THE BORROWER CHARACTERISTICS IN HOT EQUITY MARKETS

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Abstract

In this study, I examine the characteristics of U.S. corporate borrowers (public debt, private placement, and syndicated loan firms) in HOT versus COLD equity markets. My main objective is to see the characteristics of firms that choose debt financing even when the equity market is HOT. HOT equity markets are defined as the top twenty percent of the months in terms of the de-trended number of equity offerings. I find that the HOT equity market borrowers generally have higher market-to-book ratios compared to the COLD market borrowers. Also, in HOT equity markets, the public debt firms (i.e. the corporate bond issuers) tend to have fewer tangible assets, the private placement firms tend to be smaller and highly levered, and the syndicated loan firms tend to be smaller, more profitable, and less levered compared to the COLD market firms. When I look at the number of transactions in each market, I find that when the equity market is active (i.e. HOT), the syndicated loan market is even more active. During these periods, the public debt market is also active (although not as much as the equity or the syndicated loan markets). When I look at the sizes of the transactions in each market, I find that the private placements tend to be significantly larger in HOT markets compared to COLD markets. I conclude that while the equity, the public debt, and the syndicated loan markets move together in terms of market activity, the equity market and the private placement markets move together in terms of the size of the transaction.

Keywords: *hot market, equity, debt*

Clasificare JEL: *G30, G32*

1. Introduction and context of the study

The previous studies on capital structure have shown that firms' financing decisions are interrelated. For example, Huang and Ritter (2009) show that when the difference between cost of equity and cost of debt gets smaller, the percentage of firms choosing equity financing over debt financing goes up; and when this difference gets larger, the percentage of firms choosing debt financing over equity financing goes up. Elliott, Koeter-Kant, and Warr (2007, 2008) contend that market's misvaluation of equity explains the debt-equity choice.

Interestingly, none of these previous studies is comprehensive enough to cover the equity markets and the three main debt markets, namely the public debt (i.e. corporate bond), the syndicated loan, and the private placement markets, together. As of today, we do not know how each of these markets complements and/or substitutes for each other. For example, do firms see each of these debt markets as a substitute for the equity market? In other words, do managers see a bond offering, a private placement, or a syndicated loan as a perfect alternative to an SEO (i.e. seasoned equity offering)? If not, do firms see these debt markets as a complement of the equity market? In other words, do managers do a bond offering, a private placement, or a syndicated loan to complement an equity offering?

Of course, it is possible that some of these debt markets work as a substitute for the equity market and some may be regarded as complementing the equity market. Also, some of these markets may be seen by the managers as a strong substitute for or a strong complement of the equity market, while some may be regarded as a weak substitute for or a weak complement of the equity market. We do not really know how managers see each of these markets in relation to the other markets.

In this study, in order to clarify the issue, I examine U.S. firms' financing activities in these three debt markets (i.e. public debt, private placement, and syndicated loan markets) and answer the following questions: 1) What are the characteristics of firms that go to these debt markets in periods of active equity markets?, 2) When the equity market is active in terms of the number of firms coming to the market, are these debt markets also active?, 3) What about the size of the transaction? When the equity market is active, do firms borrow more in these debt markets?

In order to measure the equity market activity, I use the "HOT market" dummy variable created by Alti (2006). This variable takes the value "1" when the issue month is among the top 20% of the months in terms of market activity, and the value "0" otherwise.

The paper proceeds as follows: Section 2 discusses the previous literature. Section 3 presents the hypotheses. Section 4 explains the data and the methodology. Section 5 reports the empirical results. Section 6 concludes.

2. Literature Review

The previous research on capital structure has shown that cost of capital explains the timing of firms' equity and debt offerings. Baker and Wurgler (2002), Hovakimian (2005), and Alti (2006), show that cost of equity capital explains the timing of initial public and seasoned equity offerings. For debt markets, Taggart (1977), Marsh (1982), Graham and Harvey (2001), Bancel and Mittoo (2004), and Barry, Mann, Mihov, and Rodriguez (2008) show that cost of debt explains the timing of firms' debt offerings.

Besides these general papers on market timing that relate cost of capital to the timing of equity and debt transactions, there is a separate stream of literature that deals with firms' choice between equity and debt financing. These studies consider equity and debt financing together and try to find the factors that affect firms' choice between these two instruments. However, most of these studies are limited in their scope; they do not examine the equity market and the three main debt markets together. Also, they do not look at how these markets complement and/or substitute for each other.

Denis and Mihov (2003) examine the firms' choice between public debt and bank debt, public debt and non-bank private debt, and bank debt and non-bank private debt. They examine the impact of several factors like the credit quality of the firm, total assets amount issued, M/B, fixed assets ratio, Altman's Z-score, profitability, insider ownership, and book leverage on firms' financing choice. They find that the credit quality of the firm is the most important determinant of the financing choice for these firms. Firms with the highest credit quality (i.e. Moody's or S&P ratings) tend to issue public debt, firms with the lowest credit quality tend to issue private debt, and firms in the middle tend to borrow from banks

Elliott, Koeter-Kant, and Warr (2007) examine the impact of market's misvaluation of equity on firms; financing choice for funding the financing deficit. They find that firms which appear to be overvalued relative to previous years fund a greater proportion of their deficit with equity rather than debt.

Elliott, Koeter-Kant, and Warr (2008) examine the choice between equity vs. public and private debt in a framework that controls for the static trade off and pecking order theories. They find that overvalued firms are more likely to issue equity, while those that are fairly valued or undervalued issue debt. They show that younger, riskier firms, seeking smaller amounts of capital are more likely to utilize the private debt market.

Huang and Ritter (2009) examine firms' choice between equity and public debt, while using some explanatory variables that approximate for the relative cost of equity versus debt. They find that firms are more likely to issue equity rather than debt when the implied equity risk premium is lower, the first-day return of IPOs is higher, the closed-end fund discount is smaller, prior market

returns are higher and future market returns are lower, prior realizations of HML are lower and future realizations of HML are higher, and the expected default spread is higher, even after controlling for firm characteristics.

Kaya (2012) examines the impact of equity market timing and debt market timing on firms' choice between equity and public debt, equity and private placement, and equity and syndicated loan financing. He shows that while equity market timing affects firm's financing decisions, debt market timing does not. His results show that when the equity market is active, firms tend to choose equity financing over private placement financing, but interestingly, they tend to choose syndicated loan financing over equity financing. This result implies that when the equity market is active, the syndicated loan market is even more active.

Kaya (2013) examines the impact of business conditions on firms' financing decisions. He shows that when business conditions are favorable (i.e. above-average), while the seasoned equity, the public debt, and the private placement markets become more active in terms of the number of firms coming to the market, the syndicated loan market is unaffected. He also shows that firms tend to prefer both public debt financing and syndicated loan financing over equity financing when business conditions are favorable (i.e. above-average).

3. Hypotheses

In HOT equity markets (i.e. active months), I expect to see better market valuations, better profitability values, and lower leverage values for firms in general. In fact, the equity market is active due to firms' success and the resulting higher valuations that come with that success. In addition, during these more favorable periods, I expect to see smaller firms with fewer tangible assets coming to the market (i.e. who cannot come to the markets during other times). Therefore, my hypothesis regarding the borrower characteristics in HOT markets is:

Hypothesis 1: During HOT months, the firms that come to the debt markets have higher market valuations, higher profitability values, and lower debt values. These firms are also smaller firms with fewer tangible assets.

When general financing conditions are more favorable, the equity market is active. During these periods, I expect the other markets to be active as well, except for the private placement market. The private placement market serves the firms that have trouble in getting funds through other markets, and generally the rates are higher (i.e. costlier to the borrower) compared to the other markets. Therefore, when conditions are more favorable, I do not expect to see too many firms coming to the private placement market. My hypothesis regarding the debt market activity during HOT equity markets is:

Hypothesis 2: When the equity market is active (i.e. HOT), the public debt and the syndicated loan markets are also active. During these periods, the private placement market is not active.

4. Data

First, the data on public debt offerings, private placements, and syndicated bank loans are downloaded from Thomson Financial's SDC Database. Then, I matched them with the corresponding accounting data from the Compustat quarterly files. My sample period is from year 1984 through year 2004. After excluding the financial firms, small firms (i.e. firms with book values of assets below $10 million in 2004 dollars), the subsidiary firms, the unit offers, and the possible outliers (i.e. market-to-book ratio greater than 10, leverage ratio greater than 1, earnings before interest, taxes, and depreciation scaled by assets greater than 1), I have 3,077 public debt offerings, 2,164 private placements, and 6,903 syndicated bank loan agreements in my final sample.

Out of these, 1,047 public debt offerings, 572 private placements, and 2,912 syndicated bank loans are completed during HOT equity markets (i.e. the months when the equity market is among the top 20% of the months in terms of market activity).

Table 1 shows the summary statistics for my HOT market debt subsamples. Size is the natural logarithm of sales. Tangibility is measured as net property, plant, and equipment scaled by total assets. Profitability is EBITDA scaled by total assets. The market-to-book ratio is the (total assets – book value of equity + market value of equity)/total assets. Leverage is (long-term debt + short-term debt)/total assets. Proc./A_{t-1} is the total proceeds from the transaction scaled by end-of-previous quarter total assets. All variables are measured at the end of the previous quarter.

As can be seen from the table, in HOT equity markets, the public debt firms are the largest firms with lots of tangible assets, but they are the least profitable firms among the four groups. Table 1 also shows that the private placement firms are the most financially distressed group. They have the highest leverage ratio (mean=37%, median=39%).

The public debt firms and the private placement firms have lower M/B ratios compared to the syndicated loan firms. In terms of the size of the transaction, the last row in Table 1 shows that, typically, a syndicated loan is the largest transaction (the median proceeds scaled by assets is 43%), a private placement is the second largest transaction (the median proceeds scaled by assets is 24%), and a public debt offering (i.e. bond offering) is the smallest transaction (the median proceeds scaled by assets is just 5%).

Table no. 1. Summary Statistics for HOT Market Debt Subsamples

	Public Debt		**Private Placement**		**Syndicated Loan**	
Variable	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**
Size	7.05	7.00	4.96	5.23	4.74	4.78
Tangibility	0.50	0.49	0.42	0.45	0.31	0.37
Profitability	0.21	0.23	0.23	0.26	0.27	0.30
M/B	0.77	1.01	0.72	1.04	0.93	1.28
Leverage	0.34	0.35	0.37	0.39	0.31	0.32
Proc./A_{t-1}	0.01	0.05	0.09	0.24	0.18	0.43
N	1,047		572		2,912	

Next, I show the results of my empirical analysis. In my analysis, I use the Wilcoxon 2-sample test to compare the characteristics of HOT and COLD market firms in each market. I do comparisons for HOT and COLD market firms in each debt market.

5. Empirical Results

Table 2 compares the characteristics of the public debt issuers (i.e. firms that offer bonds) in HOT equity markets versus in COLD equity markets. It also compares the issue sizes (i.e. the proceeds scaled by assets) across HOT and COLD equity markets. When we compare the means,

we are seeing that the HOT market bond issuers have fewer tangible assets compared to the COLD market issuers. The mean of tangibility is 0.49 for the HOT market borrowers versus 0.51 for the other group (the difference is significant at 1% level). On the other hand, the average M/B is 1.01 for the HOT market issuers versus 0.92 for the COLD market issuers (the difference is significant at 1% level). So, we can conclude that, on average, firms with fewer tangible assets and higher market values tend to do their bond offerings when the equity market is HOT. The table shows that there is no significant difference between the two groups' size, profitability and leverage measures.

When we look at the size of the bond offering, we can see that there is no significant difference between the two groups' "proceeds scaled by assets" values (i.e. the dollar proceeds is 5% of the assets for both groups).

Interestingly, when we look at the number of bond offerings in HOT and COLD equity markets, we see that 34.03% of all offerings are completed in HOT markets (versus 65.97% completed in COLD markets). Therefore, we can say that the corporate bond market is also active during these periods but not as much as the SEO market (40.13% of all SEOs are offered in HOT months).

Table no. 2. Comparison of HOT and COLD Market Public Debt Issues

	All Public Debt Issues			**Public Debt Issues in HOT Markets**			**Public Debt Issues in COLD Markets**		
Variable	**Med.**	**Mean**	**St.d.**	**Med.**	**Mean**	**St.d.**	**Med.**	**Mean**	**St.d.**
Size	7.12	7.02	1.46	7.05	7.00	1.43	7.13	7.04	1.47
Tangibility	0.51	0.50	0.24	0.50	***0.49	0.23	0.51	***0.51	0.24
Profitability	0.22	0.23	0.13	0.21	0.23	0.14	0.22	0.23	0.13
M/B	0.69	0.95	0.83	0.77	***1.01	0.80	0.64	***0.92	0.84
Leverage	0.34	0.34	0.13	0.34	0.35	0.13	0.34	0.34	0.13
Proc./A_{t-1}	0.02	0.05	0.11	0.01	0.05	0.11	0.02	0.05	0.11
N	3077			1047			2030		
% of total	100%			34.03%			65.97%		

Table 3 compares the characteristics of the private placement firms (i.e. firms that borrow from a private firm) in HOT equity markets versus in COLD equity markets. Similar to the previous table, it also compares the issue sizes (i.e. the proceeds scaled by assets) across HOT and COLD equity markets. When we compare the means, we are seeing that the HOT market issuers are smaller firms compared to the COLD market issuers. The mean of natural logarithm of sales is 5.23 for the HOT market private placement firms versus 5.61 for the COLD market borrowers (the difference is significant at 1% level). Similar to the previous table, the HOT market firms have higher M/B ratios compared to the COLD market firms. The average M/B is 1.04 for the HOT market issuers versus 0.80 for the COLD market issuers (the difference is significant at 1% level). Also, they have more leverage compared to the COLD market firms (39% versus 36%). So, we can conclude that, on average, smaller and highly levered firms with higher market values tend to do their private placements when the equity market is HOT. The table shows that there is no significant difference between the two groups' tangibility and profitability measures.

Table no. 3. Comparison of HOT and COLD Market Private Placements

	All Private Placements			Private Placements in HOT Markets			Private Placements in COLD Markets		
Variable	**Med.**	**Mean**	**St.d.**	**Med.**	**Mean**	**St.d.**	**Med.**	**Mean**	**St.d.**
Size	5.42	5.51	1.82	4.96	***5.23	1.93	5.56	***5.61	1.77
Tangibility	0.43	0.46	0.25	0.42	0.45	0.25	0.43	0.46	0.25
Profitability	0.24	0.27	0.18	0.23	0.26	0.18	0.24	0.27	0.18
M/B	0.62	0.87	0.83	0.72	***1.04	1.06	0.59	***0.80	0.72
Leverage	0.35	0.37	0.18	0.37	***0.39	0.19	0.34	***0.36	0.17
Proc./A_{t-1}	0.05	0.15	0.35	0.09	***0.24	0.55	0.05	***0.12	0.24
N	2164			572			1592		
% of total	100%			26.43%			73.57%		

When we look at the size of the private placement, we can see that the private placements completed in HOT equity markets are significantly larger (i.e. the dollar proceeds is 24% of the assets for the HOT market borrowers versus 12% for the COLD market borrowers). When we look at the number of private placements in HOT and COLD equity markets, we see that 26.43% of all placements are completed in HOT markets (versus 73.57% completed in COLD markets). We can conclude that the private placement market is not too active when the SEO market is active.

Finally, Table 4 compares the characteristics of the syndicated loan firms (i.e. firms that borrow from a syndicate of banks) in HOT equity markets versus in COLD equity markets. When we compare the means, we are seeing that the HOT market borrowers are smaller firms compared to the COLD market borrowers. The mean of natural logarithm of sales is 4.78 for the HOT market syndicated loan firms versus 5.30 for the COLD market borrowers (the difference is significant at 1% level). Similar to the previous tables, the HOT market firms have higher M/B ratios compared to the COLD market firms. The average M/B is 1.28 for the HOT market borrowers versus 1.10 for the COLD market borrowers (the difference is significant at 1% level). Also, they are more profitable compared to the COLD market borrowers (30% vs. 28%). On the other hand, their leverage level is lower compared to the COLD market borrowers (32% vs. 33%, and the difference is significant at 5% level). The table shows that there is no significant difference between the two groups' tangibility measures.

When we look at the size of the syndicated loan, we can see that the syndicated loans borrowed in HOT equity markets are only slightly (i.e. not significantly) larger (i.e. the dollar proceeds is 43% of the assets for the HOT market borrowers versus 37% for the COLD market borrowers).

When we look at the number of syndicated loans in HOT and COLD equity markets, we see that 42.19% of all loans are completed in HOT markets (versus 57.81% completed in COLD markets). We can conclude that the syndicated loan market is as much active as the SEO market when the SEO market is HOT (40.13% of all SEOs are offered in HOT months).

Table no. 4. Comparison of HOT and COLD Market Syndicated Loans

	All Syndicated Loans			Syndicated Loans in HOT Markets			Syndicated Loans in COLD Markets		
Variable	**Med.**	**Mean**	**St.d.**	**Med.**	**Mean**	**St.d.**	**Med.**	**Mean**	**St.d.**

Size	5.03	5.08	1.88	4.74	***4.78	1.92	5.25	***5.30	1.83
Tangibility	0.32	0.38	0.25	0.31	0.37	0.25	0.33	0.38	0.25
Profitability	0.26	0.29	0.18	0.27	***0.30	0.18	0.25	***0.28	0.18
M/B	0.83	1.18	1.17	0.93	***1.28	1.22	0.74	***1.10	1.14
Leverage	0.32	0.33	0.19	0.31	**0.32	0.19	0.33	**0.33	0.19
Proc./A_{t-1}	0.16	0.40	5.10	0.18	0.43	5.14	0.15	0.37	5.08
N	6903			2912			3991		
% of total	100%			42.19%			57.81%		

6. Conclusion

In this study, first I examine the characteristics of U.S. corporate borrowers (public debt, private placement, and syndicated loan firms) in HOT versus COLD equity markets. My first objective is to learn about the characteristics of the firms that still choose to go to the debt markets when the equity market is HOT. In HOT equity months, there are "windows of opportunities" for the firms in the equity market. In other words, during these periods, firms are able to sell their shares at a higher price. Although these are advantageous periods for the firms coming to the equity market, some firms still choose to use debt financing. Here, in this study, I try to determine the characteristics of these "HOT market borrowers".

Similar to Alti (2006), I define HOT markets as the top twenty percent of the months in terms of the de-trended number of equity offerings. When I compare the characteristics of the HOT market and the COLD market borrowers, I find interesting results. First of all, I find that the HOT market firms in all three debt markets (i.e. public debt, private placement, and syndicated loan markets) tend to have higher market-to-book ratios compared to the COLD market firms in these markets. I also find that, in HOT markets, the public debt firms tend to have fewer tangible assets, the private placement firms tend to be smaller and highly levered, and the syndicated loan firms tend to be smaller, more profitable, and less levered compared to the COLD market firms.

When I look at the size of the transactions, I find that the private placements tend to be significantly larger in HOT markets compared to COLD markets. In other words, the private placement firms tend to borrow more when the equity market is HOT. For the public debt and the syndicated loan markets, there is no significant difference between the borrowed amounts in HOT and COLD markets.

When I examine the market activity in terms of the number of firms coming to each market (i.e. the percentage of transactions in HOT versus COLD markets), I find that when the equity market is active, the syndicated loan market is even more active (40.13% of all SEOs are offered in HOT months versus 42.19% of all syndicated loans offered in HOT months). During these periods, the public debt market is also active (although not as much as the equity or the syndicated loan markets). On the other hand, my results for the private placement market show that this market is not too active during HOT months (only 26.43% of the private placements are completed in HOT months.

To conclude, we can say that the SEO, the public debt, and the syndicated loan markets tend to move together in terms of the number of firms coming to each market, but the private placement market works differently. It is not as active as the other markets during these periods in terms of the number transactions. However, the firms that choose the private placement market during these periods tend to borrow in larger amounts compared to the firms that borrow in COLD months. On the other hand, although the private placements are significantly larger during these HOT months, the public debt offerings and the syndicated loans are not.

The findings in this study shed a new light on the workings of these four markets. We now know how these three debt markets complement or substitute the SEO market. The future research

should focus more on the interrelations between these markets. As mentioned in the "Introduction" section, there are just a few studies that examine these markets together as a whole. Firms' financing decisions are interrelated; therefore, we need to do a comprehensive analysis rather than individual analyses for each market when dealing with firms' capital structure decisions.

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