IBFR
www.theIBFR.com

INDUSTRY EFFECTS AND CONVERTIBLE BOND SEQUENCE

Devrim Yaman, Western Michigan University

ABSTRACT

In this paper, we study how the announcement returns of convertible bonds change for different issues in a sequence for firms in various sectors of the economy. We show that industrial firms obtain significantly lower returns in later issues of convertible bonds compared to former issues. In fact, the announcement returns for the first issue of these firms in our sample period is insignificant while the returns for later issues are significantly negative. We obtain the same result for industrial firms even after we control for other variables that affect announcement returns of convertible bonds. Our results show that the announcement returns for financial firms and utilities do not present this pattern. The returns for these firms are similar for different convertible bond issues in a sequence.

JEL: G30, G32

KEYWORDS: Convertible Bonds; Sector Analysis; Announcement Returns; Sequence of Issues

INTRODUCTION

P rior studies show that the stock price effects of equity issue announcements change as firms raise capital more often. For example D'Mello et al. (2003) show that for stock price reaction to equity issues become less negative each time firms go to the capital markets. Similarly, Iqbal (2008) finds that the stock price reaction to rights issues increases with later issues in a sequence of offerings. In this study, we analyze whether the stock price reaction changes with each issue for debt offerings as well. We focus on convertible bond offerings since prior literature shows that on average the announcement of convertible bond offerings result in a negative stock price reaction. Hence, the decrease in the stock prices is a major cost for firms issuing convertible bonds. We study a sample of 231 convertible bond offerings made by firms in the industrial, financial, and utilities sectors. All firms in our sample have made at least two offerings during the sample period. We find that the announcement returns of offerings made by industrial firms change dramatically with each additional issue. Our univariate and multivariate results both show that the announcement returns become more negative for the later issues of these firms. This finding is consistent with our hypothesis that each convertible bond offering has information content and signals additional negative information about the issuing firm. Our results show that there is no significant change in the announcement returns of financial firms and utilities. This result indicates that the regulatory requirements in these sectors reduce the information content of securities firms issue. The paper is organized as follows. In section 2, we summarize the prior literature on the announcement returns of convertible bonds and the sequence of security issues. In section 3, we form our hypothesis and in section 4 we present the results of our empirical analysis. In section 5, we conclude our paper.

LITERATURE REVIEW

<u>Announcement Effects of Convertible Bonds</u>

One of the earlier studies on the announcement effects of convertible bond issuance is Dann and Mikkelson (1984). In their paper, Dann and Mikkelson study how convertible bond issue announcements affect shareholder wealth. They show that for the 1970 to 1979 period firms in the US markets obtained significantly negative returns when they announced at the announcement of convertible bond offerings. Dann and Mikkelson test the following three alternative hypotheses that may explain stock price effects of convertible bond issues. First, if the proceeds of the issues are used to refinance existing debt and/or their equity-like component claims have high value, convertible bond issues can be leverage decreasing. Therefore, convertible bond issue announcements can signal unfavorable information. Alternatively, the announcement of new external financing may be conveying unfavorable information about the firm. Another explanation for the negative announcement returns can be that the underpricing of initial issues can lead to a wealth transfer from the current stockholders to the new bondholders. Dann and Mikkelson's empirical analysis does not provide support for these hypotheses.

Eckbo (1986) studies the announcement returns of firms that issue debt and raise their leverage considerably. Eckbo tests three hypotheses. In the "zero impact" hypothesis, insignificant announcement returns are predicted since debt issues represent a pure capital change with which the market value of the issuing firm remains unchanged. The "positive impact hypothesis" argues that leverage increases signal that the management has favorable expectations about the firm's future performance and the firm's capacity to take advantage of debt-related benefits has increased. The "negative impact hypothesis" states that shareholders will react negatively to the debt issue announcement because firms signal unfavorable information about their prospects when they raise external financing. Eckbo finds that the announcement returns for straight bonds are insignificant while there are negative returns to the announcement of convertible bond issues. Mikkelson and Partch (1986) investigate the nature of the information conveyed by security offerings. They find that for completed equity and convertible bond offerings there are positive returns between the issuance and announcement and negative returns at the time of issue. This finding is consistent with their hypothesis that managers have incentives to issue securities when the securities are overpriced. They also find that returns for cancelled offerings are negative between the announcement and the cancellation, and positive at cancellation. More recently, Duca et al. (2012) find that the stock price reaction to convertible bond announcements is negative. In fact, they show that in the sample period the announcement returns become twice as negative in later years compared to earlier years. Studies on non-US firms such as Gillet and de La Bruslerie (2010), Chen et al. (2008), and Ammann et al. (2006) confirm prior findings.

<u>Sequence of Security Issues</u>

D'Mello et al. (2003) study the relationship between the stock price reaction to equity issues and the sequence of these issues. They find that a positive relationship exists between the announcement returns and the sequence of equity offerings for industrial firms. They examine three alternative explanations for this relationship. First, they study the relationship between the extent of information asymmetry between the market participants and the managers of the firm. Second, they examine whether the announcement returns are influenced by the stock and operating performance following the previous equity issue. Third, they test the relationship between the expectations of the investors about the future performance of the firm and the announcement returns. They find the increase in the announcement returns in each sequence is because of the decrease in the information asymmetry about the firm. In his study Iqbal (2008) finds that the market reaction to rights offerings increases in later offerings in a sequence. He shows that this pattern is due to the availability of larger amounts information in later issues. Iqbal also finds that firms

raise equity with shorter intervals between two issues and they raise a larger amount of equity in later issues in the sequence a result of lower information asymmetry.

Sector and Announcement Effects

Janjigian (1987) studies the announcement returns of convertible bonds issued by firms in different sectors. He finds that firms in different sectors obtain different average returns. The announcement returns are lowest for financial firms, followed by transportation firms and industrial firms. The announcement returns are significantly negative for firms from these three sectors but the returns for utilities are higher in magnitude and they are insignificant. Horvitz et al. (1991) study the announcement returns of the bank holding companies. They show that the average announcement return in this sector is insignificant. They state that the capital adequacy requirement of banking regulations for this sector may be resulting in the insignificant returns. This finding indicates that since bank holding companies operate under the regulatory constraints the security offerings have little information content. Hence, when companies in this sector issue securities, investors are less able to infer that these securities are overvalued.

Hypotheses

Hypotheses on Sequence and Announcement Returns

Mikkelson and Dann (1984), Mikkelson and Partch (1986), and Eckbo (1986) argue that convertible bonds signal negative information about the firm. If each convertible bond issue has information content, each issue announcement will signal additional negative information about the firm. As a result, we would observe the announcement returns to latter issues to be more negative than former issues. However, in their study, D'Mello et al. (2003) and Iqbal (2008) suggest the opposite effect. D'Mello et al. (2003) find that there is a positive relation between the announcement returns and sequence of equity issues. Iqbal (2008) argue that the significance of sequence on announcement returns persists in the case of rights issues as well. These two studies suggest that the lower stock price reaction in equity issues is because of the lower information asymmetry about the firms' prospects in the issues that are later in the sequence. Hence, while the former group of studies suggests lower announcement returns for later convertible bond issues, the latter set of studies suggest higher announcement returns.

Hypotheses on Sector Influence

Eckbo et al. (2007) argue that the market reaction to the security offerings of the utilities sector is lower. They argue that utilities have less discretion to time the market in order to take advantage of periods of security overvaluation. Regulation slows the issue approval process or forces the firm to issue securities at certain times, thereby reducing the firm's ability to time the market. Similarly, Masulis and Korwar (1986), Pettway and Radcliffe (1985), and Asquith and Mullins (1986) argue that the investment and financing plans of utilities are made public regularly and therefore the offerings of these firms convey less information compared to firms in the industry sector. Horvitz et al. (1991) argues that the announcement returns of firms in the banking sector could be similar to the returns for utility sector firms. Bank regulation emphasizes capital adequacy and there are regulatory requirements related to the security offerings of these firms. As a whole, these studies imply that the convertible bond issues of firms in the utilities and financial sectors have less information content and therefore should result in less negative announcement returns. Since each issue in will carry low levels of information for firms in these sectors, the announcement returns will not differ for different issues in a sequence. Hence, although we expect the convertible bond announcement returns of industrial firms to change for later issues in a sequence, we do not expect to see this pattern for the case of industrial and utility firms.

DATA AND METHODOLOGY

Our sample consists of 231 completed convertible bond issues made between 1985 and 2011. All offerings are made by public companies and issued in the US markets. All of the firms in the sample have issued convertible bonds multiple times (at least twice) during the sample period. We obtain our initial sample from Thomson Financial's Securities Data Corporation (SDC) Database. The issue-related variables we use in our analysis are also obtained from this database. We obtain our annual firm-specific variables from COMPUSTAT and stock returns from CRSP. Table 1 shows the percentage of issues offered during each year of the sample period by the firms in the industrial, financial, and utilities sectors. We classify firms with two-digit SIC codes of 49 as utilities, those with one-digit SIC code of 6 as financial firms, and all other firms as industrial firms. The highest percentage of issues by industrial firms was made in years 1986 and 1992. There were no issues made by industrial firms in years 1985, 2004, 2005, 2010, and 2011. The largest percentage of issues for financial firms was in 1986 and for utilities in 1999. The issues were distributed about evenly between the first and second halves of the sample period. About 54% of the issues made by industrial firms were in the first half of the issues while 55 % of the issues were made by financial firms, and 52 % of the issues of utilities were made during the same period.

Table 1: Annual Distribution of Sample Issues

Years	Industrials (%)	Financials (%)	Utilities (%)
1985	0.00	0.00	0.00
1986	10.53	20.00	4.76
1987	9.47	0.00	9.52
1988	4.74	0.00	0.00
1989	3.68	5.00	4.76
1990	5.26	0.00	4.76
1991	6.84	0.00	9.52
1992	10.53	5.00	9.52
1993	10.00	10.00	0.00
1994	3.68	0.00	0.00
1995	0.53	10.00	4.76
1996	6.32	5.00	0.00
1997	2.11	0.00	4.76
1998	3.68	0.00	4.76
1999	6.32	10.00	14.29
2000	4.74	10.00	0.00
2001	3.16	5.00	4.76
2002	0.53	10.00	4.76
2003	1.58	5.00	4.76
2004	0.00	0.00	4.76
2005	0.00	0.00	0.00
2006	0.53	0.00	0.00
2007	0.53	0.00	0.00
2008	1.05	0.00	0.00
2009	4.21	5.00	9.52
2010	0.00	0.00	0.00
2011	0.00	0.00	0.00

This table presents the annual percentage distribution of the convertible bond issues in the sample. The sample consists of completed convertible bond issues made between 1985 and 2011 by public companies trading in US markets. All firms in the sample have issued convertible bonds multiple times during the sample period. Financial firms are those firms that have a one-digit SIC code of 6, utility firms are firms with a two-digit SIC code of 49 as utilities, and all other firms are classified as industrial firms. We obtain our sample of convertible bonds from SDC database.

Table 2 shows the characteristics of the issues and firms in our sample. In this Table, we measure market value of equity as the price multiplied by the number of common shares outstanding. The average market value of equity for industrial firms is about $ 3.8 billion while the median is $ 1.7 billion. Financial firms are comparable in size with also about $ 3.8 billion in average market value while utilities are larger with an average market value of $ 4.4 billion. In Table 2, we define market-to-book ratio as the price multiplied by the company's common shares outstanding, divided by common equity. The average market-to-book ratio for industrial firms and utilities is about 3 while the median ratio is about 2.3 for

both sectors. The market-to-book ratio is lower for financial firms with an average and median value of about 1.

Table 2: Descriptive Statistics on Sample Issues

Variable		Industrials	Financials	Utilities
Market Value of Equity		3797.0	3817.5	4380.5
		(1683.1)	(509.40)	(2292.8)
Market-to-Book Ratio		2.9267	1.0171	3.0008
		(2.3130)	(0.9500)	(2.3015)
ROA		2.6409	-0.1100	3.0749
		(4.3655)	(0.4260)	(3.2545)
NPM		2.6226	0.3715	9.7059
		(3.5020)	(3.1225)	(10.131)
Proceeds		265.37	396.20	170.99
		(137.50)	(97.813)	(115.00)
Maturity		16.184	16.119	14.291
		(15.240)	(20.290)	(15.200)
Yield		6.0519	7.0769	8.3155
		(6.0000)	(7.2500)	(6.6300)
Use of Proceeds	1. Investment and acquisitions	2.63	5.00	9.52
	2. General corporate purpose	61.05	55.00	52.38
	4.Debt refinancing/ retirement	29.47	25.00	38.10
	3. Other	6.84	15.00	0.00

This table presents the characteristics of the sample firms and issues. The sample consists of completed convertible bond issues made between 1985 and 2011 by public companies trading in US markets. All firms in the sample have issued convertible bonds multiple times during the sample period. Financial firms are those firms that have a one-digit SIC code of 6, utility firms are firms with a two-digit SIC code of 49 as utilities, and all other firms are classified as industrial firms. We obtain our sample of convertible bonds from SDC database. Market value of equity is the price multiplied by the number of common shares outstanding. Market-to-book ratio is the price multiplied by the company's common shares outstanding, divided by common equity. Return on assets is the income before extraordinary items divided by total assets. Net profit margin is the income before extraordinary items, divided by net sales. Proceeds is the total dollar amount raised from the issue and is measured in millions of dollars. Maturity is the number of years until the stated maturity of the bonds. Yield is the yield to maturity of the bonds. Use of proceeds is the purpose the firms stated for the offering and indicates the percentage of issues with a particular use. All firm-specific variables are measured at the end of the fiscal year before the offering and are obtained from Compustat. Issue-specific variables are obtained from the SDC database.

In Table 2, we measure the return on assets as the income before extraordinary items divided by total assets. The average return on assets was about 2.6 for industrial firms and 3.1 for utilities. Financial firms had lower return on assets; the average was -0.1 and the median 0.5. In this Table, we define the net profit margin as the income before extraordinary items divided by net sales. The net profit margin was highest for utilities with an average value of 9.7% and lowest for financial firms with 0.4%. The average net profit margin was 2.6 % for industrial firms while their median value was 3.5. The average amount of proceeds from the convertible bond issue for financial firms was about $ 396 million and this was the largest value among the three sectors. The average proceeds was $ 265 million for industrial firms and $ 171 million for utilities. The average maturity was about 16 years for both industrial firms and financial firms. The average maturity was shorter for utilities with 14 years. The average yield to maturity was highest for utilities with a value of 8.3 % while the average yield was 6.1 % for industrial firms and 7.1% for financial firms. Table 2 also shows how the firms in our sample planned to spend the proceeds from the convertible bond issue. The most popular use of the proceeds was general corporate purposes for all three sectors and more than half of the firms in each sector stated this purpose for their issues. The second most popular choice was debt refinancing and retirement. Also, 2.6 % of industrial firms, 5 % of financial firms, and 9.5 % of utility firms list investments and acquisitions as the purpose of their proceeds.

RESULTS

Univariate Analysis of Sequence and Announcements Returns

Tables 3, 4, and 5 show the median and mean announcement returns for issues in each sequence for firms in the three sectors we study. In these Tables, we define stock returns as abnormal returns obtained from the market model where the CRSP value-weighted return is used to proxy for the market return. Beta is estimated over 240 days ending 11 days before the date of the filing. We estimate the announcement period returns around the filing dates as opposed to the announcement dates in the Wall Street Journal (WSJ) because since 1985 the WSJ reporting of security announcements is infrequent and using these announcements results in major data loss. Table 3 shows our analysis for the industrial firms. The results show that in the three-day window surrounding the announcement period, on average industrial firms lose about 2% of their value. Both the mean and median overall announcement returns were significantly negative for all of the five periods we studied. However, when we study only the first issues of the industrial firms, we find that the announcement returns were insignificant for all five periods. On the other hand, both the mean and median announcement returns for second and later issues are significantly negative. On average firms lose about 2.8% of their market value in these later issues. We also study the difference between the announcement returns of first issues and later issues made by industrial firms in our sample. The results in Table 3 show that both the mean and median announcement returns were lower for later issues in the sequence compared to the first issue. We show the results of the statistical tests comparing the announcement returns of issues in different sequences in the last column of Table 3. We find that the difference in both the means and medians were significant for the first and the later issues for industrial firms in four out of the five announcement periods we study. Hence, our univariate analysis presented in Table 3 show that for industrial firms the announcement returns become more negative compared to initial offerings in a sequence. This finding is consistent with the arguments of Dann and Mikkelson (1984), Mikkelson and Partch (1986), and Eckbo (1986) and our hypothesis that each convertible bond offering signals additional unfavorable information about the firm, resulting in more negative announcement returns.

Table 3: Univariate Analysis of Announcement Returns for Different Sequences of Industrial Firms

Announcement Period	All	First Issues	2nd And Later Issues	Difference of First and 2+ Issues
(-5,+5)	-0.0245[***]	-0.0067	-0.0380[***]	2.15[**]
	(-0.0196)[***]	(-0.0022)	(-0.0282)[***]	(2.1361)[**]
(-3,+3)	-0.0233[***]	-0.0091	-0.0341[***]	2.26[**]
	(-0.0216)[***]	(-0.0130)	(-0.0288)[***]	(2.1361)[**]
(-1,+1)	-0.0194[***]	-0.0074	-0.0285[***]	2.75[***]
	(-0.0169)[***]	(-0.0073)	(-0.0248)[***]	(3.9121)[***]
(-1,0)	-0.0103[***]	-0.0021	-0.0165[***]	2.04[**]
	(-0.0074)[**]	(0.0008)	(-0.0130)[***]	(1.8401)[*]
(0,+1)	-0.0065[**]	-0.0028	-0.0093[**]	1.07
	(-0.0051)[*]	(-0.0034)	(-0.0086)[**]	(1.2480)

*This table presents the results of the univariate analysis of announcement returns of industrial firms for different issues in the sequence. The sample consists of completed convertible bond issues made between 1985 and 2011 by public companies trading in US markets. All firms in the sample have issued convertible bonds multiple times during the sample period. Financial firms are the sample firms excluding those with one-digit SIC code of 6 (financial firms) and two-digit SIC code of 49 (utilities). We obtain our sample of convertible bonds from SDC database. Abnormal returns are calculated using the market model, beta is estimated using CRSP value-weighted index over 240 days ending 11 days before day 0, the convertible bond issue announcement date. Stock returns are obtained from CRSP. Mean abnormal returns are in the first row in each cell and the median abnormal returns are in the second row. We use t-test to test the significance of the means and sign rank test for the medians. The numbers in "Difference" columns represent p-values of t-tests in the first row and z values of median scores test for the differences in means and medians respectively for the first issues from those of the second and later issues in our sample. ***, **, and * denote significance at 1, 5 and 10 percent levels respectively.*

In Table 4, we present the results of our univariate analysis of the announcement returns of financial firms. We find that both the mean and median announcement period returns for the whole sample of financial firms are negative for all announcement return periods that we analyze. However, the returns are not significant at the conventional levels. The announcement period returns are also insignificant for the first issues of financial firms. For the second and later issues only the median announcement returns for the period (0,+1) is significantly negative. For all other periods, the returns are negative but insignificant. In Table 4, we do not find a significant difference in the announcement returns of the first issue compared to the returns of the later issues. Table 5 shows our univariate results for utilities. The mean and median of the overall announcement returns are negative for all event periods that we study and these returns are significant in most cases. The announcement returns are negative and significant for most of the event windows for the first issues of utilities as well.

Table 4: Univariate Analysis of Announcement Returns for Different Sequences of Financial Firms

Announcement Period	All	First Issues	2nd And Later Issues	Difference of First and 2+ Issues
(-5,+5)	-0.0034	0.01054	-0.0142	0.44
	(-0.0073)	(0.00328)	(-0.0094)	(0.4880)
(-3,+3)	-0.0306	-0.0120	-0.0451	0.99
	(-0.0024)	(-0.0008)	(-0.0039)	(0.4880)
(-1,+1)	-0.0352	-0.0194	-0.0476	0.71
	(-0.0110)	(-0.0100)	(-0.0121)	(0.4880)
(-1,0)	-0.0318	-0.0117	-0.0475	1.00
	(-0.0041)	(0.0050)	(-0.0053)	(0.4880)
(0,+1)	-0.0217	-0.0044	-0.0351	1.37
	(-0.0053)	(0.0071)	(-0.0053)*	(0.5216)

This table presents the results of the univariate analysis of announcement returns of financial firms for different issues in the sequence. The sample consists of completed convertible bond issues made between 1985 and 2011 by public companies trading in US markets. All firms in the sample have issued convertible bonds multiple times during the sample period. Financial firms are those firms that have a one-digit SIC code of 6. We obtain our sample of convertible bonds from SDC database. Abnormal returns are calculated using the market model, beta is estimated using CRSP value-weighted index over 240 days ending 11 days before day 0, the convertible bond issue announcement date. Stock returns are obtained from CRSP. Mean abnormal returns are in the first row in each cell and the median abnormal returns are in the second row. We use t-test to test the significance of the means and sign rank test for the medians. The numbers in "Difference" columns represent p-values of t-tests in the first row and z values of median scores test for the differences in means and medians respectively for the first issues from those of the second and later issues in our sample. ***, **, and * denote significance at 1, 5 and 10 percent levels respectively.

Table 5: Univariate Analysis of Announcement Returns for Different Sequences of Utility Firms

Announcement Period	All	First Issues	2nd And Later Issues	Difference of First and 2+ Issues
(-5,+5)	-0.0151	-0.0272	-0.0042	-0.66
	(-0.0373)	(-0.0464)	(-0.0116)	(-0.6505)
(-3,+3)	-0.0311**	-0.0420*	-0.0211	-0.76
	(-0.0445)**	(-0.0554)*	(-0.0178)	(-0.6505)
(-1,+1)	-0.0201	-0.0190	-0.0212	0.07
	(-0.0282)**	(-0.0290)*	(-0.0272)	(-0.6505)
(-1,0)	-0.0155*	-0.0141	-0.0169*	0.17
	(-0.0182)**	(-0.0201)*	(-0.0182)	(-0.2351)
(0,+1)	-0.0053	-0.0056	-0.0050	-0.04
	(-0.0087)*	(-0.0091)*	(-0.0053)	(-0.6505)

This table presents the results of the univariate analysis of announcement returns of utility firms for different issues in the sequence. The sample consists of completed convertible bond issues made between 1985 and 2011 by public companies trading in US markets. All firms in the sample have issued convertible bonds multiple times during the sample period. Financial firms are those firms that have a two-digit SIC code of 49. We obtain our sample of convertible bonds from SDC database. Abnormal returns are calculated using the market model, beta is estimated using CRSP value-weighted index over 240 days ending 11 days before day 0, the convertible bond issue announcement date. Stock returns are obtained from CRSP. Mean abnormal returns are in the first row in each cell and the median abnormal returns are in the second row. We use t-test to test the significance of the means and sign rank test for the medians. The numbers in "Difference" columns represent p-values of t-tests in the first row and z values of median scores test for the differences in means and medians respectively for the first issues from those of the second and later issues in our sample. ***, **, and * denote significance at 1, 5 and 10 percent levels respectively.

For the second and later issues, the returns continue to be negative but are mostly insignificant. Table 5 shows that the first issues results in more negative returns compared to later issues. However, the difference between the returns of the first issue and later issues is statistically insignificant for all event windows we are studying.

The results in Tables 3-5 show that there is strong evidence that later issues in a sequence of convertible bonds result in more negative returns. However, these results are confined to industrial firms. The announcement returns of financial firms and utilities do not change significantly for different convertible bond issues in a sequence. These results are consistent with Masulis and Korwar (1986), Pettway and Radcliffe (1985), and Asquith and Mullins (1986) and Horvitz et al. (1991) who argue that the regulatory requirements of the financial and utility firms result in lower levels of information content of the security issues of these firms. In the next section we perform multivariate analysis on our industrial sector sub-sample in order to further explore the change in the announcement returns for later issues.

Multivariate Analysis of Sequence and Announcement Returns

It is possible that the sequence and announcement return relationship we identified for industrial firms in our univariate analysis is caused by other factors. Hence, in this section we use ordinary least squares (OLS) regressions to control for other factors that may affect the announcement returns of convertible bonds. Prior literature suggests that the following factors may influence the announcement returns: Information asymmetry: Majluf and Myers (1984) argue that when there is more information asymmetry between insiders and outside investors, the adverse selection costs of external security issues increase. As a result, we expect firms that have high information asymmetry to have lower announcement returns. As in D'Mello et al. (2003), we use the size of the firm as a proxy for the level of information asymmetry. Large firms are more likely to be followed by analysts and the popular press and as a result have more information available to the public. Hence, on average, small firms have more information asymmetry.

Issue size: Miller and Rock (1985) argue that external financing shows that the actual earnings of the firm are below the expected earnings. Consequently, the size of the issue should have a negative impact on the stock price reaction to debt financing. We measure the issue size as the proceeds of the issue divided by the total assets of the firm.

Underwriter fees: The fees for the underwriting services can be a major cost of issuing securities. Higher underwriter fees should result in lower announcement returns since high issue costs are detrimental for shareholders. We measure underwriter fees in proportion to the proceeds from the convertible bond issue.

Bond risk: Myers (1984) and Myers and Majluf (1984) show that riskier securities are more sensitive to firm value changes. Hence, the stock price reaction to the issuance of riskier securities should result in lower announcement returns. We proxy the riskiness of the convertible bonds with a dummy variable that takes the value of 1 for issues rated investment grade by Moody's and zero otherwise.

Stock exchange: D'Mello et al. (2003) argue that the exchange listing of the firm can affect the investor response to corporate announcements. We control for this effect with a dummy variable that takes a value of one if firms are listed on the AMEX or the NYSE, and zero otherwise.

Growth opportunities: Jensen and Meckling (1976) show that levered firms are prone to the risk-shifting problem because of shareholders' limited liability. Shareholders of levered firms have an incentive to take risky projects due to the unlimited upside but bounded downside of potential of future cash flows. Barclay and Smith (1995) argue that investment opportunities of firms can be seen as options whose values depend on their exercise in an optimal fashion. As a result, the risk-shifting problem is higher for firms with higher growth opportunities due to the greater conflict between the bondholders and shareholders of

these firms over the exercise of the option. These arguments suggest that firms with high growth opportunities should obtain more negative announcement returns when they issue convertible bonds. Growth opportunities are measured with the market-to-book ratio.

Financial Distress: Andrade and Kaplan (1998) indicate that the most important reason for financial distress is high leverage. To the extent that firm value is reduced as the probability of financial distress increases, we expect firms that engage in leverage-increasing transactions when they already have high leverage to face unfavorable stock price effects. This argument suggests that when firms with high leverage announce that they will issue bonds, they will obtain lower returns.

Issue period: Bayless and Chaplinsky (1996) and Pilotte and Manuel (1996) show that there has been a decrease in the stock price reactions to corporate announcements over time. We control this announcement time period effect using a dummy variable that has the value of one for bond issue filings in the first half of the sample period and zero for issues later in the sample period.

Use of proceeds: Mikkelson and Partch (1986) show that how the firm intends to use the proceeds of the debt issue is a significant determinant of the announcement period returns. They show that the announcement returns are higher for firms that use the proceeds to finance investment expenditures. We measure the use of proceeds with a dummy variable that takes the value of one for issues used for investments and zero otherwise.

Operating Performance: Bae et al. (2002) show that the announcement returns of convertible bond issues are higher when the operating performance of the issuing firm is better. We measure the operating performance of a firm with sales growth defined as the change in the dollar sales volume over sales in the year prior to the issue. We expect firms in our sample with higher operating performance to have higher announcement returns. Table 6 shows our OLS regression results controlling for the factors we have identified above. The following model is used in our regression analysis:

CAR = a + b*Sequence + c*Assets + d*(Issue Size) + e*(Underwriter Fee) + f*Rating + g*Exchange + h*(Market-to-Book) + i*(Debt Ratio) + j*Year + k*(Proceed Use) + l*(Sales Growth) (1)

In these regressions, the dependent variable is the abnormal stock returns for the period (-3,+3). In this Table "sequence" is a dummy variable that takes the value of 0 for the first issue and 1 for the second and later issues of our sample firms during the sample period. Other variables are defined above. Parallel to our results from the univariate analysis, we find that the coefficient of the sequence dummy is negative and significant in all five regressions. This finding indicates that later convertible bonds in a sequence of issues made by industrial firms result in more negative announcement returns compared to earlier issues. This result is consistent with our hypothesis that each convertible bond issue has information content and signal additional negative information about the firm. In the regressions in Table 6, the coefficient of total assets is significantly positive. This indicates that, consistent with our hypothesis, firms with lower information asymmetry (larger firms) obtain higher announcement returns when they issue convertible bonds. Contrary to our expectations, the coefficient of the underwriter fee variable is positive. Other variables do not have significant coefficients in our regressions.

Table 6: Regression Analysis of Announcement Returns of Industrial Firms and Sequence

Variable	Regression 1	Regression 2	Regression 3	Regression 4	Regression 5
Intercept	-0.0091	-0.1786	-0.1797	-0.1735	-0.1764
	(-1.09)	(-1.83)	(-1.87)	(-1.81)	(-1.83)
Sequence	-0.02500**	-0.0771***	-0.0773***	-0.0744***	-0.0783***
	(-2.25)	(-3.17)	(-3.23)	(-3.11)	(-3.30)
Assets		0.0235*	0.0240*	0.0243* (1.96)	0.0241* (1.97)
		(1.87)	(1.99)		
Issue Size		0.0025	0.0025	0.0022	0.0022
		(0.60)	(0.62)	(0.55)	(0.56)
Underwriter Fee		0.1356**	0.1329**	0.1407**	0.1393**
		(2.03)	(2.08)	(2.22)	(2.15)
Rating		0.0047		0.0063	0.0040
		(0.15)		(0.22)	(0.13)
Exchange		-0.0401	-0.0389	-0.0359	-0.0387
		(-1.51)	(-1.55)	(-1.39)	(-1.50)
Market-to-Book		0.0031	0.0032		0.0025
		(0.59)	(0.65)		(0.53)
Debt Ratio		0.0002	0.0002	-0.0001	
		(0.29)	(0.28)	(-0.13)	
Year		0.0546	0.0552	0.0536	0.0550
		(1.63)	(1.67)	(1.62)	(1.66)
Proceed Use		-0.1129	-0.1099	-0.1041	-0.1120
		(-1.29)	(-1.30)	(-1.22)	(-1.29)
Sales Growth		0.0002	0.0002	0.0003	0.0002
		(0.82)	(0.82)	(1.05)	(0.89)
N	184	51	51	52	51
Adj-R^2	0.0216	0.2099	0.2287	0.2150	0.2275
F-Value	5.06**	2.23**	2.51**	2.42**	2.50**

*This table presents the results of the regression analysis of different issues in a sequence of issues made by our sample of industrial firms. The sample consists of completed convertible bond issues made between 1985 and 2011 by public companies trading in US markets. All firms in the sample have issued convertible bonds multiple times during the sample period. Financial firms are those firms that have a two-digit SIC code of 49. We obtain our sample of convertible bonds from SDC database. The dependent variable is the announcement period returns for the period (-3,+3) where day 0 is the announcement day. Abnormal returns are calculated using the market model, beta is estimated using CRSP value-weighted index over 240 days ending 11 days before day 0, the convertible bond issue announcement date. Stock returns are obtained from CRSP. Sequence is a dummy variable that takes the value of 1 for second and latter issues and zero for the first issue. Assets is the natural logarithm of the total book value of assets. Issue size is the total proceeds divided by the book value of total assets time 100. Underwriter Fee is the underwriter fees as a percentage of total proceeds. Rating is a dummy variable that takes the value of one for bonds rated investment grade and above by Moody's and zero otherwise. Exchange is a dummy variable that takes the value of one for issuers listed in NYSE Amex and zero otherwise. Market-to-Book is the price multiplied by the company's common shares outstanding, divided by common equity. Debt Ratio is the sum of long-term debt and debt in current liabilities, divided by the book value of total assets. Year is a dummy variable that takes the value of one for offerings made in 1997 and before and zero for later issues. Proceed Use is a dummy variable that takes the value of one for issues with the use of the proceeds stated as investment and acquisitions and zero otherwise. Sales Growth is the percentage change in sales since the previous year. The t-statistics are in parentheses. ***,**, and * denote significance at 1, 5 and 10 percent levels respectively.*

CONCLUDING COMMENTS

In this paper, we study the announcement returns of convertible bond issues in a sequence of issues for the industrial firms, financial firms, and utilities. Our sample consists of 231 completed convertible bond issues made between 1985 and 2011 in the US markets. All convertible bond issues are made by public companies and all firms in our sample have issued convertible bonds at least twice during the sample period. Our univariate analysis results show that the announcement returns of industrial firms become more negative with each issue in a sequence of convertible bond issues. This result persists even after we control for other factors that may affect announcement returns in regression analysis. This finding is consistent with our hypothesis that each issue of a firm conveys additional unfavorable information to financial markets, resulting in more negative returns in later issues. We do not find a sequence effect for financial firms and utilities whish shows that the regulatory requirements in these sectors reduce the information content of the security issues. A of the limitation of this study is that it uses only US firms and markets. Future research should study the convertible bond sequence issue for different sectors using

data on international firms and markets. The results of these studies should be compared to the US results presented in this paper.

REFERENCES

Ammann, M., M. Fehr, and R. Seiz (2006) "New Evidence on the Announcement Effect of Convertible and Exchangeable Bonds," Journal of Multinational Financial Management, vol. 16 (1), p. 43-63.

Andrade G. and S.N. Kaplan (1998) "How Costly is Financial (Not Economic) Distress? Evidence from Highly Leveraged Transactions that Became Distressed," Journal of Finance, vol. 53 (5), p. 1443– 493.

Asquith, P. and D. W. Mullins (1991) "Convertible Debt: Corporate Call Policy and Voluntary Conversion," Journal of Finance, vol.46 (4), p. 1273-1289.

Bae, G. S., J. Jeong, H. Sun, and A.P. Tang (2002) "Stock Return and Operating Performance of Securities Issuers," Journal of Financial Research, vol. 25 (3), p. 337-352.

Barclay, M. and C. Smith (1995) "The Maturity Structure of Corporate Debt," Journal of Finance, vol. 50 (2), p. 609–631.

Bayless, M. and S. Chaplinsky (1996) "Is there a Window of Opportunity for Seasoned Equity Issuance?" Journal of Finance, vol. 51 (1), p. 253–278.

Chen, C., F. Hung, D. Chen, H. Lin (2008) "The Motivations of Issuing Convertible Bonds – An Inquiry Regarding the Sequential Financing Hypothesis," Journal of Economics and Management, vol. 4 (2), p. 229-250.

Dann, L., and W. Mikkelson (1984) "Convertible Debt Issuance, Capital Structure Change and Financing-Related Information," Journal of Financial Economics, vol. 13 (2), p. 157-186.

D'Mello, R., O. Tawatnuntachai, and D. Yaman (2003) "Does the Sequence of Seasoned Equity Offerings Matter?" Financial Management, vol. 32 (4), p. 59-86.

Duca, E., M. Dutordoir, C. Veld, and P. Verwijmeren (2012) "Why are Convertible Bond Announcements Associated with Increasingly Negative Issuer Stock Returns? An Arbitrage-based Explanation," Journal of Banking and Finance, vol. 36 (11), p. 2884-2899.

Eckbo, B.E. (1986) "Valuation Effects of Corporate Debt Offerings," Journal of Financial Economics, vol. 15 (1), p. 119-151.

Eckbo, B. E., R.W. Masulis, and Ø. Norli (2007) Security Offerings: A Survey. In: Eckbo, B.E. ed. *Handbook of Corporate Finance: Empirical Corporate Finance*. Elsevier/North-Holland.

Gillet, R. and H. de La Bruslerie (2010) "The Consequences of Issuing Convertible Bonds: Dilution and/or Financial Restructuring?" European Financial Management, vol. 16 (4), p. 552-584.

Horvitz, P.M., I. Lee, and K. L. Robertson (1991) "Valuation Effects of New Securities Issuance by Bank Holding Companies: New Evidence," Financial Review, vol. 26 (1), p. 91-104.

Iqbal, A. (2008) "The Importance of the Sequence in UK Rights Issues," Journal of Business Finance and Accounting, vol. 35 (1), p. 150-176.

Janjigian, V. (1987) "The Leverage Consequences of Convertible Debt Financing," Financial Management, vol. 16 (Fall), p. 15-21.

Jensen, M. and W. Meckling (1976) "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure," Journal of Financial Economics, vol. 3 (4), p. 305–360.

Korwar, A. N. and R.W. Masulis (1986) "Seasoned Equity Offerings: An Empirical Investigation," Journal of Financial Economics, vol. 15 (1), p. 91-118.

Mikkelson, W., and M. Partch (1986) "Valuation Effects of Security Offerings and the Issuance Process," Journal of Financial Economics, vol. 15 (1), p. 31-60.

Miller, M. H. and K. Rock (1985) "Dividend Policy Under Asymmetric Information," Journal of Finance, vol. 40 (4), p. 1031-1051.

Myers, S. (1984) "The Capital Structure Puzzle," Journal of Finance, vol. 39 (3), p. 575-592.

Myers, S., and N.S. Majluf (1984) "Corporate Financing and Investment Decisions when Firms Have Information that Investors do not Have," Journal of Financial Economics, vol. 13 (2), p. 187–221.

Pettway, R. H. and R.C. Radcliffe (1985) "Impacts of New Equity Sales upon Electric Utility Share Prices," Financial Management, vol. 14 (1), p. 16-25.

Pilotte, E. and T. Manuel (1996) "The Market's Response to Recurring Events. The Case of Stock Splits," Journal of Financial Economics, vol. 41 (1), p. 111 – 127.

ACKNOWLEDGEMENT

BIOGRAPHY

Dr. Devrim Yaman is the Associate Dean of Undergraduate Programs and the Robert Bobb Professor of Finance at the Haworth College of Business of Western Michigan University. She has conducted research in a variety of topics including debt and equity issues, earnings warnings, and corporate takeovers. Her research has been published in the Journal of Banking and Finance, Financial Management, Financial Review, and the Quarterly Review of Economics and Finance. She has also presented her research at several national and international conferences. She teaches corporate finance, computer applications in finance, and investments courses. Dr. Yaman is a CFA charterholder and has worked as a financial analyst.