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Abstract

We examine the role of hedge funds as primary lenders to corporate firms. We investigate both the reasons and the implications of hedge funds' activities in the primary loan market. We examine the characteristics of firms that borrow from hedge funds and find that borrowers are primarily firms with lower profitability, lesser credit quality, and higher asymmetric information. Our results suggest that hedge funds serve as lenders of last resort to firms that may find it difficult to borrow from banks or issue public debt. We also examine the effect of hedge fund lending on the borrowing firms and find that borrowers' profitability and creditworthiness improve subsequent to the loan. This beneficial effect of hedge fund lending is corroborated by our finding of positive abnormal returns for borrowers' stocks around the loan announcement date. Overall, our findings are consistent with hedge funds adding value through their lending relationships and financial markets perceiving these activities as good news for the firms.

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The Role of Hedge Funds as Primary Lenders

The main purpose of this study is to investigate the role of hedge funds as primary lenders. In recent years, hedge funds have been providing significant amount of capital to companies in need of cash, and are emerging as an alternative financing source.[1] In this paper, we address three issues. First, we examine the characteristics of firms that turn to hedge funds, instead of going to the banks or the public market, for their financing needs. Second, we study the effect of hedge fund lending on the borrowers. Finally, we examine the abnormal returns of the borrower's stock around the loan announcement date.

There can be several reasons for hedge funds' lending capital to firms. First, hedge funds may be lending to a distressed firm to make a "cheap" bet on the firm's recovery. This can allow them to influence important decisions related to future firm value by serving on committees as powerful creditors or changing the company's management and board, operational strategies, asset holdings or capital structure (Harner [2008]). Second, as lenders, hedge funds may obtain more frequent information in the form of monthly financial updates as opposed to shareholders and debtholders who may only receive quarterly reports.

We use Factiva to hand-collect data on a sample of 42 firms that borrow capital from 13 hedge funds for the period 1999-2006. We compare the firms borrowing from hedge funds with those that either receive bank loans or issue public debt on three major attributes – profitability, creditworthiness, and asymmetric information. Using different measures of these attributes, we find that firms borrowing from hedge funds have lower profitability, lesser creditworthiness, and higher asymmetric information compared to firms borrowing from banks or through the public

[1] Although there is no data on the exact amount of loans owned by hedge funds, institutions as a group bought $224 billion of loans in 2005 compared with $50 billion in 2000 according to Reuters Loan Pricing Corporation (Anderson [2006]).

debt market. Interestingly, this finding complements the work of Brophy, Ouimet, and Sialm [2009], which shows that hedge funds participate in private placements of firms with poor fundamentals and greater information asymmetry.

Next, we examine the effect of hedge fund lending on the borrowing firms by studying the changes in the borrowers' characteristics one and two years after the loan. We find that subsequent to receiving loans from hedge funds, there is an improvement in the borrowing firms' profitability and asymmetric information. To corroborate this beneficial effect of hedge fund lending, we examine the abnormal returns of the borrowing firms around the announcement dates of the hedge fund loans. Intuitively, hedge funds can profit from lending if the borrowers improve their profitability and creditworthiness and are eventually able to pay back the loan. Thus, we expect borrowers' firm value to increase after the loan. If this indeed is the case, investors should perceive the news of hedge fund loans as good news and we should observe positive abnormal returns for the borrowers' stock around the date of the loan. Consistent with this hypothesis, we find that the abnormal returns are positive and significant prior to the loan announcement date.

Overall, our study makes two important contributions to the extant literature. First, it shows how hedge funds can emerge as lenders of last resort for financially distressed firms that are perhaps unable to raise money through the conventional means (typically borrowing from banks or issuing public debt). Second, it provides new evidence on a hitherto unexplored subject of hedge funds adding value to the borrowers through their activities in the primary loan market.

Literature review

Our paper is related to the recent literature analyzing the role of non-bank financial institutions as primary lenders. Massoud, Nandy, Saunders, and Song [2010] investigate the

potential conflicts of interest that arise from hedge funds' dual holdings of loans and short positions in the equity of borrowing firms. Similarly, Jiang, Li, and Shao [2010] analyze the simultaneous holding of both equity and debt claims of the same company by non-bank institutional investors. Ivashina and Sun [2010] study the use of private information disclosed by the borrowers during loan negotiations to benefit by simultaneously trading in public securities. Finally, Brophy, Ouimet, and Sialm [2009], find that hedge funds are involved in private investments in public equity (PIPES) of distressed firms with pronounced information asymmetry. Our paper contributes to this emerging literature by examining hedge funds' foray in the primary loan market, its implications for borrowing firms, and market's reaction to hedge fund lending.

Data and variable definitions

Data

Information on loans initiated by hedge funds is not readily available. We use Factiva to collect news articles on hedge fund-initiated loans for the period 1999-2006. We conduct several checks to ensure that the loan initiators in our sample are indeed hedge funds. First, we use the list of hedge funds in the comprehensive database used in Agarwal, Daniel, and Naik [2009] to match with those found in the news articles from Factiva. Second, we follow Agarwal, Fos, and Jiang [2010] to also check the websites of the hedge fund companies and their being listed by industry publications such as Hedge Fund Group (HFG), Barron's, Alpha Magazine, and Institutional Investors. After finalizing the sample of hedge fund loans, we match this hand-collected dataset with COMPUSTAT to retrieve information on the borrower firms' characteristics using the first statement available at least two months prior to the loan date. Exhibit 1 shows the composition of our sample. Our sample consists of 44 loans by 13 hedge

funds lending to 42 firms, out which 24 are public companies, 17 are traded in the OTC markets, and one is not traded.[2]

Variable definitions

We compare three dimensions of firms that borrow from hedge funds with firms that either borrow from banks or issue public debt. These dimensions are profitability, creditworthiness, and asymmetric information.

Measures of profitability

We use three different measures of firm's profitability: *ROA* (the ratio of the operating income before depreciation to total assets), *Cash Flow* (sum of income before extraordinary items and depreciation divided by total assets), and *Loss* (an indicator variable that equals 1 if the operating income is negative, and 0 otherwise). Higher *ROA* and higher cash flows as well as *Loss* variable being zero all correspond to greater profitability.

Measures of creditworthiness

We employ four different proxies for creditworthiness of the firms. *Leverage* is the sum of the firm's book value of long term debt and debt in current liabilities divided by the sum of the book value of debt and market value of common equity. *Interest Coverage* is defined as operating income before depreciation divided by interest expense, and measures the firm's ability to pay back its lenders. *Z-Score* is computed as (1.2*Working Capital+1.4*Retained Earnings+3.3*Operating Income before Interest + Sales) / Total Assets as in Altman [1977]. Finally, *Distance-to-default* is measured as in Vassalou and Xing [2004], and refers to the number of standard deviation decreases in firm value before it drops to the face value of debt

[2] The number of loans slightly exceeds the number of borrowers as there are instances of repeated borrowing by a couple of firms. Information about the loan size and syndication is too sparse in the news articles for us to draw any meaningful inferences. Hence, we refrain from discussing incomplete information about the loans.

(i.e., the firm is in default). Higher *Leverage*, lower *Interest Coverage*, lower *Z-score*, and lower *Distance-to-default* are associated with higher financial distress.

Measures of information asymmetry

We use several proxies for asymmetric information that include (a) *Size*, defined as the book value of the firm's total assets, (b) *Tangibility*, measured as the firm's net property, plant, and equipment scaled by its total assets, (c) *ROA Volatility* (*Sales Growth Volatility*), defined as the standard deviation of firm's *ROA* (*Sales Growth*) over the previous 6 years for which we include all firms that have at least three observations for *ROA* (*Sales Growth*), (d) *Illiquidity*, defined as in Amihud [2002] as the yearly average of the square root of |return| / (price × volume)[3], (e) the number of analysts following the firm from I/B/E/S database where the analysts make at least one recommendation on the firm during the year, (f) *R&D Intensity* and *Capital Intensity*, defined as the R&D expense and capital expenditures scaled by the firm's total assets, (g) *Analysts Forecast Dispersion* computed as the standard deviation of analyst forecasts, and (h) *Analysts Forecast Error* defined as | (mean EPS analyst forecasts - actual EPS) / actual EPS |.

Control Variables

In addition to focusing on the borrowing firms' profitability, creditworthiness, and information asymmetry, we control for several firm characteristics including (a) firms' growth opportunities as measured by *Tobin's Q* (book value of assets minus book value of common equity plus market value of common equity, divided by book value of assets), (b) firms' age, defined as the number of years the firm has been in the COMPUSTAT database, and (c) the sales-based *Herfindahl Index*, measured as the sum of the squared market share of each firm in the 6-digit NAICS code industry.

Distinguishing characteristics of firms borrowing from hedge funds

[3] This is essentially an empirical analogue to the inverse of Kyle's [1985] lambda, or the inverse of market depth.

Next, we examine how firms borrowing from hedge funds (henceforth *case firms*) are different from those that receive bank loans or issue public debt (henceforth *control firms*). The objective of this exercise is to identify the reasons behind these firms turning to hedge funds for financing.

Exhibit 2 reports the mean and median firm characteristics for case and control firms. Given the small sample size of the case firms, we focus on comparing the medians of firm characteristics and discuss the results from the nonparametric Wilcoxon signed-rank test. We compare case and control firms on three major attributes — profitability, creditworthiness, and asymmetric information. Results in Exhibit 2 show that case firms that borrow from hedge funds are significantly less profitable than control firms that either issue public debt or borrow from banks. The median *ROA* for case firms is 0.003 and is significantly lower (at the 1% level) than the median *ROA* for both types of control firms (0.028 for firms issuing public debt and 0.031 for firms borrowing from banks). We obtain a similar result for our other two measures of profitability — *Cash Flow* and *Loss* dummy. Exhibit 2 shows that the median cash flow of firms (as a fraction of firm's total assets) borrowing from hedge funds is negative (−0.037) and is lower than the cash flow of the two types of control firms, both of which have positive median cash flows (0.070 and 0.077).

Next, we compare the creditworthiness of case firms and control firms using four different measures of creditworthiness – *Leverage, Interest Coverage*, *Z-Score*, and *Distance-to-default*. Hedge fund borrowers have significantly higher median *Leverage* than that of bank borrowers (0.374 versus 0.220). There is, however, no significant difference in the median *Leverage* of hedge fund borrowers and bond issuers. Firms borrowing from hedge funds also have a significantly lower median *Interest Coverage* compared to both bond issuers and bank

borrowers (0.486 versus 3.767 and 4.537 respectively). Furthermore, hedge fund borrowers exhibit significantly lower median *Z-Score* when compared to bond issuers and bank borrowers (−0.286 versus 0.434 and 0.764), and also have significantly lower *Distance to-Default* (1.467 versus 2.715 and 2.247). Overall, based on all four measures of creditworthiness, hedge fund borrowers turn out to be of lower credit quality.

The results so far suggest that firms borrowing from hedge funds are characterized by a significantly lower profitability and lower credit quality in contrast to control firms. Finally, we compare case and control firms on asymmetric information. Results in Exhibit 2 show that firms borrowing from hedge funds are smaller (median size of $349 million compared to $5.7 billion and $1.0 billion for bond issuers and bank borrowers), have higher *ROA Volatility* (median value of 0.027 versus 0.009 for bond issuers and 0.014 for bank borrowers) and *Sales Growth Volatility* (median of 0.218 compared to 0.134 and 0.156 for bond issuers and bank borrowers), and have fewer analysts following the firm when compared to both bond issuers and bank borrowers (median of 1 analyst versus 11 and 5 analysts for the two types of control firms). Case firms also have lower median *Tangibility* although the difference is significant only vis-à-vis bond issuers. Furthermore, firms borrowing from hedge funds are less liquid when compared to bond issuers (median Amihud illiquidity measure of 0.105 versus 0.035). However, there are no significant differences between the case firms and control firms for either *R&D Intensity* or *Capital Intensity*. Finally, hedge fund borrowers exhibit higher *Analysts Forecast Error*. Taken together, these results suggest that there is significantly greater asymmetric information in firms borrowing from hedge funds.

Exhibit 2 shows that firms that borrow from hedge funds are significantly smaller than firms that borrow from banks and bond issuers. This suggests that the relationship between size

and choice of financing source could be endogenous. As the median size of a hedge fund is typically around $25 million (see Agarwal, Daniel, and Naik [2009]), hedge funds may not be able to provide enough capital to large companies, who then have to either issue debt or negotiate a syndicated bank loan. In an attempt to control for this potential endogeneity, we match each case firm with a control firm (bank borrower or a bond issuer) by year, industry at the 2-digit NAICS code level, and size. We perform a one-to-one caliper match to eliminate poor matches. Exhibit 3 reports the comparison of firm characteristics for the matched samples. Notice that *Size* is now not significantly different across the three samples. Results do not change significantly in terms of profitability and creditworthiness: *ROA* and *Cash Flow* continue to be lower for hedge fund borrowers, while the percentage of firms with negative operating income is higher when compared to both matched bond issuers and bank borrowers. Thus, case firms still exhibit lower profitability, even after controlling for size effects. *Leverage* is not significantly different across samples, while hedge fund borrowers still exhibit lower median *Interest Coverage*, *Z-Score*, and *Distance-to-Default* than control firms. However, our measures of asymmetric information are now not significantly different across the samples, with the exception of *Analysts Forecast Error*, which is still greater for hedge fund borrowers when compared to bond issuers. Since firm size itself is an important proxy for asymmetric information and in Exhibit 3 we force the case and control firms to be of similar size, we believe we are unlikely to observe significant differences in asymmetric information between the two types of firms. Overall, the univariate results in Exhibits 2 and 3 confirm the role of hedge funds as, primarily, lenders of last resort to firms with lower profitability, lower credit quality, and greater asymmetric information.

We next extend this analysis to a multivariate setting by examining the determinants of the firm's decision to borrow from hedge funds. For this purpose, we estimate two separate logistic regressions of the type of loan (hedge fund loan versus public debt, and hedge fund loan versus bank loan) on firm's characteristics. The first column of Exhibit 4 presents the results from the logistic regression where the dependent variable takes a value of 1 if the lender is a hedge fund and 0 if the firm issues a public bond. The coefficient on *ROA* is negative (−74.315) and significant at the 1% level, which confirms our finding from the univariate analysis that firms are more likely to borrow from hedge funds when they are less profitable.[4] The positive and negative coefficients on *Leverage* and *Z-Score* (5.032 and −2.242 respectively) also indicate that firms that are less creditworthy (i.e., more levered and lower *Z-score*) are more likely to borrow from hedge funds rather than issue public bonds. Finally, the negative coefficients on *Size* and *Tangibility* suggest that asymmetric information is also a determinant of the financing choice. Smaller firms (coefficient on logarithm of size being −0.725 and significant at the 1% level) with fewer tangible assets (coefficient on tangibility being –7.095 and significant at the 5% level) are likely to have greater asymmetric information concerns and these are the types of firms that use hedge funds for financing purposes.

In the second column of Exhibit 4, we use a different dependent variable, which now takes a value of 1 if the lender is a hedge fund and 0 if the lender is a bank. We find qualitatively similar results with each of the independent variables showing the same signs for the slope coefficients as before. However, with the exception of *ROA*, *Leverage*, and *Tangibility*, the

[4] We get similar results using the other two proxies for profitability: *Cash Flow* and *Loss* dummy. We do not include multiple proxies of profitability, creditworthiness, and asymmetric information in the multivariate regression due to multicollinearity concerns. Given our small sample, our final choices of proxies for each of these dimensions are those that have the maximum number of observations. For robustness, we repeat the regressions using alternative proxies and find similar results.

coefficients for other variables are not significant, perhaps due to a significant drop in the sample size (663 firm-years instead of 1,148 firm-years in the earlier case).

Taken together, findings from both the univariate and multivariate analyses indicate that less profitable firms with lower credit quality and greater information asymmetry obtain loans from hedge funds.

Change in firm characteristics subsequent to borrowing from hedge funds

Next, we study the effect of hedge fund lending on the borrowing firms by examining the changes in borrowers' characteristics between one year prior to the loan to (a) one year after the loan, and (b) two years after the loan. Following Barber and Lyon [1996], to control for mean reversion of hedge fund borrowers upon survival, we match each of them with a COMPUSTAT firm having the closest *ROA* (within the same 2-digit NAICS code industry) the year before the hedge fund loan.[5] We then compare the differences in firm characteristics between hedge fund borrowers and control COMPUSTAT firms one year before, one year after, and two years after the hedge fund loan. Exhibit 5 reports the results. Despite the small sample and short time period for which we conduct our analysis, Exhibit 5 shows that after the hedge fund loan there is an improvement in the borrowing firms' *ROA* in the first year after the event. Further, both *Analysts Forecasts Dispersion* and *Analysts Forecasts Error* significantly diminish two years after the hedge fund loan, indicating a reduction in information asymmetry. These results suggest that borrowing from hedge funds helps improve these firms' profitability and information asymmetry.[6]

Market reaction to firms borrowing from hedge funds

[5] We perform a one-to-one caliper match to eliminate poor matches.
[6] In our sample, 4 firms did not survive for two years after the hedge fund loan, and are therefore not included in the event study in Exhibit5. Given the small number of bankrupted firms, the attrition rate is unlikely to severely bias our results.

If the firms borrowing from hedge funds benefit in terms of profitability and creditworthiness, a natural question to ask is whether there is a positive market reaction to hedge funds lending to these firms. In this section, we address this question by examining the abnormal returns of the case firms around the announcement date of the hedge fund loan. We use the Fama and French [1993] three-factor model (which controls for size and book-to-market, in addition to the market) for estimating the abnormal returns.[7] To avoid confounding effects, we eliminate firms that borrow money from any source within three months before and after the hedge fund loan. Intuitively, hedge funds can profit from lending if the borrowers improve their profitability and creditworthiness and are eventually able to pay back the loan. Thus, we expect borrowing firms' value to increase after the loan. If this indeed is the case, we also expect investors to perceive the news of a hedge fund loan as good news. Therefore, we expect to observe positive abnormal returns for the borrower's stock around the date of the loan (event date). Consistent with this hypothesis, Figure 1 shows that the cumulative average abnormal returns (CAAR) are positive before the event date.

Exhibit 6 presents means (medians) of cumulative average abnormal returns (CAAR) for case and control firms in different windows around the event date. The first column reports significant mean (median) CAAR of 0.137 [8] (0.037) over a 20-day window, and 0.069 (0.054) over a 10-day window before the event. Thus, hedge fund loans are perceived as good news by investors. For bond issuers, CAAR are positive in the 10-day and 20-day windows although the magnitude is much smaller than that for hedge fund borrowers (e.g., mean (median) CAAR of 0.001 (0.002) compared to 0.069 (0.054) for 10-day window). CAAR of bank borrowers exhibit an altogether different pattern: mean (median) CAAR is significantly negative over the 10-day

[7] We also include the Jegadeesh and Titman [1993] momentum factor for computing the abnormal returns and find qualitatively similar results (not reported).
[8] Throughout the paper we report the CAAR in decimals. For instance, a CAAR of 0.137 is equal to 13.7%.

window (-0.004 (-0.003)) and 20-day window (-0.011 (-0.010)) before the loan. Overall, the results in Exhibit 6 suggest that large positive CAAR over the 10-day and 20-day windows before the hedge fund loan are distinct from CAAR observed in case of bank borrowers and bond issuers.

We formally test if CAAR for hedge fund borrowers are greater than the CAAR for the two types of control firms (bank borrowers and bond issuers), and report the results in Exhibit 7. We find that hedge fund borrowers indeed experience a significantly higher CAAR in the 10-day window when compared to either bond issuers or to bank borrowers. Results from Exhibits 6 and 7 seem to indicate that a hedge fund loan is perceived as good news, more so than a bond issue or a bank loan.

If hedge funds provide financing to financially distressed firms that are unable to either issue bonds or obtain bank loans, the results from Exhibits 6 and 7 can be explained by mean reversion in the performance of surviving firms. To control for this potential bias, we match hedge fund borrowers with bond issuers and bank borrowers by industry, year, and *ROA* (again following Barber and Lyon [1996]) and compute CAAR around the event date on the matched sample. Results are presented in Exhibit 8. Hedge fund borrowers now outperform bond issuers in terms of CAAR over the 10-day, 20-day, and 30-day windows before the event (p-value of difference being 0.013, 0.043, and 0.005 respectively). When compared to bank borrowers, hedge fund borrowers again exhibit higher CAAR over the three windows, although the difference is significant only for the 10-day and 30-day windows. Results from Exhibit 8 corroborate our earlier finding about stronger positive market reaction to hedge fund loans.

Taken together, the findings in Exhibits 6 to 8 indicate that the market views hedge fund loans positively, much more compared to firms issuing bonds or borrowing from banks. These

results also substantiate our finding improvement in profitability of firms subsequent to their obtaining loans from hedge funds.

Conclusion

In this paper, we study hedge funds that act as primary lenders. The main objective of our analysis is to understand the type of firms that turn to hedge funds for their external financing needs and to analyze the effect of hedge fund lending on the borrowers. We find that firms that borrow from hedge funds are less profitable, less creditworthy, and have higher information asymmetry than firms that either issue public debt or request a bank loan. The unique characteristics of firms borrowing from hedge funds seem to support the idea that hedge funds are lenders of last resort.

Hedge funds can profit from their lending activities by improving the borrowers' firm value and profitability, which presumably enable these firms to pay back the loan. We find supporting evidence on the positive effect of hedge fund loans on the borrowers. We observe that borrowers' profitability and creditworthiness do improve one and two years after the loan. Consistent with this beneficial aspect of hedge fund lending, we find positive abnormal returns before the loan date, indicating that investors respond favorably to hedge fund loans.

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Exhibit 1
Sample descriptions

The case sample consists of 42 firms that received loans from 13 hedge funds in the period 1999-2006.

Sample Description	
Number of loans	44
Number of firms	42
Number of publicly traded firms	24
Number of firms trading on the OTC	17
Number of non-traded firms	1
Number of hedge funds	13

Exhibit 2
Univariate statistics

The sample consists of firms that borrowed from hedge funds or banks, and of firms that issued bonds in the period 1999-2006. *ROA* is operating income divided by total assets. *Cash flow* is income before extraordinary items plus depreciation divided by total assets. *Loss* is a dummy variable that equals 1 if the operating income is negative, 0 otherwise. *Leverage* is book value of LT debt and debt in current liabilities divided by the sum of book value of debt and market value of common equity. *Interest Coverage* is operating income divided by interest expense. *Z-Score* is defined as in Altman (1977): (1.2*Working capital + 1.4*Retained earnings + 3.3*Operating income before interest + Sales) / Total assets. *Distance-to-default* is defined as in Vassalou (2004). *Size* is firm's total assets (in $m.). *Tangibility* is net property, plant, and equipment divided by total assets. *ROA Volatility* is standard deviation of operating income divided by total assets over the previous 6 years. *Sales growth volatility* is standard deviation of sales growth over the previous 6 years. *Illiquidity Measure* is defined as in Amihud (2002) as the annual average if the square root of the absolute value of stock return divided by price times volume. *R&D Intensity* is R&D expenditures divided by total assets. *Capital intensity* is capital expenditures divided by total assets. *Analyst Forecast Dispersion* is the standard deviation of analyst forecasts. *Analyst Forecast Error* is the absolute value of the ratio of the mean EPS analyst forecast minus the actual EPS to actual EPS. *Tobin's Q* is book value of assets minus book value of common equity plus market value of common equity divided by book value of assets. *Firm age* is the number of years the firm has been in the COMPUSTAT database. *Herfindahl Index* is the sales-based Herfindahl index of the firm's industry. The exhibit reports means (medians). The last two columns report the p-values from Wilcoxon test of the difference across samples. All continuous variables are winsorized at the 1st and 99th percentiles.

	Hedge fund borrowers		Bond issuers		Bank borrowers		Hedge fund borrowers VS bond issuers	Hedge fund borrowers VS bank borrowers
	Mean (Median)	N	Mean (Median)	N	Mean (Median)	N		
Profitability								
ROA	-0.012	35	0.030	2,194	0.030	1,266	0.000	0.000
	(0.003)		(0.028)		(0.031)			
Cash flow	-0.140	39	0.071	1,708	0.061	1,225	0.000	0.000
	(-0.037)		(0.070)		(0.077)			
Loss	0.537	41	0.145	2,546	0.214	1,489	0.000	0.000
	(1.000)		(0.000)		(0.000)			
Creditworthiness								
Leverage	0.435	35	0.411	1,766	0.281	1,184	0.946	0.025
	(0.374)		(0.389)		(0.220)			
Interest Coverage	13.921	38	7.466	2,305	20.165	1,277	0.000	0.000
	(0.486)		(3.767)		(4.537)			
Z-Score	-1.084	35	0.511	1,579	0.615	1,171	0.000	0.000
	(-0.286)		(0.434)		(0.764)			
Distance-to-default	1.750	25	2.984	1,486	2.457	982	0.000	0.003
	(1.467)		(2.715)		(2.247)			

(Continued)

Exhibit 2 (continued)

	Hedge fund borrowers		Bond issuers		Bank borrowers		Hedge fund borrowers VS bond issuers	Hedge fund borrowers VS bank borrowers
	Mean (Median)	N	Mean (Median)	N	Mean (Median)	N		
Asymmetric Information								
Size	3,614.96	39	16,759.99	2,498	6,059.73	1,445	0.000	0.001
	(348.927)		(5,695.594)		(1,040.500)			
Tangibility	0.271	39	0.372	2,251	0.317	1382	0.087	0.283
	(0.213)		(0.340)		(0.253)			
ROA Volatility	0.048	35	0.014	2,166	0.033	1,236	0.000	0.000
	(0.027)		(0.009)		(0.014)			
Sales Growth Volatility	0.331	40	0.228	2,498	0.303	1,444	0.000	0.015
	(0.218)		(0.134)		(0.156)			
# of analysts	5.105	38	12.551	1,910	8.374	1,276	0.000	0.016
	(1.000)		(11.000)		(5.000)			
Illiquidity measure	0.446	26	0.075	1,494	0.267	1,069	0.000	0.393
	(0.105)		(0.035)		(0.091)			
R&D Intensity	0.005	41	0.002	2,546	0.006	1,489	0.112	0.480
	(0.000)		(0.000)		(0.000)			
Capital Intensity	0.061	39	0.059	1,815	0.059	1,244	0.820	0.806
	(0.035)		(0.043)		(0.041)			
Analysts Forecasts Dispersion	0.078	13	0.098	1,801	0.100	932	0.277	0.185
	(0.070)		(0.040)		(0.040)			
Analysts Forecast Error	0.622	19	0.400	1,851	0.729	1,008	0.000	0.000
	(0.565)		(0.060)		(0.083)			
Other Firm Characteristics								
Tobin's Q	1.373	35	1.230	1,766	1.572	1,184	0.571	0.067
	(0.935)		(0.983)		(1.077)			
Firm Age	10.744	39	13.279	1,949	11.610	1,301	0.003	0.286
	(10.000)		(15.000)		(13.000)			
Herfindahl Index	0.356	41	0.243	2,546	0.283	1,488	0.001	0.066
	(0.298)		(0.144)		(0.191)			

Exhibit 3
Univariate statistics – Matched sample

The sample consists of hedge fund borrowers matched by industry at the 2-digit NAICS code level, fiscal year, and size to bond issuers and bank borrowers in the period 1999-2006. *ROA* is operating income divided by total assets. *Cash flow* is income before extraordinary items plus depreciation divided by total assets. *Loss* is a dummy variable that equals 1 if the operating income is negative, 0 otherwise. *Leverage* is book value of LT debt and debt in current liabilities divided by the sum of book value of debt and market value of common equity. *Interest Coverage* is operating income divided by interest expense. *Z-Score* is defined as in Altman (1977): (1.2*Working capital + 1.4*Retained earnings + 3.3*Operating income before interest + Sales) / Total assets. *Distance-to-default* is defined as in Vassalou (2004). *Size* is firm's total assets (in $m.). *Tangibility* is net property, plant, and equipment divided by total assets. *ROA Volatility* is standard deviation of operating income divided by total assets over the previous 6 years. *Sales growth volatility* is standard deviation of sales growth over the previous 6 years. *Illiquidity Measure* is defined as in Amihud (2002) as the annual average if the square root of the absolute value of stock return divided by price times volume. *R&D Intensity* is R&D expenditures divided by total assets. *Capital intensity* is capital expenditures divided by total assets. *Analyst Forecast Dispersion* is the standard deviation of analyst forecasts. *Analyst Forecast Error* is the absolute value of the ratio of the mean EPS analyst forecast minus the actual EPS to actual EPS. *Tobin's Q* is book value of assets minus book value of common equity plus market value of common equity divided by book value of assets. *Firm age* is the number of years the firm has been in the COMPUSTAT database. *Herfindahl Index* is the sales-based Herfindahl index of the firm's industry. The exhibit reports means (medians). The fourth and eighth columns report the p-values from Wilcoxon test of the difference across samples. All continuous variables are winsorized at the 1st and 99th percentiles.

	Hedge funds borrowers	Bond issuers	N	p-value of difference	Hedge funds borrowers	Bank borrowers	N	p-value of difference
Profitability								
ROA	-0.010	0.034	16	0.002	-0.012	0.042	22	0.001
	(0.001)	(0.036)			(0.003)	(0.037)		
Cash flow	-0.081	0.087	21	0.001	-0.134	-0.012	27	0.001
	(0.014)	(0.071)			(-0.058)	(0.074)		
Loss	0.524	0.143	21	0.010	0.593	0.222	27	0.006
	(1.000)	(0.000)			(1.000)	(0.000)		
Creditworthiness								
Leverage	0.496	0.323	9	0.310	0.333	0.198	23	0.218
	(0.575)	(0.252)			(0.245)	(0.185)		
Interest Coverage	7.867	4.218	18	0.059	4.182	14.285	26	0.001
	(0.572)	(2.140)			(0.000)	(11.104)		
Z-Score	-1.326	0.513	17	0.001	-0.761	-1.775	23	0.005
	(-0.458)	(0.689)			(-0.277)	(1.022)		
Distance-to-default	1.663	2.489	7	0.110	1.523	2.938	15	0.002
	(1.060)	(2.818)			(1.349)	(2.889)		

(Continued)

Exhibit 3 (continued)

	Hedge funds borrowers	Bond issuers	N	p-value of difference	Hedge funds borrowers	Bank borrowers	N	p-value of difference
Asymmetric Information								
Size	1,299.074	1,473.321	21	0.141	401.085	520.255	27	0.473
	(253.758)	(560.369)			(183.931)	(283.946)		
Tangibility	0.226	0.359	21	0.128	0.230	0.228	26	0.784
	(0.161)	(0.285)			(0.166)	(0.119)		
ROA Volatility	0.072	0.025	16	0.152	0.062	0.459	22	0.425
	(0.040)	(0.022)			(0.039)	(0.014)		
Sales Growth Volatility	0.257	0.282	20	0.766	0.278	0.585	26	0.170
	(0.217)	(0.206)			(0.214)	(0.133)		
# of analysts	3.500	4.650	20	0.988	3.120	4.320	25	0.543
	(0.000)	(0.000)			(0.000)	(3.000)		
Illiquidity measure	0.116	0.130	7	0.848	0.680	0.374	16	0.242
	(0.105)	(0.041)			(0.240)	(0.074)		
R&D Intensity	0.004	0.010	21	0.381	0.007	0.008	27	0.773
	(0.000)	(0.000)			(0.000)	(0.000)		
Capital Intensity	0.030	0.054	21	0.392	0.049	0.046	27	0.945
	(0.023)	(0.027)			(0.029)	(0.026)		
Analysts Forecasts Dispersion	0.105	0.068	4	0.375	0.033	0.055	4	0.457
	(0.115)	(0.045)			(0.030)	(0.060)		
Analysts Forecast Error	0.800	0.082	5	0.009	0.348	0.411	5	0.602
	(0.737)	(0.099)			(0.315)	(0.107)		
Other firm characteristics								
Tobin's Q	0.827	1.132	9	0.070	1.778	1.661	23	0.435
	(0.581)	(1.140)			(1.283)	(1.811)		
Firm Age	9.714	9.143	21	0.455	9.963	14.000	27	0.018
	(10.000)	(9.000)			(10.000)	(15.000)		
Herfindahl Index	0.419	0.329	21	0.242	0.361	0.430	27	0.171
	(0.403)	(0.273)			(0.395)	(0.501)		

Exhibit 4
Logit regression on the probability of borrowing from hedge funds

The sample consists of firms that borrowed from a hedge fund or a bank, and of firms that issued bonds in the period 1999-2006. *ROA* is operating income divided by total assets. *Leverage* is book value of LT debt and debt in current liabilities divided by the sum of book value of debt and market value of common equity. *Interest coverage* is operating income divided by interest expense. *Z-Score* is defined as in Altman (1977): (1.2*Working capital + 1.4*Retained earnings + 3.3*Operating income before interest + Sales) / Total assets. *Size* is firm's total assets (in $m.). *Tangibility* is net property, plant, and equipment divided by total assets. *ROA Volatility* is standard deviation of operating income divided by total assets over the previous 6 years. *R&D Intensity* is R&D expenditures divided by total assets. *Capital Intensity* is capital expenditures divided by total assets. *Tobin's Q* is book value of assets minus book value of common equity plus market value of common equity divided by book value of assets. *Firm age* is the number of years the firm has been in the COMPUSTAT database. Standard errors are robust and clustered by firm. Year and industry dummies are included. All continuous variables are winsorized at the 1st and 99th percentile. T-statistics are in parentheses. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% level respectively.

	Hedge fund borrowers VS bond issuers	Hedge fund borrowers VS bank borrowers
Intercept	-13.684***	-18.284***
	(-7.286)	(-7.333)
Profitability		
ROA	-74.315***	-19.228***
	(-4.512)	(-2.860)
Creditworthiness		
Leverage	5.032**	2.723**
	(2.415)	(2.324)
Interest Coverage	0.054***	0.005
	(5.455)	(1.370)
Z-Score	-2.242***	-0.194
	(-3.213)	(-1.360)
Asymmetric Information		
Ln(*Size*)	-0.725***	-0.170
	(-2.884)	(-1.306)
Tangibility	-7.095**	-3.601**
	(-2.339)	(-2.257)
ROA Volatility	17.460	-0.942*
	(1.152)	(-1.759)
R&D Intensity	-155.805***	-35.732
	(-3.844)	(-1.204)
Capital Intensity	10.355	6.776
	(1.375)	(1.394)
Other firm characteristics		
Tobin's Q	-1.420*	-0.077
	(-1.747)	(-0.350)
Firm Age	-0.168*	-0.066
	(-1.759)	(-1.152)
N	1,148	663

Exhibit 5

Univariate statistics before and after the hedge fund loan

The sample consists of firms that borrowed from hedge funds in the period 1999-2006 matched one-to-one by year, industry at the 2-digit NAICS code level and *ROA* with firms from the COMPUSTAT universe. *ROA* is operating income divided by total assets. *Cash flow* is income before extraordinary items plus depreciation divided by total assets. *Loss* is a dummy variable that equals 1 if the operating income is negative, 0 otherwise. *Leverage* is book value of LT debt and debt in current liabilities divided by the sum of book value of debt and market value of common equity. *Interest Coverage* is operating income divided by interest expense. *Z-Score* is defined as in Altman (1977): (1.2*Working capital + 1.4*Retained earnings + 3.3*Operating income before interest + Sales) / Total assets. *Distance-to-default* is defined as in Vassalou (2004). *Size* is firm's total assets (in $m.). *Tangibility* is net property, plant, and equipment divided by total assets. *ROA Volatility* is standard deviation of operating income divided by total assets over the previous 6 years. *Sales growth volatility* is standard deviation of sales growth over the previous 6 years. *Illiquidity Measure* is defined as in Amihud (2002) as the annual average if the square root of the absolute value of stock return divided by price times volume. *R&D Intensity* is R&D expenditures divided by total assets. *Capital intensity* is capital expenditures divided by total assets. *Analyst Forecast Dispersion* is the standard deviation of analyst forecasts. *Analyst Forecast Error* is the absolute value of the ratio of the mean EPS analyst forecast minus the actual EPS to actual EPS. *Tobin's Q* is book value of assets minus book value of common equity plus market value of common equity divided by book value of assets. *Herfindahl Index* is the sales-based Herfindahl index of the firm's industry. The exhibit reports means (medians) of the difference in firm characteristics between firms that borrow from hedge funds and matched control firms from the COMPUSTAT universe.The last two columns report p-values from a Wilcoxon test of the difference in the medians for year -1 and +1, and year -1 and +2, where year 0 corresponds to the year in which hedge funds provided the loans. All continuous variables are winsorized at the 1st and 99th percentile.

	-1	+1	+2	N	-1 VS +1	-1 VS +2
Profitability						
ROA	-0.001	0.005	0.002	19	0.052	0.493
	(0.000)	(0.007)	(-0.015)			
Cash flow	-0.018	-0.226	0.092	12	0.525	1.000
	(-0.011)	(-0.076)	(0.004)			
Loss	0.000	0.105	0.000	19	0.297	1.000
	(0.000)	(0.000)	(0.000)			
Creditworthiness						
Leverage	0.155	0.222	0.223	19	0.540	0.493
	(0.070)	(0.087)	(0.130)			
Interest Coverage	-1.069	0.539	17.033	19	0.508	0.988
	(0.000)	(0.000)	(0.000)			
Z-Score	1.952	0.555	-1.479	19	0.759	0.737
	(-0.272)	(-0.116)	(-0.544)			
Distance-to-default	-0.069	-0.825	-0.894	6	0.631	0.522
	(-0.577)	(-0.741)	(-0.417)			

(Continued)

Exhibit 5 (continued)

	-1	+1	+2	N	-1 VS +1	-1 VS +2
Asymmetric Information						
Size	-1151.781	-1894.089	-2027.993	19	0.872	0.942
	(-33.421)	(-24.682)	(-24.121)			
Tangibility	-0.062	-0.065	-0.039	19	0.872	0.942
	(-0.031)	(-0.033)	(-0.052)			
ROA Volatility	-0.014	-0.004	0.013	19	0.988	0.373
	(-0.002)	(-0.001)	(0.005)			
Sales Growth Volatility	-1.386	-1.186	-0.775	19	0.827	0.373
	(-0.075)	(-0.095)	(-0.026)			
# of analysts	1.333	-2.778	-3.222	9	0.595	0.658
	(-1.000)	(0.000)	(-1.000)			
Illiquidity measure	-0.460	-0.167	-0.167	8	0.172	0.529
	(-0.089)	(-0.027)	(-0.080)			
R&D Intensity	-0.018	-0.017	-0.025	19	0.476	0.820
	(0.000)	(0.000)	(0.000)			
Capital Intensity	-0.003	-0.001	-0.009	12	0.686	0.954
	(-0.010)	(-0.001)	(-0.004)			
Analysts Forecasts Dispersion	-0.001	-0.049	-0.093	9	0.101	0.076
	(-0.010)	(-0.020)	(-0.030)			
Analysts Forecast Error	0.315	-5.462	0.425	11	0.533	0.061
	(0.087)	(-0.010)	(-0.062)			
Other firm characteristics						
Tobin's Q	-0.635	-1.852	-1.052	19	0.215	0.965
	(-0.052)	(0.061)	(0.176)			
Herfindahl Index	0.097	0.132	0.115	19	0.942	0.804
	(0.000)	(0.006)	(0.005)			

Exhibit 6

Cumulative average abnormal returns for hedge fund borrowers, bond issuers, and bank borrowers around the loan date

The sample consists of firms that borrowed from a hedge fund or a bank, and of firms that issued bonds in the period 1999-2006. The exhibit presents the mean (median) cumulative abnormal return over different windows around the date of the hedge fund loan. Abnormal returns are calculated using a Fama and French (1993) model. *, **, *** denote statistical significance at 10%, 5%, and 1% respectively using a one-tailed test.

	Hedge fund borrowers				Bond issuers				Bank borrowers			
Days	Abnormal returns	N	Generalized Sign Z	Rank test Z	Abnormal returns	N	Generalized Sign Z	Rank test Z	Abnormal returns	N	Generalized Sign Z	Rank test Z
(-30,0)	0.065	24	0.634	0.871	0.003	1,615	1.279	0.925	-0.009	1,122	-1.400*	-1.253
	(0.031)				(0.001)				(-0.010)			
(-20,0)	0.137	24	0.634	1.482*	0.002	1,615	1.428*	1.104	-0.011	1,122	-1.639*	-1.822**
	(0.037)				(0.001)				(-0.010)			
(-10,0)	0.069	24	1.860**	1.485*	0.001	1,615	2.175**	1.149	-0.004	1,122	-0.205	-0.241
	(0.054)				(0.002)				(-0.003)			
(0,+10)	-0.011	24	0.225	-0.796	0.000	1,615	0.283	1.111	0.002	1,122	1.588*	1.606*
	(-0.018)				(-0.001)				(0.000)			
(0,+20)	-0.006	24	0.634	-0.285	-0.004	1,615	-0.463	-0.038	-0.002	1,122	0.572	1.095
	(0.006)				(-0.003)				(-0.004)			
(0,+30)	0.010	25	0.43	0.132	-0.010	1,615	-0.613	-1.134	-0.002	1,122	0.632	1.640*
	(0.007)				(-0.003)				(-0.002)			

Exhibit 7
Cumulative average abnormal returns for hedge fund borrowers, bond issuers, and bank borrowers around the loan date – comparisons across samples

The sample consists of firms that borrowed from a hedge fund or a bank, and of firms that issued bonds in the period 1999-2006. The exhibit presents the mean (median) cumulative abnormal return over different windows around the date of the hedge fund loan. Abnormal returns are calculated using a Fama and French (1993) model. The last two columns report the p-values from a Wilcoxon test of the difference across samples.

Days	Hedge fund borrowers		Bond issuers		Bank borrowers		Hedge fund borrowers VS bond issuers	Hedge fund borrowers VS bank borrowers
	Abnormal Returns	N	Abnormal Returns	N	Abnormal Returns	N	p-value of the difference	
(-30, 0)	0.065	24	0.003	1,615	-0.009	1,122	0.255	0.181
	(0.031)		(0.001)		(-0.010)			
(-20, 0)	0.137	24	0.002	1,615	-0.011	1,122	0.399	0.230
	(0.037)		(0.001)		(-0.010)			
(-10, 0)	0.069	24	0.001	1,615	-0.004	1,122	0.015	0.013
	(0.054)		(0.002)		(-0.003)			
(+10, 0)	-0.011	24	0.000	1,615	0.002	1,122	0.599	0.604
	(-0.018)		(-0.001)		(0.000)			
(+20, 0)	-0.006	24	-0.004	1,615	-0.002	1,122	0.889	0.847
	(0.006)		(-0.003)		(-0.004)			
(+30, 0)	0.010	25	-0.010	1,615	-0.002	1,122	0.970	0.937
	(0.007)		(-0.003)		(-0.002)			

Exhibit 8

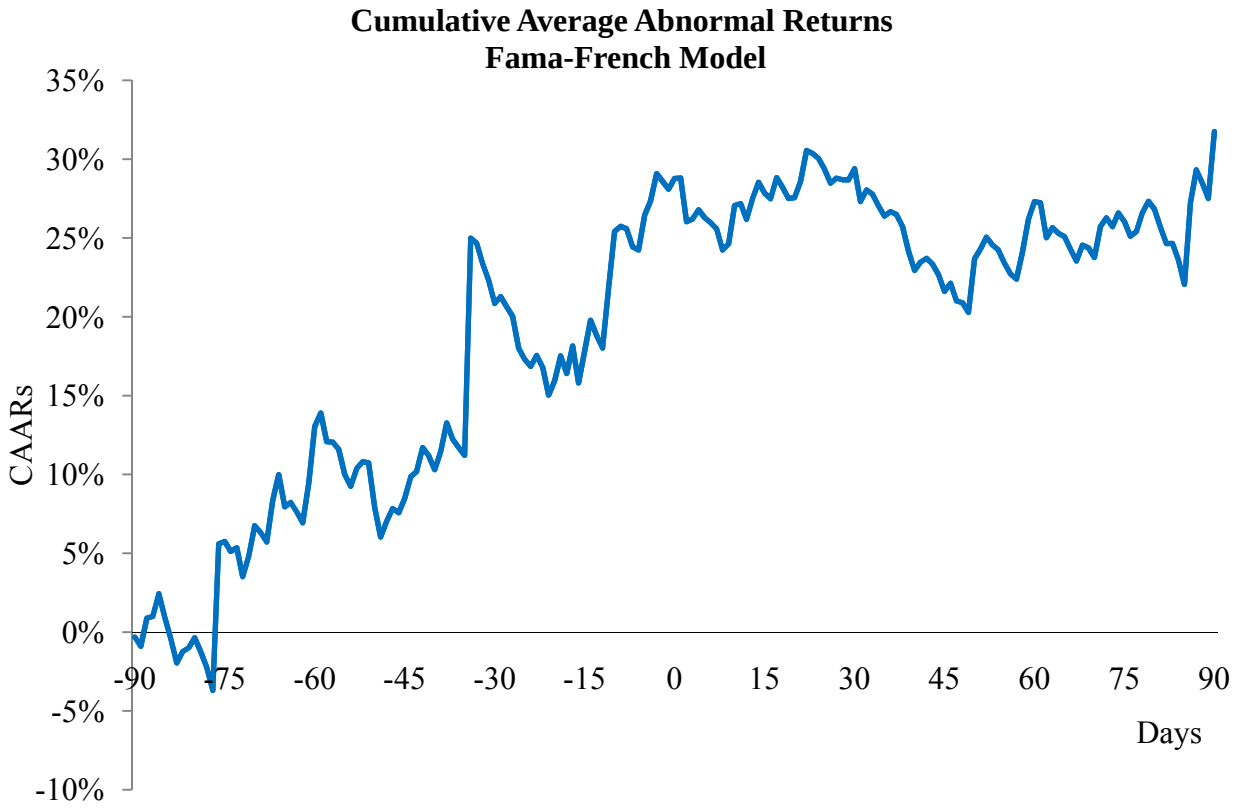
Cumulative average abnormal returns for hedge fund borrowers, bond issuers, and bank borrowers around the loan date – comparisons across matched samples

The sample consists of firms that borrowed from a hedge fund in the period 1999-2006 matched one-to-one by year, industry at the 2-digit NAICS code level, and *ROA* with firms from the COMPUSTAT universe. The exhibit presents the mean (median) cumulative abnormal return over different windows around the date of the hedge fund loan. Abnormal returns are calculated using a Fama and French (1993) model. The third and sixth columns report the p-values from a Wilcoxon test of the difference across samples.

	Hedge fund borrowers	Bond issuers	p-value of the difference	Hedge fund borrowers	Bank borrowers	p-value of the difference
	N=14	N=14		N=8	N=8	
(-30, 0)	0.307	-0.021	0.005	0.095	-0.215	0.093
	(0.275)	(-0.006)		(0.052)	(-0.112)	
(-20, 0)	0.229	-0.001	0.043	0.085	-0.205	0.172
	(0.115)	(-0.011)		(0.005)	(-0.062)	
(-10, 0)	0.127	-0.020	0.013	0.082	-0.143	0.093
	(0.119)	(-0.002)		(-0.005)	(-0.051)	
(+10, 0)	0.008	0.007	0.783	0.016	-0.024	0.401
	(0.054)	(0.000)		(0.065)	(-0.006)	
(+20, 0)	0.017	-0.004	0.646	0.015	-0.012	0.345
	(0.045)	(-0.003)		(0.052)	(-0.009)	
(+30, 0)	0.048	-0.037	0.232	0.019	0.019	0.916
	(0.037)	(-0.014)		(0.010)	(0.021)	

Figure I

Cumulative Average Abnormal Returns around the loan announcement date for the hedge fund borrowers' stocks in the window (-90, +90) days. Abnormal returns are estimated with the three-factor Fama and French model (1993).



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