy	Coefficient	-0.891	0.140	-0.773	0.155
	t-stat	(2.50)	(1.31)	(3.79)	(1.82)
Japan	Coefficient	-0.685	0.442	-0.663	0.980
	t-stat	(3.87)	(1.93)	(10.48)	(4.23)
UK	Coefficient	-0.842	0.480	-0.629	0.324
	t-stat	(2.79)	(1.92)	(3.77)	(0.93)
US	Coefficient	-2.293	2.433	-0.489	0.274
	t-stat	(2.16)	(1.89)	(2.21)	(0.96)

Table 9
International Debt Issues

The dependent variable in the following regression specification is calculated as the aggregate US dollar proceeds raised by each G7 country in the US market divided by that country's home GDP. We use monthly observations in our estimates. The US swap rate (SR_t^j) and home swap rate ($SR_{i,t}^j$) for each G7 country come from Datastream and are end of month observations. We estimate each specification for short-term debt (original maturity of 1 through 5 years), long-term debt (greater than 5-year original maturity), and all debt. For the estimation using short-term debt, we use two-year swap rates and for the long-term debt and total debt estimation we use ten-year swap rates. We estimate these regressions as panel data with country-specific fixed effects and adjust the standard errors for serial correlation caused by the overlapping observations of the independent variables. We estimate the following equation for foreign issues in both the U.S. and the U.K. and report the results for both countries in the table below.

$$\frac{FD_{i,t}^j}{GDP_{i,t}} = a + b \cdot SR_t^j + c \cdot \left[SR_t^j - SR_{i,t}^j\right] + e_{i,t}, \qquad (14)$$

United States:

		Nominal Rates			Real Rates		
Short Term Debt		a	b	c	a	b	c
	Coefficient	0.0035	-0.0003	-0.0006	0.0015	0.0002	-0.0005
	t-stat	(3.46)	(1.88)	(5.19)	(2.07)	(0.76)	(2.75)
Long Term Debt							
	Coefficient	0.0151	-0.0016	-0.0012	0.0147	-0.0023	-0.0027
	t-stat	(4.93)	(3.20)	(2.91)	(5.97)	(3.85)	(4.19)
Total Debt							
	Coefficient	0.0186	-0.0018	-0.0008	0.0162	-0.0023	-0.0023
	t-stat	(5.97)	(3.69)	(3.02)	(6.44)	(3.68)	(3.56)

United Kingdom:

		Nominal Rates			Real Rates		
Short Term Debt		a	b	c	a	b	c
	Coefficient	0.0053	-0.0005	0.0000	0.0041	-0.0006	-0.0002
	t-stat	(9.45)	(5.69)	(0.03)	(6.50)	(3.67)	(1.52)
Long Term Debt							
	Coefficient	0.0050	-0.0003	-0.0004	0.0031	-0.0003	0.0001
	t-stat	(8.33)	(3.93)	(2.68)	(5.49)	(2.11)	(0.71)
Total Debt							
	Coefficient	0.0105	-0.0008	-0.0006	0.0070	-0.0008	0.0003
	t-stat	(13.24)	(7.50)	(3.06)	(9.24)	(4.73)	(1.80)

Appendix I
Dollar Volume (in MillionsUS$) of New Issues

Panel 1. The following table presents the aggregated proceeds (in millions US$) over the sample period of 1990 through 2001 of equity proceeds by firms throughout the world according the Security Data Corporation's (SDC) New Issues Databases. We classify each sale of common stock according to the home country of the issuer and the country where the proceeds are raised. We consider each of the G7 countries individually and classify all other countries into geographic regions. See Appendix II for a complete list of individual countries comprising each geographical region.

All Equity Issues (Public and Privately Placed Equity) in Millions US$

Location of Issuing Firm	Marketplace of Equity Issue (Aggregated 1990-2001)															
	Canada	France	Germany	Italy	Japan	United Kingdom	United States	Africa	Australia & New Zealand	Central Am + Caribbean	Eastern Europe	Middle East	Other Asia	Other Europe	South America	Total
Canada	130,462.6	-	54.4	-	128.6	7.9	19,833.8	-	70.1	-	-	-	1.4	-	-	150,558.8
France	34.5	133,409.3	466.1	-	-	869.2	8,754.5	5.8	2.3	-	-	-	11.5	258.5	-	143,811.7
Germany	66.2	-	163,949.9	-	-	17.4	6,294.4	-	-	-	-	-	-	1,378.6	-	171,706.5
Italy	5.4	110.3	-	130,506.8	-	-	1,396.2	-	-	-	-	-	-	-	-	132,018.7
Japan	2.5	-	373.4	-	289,956.4	34.7	7,128.8	-	89.5	-	-	-	9.1	-	-	297,594.4
United Kingdom	115.0	76.0	-	-	-	278,261.7	13,717.0	-	683.7	-	2.0	-	-	385.9	-	293,241.3
United States	4,215.9	375.2	549.0	-	86.4	930.0	1,209,244.0	-	522.2	-	14.0	45.8	116.0	798.4	15.2	1,216,912.1
Africa	17.2	9.3	263.9	-	-	2,283.5	888.0	7,110.9	2.2	-	-	-	4.6	81.7	-	10,661.3
Australia & New Zealand	31.4	-	-	-	-	34.7	5,376.2	-	82,505.3	-	-	-	43.9	985.2	-	88,976.7
Central Am + Caribbean	39.7	-	-	-	254.1	1,012.7	28,556.6	-	38.5	29,752.8	-	-	163.5	464.1	15.3	60,297.3
Eastern Europe	38.6	-	120.4	-	-	971.4	2,830.5	-	-	-	12,956.0	-	7.6	111.2	-	17,035.7
Middle East	6.6	16.2	221.5	-	-	477.5	6,387.1	-	-	-	-	6,770.8	-	588.1	-	14,467.8
Other Asia	170.9	-	-	44.0	364.0	3,020.8	13,573.8	-	1,511.1	-	-	1.4	338,427.3	2,650.0	-	359,763.3
Other Europe	196.7	8,272.4	4,518.0	298.9	-	10,305.3	36,165.8	-	-	-	218.6	-	-	323,752.6	-	383,728.3
South America	68.7	-	-	-	-	50.0	2,419.6	-	-	391.8	-	-	511.9	275.1	63,619.5	67,336.6
Total	135,471.9	142,268.7	170,516.6	130,849.7	290,789.5	298,276.8	1,362,566.3	7,116.7	85,424.9	30,144.6	13,190.6	6,818.0	339,296.8	331,729.4	63,650.0	3,408,110.5

Appendix I
Dollar Volume (in MillionsUS$) of New Issues

Panel 2. The following table presents the aggregated proceeds (in millions US$) over the sample period of 1990 through 2001 of non-convertible debt proceeds by firms throughout the world according the Security Data Corporation's (SDC) New Issues Databases. We classify each sale of non-convertible debt according to the home country of the issuer and the country where the proceeds are raised. We consider each of the G7 countries individually and classify all other countries into geographic regions. See Appendix II for a complete list of individual countries comprising each geographical region.

All Debt Issues (Public and Privately Placed Debt) in Millions US$

Location of Issuing Firm	Marketplace of Debt Issue (Aggregated 1990-2001)															
	Canada	France	Germany	Italy	Japan	United Kingdom	United States	Africa	Australia & New Zealand	Central Am + Caribbean	Eastern Europe	Middle East	Other Asia	Other Europe	South America	Total
Canada	506,264.4	4,171.2	7,904.5	-	1,051.1	42,527.0	185,263.8	-	339.7	-	-	-	3,153.9	67,953.1	-	818,628.7
France	-	450,945.1	24,077.9	229.3	201.3	12,754.2	14,871.8	-	-	-	-	-	876.6	290,205.1	-	794,161.3
Germany	12.2	8,769.6	2,101,925.8	-	1,118.9	70,091.1	71,733.4	-	1,354.4	-	-	-	1,921.0	243,498.1	-	2,500,424.5
Italy	-	588.7	5,632.3	721,465.1	507.6	14,796.5	34,519.4	-	-	-	-	-	1,597.0	185,025.1	-	964,131.7
Japan	-	1,625.2	20,185.0	-	1,426,906.7	112,234.2	15,258.9	-	-	-	-	-	1,937.1	101,606.6	-	1,679,753.7
United Kingdom	499.0	12,312.5	20,596.9	346.1	2,491.8	667,952.4	111,946.5	-	330.9	-	-	-	6,042.6	108,046.3	-	930,565.0
United States	2,295.6	14,936.9	42,739.7	2,323.7	6,207.2	99,270.1	7,719,959.0	-	754.7	-	-	-	14,367.9	540,011.6	-	8,442,866.4
Africa	-	88.1	2,211.6	-	2,241.6	1,314.4	5,442.4	119.1	-	-	-	-	-	8,520.6	-	19,937.8
Australia & New Zealand	-	-	2,854.5	-	2,904.9	61,547.8	27,667.6	-	60,365.8	-	-	-	1,658.7	62,409.4	-	219,408.7
Central Am + Caribbean	-	4,497.8	13,530.9	-	1,541.8	69,229.7	82,436.6	-	-	39,919.4	-	-	1,481.3	163,363.7	63.7	376,064.9
Eastern Europe	-	-	26,211.3	-	9,001.0	898.3	9,626.0	-	-	-	12,912.3	-	-	42,588.3	-	101,237.2
Middle East	-	41.1	150.6	-	-	2,150.1	13,812.8	-	-	-	-	-	-	14,850.0	-	31,004.6
Other Asia	147.8	308.1	5,263.0	-	11,218.7	12,883.2	67,669.5	-	69.7	-	-	-	287,975.0	54,380.7	-	439,915.7
Other Europe	637.2	29,212.0	221,729.0	1,266.1	20,745.8	260,529.0	129,688.4	-	330.4	-	36.3	-	7,309.1	2,503,627.4	-	3,175,110.7
South America	-	730.0	27,622.3	833.8	1,312.8	5,878.9	66,640.2	-	-	357.8	-	-	349.1	115,689.6	99,687.9	319,102.4
Total	509,856.2	528,226.3	2,522,635.3	726,464.1	1,487,451.2	1,434,056.9	8,556,536.3	119.1	63,545.6	40,277.2	12,948.6	-	328,669.3	4,501,775.6	99,751.6	20,812,313.3

Appendix I
Dollar Volume (in MillionsUS$) of New Issues

Panel 3. The following table presents the aggregated proceeds (in millions US$) over the sample period of 1990 through 2001 of non-convertible preferred stock proceeds by firms throughout the world.

All Preferred Issues (Public and Privately Placed Equity) in Millions US$

Location of Issuing Firm	Marketplace of Preferred Issue (Aggregated 1990-2001)															
	Canada	France	Germany	Italy	Japan	United Kingdom	United States	Africa	Australia & New Zealand	Central Am + Caribbean	Eastern Europe	Middle East	Other Asia	Other Europe	South America	Total
Canada	16,652.2	-	-	-	-	-	3,035.8	-	-	-	-	-	-	-	-	19,688.0
France	-	89.6	-	-	-	-	300.8	-	-	-	-	-	-	318.4	-	708.8
Germany	85.1	-	4,186.2	-	-	-	1,243.8	-	-	-	-	-	-	204.9	-	5,720.0
Italy	-	-	-	207.4	-	-	542.0	-	-	-	-	-	-	383.7	-	1,133.1
Japan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
United Kingdom	-	-	-	-	-	5,079.9	10,075.0	-	-	-	-	-	-	5,004.2	-	20,159.1
United States	103.9	-	-	-	-	-	234,252.3	-	-	-	-	-	-	1,286.6	-	235,642.8
Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Australia & New Zealand	-	-	-	-	-	-	1,361.9	-	138.4	-	-	-	-	-	-	1,500.3
Central Am + Caribbean	10.0	-	290.2	-	-	1,665.9	9,389.9	-	-	445.5	-	-	-	4,297.4	-	16,098.9
Eastern Europe	-	-	-	-	-	-	-	-	-	-	5.5	-	-	-	-	5.5
Middle East	-	-	-	-	-	-	53.3	-	-	-	-	-	-	-	-	53.3
Other Asia	-	-	-	-	-	266.5	3,116.1	-	17.4	-	-	-	3,659.3	1,156.1	-	8,215.4
Other Europe	-	-	162.4	-	-	500.6	7,118.4	-	-	-	-	-	-	7,880.3	-	15,661.7
South America	27.6	-	175.0	-	-	-	1,783.1	-	-	-	-	-	-	-	13,939.2	15,924.9
Total	16,878.8	89.6	4,813.8	207.4	-	7,512.9	272,272.4	-	155.8	445.5	5.5	-	3,659.3	20,531.6	13,939.2	340,511.8

Appendix I
Dollar Volume (in MillionsUS$) of New Issues

Panel 4. The following table presents the aggregated proceeds (in millions US$) over the sample period of 1990 through 2001 of convertible debt and convertible preferred stock proceeds by firms throughout the world according the Security Data Corporation's (SDC) New Issues Databases. We classify each sale of convertible securities according to the home country of the issuer and the country where the proceeds are raised. We consider each of the G7 countries individually and classify all other countries into geographic regions. See Appendix II for a complete list of individual countries comprising each geographical region.

Convertibles (Bonds and Preferred Stock) Public and Privately Sold

Location of Issuing Firm	Marketplace of Equity Issue (Aggregated 1990-2001)															
	Canada	France	Germany	Italy	Japan	United Kingdom	United States	Africa	Australia & New Zealand	Central Am + Caribbean	Eastern Europe	Middle East	Other Asia	Other Europe	South America	Total
Canada	10,171.0	-	-	-	-	-	5,860.6	-	-	-	-	-	-	18.3	-	16,049.9
France	-	26,967.1	73.4	60.3	-	280.2	504.9	-	-	-	-	-	-	12,958.0	-	40,843.9
Germany	-	-	6,669.5	-	-	40.0	161.9	-	-	-	-	-	-	4,656.1	-	11,527.5
Italy	-	-	-	3,254.2	-	519.9	1,070.0	-	-	-	-	-	-	5,199.6	-	10,043.7
Japan	-	-	240.1	-	130,786.1	-	413.7	-	-	-	-	-	547.5	11,104.5	-	143,091.9
United Kingdom	5.2	-	890.3	-	141.6	25,058.4	1,461.1	-	-	-	-	-	40.0	5,854.1	-	33,450.7
United States	67.2	0.1	1,455.5	-	-	90.7	215,668.1	-	-	-	-	-	-	14,139.7	-	231,421.3
Africa	-	-	-	-	-	564.5	20.3	18.9	-	-	-	-	-	498.0	-	1,101.7
Australia & New Zealand	-	-	-	-	-	-	943.0	-	14,153.4	-	-	-	37.8	340.0	-	15,474.2
Central Am + Caribbean	-	-	-	-	-	4,056.3	10,088.5	-	-	424.8	-	-	492.6	13,277.1	-	28,339.3
Eastern Europe	-	-	-	-	-	280.0	156.5	-	-	-	1,876.6	-	-	174.2	-	2,487.3
Middle East	-	-	-	-	-	-	522.0	-	-	-	-	183.4	-	205.0	-	910.4
Other Asia	-	-	12.3	-	-	5,363.6	3,252.4	-	-	-	-	-	17,955.2	30,337.1	-	56,920.6
Other Europe	-	1,287.0	6,916.8	-	963.3	4,023.7	3,240.5	-	-	-	-	-	40.7	44,990.6	-	61,462.6
South America	-	-	-	-	-	-	2,194.0	-	-	114.1	-	-	-	355.9	6,610.3	9,274.3
Total	10,243.4	28,254.2	16,257.9	3,314.5	131,891.0	40,277.3	245,557.5	18.9	14,153.4	538.9	1,876.6	183.4	19,113.8	144,108.2	6,610.3	662,399.3

Appendix II

Countries Included In Geographic Regions

Africa	Central America & Caribbean	Eastern Europe	Middle East	Other Asia	Other Europe	South America
Algeria	Aruba	Bulgaria	Afghanistan	Bangladesh	Austria	Argentina
C. African Rep	Bahamas	Croatia	Bahrain	China	Belgium	Bolivia
Gabon	Barbados	Czech Republic	Cyprus	Hong Kong	Denmark	Brazil
Ghana	Belize	Estonia	Egypt	India	Finland	Chile
Ivory Coast	Bermuda	Georgia	Israel	Indonesia	Gibraltar	Colombia
Kenya	British Virgin	Hungary	Jordan	Macau	Greece	Ecuador
Liberia	Cayman Islands	Kazakhstan	Kuwait	Malaysia	Guernsey	Neth. Antilles
Malawi	Costa Rica	Latvia	Lebanon	Micronesia	Iceland	Peru
Mauritius	Cuba	Lithuania	Oman	Mongolia	Ireland	Uruguay
Morocco	Dominican Rep	Moldova	Pakistan	Myanmar(Burma)	Isle of Man	Venezuela
Nigeria	El Salvador	Poland	Qatar	Papua New Guinea	Jersey	
Senegal	Guatemala	Romania	UAE	Philippines	Liechtenstein	
South Africa	Honduras	Russian Fed		Singapore	Luxembourg	
Tanzania	Jamaica	Slovak Rep		South Korea	Malta	
Trinidad & Tobago	Mexico	Slovenia		Sri Lanka	Monaco	
Tunisia	Panama	Turkey		Taiwan	Netherlands	
Zambia	Puerto Rico	Ukraine		Thailand	Norway	
Zimbabwe	St Lucia			Vietnam	Portugal	
					Spain	
					Sweden	
					Switzerland	

Appendix III

Debt Adjustment Factors

This appendix explains a method to infer the approximate portion of the total debt issues that is accounted for by new issues. Let K be the total amount of currently outstanding debt that had t-years to maturity at the time of issue. Let X be the rate of growth of debt due to new issues. We assume that when a debt issue matures, a new debt issue used to rollover the old debt also has t-years to maturity. Therefore, K/t of the new t-year debt is used to rollover maturing debt.[1] We do not have data on the amount of outstanding debt K. However, under our assumptions, we can back out the amount of new debt issues from the amount of total debt issues. Specifically,

$$\text{Total } t-\text{year maturity debt Issue} = XK + \frac{K}{t}.$$

$$\Rightarrow XK = \frac{\text{Total } t\text{ - year maturity debt Issue}}{1 + 1/Xt}.$$

We can use this expression to compute the amount of new debt issues depending on our assumptions about the growth rate X.

Appendix IV

Computation of Standard Errors

The regression specifications in this paper involve overlapping observations since the sampling frequency is monthly while the forecasting period is annual. This overlap will induce serial correlation and although it will not cause bias to ordinary least squares estimates, the covariance matrix will need appropriate modification. To avoid losing observations from non-overlapping intervals, we follow the procedures outlined in Hansen and Hodrick (1980) to adjust the covariance matrix for the induced serial correlation. Consider the following time series regression:

$$\mathrm{R12}_t = \mathrm{a} + \mathrm{b} \cdot \text{equity issues}_t + \mathrm{e}_t$$

The dependent variable in the above equation is the return on the equity index over the next 12 months. Since we sample the exogenous variable equity issues each month, the observations of the dependent variable clearly overlap each other by 11 months. Following Hansen and Hodrick (1980), we estimate the above equation using OLS and N monthly observations to obtain the vector of coefficient estimates and the vector or residuals. We then use the vector of residuals to construct an NxN symmetric matrix Ω whose elements are $\omega_{i,j} = \frac{1}{N} \sum_{t=|i-j|+1}^{N} \hat{e}_t \hat{e}_{t-|i-j|}$ for all $|i - j| = 0,...,12$; and 0 for all other entries.

After constructing Ω, we obtain the finite sample covariance matrix as:

$$N(X'_N X_N)^{-1} X'_N \Omega_N X_N (X'_N X_N)^{-1}$$