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私下募集債券之長期財富移轉效果與經營績效之研究

Long-run Stock Returns and Operating Performance Following Private Debt Placements

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摘 要

本文旨在探討公司私下募集債券後之長期股價與經營績效。過去研究顯示公司發行權益證券或公開發行債券，發行公司之長期股價及經營績效均表現不佳，歸因於管理者選擇證券發行時機或投資人過度自信。相反地，一般而言私下募集債券之投資人較有經驗且可有效地監督發行公司營運，長期的績效應相對較佳。然而，本研究結果發現無論研究方法採用持有期間累積異常報酬法、Fama 的三因子模型或 Carhart 的四因子模型，發行公司私下募集債券並無一致性的證據顯示存在長期超額報酬，或發行前後的長期經營績效優於其競爭公司，故無證據顯示管理者選擇證券發行時機或投資人過度自信的現象，此結果可能是私下募集方式本身可降低資訊不對稱及有效地監督公司的特質所致。

【關鍵字】私下募集債券、長期股價報酬、長期經營績效

Abstract

This study examines the long-run stock return and operating performance following private debt placements. Presumably, private debt investors are more sophisticated and can monitor the issuing firms more effectively. Prior research suggests that equity and public debt issuers underperform various stock return benchmarks in the long run. It is also found that there is significant deterioration in long-run operating performance for equity and public debt offering firms. It is generally concluded that managers time the market when issuing equity and public debt or investor over-confidence. In contrast, using the buy-and-hold method, Fama three-factor model, or Carhart four-factor model, we do not find any consistent patterns of long-run under- or over-performance in stock returns and operating measures following private debt placements. Due to tighter monitoring, the information asymmetry problems are mitigated for private debt placements.

【Keywords】private debt placement, long-run stock return, long-run operating performance

1. Introduction

Corporations have long been interested in the relative merits of whether it is better to issue corporate debt using a public offering or a private placement. Prior research has focused on returns in a short window surrounding the date of the announcement of a public offering or a private placement of debt.[1] Other than examining the short-run announcement returns, there have been many studies focused on the long-run performance following security offerings. Past work suggests that equity issuers underperform various stock return benchmarks and it can be seen that their operating performance peaks before the issue and decreases afterwards whether for a public offering or a private placement in the long run (e.g., Cheng, 1998; Spiess and Affleck-Graves, 1999; Loughran and Ritter, 1995, 1997; Hertzel, Lemmon, Linck, and Rees, 2002; Chen, Ho, Lee, and Yeo, 2002; Abhyankar and Ho, 2006; Chou, Gombola, and Liu, 2009; Huang and Chan, 2013). The evidence indicates that short-window price reactions to capital raising events are biased and incomplete.

Studies have also documented large post-issue declines in performance for straight- and convertible-debt issuing firms. Lee and Loughran (1998), McLaughlin, Safieddine, and Vasudevan (1998) implemented the buy-and-hold abnormal return method in their examination of convertible debt offerings. They report that the buy-and-hold returns significantly under-performed their matched counterparts in the long-run, suggesting that a firm tends to issue convertible debt when its stock is overvalued. The same results have shown for a sample from the United Kingdom (Abhyankar and Ho, 2006). Concurrent with the low returns, issuing firms experience a decline in operating performance after a convertible debt offering. Spiess and Affleck-Graves (1999) found substantial long-run post-issue under-performance in smaller, younger, and NASDAQ-listed firms that had made straight and convertible debt offerings. They attributed this to investor underestimation of cash flow problems after the offering or to management's over-optimism related to future prospects. Bae, Jeong, Sun, and Tang (2002) showed that convertible debt issuers experience a significant decline in stock returns and operating performance from the pre- to post-issue period, even though straight debt issuers do not.

1 Dann and Mikkelson (1984), Eckbo (1986), and Mikkelson and Partch (1986) all found an insignificant negative reaction to the announcement of public straight debt offerings, but a significant negative effect to the announcement of public convertible debt offerings. Mikkelson and Partch (1986), James (1987), and Dennis and Lu (2008) documented either a non-positive price effect, or a statistically significant negative stock price response to private debt placement. Fields and Mais (1991) and Szewczyk and Varma (1991) found a statistically significant positive stock price response to the announcement of private convertible debt placement. Marciukaityte and Varma (2007) found no significant difference from zero.

These studies empirically evaluate the long-run performance over an extended period following equity and debt offerings and most of them cast doubt on the efficient market concept. They show that the market price of the issuing firm does not fully reflect the information content of security offerings during the announcement period, due to significant long-run under- or over-performance. Various theoretical models have been proposed to explain the long-run abnormal performance. Daniel, Hirshleifer, and Subrahmanyam (1998), Barberis, Shleifer, and Vishny (1998) and Odean (1998) presented theoretical models based on the well-known psychological biases that are consistent with investors' under- or over-reaction to information events.

Most of the long-run studies on debt issuances have been limited to public debt offerings, with the exception of Dichev and Piotroski (1999), Marciukaityte and Varma (2007), and Chandra and Nayar (2008). Dichev and Piotroski (1999) applied the balance sheet approach to indirectly identify private debt issuances to find no abnormal returns for the five years following straight debt issues. This differs from the results of Chandra and Nayar (2008) who found that long-run stock returns are negative and significant, and firms issue private debt prior to a decline in operating performance. They also found that public debt issuers and large convertible debt issuers tend to underperform the market, while private debt issuers tended to outperform the market. Nevertheless, the balance-sheet-based approach does not yield a clean classification of public or private debt offerings. Marciukaityte and Varma (2007) found poor long-run abnormal stock returns a result that supports the "window of opportunity" hypothesis. However, their sample only included private convertible debt placement predominantly with institutional investors.

Compared to public debt offerings, private debt placement has received less attention in the literature. Private debt placements have a smaller load size and shorter maturity than those of public bonds. Covenants are tighter and renegotiation is more likely for private debt than for public debt. Private debt placements are likely to be prevalent for firms which are smaller and operate in an environment that has a higher degree of information asymmetries. These firms require tighter monitoring, a function for which private debt is going to better provide (Prowse, 1997). There have been few studies giving assessments, and inconsistent empirical results have been obtained in studies of long-run stock returns, and operating performance following private straight-debt and convertible-debt placements. In order to shed more light on studies of behavior finance, it is necessary to carry out a more comprehensive investigation into long-run performance rather than just focusing on short-term window returns. Our results will provide additional evidence for accessing investors'

behavior during the time of private debt placements.

We find that firms offering private straight- or convertible debt placements do not show consistent under- or out-performance of long-run abnormal returns (whether using the buy-and-hold abnormal return method, Fama three-factor model, or the Carhart four-factor model), even after samples are partitioned according to various firm- and market-specific characteristics. These results are inconsistent with Dichev and Piotroski's (1999) conclusions showing that private debt issuers outperform the market, and that Marciukaityte and Varma (2007) provided the long-run underperformance following private convertible debt placements. Our findings do not support the "windows of opportunity" arguments nor do they support investor over-optimism.

Our second finding is that private straight debt issuers perform significantly better than its industry counterparts throughout the pre- and post-offer periods, for all the performance measures. We do not find evidence showing that the investor over-optimism during periods of relatively high operating performance and that the performance levels decline after issuing. For convertible debt, we find that the private convertible debt issuer performs significantly worse than its industry counterpart in the pre-placement period. The median industry-adjusted performance measures do not show consistent patterns in the post-offer periods. Again, these finding are inconsistent with the "window of opportunity" argument. We suggest that the reason is that private debt placement can reduce information asymmetry through the negotiation process between the issuing firms and the debt investors. Thus, management is less likely to window dress the financial data before the debt issue, and sophisticated and institutional investors show better judgment rather than over-optimism.

The remainder of the paper is organized as follows. Section 2 describes the sample selection process and the research method. Section 3 presents the results of the post-announcement stock price performance. Section 4 reports the results of the long-run operating performance. Finally, some conclusions are provided in section 5.

2. Data and Research Methodology

2.1 Data and Sample Selection

The initial sample of private straight and convertible debt offerings is collected from the Securities Data Company's (SDC) online databases for the period from January 1989 to December 2002.[2] To be included, the company must have been listed on the Center for

2 This article focuses on the traditional market of private debt placement, which is distinct from the Rule 144A market of private debt placement.

Research in Securities Prices (CRSP) monthly tape at the time of the offering and have a non-negative book-to-market ratio available on the COMPUSTAT files for the year-end prior to the debt offering. For a firm that made several announcements of the same type of security, only the first announcement is included.

Table 1 summarizes the sample distribution by year, type of financing, industry group, and exchange. The number of offerings varies from year to year. Panel A indicates that in 1989 and 1990 there were relatively small numbers of convertible debt offerings, while the most straight debt offerings was in 1989. There are more convertible debt offerings during 2001 and 2002. Other than these years, convertible debt and straight debt placements are roughly evenly distributed across years. As shown in Panel B, our final sample consists of 1,074 private debt offerings, which include 899 private straight debt placements and 175 private convertible debt placements. Private straight debt placements are made by 429 industries and 550, 60, and 289 of these firms are listed on the NYSE, Amex and NASDAQ, respectively. Private convertible debt offerings are made by 115 industries, and 44, 16, and 115 of these firms are listed on the NYSE, Amex and NASDAQ, respectively.

The descriptive statistics for each type of offering are shown in Panel C. The mean (median) issuing size is $79 ($36.2) million and $58.89 ($22.1) million for straight debt and convertible debt, respectively. The amount issued for straight debt is larger than that for convertible debt. The mean (median) firm size, as measured by the market equity, is $2,339.11 ($425.95) million for the straight debt issuers and $857.86 ($137.32) million for the convertible debt issuers. Firms that made straight debt offerings are, on average, more than three times as large as those making convertible debt offerings. The mean (median) book to market ratio is 0.98 (0.6) for the straight debt issuers and 0.79 (0.42) for the convertible debt issuers. The book-to-market ratio of the straight debt firms is higher than that of the convertible debt firms. The average (median) firm age for straight debt firms, which is 5,416 (5,301) days, is greater than the average (median) firm age for convertible debt firms, which is 3,055 (2,119) days.

Table 1 Sample Distribution of Private Placements of Debt

Panel A: Frequency Distribution of Private Debt Placement Announcements by Year

Year	Number of announcements		Percentage of sample		Cumulative percentage of sample	
	Convertible debt	Straight debt	Convertible debt (%)	Straight debt (%)	Convertible debt (%)	Straight debt (%)
1989	3	182	1.71	20.24	1.71	20.24
1990	1	99	0.57	11.01	2.29	31.26
1991	14	89	8.00	9.90	10.29	41.16
1992	12	49	6.86	5.45	17.14	46.61
1993	8	73	4.57	8.12	21.71	54.73
1994	11	62	6.29	6.90	28.00	61.62
1995	9	67	5.14	7.45	33.14	69.08
1996	14	39	8.00	4.34	41.14	73.41
1997	10	55	5.71	6.12	46.86	79.53
1998	8	50	4.57	5.56	51.43	85.09
1999	7	45	4.00	5.01	55.43	90.10
2000	7	31	4.00	3.45	59.43	93.55
2001	33	33	18.86	3.67	78.29	97.22
2002	38	25	21.71	2.78	100.00	100.00
Total	175	899	100.00	100.00		

Panel B: Frequency Distribution of Private Debt Placement Announcements by Type of Financing, Type of Exchange, and Number of Different Industrial Groups

Type of Financing	Number of Private Placements	Number of Different Industry Groups	Exchange		
			NYSE	Amex	NASDAQ
Convertible debt	175	115	44	16	115
Straight debt	899	429	550	60	289
Total Sample	1074		594	76	404

Panel C: Sample Characteristics of Private Debt Placement

	Straight debt			Convertible debt		
	N	*Mean*	*Median*	*N*	*Mean*	*Median*
Issue size (millions)	899	79.00	36.20	175	58.89	22.10
Market value of equity (millions)	899	2339.11	425.95	175	857.86	137.32
Book-to-market	899	0.98	0.60	175	0.79	0.42
Relative issue size (%)	899	0.29	0.10	175	0.40	0.15
Firm age (trading days)	899	5416.00	5301.00	175	3055.00	2119.00

This table presents the frequency distribution for the sample by year, type of financing, exchange, and the number of different industry groups in which the offering firms operate. The full sample consists of 1074 private placements of convertible and straight debt, as reported from the Securities Data Company's (SDC) online databases for the period from January 1989 through December 2002. To be included, the company must be listed on the Center for Research in Securities Prices (CRSP) monthly tape at the time of the offering and has a non-negative book-to-market ratio available on COMPUSTAT files for the year-end prior to the debt offering. For firm made several announcements of the same type of security, only the first announcement is included.

2.2 Research Methodology

Different methodologies may produce nontrivial differences in estimating the long-run abnormal returns (Mitchell and Stafford, 2000). Many studies use some form of cumulative abnormal returns to detect the long-run performance of debt offerings. However, Kothari and Warner (1997) and Barber and Lyon (1997) show that long-run cumulative abnormal returns can lead to biased test statistics. They favor the use of buy-and-hold abnormal returns because they reflect compounded and calculated long-run returns that can measure investor experience. Fama (1998) suggested the use of calendar time abnormal returns because they have better statistical properties and allow for cross-sectional dependence in sample observations. We provide evidence by both the buy-and-hold and the calendar time abnormal returns. We describe our methodologies in detail below.

2.2.1 Buy-and-Hold Abnormal Return Method

We first apply the methodology of Barber and Lyon (1997) to estimate the long-run buy-and-hold abnormal returns. The buy-and-hold abnormal return (BHAR) for stock *i* over the period from time *t* to time *T* is defined as:

$$\begin{aligned} BHR_{i,t:T} &= \prod_{t}^{T}\left(1+R_{it}\right) \\ BHR_{ctrl,t:T} &= \prod_{t}^{T}\left(1+R_{ctrl,t}\right) \\ BHAR_{i,t:T} &= BHR_{i,t:T} - BHR_{ctrl,t:T} \end{aligned} \tag{1}$$

where $BHR_{i,t:T}$ is the buy-and-hold return of the sample firm and $BHR_{ctrl,t:T}$ is the buy-and-hold return of the control firm over the same period. Barber and Lyon (1997) conclude that the matched control firm approach leads to unbiased test statistics. The procedure for identifying control firms is similar to that used by Hertzel et al. (2002). First, we exclude all CRSP firms that previously issued private debt and select a single control firm within the same exchange group for each sample firm as of the year-end prior to the private placement. Firms are matched in three different ways: (1) firm size (market value of common equity); (2) the industry (based on the four-digit SIC code) and firm size; (3) book-to-market and firm size.

The computation of BHARs begins in the month after the private debt announcement and continues through one-year, three-year and five-year periods following the announcement or until either the sample or the control firm is de-listed, whichever is sooner. We truncate the sample due to the conclusions of Barber and Lyon (1997) that long-run

results are generally robust to truncate or fill in the missing returns after de-listing. After $BHAR_{i,t:T}$ is obtained for each of the *n* firms in the sample, the equally-weighted and value-weighted cross-sectional average buy-and-hold abnormal return ($\overline{BHAR}_{t:T}$) are calculated as follows:

$$\overline{BHAR}_{t:T} = \sum_{i=1}^{n} w_i \cdot BHAR_{i,t:T} \tag{2}$$

where $w_i = 1/n$ for the equally-weighted returns and w_i is the market value of stock *i* divided by the total market value of all the sample for the value-weighted returns. To assess the statistical significance, we employ the conventional *t*-statistic.

However, the distribution of BHARs still has a positive skewness problem even under the control firm approach (Kothari and Warner, 1997; Barber and Lyon, 1997; Lyon, Barber, and Tsai, 1999). For statistical testing, we combine the control firm approach with a bootstrapping procedure used by Hertzel et al. (2002). Specifically, we compute the one-, three-, and five-year BHRs for each sample firm beginning the month after the announcement of private debt placement and take the cross-sectional average. We then form a pseudo-portfolio by randomly selecting with replacement a control firm that has the same matching characteristics in the size decile, the industry and size decile, and the book-to-market and size decile as the sample firm, respectively, at the year-end prior to the private debt placement announcement.

This matching process continues until each sample firm is represented in this pseudo-portfolio. After forming the pseudo-portfolio, we estimate the one-, three-, and five-year BHRs for each control firm by the same approach for the sample firm. This yields one observation of the cross-sectional average of the matching firm BHRs, $\overline{BHR}_{p,t:T}$. These steps are repeated 1,000 times to obtain 1,000 pseudo-portfolio mean observations. This provides us with an empirical distribution of $\overline{BHR}_{p,t:T}$. The *p*-value of the sample is calculated as the fraction of the 1,000 pseudo-portfolio mean $\overline{BHR}_{p,t:T}$ which is larger in magnitude than the mean sample firm return, $\overline{BHR}_{t:T}$.

2.2.2 Calendar Time Abnormal Return Model

The calendar time abnormal return method was first used by Jaffe (1974) and Mandelker (1974) and strongly advocated by Fama (1998). Under this procedure, the cross-sectional correlation of the sample firm's returns can be automatically accounted. We use two variations of the calendar time portfolio method to measure the long-run performance following private debt placement: the Fama and French (1993) three-factor model and the

Carhart (1997) four-factor model.

For each calendar month in our sample period, we form portfolios of sample firms that have announced private straight-debt or convertible-debt placements in the previous one-, three-, and five-year periods and calculate the monthly returns for both the equally- and value-weighted portfolios. In order to avoid statistical problems caused by overlapping returns, no firms are included in the portfolio more than once in any given five-year window. We then apply the Fama and French (1993) three-factor model as follows:

$$R_{pt} - R_{ft} = \alpha_p + \beta_m (R_{mt} - R_{ft}) + \beta_s SMB_t + B_h HML_t + \varepsilon_t \quad (3)$$

where R_{pt} is the portfolio return of sample firms in month t (either equally-weighted or value-weighted), R_{ft} is the one-month Treasury Bill rate, $(R_{mt} - R_{ft})$ is the excess return on the market portfolio, SMB_t is the difference of the returns between the value-weighted portfolios of small stocks and big stocks, and HML_t is the difference of the returns between the value-weighted portfolios of high book-to-market stocks and low book-to-market stocks.

In model (3), α_p measures the mean monthly abnormal return, which is zero under the null hypothesis of no long-run abnormal returns. A portfolio may contain from 1 to 50 firms in any given calendar month, therefore, we use both the ordinary least squares (OLS) and the weighted least squares (WLS) procedures to estimate α_p. The WLS model is used to reveal any event bunching effect that may occur with selective management events (Loughran and Ritter, 2000). Monthly returns in the WLS model are weighted by the square root of the number of sample firms contained in the monthly portfolio. However, as shown by Fama and French (1993, 1998), Lyon et al. (1999), Lee and Swaminathan (2000), Mitchell and Stafford (2000), and Boehme and Sorescu (2002), the three-factor model cannot completely explain the cross-sectional variations. One potential factor is momentum. Thus, it is important to control for the momentum effect. We utilize the Carhart (1997) four-factor model, which includes a price momentum factor to control for momentum biases.

The Carhart four-factor model encompasses the Fama and French (1993) three factors plus an additional factor to capture the one-year momentum effects. The model is presented as follows:

$$R_{pt} - R_{ft} = \alpha_p + \beta_m (R_{mt} - R_{ft}) + \beta_s SMB_t + B_h HML_t + \beta_r PR1YR_t + \varepsilon_t \quad (4)$$

All the terms are similarly defined as those in equation (3) and $PR1YR_t$ is the price momentum factor as defined in Carhart (1997), which is the difference between an equally-weighted portfolio return of stocks with the highest 30 percent of returns and an equally-

weighted portfolio return of stocks with the lowest 30 percent of returns in months *t-12* to *t-2*. The portfolios include all NYSE, Amex, and NASDAQ stocks.

3. Post Announcement Long-run Abnormal Returns

3.1 Buy-and-Hold Abnormal Returns

3.1.1 Straight Debt

We begin our empirical analysis by presenting BHAR. Table 2 presents the one-, three-, and five-year raw returns of the straight debt sample firms from 1989 to 2002, and BHARs, as measured by the three control firm benchmarks: size, size-SIC and size-BE/ME. As shown in Table 2, the mean (median) one-, three-, and five-year equally- or value-weighted buy-and-hold raw returns are all significantly positive. In addition, for all the equally-weighted long-run BHARs, the one-, three- and five-year periods are all insignificant, regardless of the horizon and benchmark. The results show no evidence of long-run abnormal returns.

Compared to the insignificant equally-weighted BHARs results, the value-weighted BHAR for the one-year size-BE/ME matched portfolio, 0.0543, is significant at the 1% level. Compared to the one-year horizon results, the mean five-year BHARs for the size-matched and the mean three- and five-year BHARs for size-BE/ME-matched portfolios are -0.2074, -0.0882 and -0.1698, respectively and are significant at the 1% level. Usually, there are more significant results for value-weighted BHARs. However, different results are obtained by different benchmarks. The inconsistent patterns of the equally- and value-weighted BHARs do not support the existence of long-run abnormal returns after private straight-debt placements.

3.1.2 Convertible Debt

Table 3 presents the results for the one-, three-, and five-year raw returns and BHARs of convertible debt firms. Table 3 shows that most of the equally-weighted BHARs following private convertible debt placements are negative, regardless of the horizon and the benchmark. Most are statistically insignificant, except for the BHARs of the one- and three-year size-matched portfolios.

The value-weighted mean one-year BHARs are all significantly negative, regardless of the benchmark. As the return horizon is increased, the value-weighted BHARs become mostly insignificant. The results indicate that it may be difficult for investors to earn abnormal return profits by trading on this under-performance. Similarly, Hertzel et al. (2002) show that public firms that placed equity privately would experience negative post-

Table 2 Long-run Buy-and-Hold Abnormal Returns for Firms Offering the Private Placement of Straight Debt

	Raw Returns		Buy-and-hold Adjusted Returns in Percent					
	Private Placement		Size Matched		Size/Industry Matched		Size/BM Matched	
	EW	VW	EW	VW	EW	VW	EW	VW
Panel A: One-year BHARs (%)								
N	832	832	786	786	782	782	793	793
Mean	0.0986	0.0845	0.0004	0.0201	-0.0096	-0.0071	-0.0055	0.0543
Median	0.0515	0.0364	0.0013	-0.0194	-0.0175	-0.0107	-0.0129	0.0279
t-statistic	6.14***	7.54***	0.02	1.41	-0.47	-0.49	-0.26	3.52***
Bootstrapped *p-value*			0.64	0.12	0.39	0.47	0.50	<0.01
Panel B: Three-year BHARs (%)								
N	691	691	595	595	601	601	605	605
Mean	0.4374	0.4609	-0.0576	-0.0394	-0.0607	-0.0401	-0.0122	-0.0882
Median	0.2639	0.3882	0.0037	-0.1485	-0.0223	-0.0228	-0.0376	-0.2093
t-statistic	11.98***	16.81***	-0.03	-1.22	-1.07	-1.13	-0.22	-2.65***
Bootstrapped *p-value*			0.65	0.17	0.21	0.32	0.65	<0.01
Panel C: Five-year BHARs (%)								
N	547	547	430	430	433	433	455	455
Mean	0.8970	1.0583	-0.1060	-0.2074	0.0044	0.0043	0.0937	-0.1698
Median	0.5496	0.7774	-0.0013	-0.0806	0.0426	0.1520	0.0812	-0.0702
t-statistic	13.27***	21.22***	-1.02	-3.04***	0.97	0.05	0.94	-2.43**
Bootstrapped *p-value*			0.62	<0.01	0.83	0.86	0.20	<0.01

This table presents the raw, one-, three-, and five-year long-run BHARs of sample firms following an offering of the private straight debt placement and their long-run buy-and-hold adjusted abnormal returns relative to their control firms under different characteristics. All the sample firms are reported from the SDC's online databases over the period from January 1989 through December 2002. The control firms are firms that match on the basis of size, size and industry, and size and book to market equity ratio. A BHAR is the difference between the BHR of the sample firm and that of the control firm. The conventional t-statistics are reported. The p-values are based on bootstrap procedures and represent the percentile ranking of the announcing firms mean return relative to 1,000 mean returns from randomly selected matched portfolios. The notations *, **, and *** denote that the associated test statistics are significant at the 10%, 5%, and 1% level, respectively.

announcement stock price performance. The above results seem to reflect the equity features of the convertible debt.

Furthermore, the results in Table 2 and Table 3 support Mitchell and Stafford's (2000) argument that BHARs tend to magnify spurious abnormal returns caused by mis-specified

asset pricing models over long horizons. For example, both equally- and value-weighted five-year BHARs are larger in magnitude than the corresponding three-year BHARs. We do not find consistent patterns of long-term abnormal returns, although convertible debt issuers seem to perform worse, due to the equally features.

Table 3 Long-run Buy-and-Hold Abnormal Returns for Firms Offering the Private Placement of Convertible Debt

	Raw Returns		Buy-and-hold Adjusted Returns in Percent					
	Private Placement		Size Matched		Size/Industry Matched		Size/BM Matched	
	EW	VW	EW	VW	EW	VW	EW	VW
Panel A: One-year BHARs (%)								
N	124	124	110	110	114	114	115	115
Mean	0.0047	-0.1739	-0.1920	-0.1878	-0.0333	-0.1144	-0.0109	-0.1249
Median	-0.1589	-0.1669	-0.1267	-0.2734	-0.0387	-0.0409	-0.1625	-0.2282
t-statistic	0.07	-4.32***	-2.12**	-3.32***	-0.40	-2.22**	-0.10	-2.54**
Bootstrapped *p-value*			0.03	<0.01	0.54	<0.01	0.48	0.04
Panel B: Three-year BHARs (%)								
N	69	69	55	55	50	50	56	56
Mean	0.1857	0.1830	-0.3219	-0.5928	-0.7229	-1.1939	-0.2719	-0.0861
Median	0.0250	0.2695	-1.4289	-0.4289	-0.0152	0.0092	-0.0185	-0.0172
t-statistic	1.53	1.66*	-1.68*	-2.89***	-1.24	-1.44	-1.08	-0.61
Bootstrapped *p-value*			0.06	<0.01	0.48	0.12	0.41	0.45
Panel C: Five-year BHARs (%)								
N	51	51	37	37	38	38	39	39
Mean	1.0261	1.0400	-0.2544	-0.1912	-0.2926	0.3024	-0.5476	-1.6718
Median	0.6950	0.6950	-0.2721	-0.8161	0.1994	-0.0131	-0.2038	-0.2754
t-statistic	3.62***	3.73***	-0.60	-0.47	-0.47	0.73	-0.95	-1.99*
Bootstrapped *p-value*			0.85	0.64	0.69	0.25	0.48	0.07

This table presents the raw, one-, three-, and five-year long-run BHARs to sample firms following an offering of the private convertible debt placement and their long-run buy-and-hold adjusted abnormal returns relative to their control firms under different characteristics. All the sample firms were reported from the SDC's online databases over the period from January 1989 through December 2002. The control firms are firms that match on the basis of size, size and industry, and size and book to market equity ratio. A BHAR is the difference between the BHR of the sample firm and that of the control firm. The conventional t-statistics are reported. The p-values are based on bootstrap procedures and represent the percentile ranking of the announcing firms mean return relative to 1,000 mean returns from randomly selected matched portfolios. The notations *, **, and *** denote that the associated test statistics are significant at the 10%, 5%, and 1% level, respectively.

3.2 Calendar-time Abnormal Returns

3.2.1 Fama and French Three-factor Model

Table 4 and Table 5 report the results of the one-, three-, and five-year calendar time abnormal returns (CTARs) for the sample of private straight debt and convertible debt placements using the Fama and French three-factor model.

Table 4 Long-run Abnormal Returns Following Private Placements of Straight Debt Using the Fama-French Calendar-time Portfolio Regressions

$$R_{pt} - R_{ft} = \alpha_p + \beta_m (R_{mt} - R_{ft}) + \beta_s SMB_t + \beta_h HML_t + \varepsilon_t$$

Panel A: One-year Fama-French Calendar-time Portfolio

Calendar portfolio weighting	Model estimated	α_p	*t*-statistic	Adj. R^2
EW	OLS	-0.2474	-1.34	0.77
	WLS	-0.2563	-1.46	0.80
VW	OLS	-0.2009	-0.62	0.51
	WLS	-0.2515	-0.84	0.54

Panel B: Three-year Fama-French Calendar-time Portfolio

Calendar portfolio weighting	Model estimated	α_p	*t*-statistic	Adj. R^2
EW	OLS	-0.2014	-1.38	0.84
	WLS	-0.2297	-1.60	0.85
VW	OLS	0.0141	0.07	0.74
	WLS	-0.0296	-0.15	0.75

Panel C: Five-year Fama-French Calendar-time Portfolio

Calendar portfolio weighting	Model estimated	α_p	*t*-statistic	Adj. R^2
EW	OLS	-0.0951	-0.68	0.86
	WLS	-0.1100	-0.80	0.86
VW	OLS	-0.1189	-0.77	0.82
	WLS	-0.1168	-0.78	0.82

For each month, we form a portfolio of all the sample firms that have offered private straight debt placement in the previous one-, three-, and five-year and calculate both the equal- and value-weighted one-, three-, and five-year long-run abnormal returns from 1989 to 2002. The monthly excess returns to the calendar time portfolios, $R_{pt} - R_{ft}$, are regressed on the Fama and French (1993) three-factor model in order to calculate the unadjusted intercept (α_p). The three factors, from Fama and French (1993), are the excess returns on the market portfolio ($R_{mt} - R_{ft}$), the difference returns between the value-weighted portfolios of small stocks and big stocks (SMB_t), and the difference returns between the value-weighted portfolios of high book-to-market stocks and low book-to-market stocks (HML_t). The ordinary and weighted least squares (OLS and WLS) time series regressions are estimated. Monthly returns in the WLS model are weighted by the square root of the number of sample firms contained in the monthly portfolio. The *t*-statistics of the intercept are reported. The notations *, **, and *** denote that the associated test statistics are significant at the 10%, 5%, and 1% level, respectively.

Table 5 Long-run Abnormal Returns Following Private Placements of Convertible Debt Using the Fama-French Calendar-time Portfolio Regressions

$$R_{pt} - R_{ft} = \alpha_p + \beta_m (R_{mt} - R_{ft}) + \beta_s SMB_t + \beta_h HML_t + \varepsilon_t$$

Panel A: One-year Fama-French Calendar-time Portfolio

Calendar portfolio weighting	Model estimated	α_p	*t*-statistic	Adj. R^2
EW	OLS	-0.6780	-1.06	0.52
	WLS	-1.1509	-1.92*	0.57
VW	OLS	0.0497	0.07	0.33
	WLS	-0.0347	-0.05	0.32

Panel B: Three-year Fama-French Calendar-time Portfolio

Calendar portfolio weighting	Model estimated	α_p	*t*-statistic	Adj. R^2
EW	OLS	-0.7656	-1.62	0.66
	WLS	-0.9992	-2.17**	0.68
VW	OLS	-0.5698	-1.17	0.57
	WLS	-0.7003	-1.49	0.59

Panel C: Five-year Fama-French Calendar-time Portfolio

Calendar portfolio weighting	Model estimated	α_p	*t*-statistic	Adj. R^2
EW	OLS	-0.4507	-1.06	0.69
	WLS	-0.6696	-1.66*	0.72
VW	OLS	-0.3343	-0.77	0.61
	WLS	-0.4926	-1.21	0.65

For each month, we form a portfolio of all the sample firms that have offered private convertible debt placement in the previous one-, three-, and five-year and calculate both the equal- and value-weighted one-, three-, and five-year long-run abnormal returns from 1989 to 2002. The monthly excess returns to the calendar time portfolios, $R_{pt}-R_{ft}$, are regressed on the Fama and French (1993) three-factor model in order to calculate the unadjusted intercept (α_p). The three factors, from Fama and French (1993), are the excess returns on the market portfolio ($R_{mt}-R_{ft}$), the difference returns between the value-weighted portfolios of small stocks and big stocks (SMB_t), and the difference returns between the value-weighted portfolios of high book-to-market stocks and low book-to-market stocks (HML_t). The ordinary and weighted least squares (OLS and WLS) time series regressions are estimated. Monthly returns in the WLS model are weighted by the square root of the number of sample firms contained in the monthly portfolio. The *t*-statistics of the intercept are reported. The notations *, **, and *** denote that the associated test statistics are significant at the 10%, 5%, and 1% level, respectively.

3.2.1.1 Straight Debt

The equally-weighted one-, three-, and five-year periods CTARs for the OLS and WLS models are all negative but insignificant. For the value-weighted CTARs, none of them are significant. Table 4 does not show evidence of long-run abnormal returns following private straight debt placements. Combining the results in Table 2 and those in Table 4, we do not

see consistent patterns of long-run abnormal returns by either BHARs or CTARs. In addition, from Table 4 the CTARs by the OLS model and the WLS model are similar, which does not support the event-bunching hypothesis of Loughran and Ritter (2000).

3.2.1.2 Convertible Debt

From Table 5, by WLS, the CTARs following private convertible debt placements are -1.1509, -0.9992 and -0.6696 for the one-, three-, and five-year equally-weighted portfolio, and are significant. The other equally- or value-weighted CTARs for the one-, three-, and five-year periods are all statistically insignificant, but are mostly negative, for both the OLS and the WLS models. These results support the equity-like features as a cause of underperformances for the convertible debt security, similar to the results found by the BHAR method. Overall, we do not find consistent patterns of significant abnormal returns following private convertible debt placements.

3.2.2 Carhart Four-factor Model

3.2.2.1 Straight Debt

From Panel B of Table 6 shows that the only significant CTARs are from the three-year equally-weighted portfolios are -0.2779 by OLS and -0.2840 by WLS. The other CTARs are all insignificant. Again, we do not find consistent patterns of long-run abnormal returns following private straight debt placements, even when the momentum factor is controlled. Our results do not support the event-bunching hypothesis of Loughran and Ritter (2000), since the results by the OLS and WLS methods are similar.

3.2.2.2 Convertible Debt

From Table 7, the only significant CTARs from the WLS equally-weighted three-year abnormal return, which is -0.8814, and significant at the 10% level. There is no consistent evidence supporting the existence of the long-run abnormal returns following private convertible debt placement, even when the momentum factor is controlled.

3.3 Long-run Abnormal Returns by Firm and Offering Characteristics

All results in the preceding analyses do not support the existence of long-run abnormal returns following private straight and convertible debt placements. Spiess and Affleck-Graves (1999) show that under-performance following straight or convertible debt issues are more severe for smaller, younger, and NASDAQ-listed firms. To further examine whether the results are sensitive to some firm and market specific characteristics, we partition our sample into quartiles based on the firm size, book-to-market ratio, firm age, issue size, and bond rating, as well as three major exchanges. The quartile returns are calculated by using

the BHAR method.

The results generally show that the patterns of long-term abnormal returns are unstable.[3] That is, even after partitioning our samples according to various firm- and market-specific characteristics, we still do not find significant under- or over-performance following private placements of debt.

Table 6 Long-run Abnormal Returns Following Private Placements of Straight Debt Using the Carhart Four-factor Model

$$R_{pt} - R_{ft} = \alpha_p + \beta_m (R_{mt} - R_{ft}) + \beta_s SMB_t + \beta_h HML_t + PR1YR + \varepsilon_t$$

Panel A: One-year Carhart four-factor model

Calendar portfolio weighting	Model estimated	α_p	*t*-statistic	Adj. R^2
EW	OLS	-0.2859	-1.51	0.76
	WLS	-0.2769	-1.54	0.78
VW	OLS	-0.2999	-0.96	0.50
	WLS	-0.3163	-1.09	0.54

Panel B: Three-year Carhart four-factor model

Calendar portfolio weighting	Model estimated	α_p	*t*-statistic	Adj. R^2
EW	OLS	-0.2779	-1.84*	0.84
	WLS	-0.2840	-1.93*	0.85
VW	OLS	-0.0992	-0.47	0.73
	WLS	-0.1100	-0.55	0.75

Panel C: Five-year Carhart four-factor model

Calendar portfolio weighting	Model estimated	α_p	*t*-statistic	Adj. R^2
EW	OLS	-0.1411	-0.97	0.85
	WLS	-0.1471	-1.04	0.85
VW	OLS	-0.1882	-1.19	0.82
	WLS	-0.1745	-1.14	0.82

For each month, we form a portfolio of all sample firms that have offered the private straight debt placement in the previous one-, three-, and five-year and calculate both the equal- and value-weighted one-, three-, and five-year long-run abnormal returns from 1989 to 2002. The monthly excess returns to the calendar time portfolios, $R_{pt}-R_{ft}$, are regressed on the Carhart (1997) four-factor model in order to calculate the unadjusted intercept (α_p). The excess returns on the market portfolio ($R_{mt}-R_{ft}$), the difference returns between value-weighted portfolios of small stocks and big stocks (SMB_t), and the difference returns between value-weighted portfolios of high book-to-market stocks and low book-to-market stocks (HML_t) are obtained from Fama and French. The *PR*1*YR* is defined as the difference between an equally-weighted portfolio return of stocks with the highest 30 percent returns and an

3 The results are qualitatively similar to those for the whole samples. They are omitted and available upon request.

equal-weighted portfolio return of stocks with the lowest 30 percent returns in months *t*-12 to *t*-2. The ordinary and weighted least squares (OLS and WLS) time series regressions are estimated. Monthly returns in the WLS model are weighted by the square root of the number of sample firms contained in the monthly portfolio. The *t*-statistics of the intercept are reported. The notations *, **, and *** denote that the associated test statistics are significant at the 10%, 5%, and 1% level, respectively.

Table 7 Long-run Abnormal Returns Following Private Placements of Convertible Debt Using the Carhart Four-factor Model

$$R_{pt} - R_{ft} = \alpha_p + \beta_m (R_{mt} - R_{ft}) + \beta_s SMB_t + \beta_h HML_t + PR1YR + \varepsilon_t$$

Panel A: One-year Carhart four-factor model

Calendar portfolio weighting	Model estimated	α_p	*t*-statistic	Adj. R^2
EW	OLS	-0.5449	-0.84	0.53
	WLS	-0.8724	-1.41	0.57
VW	OLS	-0.0788	-0.11	0.35
	WLS	-0.2785	-0.40	0.35

Panel B: Three-year Carhart four-factor model

Calendar portfolio weighting	Model estimated	α_p	*t*-statistic	Adj. R^2
EW	OLS	-0.6917	-1.47	0.66
	WLS	-0.8814	-1.96*	0.69
VW	OLS	-0.6191	-1.24	0.57
	WLS	-0.7976	-1.64	0.58

Panel C: Five-year Carhart four-factor model

Calendar portfolio weighting	Model estimated	α_p	*t*-statistic	Adj. R^2
EW	OLS	-0.3795	-0.90	0.69
	WLS	-0.5572	-1.44	0.74
VW	OLS	-0.3462	-0.78	0.61
	WLS	-0.5072	-1.21	0.63

For each month, we form a portfolio of all sample firms that have offered the private convertible debt placement in the previous one-, three-, and five-year and calculate both the equal- and value-weighted one-, three-, and five-year long-run abnormal returns from 1989 to 2002. The monthly excess returns to the calendar time portfolios, $R_{pt} - R_{ft}$, are regressed on the Carhart (1997) four-factor model in order to calculate the unadjusted intercept (α_p). The excess returns on the market portfolio ($R_{mt} - R_{ft}$), the difference returns between value-weighted portfolios of small stocks and big stocks (SMB_t) and the difference returns between value-weighted portfolios of high book-to-market stocks and low book-to-market stocks (HML_t) are obtained from Fama and French. The $PR1YR$ is defined as the difference between an equally-weighted portfolio return of stocks with the highest 30 percent returns and an equal-weighted portfolio return of stocks with the lowest 30 percent returns in months *t*-2 to *t*-2. The ordinary and weighted least squares (OLS and WLS) time series regressions are estimated. Monthly returns in the WLS model are weighted by the square root of the number of sample firms contained in the monthly portfolio. The *t*-statistics of the intercept are reported. The notations *, **, and *** denote that the associated test statistics are significant at the 10%, 5%, and 1% level, respectively.

4. Operating Performance

McLaughlin et al. (1998) have documented a small improvement in operating performance before a public convertible debt offering and a significant decline in operating performance in the post-issue period. We turn our attention to whether private debt placement is associated with any changes in long-run operating performance.

We examine the operating performance of our sample firms over a seven-year period around the private debt placement offer date and report the unadjusted and industry-adjusted year-by-year changes in operating performance, and the unadjusted and industry-adjusted changes in operating performance from year -1. Following Lee and Loughran (1998), Dichev and Piotroski (2001) and Hertzel et al. (2002), to measure the operating performance, we compute the following ratios: (1) The profit margin (IBER/sales), which is a ratio of net income before extraordinary items (Compustat item #18) to sales (Compustat item #12), (2) IBER/assets, representing the ratio of net income before extraordinary items divided by total assets (Compustat item #6), and (3) return on equity (IBER/equity), which is the ratio of net income before extraordinary items to the book value of the equity (Compustat item #60). We also calculate (4) CE+RD/assets, which is the ratio of capital expenditures (Compustat item #128) plus R&D expenditures (Compustat item #46) divided by total assets, and (5) M/B, which is the ratio of the market value to the book value of the equity. Finally, in order to estimate a company's creditworthiness, we calculate (6) TIE (times-interest-earned ratio), which is a measure of operating income before interest expenses and taxes over interest expenses. We first measure each issuer's operating performance (i.e., IBER/sales). We then calculate the industry-adjusted performance measure by taking the issuer's performance measure minus the control firm's operating performance measure in order to control for industry effects. The control firm is found from all non-issuing firms in the Compustat files with the same four-digit SIC code. The median values are used because the operating performance measures can be skewed, and the mean value is particularly sensitive to outliers. We also calculate industry-adjusted changes in operating performance by subtracting the change in the median for the control firm from the issuer's change over the same period. Changes in operating performance are measured relative to the fiscal year before the offering (year -1). The statistical significance of adjusted performance measures and changes in performance is evaluated using the Wilcoxon signed-rank test.

4.1 Results of Operating Performance

4.1.1 Straight Debt

Panel A of Table 8 shows the levels of the sample firms' performance measures and the industry-adjusted performance measures. Panel B of Table 8 shows the sample firm's and the industry-adjusted year-by-year changes, while Panel C of Table 8 reports the sample firm's and the industry-adjusted changes from year -1. In Panel A, we see that the median straight debt issuer has an IBER-to-sales ratio of 4.34% in year -3. This ratio decreases to 4.04% in year 0, and to 3.48% in year 3. The same patterns occur with IBER-to-assets, IBER-to-equity, CE+RD-to-assets, M-to-B, and TIE measures. In comparison to the significant median issuer's operating performance measures, there is a slight decrease in the median industry-adjusted operating performance for each measure. For example, the IBER-to-sales ratio is 0.23% in year -3 but falls to 0.13% in year -2, returning to 0.31% in year -1. The post-issue decline lowers the median ratio to -0.05% in year 1 but it recovers to 0.03% in year 3. Most are usually statistically insignificant. There is a weak decrease in each median industry-adjusted performance. Different patterns are obtained by different measures throughout the pre- and post-offer periods. In addition, as shown in Panel A, most of the median industry-adjusted IBER-to-sales, and IBER-to-equity measures are positive, indicating that the private straight debt placement issuer performs better than its industry counterpart throughout the pre- and post-offer periods, with the exception of the IBER-to-asset ratios, which show the opposite results. It is worth noting that the offering firm has a higher CE+RD/assets ratio, which indicates that the offering firm has more capital expenditures and research and development expenses than its industry counterparts do. Furthermore, we also find that the M/B ratio is significantly higher for the issuers than for the industry median firms, suggesting the issuers have more growth opportunities.

In Panels B and C, it can be seen that there is a significant decline in each median performance from year -1 to years 0, 1, 2, 3. For example, the median changes in IBER-to-sales from year -1 to years 0, 1, 2, 3 year are -0.32%, -0.8%, -0.79%, -0.97%, respectively, at the 1% significant level. However, there is no consistent pattern shown in the industry-adjusted median change in performances for each measure from year -1 to years 0, 1, 2 and 3. These results are not consistent with the theory that management times their security issue to periods of relatively high operating performance. A possible reason is that firm issuing the debt is not only concerned with profitability and size, but also financial flexibility and interest rates. Issuers must always consider timing of past and future interest rates in their debt issuance decisions (Bancel and Mittoo, 2004; Faulkender, 2005; Barry, Mann, Mihov,

and Rodríguez, 2008, 2009). Another reason is that private placement can reduce the information asymmetry through the negotiation process between the issuing firms and the debt investors. Thus, the management is not likely to window dress the financial data before the issue because sophisticated or institutional investors have better judgment and can obtain better information. We also find that the empirical evidence shown by the TIE ratios in Panel A of Table 8 is all significantly higher for the issuers than the industry median. This supports the assumption that private creditors are more concerned about receiving the interest payments and the principle on time.

Table 8 Operating Performance before and after Private Placements of Straight Debt

Panel A: Results on the median and industry-adjusted median levels of operating performance							
Year	-3	-2	-1	0	1	2	3
IBER/Sales (%):							
Sample firm	0.0434***	0.0430***	0.0460***	0.0404***	0.0324***	0.0352***	0.0348***
Matching firm-adjusted	0.0023	0.0013	0.0031*	0.0029	-0.0005	0.0001	0.0003
N	767	803	817	817	763	703	637
IBER/Assets (%):							
Sample firm	0.0451***	0.0462***	0.0471***	0.0367***	0.0317***	0.0316***	0.0322***
Matching firm-adjusted	-0.0006	-0.0002	0.0006	-0.0038	-0.0042**	-0.0033	-0.0031*
N	767	803	817	817	763	703	637
IBER/Equity (%):							
Sample firm	0.1293***	0.1226***	0.1193***	0.1112***	0.1280***	0.1055***	0.1074***
Matching firm-adjusted	0.0150**	0.0069	0.0021	0.0097**	0.0035	0.0104**	0.0003
N	767	803	817	817	763	703	637
CE+RD/Assets (%):							
Sample firm	0.0790***	0.0763***	0.0780***	0.0739***	0.0702***	0.0681***	0.0660***
Matching firm-adjusted	-0.0002	0.0005	0.0033*	0.0025	0.0016	0.0031	-0.0006
N	722	758	772	775	725	665	608
M/B (%):							
Sample firm	1.8190***	1.7965***	1.7745***	1.7136***	1.6166***	1.6586***	1.7397***
Matching firm-adjusted	0.1122*	0.0971*	0.1701**	0.1561*	0.1221*	0.0165	0.0273
N	652	720	767	769	720	661	600
TIE (%):							
Sample firm	3.8896***	3.7447***	3.8566***	3.1241***	2.8498***	2.9248***	3.2282***
Matching firm-adjusted	-0.1566	-0.1408	-0.1055	-0.3211***	-0.4864***	-0.3062***	-0.3303***
N	722	758	772	775	725	665	608

Panel B: Results on the year-by-year median change in operating performance

Year	(-3,-2)	(-2,-1)	(-1,0)	(0,1)	(1,2)	(2,3)
Median change in IBER/Sales (%):						
Sample firm	0.0012	0.0009	-0.0032***	-0.0015***	0.0012	-0.0001
Matching firm-adjusted	0.0009	0.0003	-0.0010	-0.0015	0.0005	0.0005
N	767	803	817	763	703	637
Median change in IBER/Assets (%):						
Sample firm	0.0011	0.0005	-0.0053***	-0.0020***	0.0007	0.0002
Matching firm-adjusted	0.0022	0.0003	-0.0027*	-0.0006	0.0020*	-0.0007
N	767	803	817	763	703	637
Median change in IBER/Equity (%):						
Sample firm	-0.0012**	0.0004	-0.0095***	-0.0074***	-0.0031	-0.0039**
Matching firm-adjusted	-0.0028	-0.0034	0.0006	-0.0004	0.0011	-0.0060
N	767	803	817	763	703	637
Median change in CE+RD/Assets (%):						
Sample firm	0.0004	0.0019***	-0.0008***	-0.0019***	-0.0016***	-0.0011**
Matching firm-adjusted	0.0017	0.0017**	-0.0030**	0.0009	-0.0008	-0.0028**
N	722	758	772	725	665	608
Median change in M/B (%):						
Sample firm	-0.0037	-0.0066	-0.0447**	-0.0543**	0.0696***	0.0183
Matching firm-adjusted	0.0388	0.0246	0.0314	0.0383	-0.0255	-0.0044
N	651	720	761	720	661	600
TIE (%):						
Sample firm	0.1398**	0.0811	-0.3284***	-0.0554***	0.1688***	0.1050**
Matching firm-adjusted	0.0568	-0.0528	-0.2830***	-0.1741	0.1822	-0.1199
N	722	758	772	725	665	608

Panel C: Results on the median change in operating performance from year -1

Year	(-1,0)	(-1,1)	(-1,2)	(-1,3)
Median change in IBER/Sales (%):				
Sample firm	-0.0032***	-0.0080***	-0.0079***	-0.0094***
Matching firm-adjusted	-0.0010	0.0001	0.0003	-0.0008
N	817	763	703	637
Median change in IBER/Assets (%):				
Sample firm	-0.0053***	-0.0102***	-0.0109***	-0.0139***
Matching firm-adjusted	-0.0027*	-0.0008	0.0010	-0.0036
N	817	763	703	637
Median change in IBER/Equity (%):				
Sample firm	-0.0095***	-0.0207***	-0.0211***	-0.0273***
Matching firm-adjusted	0.0006***	0.0079	0.0069	-0.0097

N	817	763	703	637
Median change in CE+RD/Assets (%):				
Sample firm	-0.0008***	-0.0038***	-0.0071***	-0.0111***
Matching firm-adjusted	-0.0030**	-0.0015*	-0.0052***	-0.0091***
N	772	723	664	607
Median change in M/B (%):				
Sample firm	-0.0447**	-0.1140***	-0.0484	0.0041
Matching firm-adjusted	0.0314	0.0834	-0.0010	-0.0803
N	761	714	656	595
TIE (%):				
Sample firm	-0.3284***	-0.6187***	-0.4817***	-0.4884***
Matching firm-adjusted	-0.2830***	-0.2686**	-0.0955	-0.3533
N	772	723	664	607

This table presents the median operating performance of the sample firm and the industry-adjusted operating performance of the sample firm for the three fiscal years before and three fiscal years after the offering of private straight debt placements. Year 0 is the year of the offering while the other year represents the fiscal year relative to the year of the offering. N is the number of observations with available COMPUSTAT data. The operating performance measures, the IBER/Assets, the IBER/Equity and the IBER/Sales are defined as the operating income before extraordinary items scaled by total assets, total book value of equity and sales. CE+RD/Assets indicate capital expenditures plus research and development expenditures deflated by total assets. If CE or RD is missing from COMPUSTAT, then their values are set equal to 0. M/B, market-to-book, represents the number of outstanding shares multiplied by fiscal year-end price divided by the book value of equity. TIE, times-interest-earned ratio, a measure of operating income before interest expense and taxes over interest expenses. Sample firms are firms that offered private straight debt placements from 1989 to 2002. Significance tests are based on the Wilcoxon signed rank tests. The notations *, **, and *** denote that the associated test statistics are significant at the 10%, 5%, and 1% level, respectively.

4.1.2 Convertible Debt

The levels of median and industry-adjusted median operating performance for convertible debt issuers are shown in Panel A of Table 9. The industry-adjusted median performance for each measure gives different results throughout the pre- and post-offer periods. The results show the private convertible debt issuers generally perform worse than its industry counterparts in the pre-announcement period except the IBER-to-sales measures. All of them are statistical insignificant. In addition, each median industry-adjusted performance measures do not have consistent patterns in the post-offer periods. The CE+RD/ assets and M/B ratios of sample firms are generally higher than those of the industry medians.

Panel B shows that the industry-adjusted year-by-year median changes for performance measures are usually not significant, except for the median change of IBER/assets in year (-2, -1) and of IBER/equity in years (-3, -2) and (-2, -1). Panel C shows no evidence for median changes in IBER/sales, IBER/assets or IBER/equity from year -1. Therefore, the evidence suggests that firms do not experience any significant changes in operating performance prior to and after the offering of private convertible debt.

The operational performance results for each measure are unstable and do not show consistent patterns of changes, either before or after private convertible debt placements. This is inconsistent with the view that there is a significant deterioration in the long-run operating performance for equity and public convertible debt offering firms (McLaughlin et al., 1998). It is also inconsistent with the view that managers consider timing in the market when issuing equity and public debt. This is likely because private debt investors are more sophisticated and due to tighter monitoring, the operating performance does not deteriorate as has been found in the equity offering literature.

Table 9 Operating Performance before and after Private Placements of Convertible Debt

Panel A: Results on the median and industry-adjusted median levels of operating performance							
Year	-3	-2	-1	0	1	2	3
IBER/Sales (%):							
Sample firm	0.0172	-0.0301***	-0.0202***	-0.0494***	-0.0189**	0.0105	-0.0007
Matching firm-adjusted	0.0085	0.0112	0.0133	-0.0194**	-0.0203	-0.0219	0.0039
N	82	93	94	95	59	40	32
IBER/Assets (%):							
Sample firm	0.0147	-0.0098***	-0.0095***	-0.0289***	-0.0034**	0.0141	-0.0062
Matching firm-adjusted	-0.0089	-0.0160*	-0.0081	-0.0166*	0.0006	-0.0329	-0.0156
N	82	93	94	95	59	40	32
IBER/Equity (%):							
Sample firm	0.0513	0.0306	0.0115	0.0113	0.0225	0.0585	0.0387
Matching firm-adjusted	-0.0065	-0.0265	-0.0311	-0.0493*	0.0057	-0.0575	-0.0728
N	82	93	94	95	59	40	32
CE+RD/Assets (%):							
Sample firm	0.0901***	0.0850***	0.1077***	0.1124***	0.0953***	0.0926***	0.0777***
Matching firm-adjusted	-0.0026	-0.0039	-0.0036	0.0029	0.0111	0.0071	-0.0184
N	68	77	80	83	52	36	30
M/B (%):							

Sample firm	2.3766***	2.1100***	1.9696***	2.3686***	2.1644***	1.7452***	1.6918***
Matching firm-adjusted	0.5227	0.2213	0.2229	0.8392*	0.8592*	-0.3919	-1.0172*
N	59	68	80	82	51	36	30
TIE (%):							
Sample firm	1.3713	0.4033	0.1391	-0.7423	1.1497	1.1620	1.6376
Matching firm-adjusted	1.0319	-0.4465	0.4293	0.4128	-0.2022	-2.9691**	1.6156
N	68	77	80	83	52	36	30

Panel B: Results on the year-by-year median change in operating performance

Year	(-3,-2)	(-2,-1)	(-1,0)	(0,1)	(1,2)	(2,3)
Median change in IBER/Sales (%):						
Sample firm	-0.0108	0.0017	-0.0074*	0.0011	-0.0255*	-0.0003
Matching firm-adjusted	-0.0101	0.0049	-0.0117**	-0.0004	-0.0146	-0.0097
N	82	93	94	59	40	32
Median change in IBER/Assets (%):						
Sample firm	-0.0050	-0.0007	-0.0123**	-0.0049	-0.0170**	0.0065
Matching firm-adjusted	0.0126	0.0195	-0.0137	0.0003	-0.0296	0.0025
N	82	93	94	59	40	32
Median change in IBER/Equity (%):						
Sample firm	-0.0270*	-0.0464**	-0.0102	-0.0050	-0.0226**	-0.0194
Matching firm-adjusted	0.0147	-0.0245	0.0020	0.0299	-0.0415	-0.0100
N	82	93	94	59	40	32
Median change in CE+RD/Assets (%):						
Sample firm	0.0000	0.0010	0.0014	0.0043	-0.0028	-0.0095
Matching firm-adjusted	0.0026	-0.0132	0.0011	0.0272***	-0.0028	-0.0163
N	68	77	80	52	36	30
Median change in M/B (%):						
Sample firm	-0.4740***	-0.0482	0.2434	-0.1653	-0.1202	-0.1096
Matching firm-adjusted	-0.6026	0.3599	0.5728	-0.2103	-0.1809	-0.2975
N	59	68	79	51	36	30
TIE (%):						
Sample firm	-0.0760	0.2041	-0.0510	0.3811	-0.5642	-0.0310
Matching firm-adjusted	-2.0905	0.5278	-0.3412	-1.2219	-1.7432	0.9456
N	68	77	80	52	36	30

Panel C: Results on the median change in operating performance from year -1

Year	(-1,0)	(-1,1)	(-1,2)	(-1,3)
Median change in IBER/Sales (%):				
Sample firm	-0.0074*	0.0018	-0.0018	-0.0183
Matching firm-adjusted	-0.0117**	0.0146	-0.0031	-0.0201
N	94	59	40	32

Median change in IBER/Assets (%):				
Sample firm	-0.0123**	-0.0162**	-0.0140**	-0.0027
Matching firm-adjusted	-0.0137	0.0042	-0.0388*	-0.0172
N	94	59	40	32
Median change in IBER/Equity (%):				
Sample firm	-0.0102	-0.0150	-0.0226	0.0029
Matching firm-adjusted	0.0020	0.0406	-0.0153	-0.0890
N	94	59	40	32
Median change in CE+RD/Assets (%):				
Sample firm	0.0014	0.0000	0.0002	0.0000
Matching firm-adjusted	0.0011	0.0445**	0.0398	-0.0093
N	80	51	36	30
Median change in M/B (%):				
Sample firm	0.2434	-0.0883	-0.2934	-0.2593
Matching firm-adjusted	0.5728	0.2150	-0.2589	-1.5351
N	79	51	36	30
TIE (%):				
Sample firm	-0.0510	-0.0772	-0.4182	-2.3397*
Matching firm-adjusted	-0.3412	-0.8721	-4.0451	-6.0359
N	80	51	36	30

This table presents the median operating performance of the sample firm and the industry-adjusted operating performance of the sample firm for the three fiscal years before and three fiscal years after the offer of private convertible debt placements. All the sample firms were reported from the SDC online databases over the period from January 1989 through December 2002. Year 0 is the year of the offer while the other year represents the fiscal year relative to the year of the offer. N is the number of observations with available COMPUSTAT data. The operating performance measures, the IBER/ Assets, the IBER/Equity and the IBER/Sales are defined as the operating income before extraordinary items scaled by total assets, total book value of equity and sales. CE+RD/Assets indicate capital expenditures plus research and development expenditures deflated by total assets. If CE or RD is missing from COMPUSTAT, then their values are set equal to 0. M/B, market-to-book, represents the number of outstanding shares multiplied by fiscal year-end price divided by the book value of equity. TIE, times-interest-earned ratio, a measure of operating income before interest expense and taxes over interest expenses. Sample firms are firms that offered private convertible debt placements from 1989 to 2002. Significance tests are based on the Wilcoxon signed rank tests. The notations *, **, and *** denote that the associated test statistics are significant at the 10%, 5%, and 1% level, respectively.

5. Conclusions

We examine the long-run stock return and operating performance for sample firms issuing straight and convertible debt through the private placements from 1989 to 2002. We find that firms offering private straight debt the placements do not show consistent evidence

of long-run abnormal returns by the BHAR method, the Fama and French three-factor model, or the Carhart four-factor model. We directly identify the announcement dates of private debt offerings. Our results are inconsistent with evidence by Dichev and Piotroski (1999), who show that private debt issuers outperform the market and with Chandra and Nayar (2008), who show that long-run stock returns are negative and significant.

For convertible debt, due to its equity-like features, it is reasonable to expect that private convertible debt placement will lead to the same long-run stock price underperformance as found by Dichev and Piotroski (1999) and Marciukaityte and Varma (2007). Nevertheless, we do not find any systematic evidence showing the existence of long-run abnormal returns following private convertible debt placement.

We also investigate the long-run operating performance of private debt placement. The results show that private straight debt issuers perform significantly better than their industry counterparts throughout the pre- and post-offer periods, for all the performance measures. We do not find evidence showing that firms time their security issues during periods of relatively high operating performance and that the performance levels decline after issuing. A possible reason is that private debt placement can reduce information asymmetry through the negotiation process between the issuing firm and the investors. In other words, management is not likely to window dress the financial data before the issue.

For convertible debt, we find that the private convertible debt issuer performs significantly worse than its industry counterpart in the pre-placement period. Overall, our empirical results suggest that firms neither experience any long-run abnormal returns, nor any significant changes in operating performance prior to and after the offering of private convertible debt.

Our results show different pictures of private debt placements than can be observed in previous studies, especially for straight debt. Duca, Dutordoir, Veld, and Verwijmeren (2012) showed a more than double decrease in the effects of the announcement of convertible bonds in the period from 1984-1990 to 2000-2008. Future research could extend the sample period and examine each sub-sample period. In addition, Bancel and Mittoo (2004), Faulkender (2005) and Barry et al. (2008, 2009) showed that issuers always consider the timing of past and future interest rates in their issuing of debt decisions. In this study, however, we do not consider the possible influences from interest rates when explore the issuer's "window of opportunity" arguments. We urge for further research to include this factor.

References

Abhyankar, A., and Ho, K. Y. 2006. Long-run abnormal performance following convertible preference share and convertible bond issues: New evidence from the United Kingdom. ***International Review of Economics and Finance***, 15 (1): 97-119.

Bae, G. S., Jeong, J., Sun, H. L., and Tang, A. P. 2002. Stock returns and operating performance of securities issuers. ***The Journal of Financial Research***, 25 (3): 337-352.

Bancel, F., and Mittoo, U. R. 2004. Cross-country determinants of capital structure choice: A survey of European firms. ***Financial Management***, 33 (4): 103-132.

Barber, B. M., and Lyon, J. D. 1997. Detecting long-run abnormal stock returns: The empirical power and specification of test statistics. ***Journal of Financial Economics***, 43 (3): 341-372.

Barberis, N., Shleifer, A., and Vishny, R. 1998. A model of investor sentiment. ***Journal of Financial Economics***, 49 (3): 307-343.

Barry, C. B., Mann, S. C., Mihov, V. T., and Rodríguez, M. 2008. Corporate debt issuance and the historical level of interest rates. ***Financial Management***, 37 (3): 413-430.

_____. 2009. Interest rate changes and the timing of debt issues. ***Journal of Banking & Finance***, 33 (4): 600-608.

Boehme, R. D., and Sorescu, S. M. 2002. The long-run performance following dividend initiations and resumptions: Underreaction or product of chance? ***The Journal of Finance***, 57 (2): 871-900.

Carhart, M. M. 1997. On persistence in mutual fund performance. ***The Journal of Finance***, 52 (1): 57-82.

Chandra, U., and Nayar, N. 2008. The information content of private debt placements. ***Journal of Business Finance & Accounting***, 35 (9-10): 1164-1195.

Chen, S. S., Ho, K. W., Lee, C. F., and Yeo, G. H. H. 2002. Long-run stock performance of equity-issuing firms: The case of private placements in Singapore. ***Review of Pacific Basin Markets and Policies***, 5 (3): 417-438.

Cheng, L. L. 1998. ***Equity issue under-performance and the timing of security issues***. Working paper, NERA Economic Consulting, New York, U.S.A.

Chou, D. W., Gombola, M., and Liu, F. Y. 2009. Long-run underperformance following private equity placements: The role of growth opportunities. ***The Quarterly Review of Economics and Finance***, 49 (3): 1113-1128.

Daniel, K., Hirshleifer, D., and Subrahmanyam, A. 1998. Investor psychology and security

market under- and overreactions. ***The Journal of Finance***, 53 (6): 1839-1885.

Dann, L. Y., and Mikkelson, W. H. 1984. Convertible debt issuance, capital structure change and financing-related information: Some new evidence. ***Journal of Financial Economics***, 13 (2): 157-186.

Dennis, S. A., and Lu, W. 2008. New considerations in the announcement effects of privately placed debt. ***International Review of Financial Analysis***, 17 (3): 507-522.

Dichev, I. D., and Piotroski, J. D. 1999. The performance of long-run stock returns following issues of public and private debt. ***Journal of Business Finance & Accounting***, 26 (9-10): 1103-1132.

_____. 2001. The long-run stock returns following bond ratings changes. ***The Journal of Finance***, 56 (1): 173-203.

Duca, E., Dutordoir, M., Veld, C., and Verwijmeren, P. 2012. Why are convertible bond announcements associated with increasing negative issuer stock returns? An arbitrage-based explanation. ***Journal of Banking & Finance***, 36 (11): 2884-2899.

Eckbo, B. E. 1986. Valuation effects of corporate debt offerings. ***Journal of Financial Economics***, 15 (1-2): 119-151.

Fama, E. F. 1998. Market efficiency, long-term returns, and behavioral finance. ***Journal of Financial Economics***, 49 (3): 283-306.

Fama, E. F., and French, K. R. 1993. Common risk factors in the returns on stocks and bonds. ***Journal of Financial Economics***, 33 (1): 3-56.

_____. 1998. Value versus growth: the international evidence. ***The Journal of Finance***, 53 (6):1975-1999.

Faulkender, M. 2005. Hedging or market timing? Selecting the interest rate exposure of corporate debt. ***The Journal of Finance***, 60 (2): 931-962.

Fields, L. P., and Mais, E. L. 1991. The valuation effects of private placements of convertible debt. ***The Journal of Finance***, 46 (5): 1925-1932.

Hertzel, M., Lemmon, M., Linck, J. S., and Rees, L. 2002. Long-run performance following private placements of equity. ***The Journal of Finance***, 57 (6): 2595-2617.

Huang, H. H., and Chan, M. L. 2013. The initial private placement of equity and changes in operating performance in Taiwan. ***Accounting & Finance***, 53 (3): 711-730.

Jaffe, J. F. 1974. Special information and insider trading. ***The Journal of Business***, 47 (3): 410-428.

James, C. 1987. Some evidence on the uniqueness of bank loans. ***Journal of Financial Economics***, 19 (2): 217-235.

Kothari, S. P., and Warner, J. B. 1997. Measuring long-horizon security price performance. ***Journal of Financial Economics***, 43 (3): 301-339.

Lee, C. M. C., and Swaminathan, B. 2000. Price momentum and trading volume. ***The Journal of Finance***, 55 (5): 2017-2069.

Lee, I., and Loughran, T. 1998. Performance following convertible bond issuance. ***Journal of Corporate Finance***, 4 (2): 185-207.

Loughran, T., and Ritter, J. R. 1995. The new issues puzzle. ***The Journal of Finance***, 50 (1): 23-51.

_____. 1997. The operating performance of firms conducting seasoned equity offerings. ***The Journal of Finance***, 52 (5): 1823-1850.

_____. 2000. Uniformly least powerful tests of market efficiency. ***Journal of Financial Economics***, 55 (3): 361-389.

Lyon, J. D., Barber, B. M., and Tsai, C. L. 1999. Improved methods for tests of long-run abnormal stock returns. ***The Journal of Finance***, 54 (1): 165-201.

Mandelker, G. 1974. Risk and return: The case of merging firms. ***Journal of Financial Economics***, 1 (4): 303-335.

Marciukaityte, D., and Varma, R. 2007. Institutional investors as suppliers of equity-linked capital: Evidence from privately placed convertible debt. ***Journal of Business Research***, 60 (4): 357-364.

McLaughlin, R., Safieddine, A., and Vasudevan, G. K. 1998. The long-run performance of convertible debt issuers. ***Journal of Financial Research***, 21 (4): 373-388.

Mikkelson, W. H., and Partch, M. M. 1986. Valuation effects of security offerings and the issuance process. ***Journal of Financial Economics***, 15 (1-2): 31-60.

Mitchell, M. L., and Stafford, E. 2000. Managerial decisions and long-term stock price performance. ***The Journal of Business***, 73 (3): 287-329.

Odean, T. 1998. Are investors reluctant to realize their losses? ***The Journal of Finance***, 53 (5): 1775-1798.

Prowse, S. D. 1997. The economics of private placements: Middle-market corporate finance, life insurance companies, and a credit crunch. ***Economic and Financial Policy Review***, 3: 12-24.

Spiess, D. K., and Affleck-Graves, J. 1999. The long-run performance of stock returns following debt offerings. ***Journal of Financial Economics***, 54 (1): 45-73.

Szewczyk, S. H., and Varma, R. 1991. Raising capital with private placements of debt. ***Journal of Financial Research***, 14 (1): 1-13.

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