Convertible Bond Issues and Institutional Investors

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ABSTRACT

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We examine the influence of institutional investors on the issuance of convertible bonds using a sample of convertible bonds offered between 1995 and 2014 in the US market. We use delta of the convertible bond, the sensitivity of convertible bond value to the underlying stock price, to categorize the convertible bonds into equity-like or debt-like. Based on an extended pecking order theory of Myers and Majluf (1984), equity-like convertible bonds are issued by firms that suffer less information asymmetry problems and debt-like convertible bonds are issued by firms that suffer less agency cost problems. We find that institutional ownership is positively related with delta. A detailed analysis of testing the relation of different horizons of institutions on delta reveals that dedicated and transient institutions are positively related to delta and are effective in mitigating the asymmetric information problem. Quasi-indexer institutions, on the other hand, have more impact on alleviating the agency cost problem. Institutions with investment style of growth also are positively related with delta, while value-oriented institutions are negatively related with delta, a lower probability of conversion into equity. The results are consistent with the common view that firms with more growth potential tend to issue more equity-like convertible bonds to mitigate the underinvestment problem and avoid the debt overhang problem (Myers, 1977). We also document that stockholders' reactions to convertible debt announcements are more negative with a higher institutional investor participation.

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TABLE OF CONTENTS

APPENDIX

1. Introduction

Convertible bonds are hybrid securities that combine features of straight debt and equity. They pay a fixed coupon rate like straight debt, and they also include a warrant with the opportunity to convert into equity as an alternative for receiving the nominal value in cash on the redemption date. In recent decades, convertible bonds have become an important source of financing for corporations. For example, the total value of convertible bonds issued by US corporations comprised 10% of total securities issuance over the past 30 years.[1]

An extensive body of empirical research[2] on convertible bond issues examines the motives for issuing convertible bonds. However, to our knowledge, we have not seen any to study the impact of institutional investors on convertible bond issuance.

Institutions are arguably the most important and powerful class of investors. Their average equity ownership in US firms has increased eight-fold over the past thirty years, and by the end of 2009 they held 70% of the aggregate US market cap. For both large and small firms, institutions are now the majority investor group (Michaely and Vincent, 2012).

In this paper, we examine how institutional investors affect firms' choice of convertible bond issuance. The literature on convertible debt issuance suggests that convertibles can mitigate agency costs (Green, 1984; Isagawa, 2000; Lyandres and Zhdanov, 2014; Mayers, 1998) and adverse selection costs resulting from asymmetric information about firm value or risk (Brennan and Kraus, 1987; Brennan and Schwartz, 1988; Stein, 1992).

The institutional investor literature suggests that institutional investors can reduce agency costs (Gaspar et al., 2005;Ljungqvist et al., 2007; Grinstein and Michaely, 2005; Hartzell and Starks, 2003; Huson et al., 2001; Gillan and Starks, 2000), and mitigate adverse selection problems (Guercio, 1996; Sias, 2004; Bushee and Goodman, 2007).

[1] We obtain the data from Duca et al., 2012. That is 10% of the total amount of convertible debt, seasoned equity, and straight debt issued by US firms (excluding financials and utilities). Source: Securities Data Company New Issues database.

[2] Billingsley and Smith, 1996; Dong et al., 2012; Dorion et al., 2014; Dutordoir and Van de Gucht, 2009; Graham and Harvey, 2001; Lewis et al., 1999.

Following Burlacu (2000) and Dutordoir et al. (2014), we measure the equity component of the convertible bond by computing the delta of the embedded warrant.[3] Delta is the sensitivity of the convertible bond value with respect to the underlying stock value around the announcement date. A higher delta close to 1 indicates that the convertible bond is very sensitive to its underlying common stock and thus has a higher equity component, which means a higher propensity of conversion, and is considered as "equity-like". Conversely, a low delta approaching 0 indicates that the convertible bond turns into a straight bond, and considered as "debt-like".

Myers and Majluf (1984) argue that when raising external financing, firms under information asymmetry would first issue debt and then equity, because debt securities are less information sensitive than equity, and so are associated with lower adverse selection costs. Extending this argument to include convertible bonds, firms will issue equity-like convertibles if the adverse selection cost is low. Firms that issue debt-like convertible bonds would suffer more information asymmetry costs; however, as convertible bonds can reduce agency problems, convertible bonds will be more debt-like if agency cost is low.

With respect to institutional investors, prior literature shows that the presence of institutional investor can mitigate both agency costs and adverse selection costs; however, these two effects are not mutually exclusive. A positive relation between institutional ownership and delta implies that the institutional ownership would have more impact on reducing adverse selection costs compared to mitigating agency costs. On the other hand, if a negative impact of institutional ownership is observed, the institutional ownership would have more impact on reducing agency costs cost than reducing adverse selection costs.

Because not all institutional investors have the same investment objectives or philosophy, understanding the heterogeneous preferences of institutional investors is important when studying the financing choice of firms. We use two types of scheme to classify institutions into different categories. First, following Bushee (1998, 2001), we classify institutions based on their past investment behavior and investment horizon, into dedicated, transient and quasi-indexer

[3] Delta is calculated under the assumptions of the Black-Scholes option pricing model and by utilizing the pricing equation in Merton (1973) for the call option of a firm that provides a continuous dividend yield. The formula to calculate delta is elaborated in Section 3.

institutions. Dedicated institutions are characterized by high stockholding concentration in portfolio firms and extremely low turnover, consistent with a "relation investing" role and a commitment to provide long-term patient capital (Porter 1992). Quasi-indexers are also characterized by low turnover, consistent with a passive, buy-and-hold strategy of investing portfolio funds in a broad set of firms (Porter 1992). Transient institutions are characterized as having high portfolio turnover and highly diversified portfolio holdings. This type of institutions tends to be short-term oriented with interest in the firm's stock based on the likelihood of short-term trading profits. The second scheme is based on Bushee and Goodman (2007). They use factor analysis and cluster analysis to classify institutions into value, growth, and growth and income oriented, based on institutions' preference for growth or value firms.

We investigate two questions. First, we examine whether, and to what extent, institutional holdings and institutional holdings concentration are determinants of delta of convertible debt issuances. We include a range of firm-specific and macroeconomic variables in our analysis to control for other factors that can impact the structure of the convertible instrument. We also examine the relation of different types of institutions holdings with delta of convertible bonds issued. Institutional ownership is measured as of one year prior to the announcement of convertible bonds in our analyses. Second, we examine whether, and to what extent, institutional holdings and institutional concentration are determinants of abnormal return around the announcement of convertible debt issuances. Further, we examine the relation of different types of institutions holdings on the price movement associated with the announcements of convertible debt issuances. Following Dutordoir et al. (2014), our focus on incremental security issues allows us to conduct the analysis with independent variables measured prior to security offering announcement dates, which has the advantage of mitigating endogeneity problems inherent to many institutional investors studies.

Our main results are as follows: we find that the largest institutional ownership has a significant positive relation with delta. With respect to investment horizons of institutions, we find that dedicated and transient institutional investors ownership are significantly positively related with delta. Quasi-indexer institutional investors are found to have a significantly negative related with delta. A small delta suggests a lower conversion probability and debt-like convertible bonds. The results suggest that dedicated and transient institutions have more impact on mitigating the

asymmetric information problem while quasi-indexer institutional have more impact on alleviating the agency cost problem. With respect to investment style of institutions, we find that growth institution ownership have a significantly positive relation with delta, thus a higher probability of conversion into equity. Value-oriented institution and the middle group, growth and income institutions, have significantly negative impacts on delta, thus more debt-like convertible bonds issues. The results are consistent with the common view that firms with more growth potential tend to issue equity to mitigate underinvestment problem and avoid the debt overhang problem (Myers, 1977).

Consistent with previous research, we find significant negative abnormal returns on the announcement date and the following day. Institutional ownership is negatively related with abnormal returns.[4] Further, with regards to institution categories, we only find that quasi-indexer institutional ownership contribute to the negative abnormal return, while others remain insignificant.

Our paper contributes to the literature on convertible bond issues by providing new insight into convertible bond issues. We find that institutional ownership has a significant relation with convertible bond issues and the impact of institutions with different horizons and investment style differ in signs on the likeness of convertible bond and stock price response to issuance announcement. Our paper also contributes to the literature on institutional investor literature. Earlier studies examining the relation between institutional holdings and capital structure in US public firms have mainly focused on straight debt and equity offerings (Michaely and Vincent, 2012; Chemmanur et al., 2009; Gibson et al., 2004). To our knowledge, our study is the first to empirically test how institutional holding affect the design of convertible bond issues.

The remainder of this paper is organized as follows. Section 2 discusses the relevant literature. Section 3 elaborates our research design and hypothesis development. Section 4 defines the variables used in the analyses. Section 5 describes the data selection process and provides summary statistics. Section 6 presents our empirical results. Section 7 concludes the paper.

[4] The result is consistent with Duca et al. (2012) that a higher institutional investors' participation leads to more short-selling activities of the underlying stock, resulting in a downward price pressure.

2. Literature review

In this section, we review the prior literature about the motivations for convertible bonds issuance, stock price impact of convertible bond announcement, and institutional ownership and monitoring and information environment.

2.1 Theories of convertible debt financing

Unlike straight debt or equity, convertibles offer the issuer considerable flexibility in the design of their offerings. By appropriately setting convertible debt design parameters such as callability, conversion premium, and maturity, issuers can tailor their offering to their desired level of equity-likeness or debt-likeness (Dutordoir et al., 2014). An extensive set of empirical studies has investigated the theoretical rationales for convertible issuance.

Theories of convertible debt issuance are divided into two groups. The first group considers convertible debt issuance as a funding instrument that reduces a variety of agency costs. The risk-shifting model of Green (1984) focuses on potential bondholder-stock holder conflicts of interest, arguing that a convertible bond mitigates shareholder's incentives to engage in high-risk, negative net present value (NPV) projects. The underlying intuition is that shareholders share the profits from high-risk projects with convertible bondholders, which reduces their incentives to invest in such projects in the first place. Green's model implies that firms with greater propensity to shift risk onto bondholders would issue convertibles with more equity component as a commitment to avoid from risk-shifting problem.

Convertible bonds can also mitigate the underinvestment problem outlined in Myers (1977). In firms with relatively large fixed liabilities, since shareholders only receive cash flows that remain after paying off debt liabilities, they only accept projects whose NPV exceed liabilities. As a result, managers will forgo some positive NPV projects. Since bondholders can anticipate this incentive at the time of the issue, the cost of underinvestment will be imposed on shareholders. Myers and Smith (1987) argue that since convertible bonds include a warrant, the fixed income component is smaller in convertible bonds compared with straight bonds. For a given value of debt, the higher the value of the option included in the convertible bond, the lower the fixed income component is, and thus mitigates the underinvestment problem. Firms with a greater potential for the

underinvestment problem would have more incentives to issue convertible bonds with a higher probability of conversion, in other words, a more equity-like convertible.

Mayers (1998) considers convertible bonds as a tool to reduce agency costs between management and shareholders when the firm has a sequence of investment opportunities. His sequential-financing argument suggests that convertible debt can mitigate overinvestment problems by redeeming bonds and returning cash to bondholder if future investment option turns out worthless. If the investment option is valuable, the convertible debt can convert into equity, and thus firms can save on issue costs of short-term debt offerings.

The second group of theories suggest that the convertible bond can alleviate adverse selection costs resulting from asymmetric information between firm insiders and outsiders. Myers and Majluf (1984) argue that when firms raise external financing, firms under information asymmetry would first issue debt, then equity because debt securities are less information sensitive than equity and so are associated with lower adverse selection costs. Extending this argument to include convertible bonds, firms issuing equity-like convertible bonds would suffer less from information asymmetry compared to firms issuing debt-like convertible bonds.

The risk uncertainty rationale of Brennan and Kraus (1987) and Brennan and Schwartz (1988) argues that convertible bonds constitute an ideal financing vehicle for firms subject to high information asymmetry especially about the riskiness of their assets. They show that unlike straight debt or equity, which are both undervalued under information asymmetry, optimally structured convertible bonds are less likely to be undervalued. They demonstrate that convertible bond values are relatively invariant to risk perceptions because the mispricing in the option component offsets the mispricing in the debt component. If the market incorrectly perceives a firm's risk to be higher (lower) than what it truly is, the debt component of the convertibles would be undervalued (overvalued), while the option component will be overvalued (undervalued) since option values are positively related to risk. Therefore, it is easier for managers and outside investors to agree on the value of a convertible bond.

The backdoor-equity financing theory of Stein (1992) builds on the assumption of asymmetric information about firm value rather than firm risk. Under information asymmetry, firms would prefer to issue debt to equity. But for firms with high-expected financial distress costs, debt would be suboptimal since it exacerbates these costs. These firms would therefore prefer convertible debt since the option component of convertibles lowers the fixed income component for these firms. Firms then use callable convertible debt as a way to obtain delayed equity financing. Stein's model implies that for firms with high financial distress costs, the likelihood of convertible bond issuance is increasing in information asymmetry. Also, controlling for financial distress costs, convertibles are likely to be more debt-like as information asymmetry increases in order to mitigate adverse selection costs.

2.2 Short-term stock price impact of convertible bond financing

Consistent with the hybrid debt-equity nature of convertible debt, a number of event studies on the stock returns around convertible debt announcements commonly find that these returns are negative and lie in between straight bond and seasoned equity offering announcement.

Eckbo et al. (2007) report that average convertible bond announcement return found by four event studies of convertible debt is a significantly negative amount of -1.83%, compared with a significant negative return of -2.2% on average obtained by event studies of seasoned equity offerings and a non-significant return of -0.22% on average obtained by event studies of straight bond offerings. Rahim et al. (2014) reports an average abnormal return detected from 35 different event studies of convertible bond announcement effects is -1.14%.

Some studies try to explain the cross-sectional difference in abnormal returns of convertible bond announcement. Ammann et al. (2006), Billingsley and Smith (1996), Burlacu (2000) and Davidson et al. (1995) consistently find that the size of the equity component of an issue having a negative influence on the announcement effect for convertible bonds.

Recent event studies focus on the relation of convertible arbitrageurs as convertible bond investors on the abnormal return of convertible issues. Duca et al. (2012) reports a strong decrease in convertible bond announcement returns. They report an average announcement effect of -4.59%

for convertible announced over the period 2000-2008. Consistent with an arbitrage-based explanation, they find the difference in the announcement returns between this period and the time 1984-1999 when there was less participation of convertible arbitrageurs. After controlling for the measures of the intensity of arbitrage-related short selling, the difference disappears.

2.3 Institutional ownership, monitoring effects and information environment

Institutions can mitigate firm's agency cost problem by engaging in monitoring. Institutional shareholders, by virtue of their large shareholdings, have the incentive to monitor management because they reap greater benefits than smaller investors from monitoring the organization (e.g., Shleifer and Vishny (1986), Maug (1998), and Huson et al. (2001)). Furthermore, Bonner et al. (2003) and Bhojraj et al. (2003) argue that sophisticated institutions with large shareholdings tend to monitor and discipline managers to ensure that the firm's investment strategy is consistent with the objective of maximizing long-term value, rather than meeting short-term earnings goals, and in doing so institutional investors can potentially influence capital structure decisions.

Another set of empirical literature suggests that institutional investors can alleviate asymmetric information problems because they devote substantial resources to information-gathering and trading. The investor protection constraints such as "prudent man" restrictions make fiduciaries collect information about the investee firm and thus lower the risk of being sued. This process leads institutional investors not only to be more informed than individual investors, but also decreases the information gap between outside and inside shareholders, because at least a portion of the information they collect is reflected in their trading patterns (Sias (2004), and Bushee and Goodman (2007)).

3. Research design and hypotheses development

3.1 The structure of convertible debt

A convertible bond can be viewed as a combination of two securities—a straight bond and a European warrant, entitling the holder to purchase an amount of equity upon an exercise payment equal to the principal of the bond. In designing the convertible bond, several features of the convertible bond differ from straight bond and equity, providing flexibility to the issuers.

Following Burlacu (2000) and Dutordoir et al (2014), we measure the equity component of convertible bond by the delta of the embedded warrant. Delta is the sensitivity of the convertible bond value with respect to the underlying stock value around the announcement date. We estimate the delta under the assumptions of the Black-Scholes option pricing model and by utilizing the pricing equation in Merton (1973) for the call option of a firm that provides a continuous dividend yield. Delta is calculated as follows:

$$\text{delta} = e^{-\delta T} N(d_1) = e^{-\delta T} N\left[\frac{\ln(S/X) + (r - \text{div} + (\sigma^2/2))T}{\sigma\sqrt{T}}\right]$$

where δ is the continuously compounded dividend yield for the fiscal year end preceding the announcement date, T is the number of years to maturity, S is the price of the underlying stock measured seven days before the announcement date, X is the conversion price, r is the continuously compounded yield estimated from a 10-year US Treasury bond on announcement date, and σ is the annual stock return volatility and N(.) is the cumulative probability under a standard normal distribution function.

A higher delta close to 1 indicates that the convertible bond is very sensitive to its underlying common stock and thus has a high equity component, which means a higher propensity of conversion, and considered as 'equity-like'. Conversely, a low delta approaching 0 indicates that the convertible bond turns into a straight bond, and considered as 'debt-like'. [5] The advantage of our proxy is that it accurately measures the equity component, by considering variables influencing the debt and equity components of convertible bond.

[5] Lewis (1999) and Lewis (2003) measure the probability of conversion of a convertible bond by the risk-neutralized probability that the bond will be converted into equity. Under the Black-Scholes assumptions, the probability of conversion is measured by N (d_2), where

$$d_2 = \frac{\ln(S/X) + (r - \text{div} - (\sigma^2/2))T}{\sigma\sqrt{T}}$$

3.2 Institutional investor type based on investment horizon

Although institutional investors share some commonalities, they are far from a homogeneous group. In particular, institutional investors are distinguished by their investment objectives and styles. These differences result in different investment horizons and trading strategies, which are likely to affect stock prices and operations of firms that institutions hold.

We use two types of schemes to classify institutions into different categories. The first scheme is based on Bushee (1998, 2001) classification. Bushee (1998, 2001) uses factor analysis and cluster analysis to classify institutional investors into groups based on their past investment behavior. Transient institutions are characterized as having high portfolio turnover and highly diversified portfolio holdings. This type of institutions tends to be short-term oriented with interest in the firm's stock based on the likelihood of short-term trading profits. Therefore, transient institutions are more likely to participate in large-scale and frequent trading. The other two types of institutions, quasi-index and dedicated, are characterized as having low portfolio turnover. They provide long-term and stable holdings to firms and engage less in active trading activities. Dedicated institutions are characterized by having high stockholding concentration in portfolio firms and extremely low turnover, consistent with a "relation investing" role and a commitment to provide long-term patient capital (Porter, 1992;). Quasi-indexers are also characterized by low turnover, consistent with a passive, buy-and-hold strategy of investing portfolio funds in a broad set of firms (Porter 1992).

If a firm suffers less from agency problem resulting from risk-shifting or underinvestment problem for instance, the option value included in a convertible bond would be less compared to fixed component, thus the convertible bond would be more debt-like. Convertible bond can also alleviate adverse selection costs resulting from asymmetric information between firm insiders and outsiders. Convertible bond will be more equity-like if adverse selection cost is low.

As discussed above, institutional ownership can mitigate agency costs and adverse selection costs; however, these two effects are not mutually exclusive. A positive impact of institutional ownership on the conversion delta implies that this type of institutional ownership would have more impact on reducing adverse selection costs. On the other hand, if a negative impact of institutional ownership is observed, this type of institutional ownership would have more impact on reducing

agency costs. Therefore, we do not conjecture the impact of institutional ownership on the delta of convertible in our first hypothesis.

Hypothesis 1:
If the institutional investors have more impact on reducing agency cost, then the convertible bond issued would be more debt-like; on the other hand, If the institutional investors have more impact on reducing agency cost mitigating adverse selection cost dominates, the convertible bond issued would be more equity-like.

We also predict the impact of three type of institutional ownership on the likeness of convertible bonds. Literature studying institutions with long-term horizon finds that stable institutional investors are better motivated and possess better ability to monitor effectively, so that they play an important role in mitigating agency conflicts and reducing information risk in the firm (Elyasiani and Jia , 2008 ; Elyasiani et al., 2010). This leads to the following hypothesis:

Hypothesis 2(a):
If the dedicated investors have more impact on monitoring, then the relation between delta and dedicated institutional ownership is positive; if the dedicated investors have more impact on reducing the information asymmetry, then the relation between delta and dedicated institutional ownership is positive;

Higher levels of dedicated institutional ownership have a positive (negative) impact on conversion delta. If the impact of dedicated institutional ownership is positive, the monitoring role dominates. If the impact is negative, the asymmetric information-reducing role dominates.
Bushee (1998) argues that short-term-trading institutions have little monitoring incentive because of their short investment horizon, fragmented ownership, and emphasis on trading. Yan and Zhang (2009) show that short-term institutional investors are better informed than long-term institutional investors and that they actively trade to exploit their informational advantage. While prior literature argues that long-term institutions monitor via “voice”, Edmans (2009) argues that short-term blockholders institutions monitor via “exit”, that is via informed selling, without actually trying to intervene. Moreover, Chang et al. (2012) argue that short-horizon institutions, backed by

buy-side research, improve the transparency of information environment, such as through informed trading and monitoring via "exit", which allow firms to issue securities that are more sensitive to information asymmetry.

Hypothesis 2(b):
Firms with higher levels of transient institutional ownership are more likely to issue equity-like convertible bonds as opposed to debt-like convertible bonds.

Typically, passive funds maintain portfolio weights that are often closely aligned with the weights in their chosen benchmark, their ability to influence managers is primarily limited to voice, which is thought to constrain their ability to influence corporate outcomes. Recent literature has put more emphasis on the influence of passive institutional investors. Apple et al. (2014) find that ownership by passively managed funds is associated with more independent directors, the removal of takeover defenses, and more equal voting rights. Passive investors appear to exert influence through their large voting blocs, and consistent with the observed differences in governance having a positive influence on firm value and reducing the need for activism by other investors.

Hypothesis 2(c):
Firms with a higher level of quasi-indexer institutional ownership are more likely to issue debt-like convertible bonds as opposed to equity-like convertible bonds.

3.3. Institutional investor type based on investment style

The second classification scheme is based on Bushee and Goodman (2007). The authors use factor and cluster analysis to classify institutions into value, growth, and growth and income, based on their preference for growth or value firms. This approach assumes that explicit and implicit contracts between institutional investors and their clients specify investment preferences for stocks that are reflected in institutions' past trading behavior and will be reflected in future trading decisions. Growth institutions tend to hold firms with high historical and expected growth. Value investors prefer firms high on the value and low on the historical growth-risk dimension. Firms held by growth and income institutions tend to be in the middle of growth-risk dimension.

We predict that institution investment style is associated with the likeness of convertible bonds issuance since they have more expertise than the average investor in valuing certain firms and more inclined to reap greater benefits from the issuance of convertible bonds.

Hypothesis 3(a):
Firms with higher levels of growth institutional ownership are more likely to issue equity-like convertible bonds as opposed to debt-like convertible bonds.
Hypothesis 3(b):
Firms with higher levels of value institutional ownership are more likely to issue debt-like convertible bonds as opposed to equity-like convertible bonds.

We do not conjecture the precise impact of growth and income institutional ownership on the likeness of convertibles since it is mixed with investment preferences.

With respect to the stock price impact from the announcement of convertible debt issuance, there exist two competing theories. One theory holds that since a higher institutional ownership can reduce agency cost or mitigate adverse selection problem, we should expect a positive relation of the institutional ownership on the excess stock returns around the announcement date. The other theory, based on convertible arbitrageurs (hedge funds and institutional investors) as convertible bond investors, argues that a higher institutional investor's participation leads to more short-selling activities of the underlying stock, resulting in a downward price pressure. We do not estimate the relation between different categories institutions and abnormal returns since the effects could interact with each other and cancel each other. Our hypothesis is:

Hypothesis 4(a):
Firms with higher levels of institutional ownership are positively related with the abnormal returns around announcement of convertible bonds issues.
Hypothesis 4(b):
Firms with higher levels of institutional ownership are negatively related with the abnormal returns around announcement of convertible bonds issues.

4. Variables

4.1 Institutional ownership variables

Our first measure of institutional ownership (INSTOWN) is total institutional ownership, which is defined as the number of shares held by institutional investors divided by the total number of shares outstanding in the firm. We also consider that the level of monitoring in a firm could be driven by how much each institution owns. Therefore, besides total institutional ownership, we also use the largest institutional ownership (MAXINSTOWN) and institutional ownership concentration ratio, Herfindahl index (INSTOWN_HHI), to capture the concentration of institutional ownership in a firm. For each firm, the largest institutional ownership is the total proportion of shares owned by the institutional investor with the largest holdings of the firm's shares. Herfindahl index is the sum of squares of the proportions of the firm's shares held by institutional investors. A higher Herfindahl index suggests that institutional ownership in the firm is very concentrated, that is, a relatively small number of institutions own a large proportion of the shares.

To examine the impact of investment horizons on corporate financing decisions, we adopt the institutional investor classification method of Bushee (1998, 2001). Bushee (2001) classifies institutional investors into three categories based on their investment horizon Dedicated institutions, quasi-indexers and Transient institutional. Following Bushee and Goodman (2007), we also categorize institutions into value, growth, and growth and income based on their preference for growth or value firm. We use the ownership and the number of each type of institutions in our analysis.

4.2 Control variables

4.2.1 Firm-specific control variables

1) Proxies for equity-related financing cost

According to the adverse selection framework of Myers and Majluf (1984), the announcement of equity-like financing may signal that the firm is overvalued, leading to a negative stock price reaction to the offering announcement. Therefore, we expect a negative impact from the equity-related adverse selection costs on the firms' likelihood of choosing more equity-like securities.

Lucas and McDonald (1989) argue that firms are more likely to have better investment projects when pre-offering stock price run-up is high, thus the equity-related adverse selection problem is likely to be smaller. However, the pre-offering stock price run-up may also be interpreted as firm overvaluation, and could be associated with higher equity-related financing costs. Stock price run-up is measured over a (-76, -2) window before announcement.

Moreover, according to Myers and Majluf (1984), firms with a large amount of financial slack may face higher equity-related adverse selection costs. Such firms could have used internal funds instead and therefore are likely to be perceived as overvalued. Thus, an increase in financial slack could probably reduce the issuance of equity-like convertible bond. Financial slack is measured as the sum of cash and marketable securities divided by total assets.

Finally, as Krasker (1986) argues, the costs of adverse selection may be directly related to the size of the security issue. Large security issue could reduce the probability of equity-like convertible bonds as such offers can increase the potential wealth loss for existing shareholders. Offer size is measured as gross proceeds normalized by the market value of the firm's common equity. We also include the logarithm of this ratio to control for potential nonlinearities.

2) Proxies for debt-related financing cost

We include return on assets (ROA), defined by the ratio of earnings before interest and tax to total assets, as an inverse debt-related cost measure. A high profitability before the issue makes it easier for company to pay interest on debt securities (Lewis et al., 1999). Also, a higher ROA provides more incentive for debt-like issuances on account of tax deductibility of debt interest payments (Modigliani and Miller, 1963). We expect a negative impact of the inverse of debt-related financing cost proxy (ROA) on firm's likelihood to issue more equity-like convertibles.

Following Mayers (1998) and Lewis et al. (1999), we use the long-term debt to total assets as proxies for financial risk. We also include short-term debt to total assets. On account of the maturity, the short-term debt can be a better indicator of financial distress than long-term debt (Dutordoir et al., 2014). To measure the overall firm risk, we use the annualized stock return volatility over a period of (-200, -20) trading days prior to issue announcement. Leverage and stock return volatility

can also proxy for asset substitution costs (Green, 1984) and stock return volatility can capture risk uncertainty (Brennan and Schwartz, 1988). We expect a positive impact of the debt-related financing cost proxy on firm's likelihood to issue more equity-like convertible bonds.

3) Proxies for general financing cost

We also include a number of widely used control variables in our analysis to capture financial cost, since they could proxy for both debt- and equity-related financing cost. We do not have a clear prediction on their impact on the tendency of equity-like convertible bonds. In particular, we control for a firm's total assets, market-to-book ratio and sales growth rate.

Brennan and Schwartz (1988) argue that adverse selection costs are higher for small firms. This is partly due to the fact that smaller firms are typically younger, have fewer analysts following, and are less likely to be held by large mutual funds. Thus smaller firms prefer issuing debt-like to equity-like convertibles. On the other hand, Lewis et al. (1999) argue that expected financial distress costs are higher for smaller firms. Larger firms are typically better diversified and have a lower probability of being in distress (Rajan and Zingales, 1995). In this case, smaller firms prefer issuing equity-like convertibles. The impact of firm size on the probability of conversion is mixed.

The market-to-book ratio of asset is often used as a proxy for the availability of profitable growth opportunities, resulting in a lower external financial cost. On the other hand, firms with a large fraction of their value in the form of opportunities would suffer from higher asymmetric information related to their value and risk and also be less likely to finance with debt because of potential underinvestment problem (Myers, 1977), increasing their external financial cost. The market value of asset is defined as the book value of total assets minus the book value of equity plus the market value of equity. A similar ambiguous interpretation holds for sales growth as an alternative measure in our analysis. We use a three-year sales growth rate in our analysis.

4.2.2 Macroeconomic control variables

Financing costs is related with not only firm level but also macroeconomic level, as argued by Choe et al.(1993) and Bayless and Chaplinsky (1996). Therefore, we include several widely used macroeconomic variables in our analysis. To proxy for the economy-wide level of equity-related

financing costs, we include stock market run-up and volatility measured over (-200,-20) trading days before announcement. We also use six-month leading economic indicator as a proxy for future general economic conditions (Lewis et al., 1999). Stock market run-up and leading economic indicator are inverse indicators of external financing costs in general, while stock market return volatility acts as proxies for economy-wide level of debt-related financing cost.

4.2.3 Other variables

A higher conversion premium indicates a lower probability of conversion, thus a more debt-like convertible bond offering (Jen et al., 1997). We also include conversion premium in our analysis.

5. Sample selection and descriptive statistics

The data consist of convertible debt issues completed during the period 1995 –2014 by companies trading on the NYSE, AMEX and NASDAQ. We require that all the issues have conversion premium and conversion price recorded in the Securities Data Corporation (SDC) database. We eliminate debt issues by utilities and financial companies since the motives for issues by these companies may be regulation related, and capital structures are likely to be significantly different from the industrial companies in our sample. The event day is determined as the earliest date of issuance announcement from Factiva. The initial sample consists of 415 convertible bond issues. We also require the issuer firms have stock return information available on Centre for Research in Security Prices (CRSP) for at least eighty days before the announcement date in order to compute the abnormal return of announcement. This requirement eliminated 5 observations. Company accounting data for the fiscal year-end before the issue date are obtained from Compustat. Missing Compustat data reduced the sample by a further 29 firms.

The remaining sample was matched with institutional holdings data from the Thomson Financials CDA/Spectrum database, which contains all 13f filings. According to Security and Exchange Commission Rule 13f, all institutions managing more than $100,000,000 in equity must file a quarterly report listing all equity holdings that are greater than 10,000 shares or $200,000 in market value. For each firm-year observation, we calculate institutional ownership for each quarter and then use the average of the four quarters in our empirical tests. Missing Spectrum data reduced the

sample size by 4 firms, producing a final sample of 377 transactions. Six-month Leading index for Unites States and 10-year Treasury bond rate are obtained from Federal Reserve Bank of Philadelphia over the quarter preceding the announcement date. Institutions classification following Bushee (1998, 2001) and Bushee and Goodman (2007) are obtained from Brian Bushee's website; it offers the institutional investor classification data from 1981 to 2014.[6]

Table 1 presents a distribution of our sample by time profile and industry classification. Panel A shows that there is some clustering of announcement during 2007-2009. On a daily basis, however, the announcements are non-contemporaneous. Panel B shows that the convertible offerings are distributed over a wide range of industries. Firms in the manufacturing, natural resourcing and Pers/Bus/Rep Svc industries represent about 70% of the announcements in the sample. Some concentration among specific industries is expected since neither the distribution of investment opportunities nor their valuation should be random across industries.

Table 2 presents the descriptive statistics for the data. Panel A provides a summary of institutional variables. The average total intuitional ownership is 62.8% and the median is 68.26%, indicating institutional stock holding is relatively large in US corporations. The largest intuitional ownership is 11.37% on average, with a standard deviation of 0.13. Quasi-indexer institutions account for the largest percentage of ownership compared to dedicated and transient institutional investors. The same holds for the number of respective institutional investors. The growth and value (middle group) institutions take up the largest ownership compared to value and growth institutions. Panel B reports issue and issuer characteristics.

Figure 1 reports the distribution of delta of convertible bonds issue over the 1995-2014 period. The median of delta is 0.78 and three quarters of convertibles issues have delta over 0.67.

To check for multicollinearity problems, we analyze pairwise Pearson correlation between the institutional investor ownership and between control variables. The result of this analysis is not presented here. We find that MAXINSTOWN and INSTOWN are highly correlated, and thus in the multivariate analysis, we analyze them separately in the regressions. Stock market run-up is

[6] http://acct.wharton.upenn.edu/faculty/bushee/IIclass.html

positively correlated with leading indicator and highly negatively related with stock market volatility. Other correlations do not exceed 0.32 and are below 0.10 for the large majority of variables.

6. Empirical results

6.1 Univariate analysis

We use the delta of the convertible bond to determine the likeness of convertible to equity or debt. As there is no clear-cut rule to distinguish equity-like from debt-like convertible bonds by the value of conversion delta in prior literature, therefore, we divide our data into two subsamples by the median of delta of 0.78. Those convertible bonds with delta below the median are considered as more debt-like and those with above median are considered as more equity-like.

Table 3 reports average values of the issuer and issue characteristics and pairwise significance tests of differences in means. Panel A reports the results of institutional variables. We find that differences in issuer institution-related data are significant. Institutions significantly have less ownership in firms with convertibles with above-median delta. We also find that the largest institutional ownership and institutional ownership concentration are significantly higher in firms with equity-like convertible bond issues. With respect to institutional categories, we find that dedicated institutional investor have more ownership in firms with equity-like convertible issues, while quasi-indexer institutional investors' ownership is significantly higher in firms with debt-like convertible issues. We do not find any significant difference in the transient institutions ownership between subsamples. For institutions with preference for value or growth firms, we also do not find any significant difference. As for the number of institutional investors within a firm, we find that the number of quasi-indexer institutions and transient institutions are higher in firms with debt-like convertible bond issues at 1% significance level. The same holds for the numbers of institutions that prefer value firms and both value and growth firm.

Panel B reports the results of control variables. For equity-related financing costs, equity-like convertible bond issuers have a mean stock price run-up of 0.2215, significantly higher than that of debt-like convertible bond issuers of 0.1109, and this finding is consistent with our prediction. We do not find significant difference for the ratio of financial slack to total assets and the ratio of

proceeds to market value of equity. For debt-related financing costs, we find that equity-like convertible bond issuers have larger stock return volatility than debt-like convertible bond issuers. This result is in line with our predictions. But we do not find any significant difference for ROA and leverage. For general financing cost measures, equity-like convertible bond issues have significantly smaller total assets, significantly higher market-to-book ratio, and significantly higher sales growth rate than debt-like convertible bond issuers. With respect to macroeconomic factors, we do not find any significant difference in market return volatility and six-month leading index. Conversion premium is significantly higher in debt-like convertibles subsample, consistent with Jen et al. (1997) that a higher conversion premium indicates a lower probability of conversion.

6.2. Choice of equity-like or debt-like convertible bonds

6.2.1 Likelihood of conversion and institutional ownership

In this section, we examine the impact of institutional ownership on firm's propensity to issue debt-like or equity-like convertible bonds. Firms with higher level of institutional ownership can reduce information asymmetry and adverse selection costs, and alleviate agency cost between manager and shareholders. On the other hand, convertible bonds can also mitigate adverse selection problem and agency cost. If a firm issues convertible bond that are more equity-like, based on an extended interpretation of the theory in Myers and Majluf (1984), the firm suffers less from asymmetric information problem. We conclude a dominant impact of reducing adverse selection cost by the institutions. Likewise, if a debt-like convertible bond is issued, it indicates that the firm suffers more from adverse selection costs, or the underinvestment problem and risk-shifting problem is less severe and there is no need for a higher component of equity to be included in the convertibles. However, as intuitional investors' presence can mitigate agency problem, we expect a dominant impact of reducing agency costs from the institutions in this case. The analysis so far does not control for other potential determinants of the structure of convertible bond issues. Previous research suggests that several firm-specific and macroeconomic factors could affect convertible bond offering. Following prior studies, we use multivariate regressions controlling for these variables.

Table 4 reports the results of cross-sectional regressions in which the dependent variable is the delta of convertible bonds. Delta is, by definition, censored from both below (by the value of zero) and above (by the value of one). To obtain consistent estimates, we estimate regressions as Tobit models with double censoring.[7] We also include conversion premium in our regressions as an important design parameter of the convertible. A higher conversion premium indicates a lower probability of conversion, thus a more debt-like convertible bond offering (Jen et al., 1997).

Regression (1) of Table 4 reports the results of delta using only control variables. The results are largely consistent with our convertible predictions. Conversion premium, stock price run-up, short-term debt and total assets are significantly negatively related with delta, while stock market volatility have significantly positive impact on delta.

Regressions (2) and (3) use only institutional related ownership variables. We find that institutional ownership concentration and the largest institutional ownership have significant positive impact on delta of convertible bonds, thus increasing the likelihood of conversion. The results indicate that a concentrated institutional ownership can reduce information asymmetry and firms with a more concentrated institutional ownership prefer issuing equity-like convertibles bonds to debt-like convertibles.

Regressions (4) - (6) extend regression (1) by adding total institutional ownership, institutional ownership concentration, and the largest institutional ownership, respectively. We find that only the largest institutional ownership is significantly correlated with conversion delta. In regression (6), the largest institutional ownership is significantly positive at 1% level. One percent of the largest institutional ownership can increase delta by 0.17 percent, holding others variables constant. Total institutional ownership does not seem to have significant impacts on the conversion probability. The institutional ownership concentration is not significant after controlling other variables. We suppose its effect can be explained by other variables. The remaining regressions provide a number of robustness tests. Regression (7) includes total institutional ownership and ownership concentration, while regression (8) includes the largest institutional ownership and

[7] Tobit model is used for all the regressions with delta as the dependent variable.

ownership concentrations. The results are consistent that the largest institutional ownership has a significant positive impact on delta, while the total institutional ownership and institutional ownership concentration are not significant. The presence of the largest institutional investor has more impact on reducing information asymmetry costs.

With respect to the control variables, the findings are mostly consistent with our predictions. We find conversion premium is consistently negative at 1% significance level, consistent with view that a higher conversion premium indicates a lower probability of conversion, thus a more debt-like convertible bond offering (Jen et al., 1997). Firms with high pre-offering stock price run-up are found to issue more equity-like convertible bonds, consistent with our prediction that firms with high pre-offering stock price run-up are likely to have better investment projects, thus equity-related adverse selection problem is smaller (Lucus and McDonald, 1989). Short-term debt is significantly negatively related with conversion delta; this is contrary to our prediction, because a higher level of short-term debt to total assets is more likely to be employed by growth-oriented firms (Myers and Majluf, 1984), thus increasing the probability of equity-like convertible debt issuance. Total asset has a consistently negative impact on the conversion delta at 1% significance level. Since large firms are better diversified and have a lower probability of financial distress, they tend to issue debt-like convertibles. Stock market volatility significantly contributes to the issuance of equity-like convertible bonds.

Overall, these results suggest that the largest institutional ownership has significantly positive impact on the conversion probability of convertible bonds, consistent with our Hypothesis 1.

6.2.2 Likelihood of conversion and institutions' investment horizons

In this section, we explore whether, and to what extent, institutional investors' investment horizons are related with the likelihood of conversion of convertible bonds. Dedicated institutional ownership, on account of their better monitoring role via voice, can reduce agency cost and information asymmetry through information gathering while transient institutional investors have a positive impact on the issuance of equity-like convertible bonds since they can improve the information environment through their trading activities by demanding better sell-side research and

monitor via exit. Quasi-indexer institutions can exert influence through their large voting blocs and reduce agency cost between managers and shareholders.

Table 5 reports the cross-sectional regressions of conversion delta on the institutional ownership based on investment horizon. We again use Tobit regressions with double censoring. Institutional variables are institutional ownership of dedicated, transient and quasi-indexer. We also use the number of dedicated, transient and quasi-indexer as explanatory variables for robustness tests. Panel A of Table 5 provides the results of using institutional ownership of dedicated, transient and quasi-indexer as explanatory variables. Panel B of Table 5 reports the results of using the number of dedicated, transient and quasi-indexer as explanatory variables.

Regression (1) of Panel A reports the results by regressing delta on using the ownership of dedicated, quasi-indexer and transient institutions only. Regression (2) uses explanatory variables and control variables. We find significant positive impacts of dedicated institutional ownership and transient institutional ownership on firm's likelihood to issue equity-like instead debt-like convertible bonds. Dedicated institutional investors' ownership is significantly positive at the 5% level. One percent increase in dedicated institutional ownership increases delta by 0.14 percent, and one percent increase in transient institutional ownership increases delta by 0.12 percent. The dominant impact of dedicated investors is mitigating information asymmetry. Also, transient investors can reduce adverse selection cost by improving the transparency of information environment through informed trading and monitoring via exit (Edmans, 2009). The results show that quasi-indexer institutional ownership has a significantly negative impact on firm's likelihood to issue equity-like instead debt-like convertible bonds. Quasi-indexer institutional ownership is significantly negative at 5% level. One percent increase in quasi-indexer institutional ownership decreases delta by 0.087 percent. The finding is consistent with our hypothesis that quasi-indexer can by exerting influence on corporate governance and alleviate agency costs. The sign and significance of control variables remain the same as in Table 4.

Regressions (3)-(5) report results by adding total institutional ownership, institutional ownership concentration and the largest institutional ownership as control variable respectively. Regressions (6) and (7) provide the result by adding two of them at a time. The results remain consistent.

In Panel B, we use the number of dedicated, transient and quasi-indexer institutions as explanatory variables for robustness tests. We find that the number of dedicated institution investors is positively related with delta, while the number of quasi-indexer institutions is negatively related with delta. The number of transient institutions is not significant. The sign and significance of control variables remain the same.

Overall, our findings are consistent with our Hypothesis (2) that dedicated and transient institutional investors can reduce information asymmetry and adverse selection costs, and firms with higher levels of these institutional ownership are more likely to issue equity-like convertible. Quasi-indexer institutions can lower agency costs by exerting influence through monitoring and these firms are more likely to issue debt-like convertibles.

6.2.3 Likelihood of conversion and institutions' investment style

In this section, we explore whether the impact of institutional ownership on firm's likelihood to issue debt-like or equity-like convertible bonds is robust across institutional investment styles. We classify institutions based on their preferences for growth, value or growth and income firms according to Bushee and Goodman (2007).

Table 6 present the results of cross-sectional regressions of conversion delta on the institutional investment style ownership and control variables. Panel A reports the results by using the institutional ownership of growth, value firms or growth and income investment style. We find that the ownership of institutions investing in growth firms has a significant positive impact on delta, and thus a higher probability of conversion into equity. The finding is consistent with our hypothesis H3 (a) that that firms with higher levels of growth institutional ownership are more likely to issue equity-like convertible bonds as opposed to debt-like convertible bonds. We do not find the ownership of institutions investing in value firms has a significant impact on delta, thus the results do not support the hypothesis H3(b) that firms with higher levels of value institutional ownership are more likely to issue debt-like convertible bonds as opposed to equity-like convertible bonds. We find that the ownership of institutions investing in both growth and value firms has a negative impact on delta, thus a lower probability of conversion into equity.

In Panel B, we use the number of institutions of growth, value or growth and income investment style for robustness test. We find that all the explanatory variables are significant. In regression (2), one unit increase in the number of growth institutions can increase delta by 0.1723 at 1%, while one unit of increase in the number institutions investing value firms can significantly decrease the probability of conversion by 0.0872 at 5% level. Increase in institutions investing in both value and growth firms can also lead to a lower probability of equity issue. The findings are consistent with our Hypothesis 3.

6.3. Analysis of abnormal returns around the announcement date

6.3.1. Event study results

In order to analyze the wealth effects and the underlying factors around the issuance of convertible bonds, we use the conventional event study methodology to examine stock price responses to announcements of convertible debt offerings. The computed abnormal returns are then used as dependent variables in regression that are designed to capture the effects of the various risk factors on firm performance.

We assume that returns of underlying stocks following the single factor market model. Daily excess returns are calculated by taking the difference between the actual daily return and the expected return based on the market model parameter estimates. Market model parameters are estimated over a period from 240 to 40 days before the initial announcement, with the minimum estimation window is 40 days. The results we report use value-weighted index from the CRSP market index file. This index is relevant for our purpose because the sample includes firms from different industries listed on NYSE, AMEX, and NASDAQ.[8]

Table 7 reports the cumulative abnormal returns in different windows around the announcement date. We find that the abnormal return on the announcement date is an amount of -2% and significant at 1% level. The abnormal return in our results is more negative compared to the results in Eckbo et al. (2007), which argues that the average convertible bond announcement return found

[8] We also use the CRSP equal-weighted index from CRSP as alternative market portfolio proxies to test for robustness. The results are unaffected by the use of alternative market proxies.

by four event studies of convertible debt is a significantly negative amount of -1.83%.[9] We also find that the abnormal return is significant on the day following the announcement date but not significant on the other days around announcement date.

6.3.2 Cross sectional regression analysis of abnormal returns

1) Abnormal returns and institutional ownership

To identity the factors driving these abnormal returns, cross-sectional regressions are performed. We want to examine whether institutional related factors can explain abnormal returns around announcement. Following Lease et al. (1991), Abhyankar and Dunning (1999) and Dutordoir et al. (2014), we examine cumulative abnormal returns for the two-day announcement period (day 0 to +1). Including the date following the announcement date eliminates some of the microstructure effects that could arise due to order flow imbalances on the day of the announcement (Kang and Stulz, 1996).

We use the same institutional and control variables as in the abnormal return regression following Jung et al. (1991), Lewis et al. (1999), and Dutordoir et al. (2014), who argue that a theory of corporate security choice should explain both choice itself and stock reaction to the security choice announcement. We also include the delta of convertible bonds as a control variable since prior empirical studies find that the announcement returns are more negative for convertibles designed with a larger equity component.[10]

Table 8 provides the cross-sectional regressions of announcement date abnormal returns on the institutional ownership. The dependent variable is the two-day cumulative abnormal return in the event window (0, +1) around announcement date. The models explain a significant fraction of the cross-sectional variation in investor reaction. The t-values are computed with heteroskedasticity-consistent standard error terms (White, 1980).

[9] The more negative abnormal returns could be the result of an active participation of short-selling activities of underlying stock by arbitrageurs in recent years, but we do not test this in our study.

[10] Ammann et al. (2006), Billingsley and Smith (1996), Burlacu (2000) and Davidson et al. (1995)

Regression (1) reports the result for the abnormal returns using control variables only. The results are largely consistent with our predictions and prior studies. We find that delta and total proceeds to market value are significantly negative related with abnormal returns, while market-to-book ratio and stock market run-up are significantly positive related with abnormal return. Regressions (2) and (3) report the results of the abnormal returns using only institutional ownership variables. In regression (2), we find that total institutional ownership is significantly negative related with the abnormal returns. In regression (3), we find the largest institutional ownership is also significantly negative related with abnormal return. Institutional ownership concentration is not significant in both regressions. The findings are consistent with our hypothesis H4 (a) that firms with higher levels of institutional ownership are negative related with the abnormal returns around announcement of convertible bonds issues. Regressions (4) - (6) extend regression (1) by adding total institutional ownership, institutional ownership concentration, and the largest institutional ownership, respectively. We find a significant negative relation between total institutional ownership and the largest institutional ownership and the abnormal returns. In regression (4), total institutional ownership is significantly negative at 1% level; one unit increase in institutional ownership decreases the abnormal return by 0.0039, holding other variables constant. In regression (6), total institutional ownership significantly negative at 1% level; one unit increase in institutional ownership decreases the abnormal return by 0.0371, holding others variable constant. We do not find a significant relation between institutional ownership concentration and abnormal returns.

Overall, consistent with our prediction in Hypothesis 4(a), firms with higher levels of institutional ownership are negative related with abnormal returns around announcement of convertible bonds issues. This is consistent with our previous findings that larger institutional ownerships are associated with more equity-like convertible bond issues. We also believe that short-selling activities of underlying stock by convertible arbitrageurs (hedge funds and institutional investors) in recent years has made the stock price reaction more negative, although we do not test for this in our study.

We find that delta is consistently negative, consistent with Jen et al. (1997), in which they find stock market responds less favorably to those convertible issues that are more like equity than debt. Market-to-book ratio is positively significant across most of the regressions, which is consistent

with Steins (1992) backdoor equity hypothesis that convertible debt offering is more favorable to firms with high-growth opportunities. Green (1984) also implies that announcement period abnormal returns would be related to future growth opportunities after controlling for differences in corporate investment policy shifts and underinvestment. The ratio of financial slack to total asset is significantly negative consistently, which is in line with the view that firms with a large amount of financial slack suffer from adverse selection cost (Myers and Majluf, 1984). The logarithm of size of the convertible bond to market value of equity is significantly negatively related with abnormal returns, consistent with the view that large security issues can increase the wealth loss of existing shareholders. The stock market run-up is significantly positive related with abnormal return while market volatility is not significant in the regressions. The remaining regressions provide a number of robustness tests. Regression (7) includes total institutional ownership and ownership concentration, while regression (8) includes the largest institutional ownership and ownership concentrations. The findings remain the same for both regressions.

From the above, we can state that the key drivers of abnormal return around the issue date are total institutional ownership, the largest institutional ownership, market-to-book ratio, financial slack, issue size, stock market run-up.

2) Abnormal returns and institutions' investment horizon

In this section, we examine whether, and to what extent, institutional investors' preferences are related with the abnormal returns on the announcement date. Table 9 reports the cross-sectional regression of announcement date abnormal returns on the institutional ownership based on investment horizon. The t-values are computed with heteroskedasticity-consistent standard error terms (White, 1980). We use the same dependent variable and control variables as in the previous regressions. Institutional category variables are institutional ownership of dedicated, transient and quasi-indexer. We also use the use the number of dedicated, transient and quasi-indexer as explanatory variables as robustness test.

Regression (1) reports the results for the abnormal returns using only institutional ownership of dedicated, transient and quasi-indexer. Regression (2) shows the result for abnormal returns using institutional ownership of dedicated, transient and quasi-indexer and control variables. We add total institutional ownership, institutional ownership concentration and the largest institutional

ownership as control variable respectively to regression (3) to (5). In regression (6) and (7), we add two of them at a time. We do not use total institutional ownership and the largest institutional ownership in one regression since they are highly correlated.

It is interesting to find that quasi-indexer institution ownership consistently is significantly negative related with the abnormal returns, while the other two kinds of ownerships are not significantly related with abnormal returns. The sign and significance of control variables remain the same as in the last section.

In Panel B, we use the number of dedicated, transient and quasi-indexer as explanatory variables as robustness test. We find that the number of dedicated institutional investors is positively related with the abnormal return, while the number of transient and quasi-indexer institutions are not significant. Consistent with the above regression, the sign and significance of control variables remain the same.

Some evidence suggests that the number of dedicated institutional investors is positive related with the abnormal returns via their monitoring role. Transient institutional investors do not seem to be a significant factor for the abnormal returns on account of their short-term investment horizons.

3) Abnormal returns and institutions' investment style

Having established an association between the institutions investment horizon and abnormal returns, we next examine if the institutional ownership induced by adherence to investment styles is associated with price movements. We classify institutions based on preferences for growth, value or growth and income style according to Bushee and Goodman (2007).

Table 10 reports the cross-sectional regressions of announcement date abnormal returns on the institutional investment style. Panel A reports the results of using the ownership of growth, value and growth and income institutions as explanatory variable. Panel B reports the results using the number of institutions for robustness test. We find that the ownership of institutions investing in value firms and the middle group, growth and income firms, is negative related with abnormal

returns, while institutions investing in growth firms have no significant relation with abnormal returns. However, their significance only appears in two regressions and not holds in others.

7. Conclusions

In this study we examine the impact of institutional ownership on convertible bond issuance. We formulate four hypotheses on the potential impact of institutional ownership on the likeness (i.e. debt-like or equity-like) of convertible bond issuance and announcement returns, and test these hypotheses on a sample of convertible bond offerings completed between 1995 and 2014 in the US market.

Our contribution is two-fold. First, this paper is the first to study the impact of the institutional ownership on convertible bonds issues. We find that the institutional ownership has a significant impact on the issuance of convertible bonds. Second, this paper highlights the importance of distinguishing various types of institutional investors. We find that the separate effects of institutions with different investment horizon and style on the likeness of convertible bond differ in signs. This suggests that treating all institutional investors as a homogenous group and lumping them together will impede uncovering any genuine link between institutional ownership and conversion probability.

We measure the sensitivity of convertible debt value to the underlying stock price by delta. Given the value of convertible bond, a higher delta indicates a larger portion of equity component of convertible bond and a higher probability of conversion into equity; therefore we define this as equity-like convertible debt. On the contrary, a smaller delta indicates a smaller portion of equity component of convertible bond and a lower probability of conversion into equity, thus we define this as debt-like convertible bond. We examine the impact of institutional ownership on the likeness of convertible debt issues. We find that the largest institutional ownership has a significantly positive impact on the delta.

However, not all institutional investors have the same investment objectives or philosophy, and some are constrained by fiduciary duties or influenced by political concerns. Understanding the

heterogeneous preferences of institutional investors is increasingly important to study the financing choice of firms.

Following Bushee (1998, 2001), we classify institutions based on their past investment behavior and investment horizon into dedicated, transient and quasi-indexer institutions. We find that dedicated and transient intuitional investors ownership are significantly positive related with delta, a higher probability of conversion into equity. Based on an extended pecking order hypothesis (Myers and Majluf, 1984), firms issuing equity-like convertible bonds would suffer less from information asymmetry compared to firms issuing debt-like convertible bonds. We interpret results as dedicated and transient institutions having more impact on mitigating the asymmetric information problem.

An interesting result is found in the significantly negative impact of quasi-indexers on delta. A small delta suggests a lower conversion probability and debt-like convertible bonds. Institutional ownership can mitigate agency cost and adverse selection as proposed by prior literature; however, these two effects are not mutually exclusive. If a negative impact of institutional ownership is observed, this type of institutional ownership would have more impact on reducing adverse selection cost than agency cost. Therefore, a negative impact of the quasi-indexer institutional ownership on delta suggests that quasi-indexer institutional have more impact on alleviating the agency cost problem. The results are robust to using the number of different institutions as proxy for institutional ownership.

Following Bushee and Goodman (2007), we also classify institutions into value, growth, and growth and income based on investment style. We find that growth institution ownership have a significantly positive impact on delta; thus a higher conversion probability to equity. Ownership of value institution and the middle group, growth and income institutions, have significantly negative impact on delta; thus more debt-like convertible bonds. The results are consistent with the common view that firms with more growth potential tend to issue more equity-like convertibles to mitigate the underinvestment problem and avoid the debt overhang problem (Myers, 1977). The results are robust to using the number of various institutions as proxy for institutional ownership.

We also examine the abnormal returns around announcement date of convertible bond issues. We find a significant negative abnormal return on the announcement date and the following day. We exploit the abnormal returns around announcement date and use cross-sectional regressions to examine whether, and to what extent, institutional investors' preference are related to the stock price response. The results suggest that the institutional ownership is negatively related with abnormal returns. Further, we find institutions investing in value firms and the middle group, growth and income firms, also are negative related with abnormal returns. With regards to institutions' investment horizons, we only find that quasi-indexer institutional ownership are related with negative abnormal return, while others remain insignificant. While the literatures on quasi-indexer institutions are not abundant, it would be interesting to study quasi-indexer institutions for future research.

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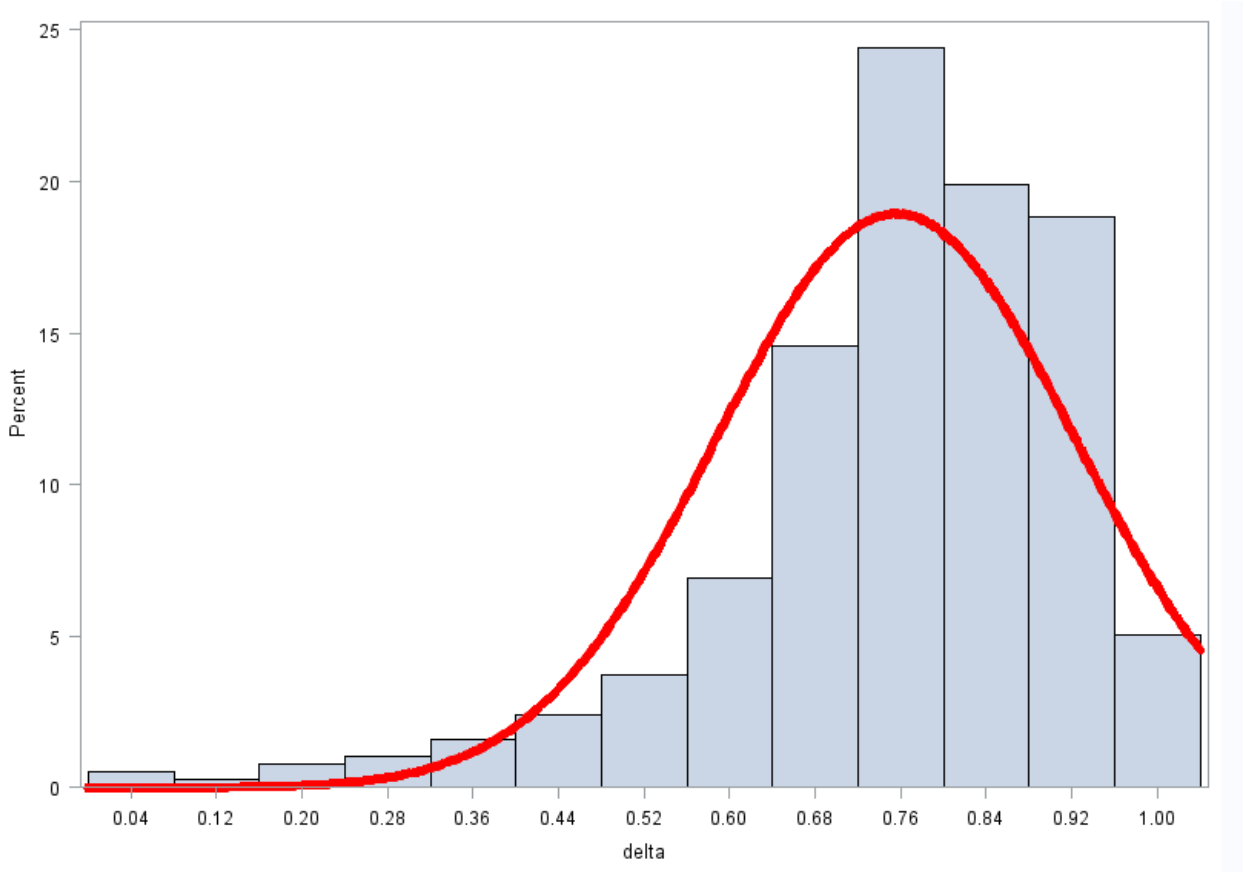
Appendix I: Variable Definitions

Variable	Defition	Source
Panel A: institutional variables		
INSTOWN	Average of quarterly percentage of shares outstanding held by all institutional investors during the fiscal year preceding the announcement date	Thomson Financials CDA/ Spectrum, CRSP
MAXINSTOWN	Average of quarterly largest percentage of shares outstanding held by an institutional investors during the fiscal year preceding the announcement date	Thomson Financials CDA/ Spectrum, CRSP
INSTOWN_HHI	Sum of squares of the proportions of the firm's shares held by institutional investors at the end of fiscal year preceding the announcement date	Thomson Financials CDA/ Spectrum, CRSP
Dedicated_own	Average of quarterly percentage ownership held by institutional investors classified as “dedicated” institutions by Bushee (2001)	Thomson Financials CDA/ Spectrum, CRSP, Bushee's webtsite
Quasi-indexer_own	Average of quarterly percentage ownership held by institutional investors classified as “quasi-indexer” institutions by Bushee (2001)	Thomson Financials CDA/ Spectrum, CRSP, Bushee's webtsite
Transient_own	Average of quarterly percentage ownership held by institutional investors classified as “transient” institutions by Bushee (2001)	Thomson Financials CDA/ Spectrum, CRSP, Bushee's webtsite
Growth_own	Average of quarterly percentage ownership held by institutional investors classified as “growth” institutions by Bushee and Goodman (2007)	Thomson Financials CDA/ Spectrum, CRSP, Bushee's webtsite
VALUE_own	Average of quarterly percentage ownership held by institutional investors classified as “value” institutions by Bushee and Goodman (2007)	Thomson Financials CDA/ Spectrum, CRSP, Bushee's webtsite
Growth&Income_own	Average of quarterly percentage ownership held by institutional investors classified as “growth&income” institutions by Bushee and Goodman (2007)	Thomson Financials CDA/ Spectrum, CRSP, Bushee's webtsite
Dedicated number	Average of quarterly number of institutional investors classified as “dedicated” institutions by Bushee (2001)	Thomson Financials CDA/ Spectrum, CRSP, Bushee's webtsite
Quasi-indexer number	Average of quarterly number of institutional investors classified as “quasi-indexer” institutions by Bushee (2001)	Thomson Financials CDA/ Spectrum, CRSP, Bushee's webtsite
Transient number	Average of quarterly number of institutional investors classified as "transient" institutions by Bushee (2001)	Thomson Financials CDA/ Spectrum, CRSP, Bushee's webtsite
Growth number	Average of quarterly number of institutional investors classified as “growth” institutions by Bushee and Goodman (2007)	Thomson Financials CDA/ Spectrum, CRSP, Bushee's webtsite
Value number	Average of quarterly number of institutional investors classified as “value” institutions by Bushee and Goodman (2007)	Thomson Financials CDA/ Spectrum, CRSP, Bushee's webtsite
Growth&income number	Average of quarterly number of institutional investors classified as “growth&income” institutions by Bushee and Goodman (2007)	Thomson Financials CDA/ Spectrum, CRSP, Bushee's webtsite
Panel B: control variables		
Stock price run-up	Cumulative daily stock return over the window of 76 to 2 tradings before announcement.	CRSP
Financial slack/total assets	Sum of cash and marketable securities divided by total assets at the end of fiscal year preceding the announcement date	COMPUSTAT
Total proceeds/market value	Log of the ratio of total proceeds of the security over market value	COMPUSTAT, SDC
Return on asset(%)	Earnings before interest and tax over the book value of total assets	COMPUSTAT
Short-term debt/total assets	Book value of short-term debt over the book value of total assets	COMPUSTAT
Long-term debt/total assets	Book value of long-term debt over the book value of total assets	COMPUSTAT
Stock return volatility	Annualized stock return volatility based on daily stock returns measured over a period (-200,-20) before announcement date	CRSP
Total assets (log)	Log of the book value of total assets (millions USD) as of the fiscal year end preceding the announcement date	COMPUSTAT
Market -to-book ratio	The ratio of (book value of assets – book value of equity + market value of equity) to book value of assets	COMPUSTAT
Sales growth	Firm’s average rate of growth in sales revenue over the most recent 3-year period preceding the announcement date	COMPUSTAT
Stock market run-up	Return on S&P 500 market index measured over a period of (200,-20) before announcement date.	CRSP
Stock market volatility	Annualized stock return volatility based on S&P 500 market indexmeasured over a period (-200,-20) before announcement date	CRSP
Leading indicator	Six-month leading index for Unites States over the quarter preceding the announcement date	Federal Reserve Bank of Philadelphia
Conversion premium	Price of a convertible security over the market value of the common stock into which it may be converted at issuance date	SDC

Appendix II

Figure 1 Distribution of delta of convertible bonds issues



The figure shows the distribution of delta of convertible bonds issues over the 1995-2014 period. We measure the equity component of convertible bond by the delta of the embedded warrant. Delta is the sensitivity of the convertible bond value with respect to the underlying stock value around the announcement date. We estimate the delta under the assumptions of the Black-Scholes option pricing model and by utilizing the pricing equation in Merton (1973) for the call option of a firm that provides a continuous dividend yield.

Appendix III

Table 1

Sample distribution of announcement of convertible debt offering by year and industry

Year	Number	%
Panel A: Sample distribution by year		
1995	16	4.24
1996	31	8.22
1997	26	6.90
1998	11	2.92
1999	8	2.12
2000	16	4.24
2001	29	7.69
2002	7	1.86
2003	8	2.12
2004	9	2.39
2005	7	1.86
2006	12	3.18
2007	37	9.81
2008	25	6.63
2009	38	10.08
2010	16	4.24
2011	9	2.39
2012	22	5.84
2013	25	6.63
2014	25	6.63
Total	377	100.00
Industry		
Panel B: Sample distribution by industry		
Construction	21	5.57
Healthcare	11	2.92
Leisure	1	0.27
Manufacturing	186	49.34
Natural Resource	40	10.61
Other Services	3	0.80
Pers/Bus/Rep Svc	39	10.34
Radio/TV/Telecom	18	4.77
Restaurant/Hotel	8	2.12
Retail	16	4.24
Sanitation	3	0.80
Transportation	20	5.31
Wholesale	11	2.92
		0.00
Total	377	100.00

This table summarizes the sample distribution of annoucement of convertible debt offerings by year and industry.The sample consists of convertible debt offerings completed during the period 1995-2014 by industrial companies trading on NYSE, Amex and Nasdaq. The annoucement are collected from Factiva. The industry classification are obtained from the SDC, which is based on Thomson Reuters code of the issuer or borrower's primary industry, based on primary SIC .

Table 2

Descriptive statistics

Variable	Mean	Median	Std Dev	Minimum	Maximum
Panel A: institutional variables					
INSTOWN	0.6286	0.6826	0.2297	0.0012	1.0000
MAXINSTOWN	0.1138	0.0853	0.1369	0.0007	1.0000
INSTOWN_HHI	0.0689	0.0514	0.5550	0.0160	0.0580
Dedicated_own	0.0734	0.0274	0.1450	0	1
Quasi-indexer_own	0.4111	0.3846	0.2777	0.0007	1
Transient_own	0.1879	0.1440	0.1767	0	1
Growth_own	0.1852	0.1283	0.1893	0	1
VALUE_own	0.1814	0.1267	0.1869	0	1
Growth&Income_own	0.3235	0.3119	0.2211	0.0013	1
Dedicated number	4.1620	1.75	0.6063	0	43.25
Quasi-indexer number	93.2498	71.75	8.3795	0	774.25
Transient number	57.2025	46.75	4.7879	0	348.25
Growth number	33.5243	24.5	3.4186	0	241.75
Value number	47.5066	38.25	4.1659	0	379.5
Growth&Income number	82.6110	66.5	6.8961	1.5	536
Panal B: control variables					
Stock price run-up	0.166	0.1594	0.3400	-1.3393	2.4161
Financial slack/total assets	0.1867	0.1014	0.2120	0.0000	0.9669
Total proceeds/market value	0.2125	0.1517	0.2562	0.0021	2.7456
Return on asset(%)	3.2875	5.6224	1.3172	-72.1276	74.9196
Short-term debt/total assets	0.0345	0.0101	0.0727	0	0.7267
Long-term debt/total assets	0.2538	0.2521	0.1813	0	0.7992
Stock return volatility	0.5663	0.4995	0.2920	0.1594	2.2085
Total assets (millions)	6843.92	1261.68	31608.77	17.86	370782
Market -to-book ratio	2.4739	1.5697	2.9441	0.5254	34.5337
Sales growth	0.5461	0.1965	1.8594	-0.8551	25.9519
Stock market run-up	0.0556	0.1001	0.1664	-0.5944	0.3637
Stock market volatility	0.1850	0.1533	0.1093	0.0759	0.5194
Leading indicator	0.7517	1.24	1.2703	-3.15	2.09
Delta	0.7759	0.7809	0.1684	0.0315	0.9989
Conversion Premium	33.4419	27	49.3436	2.5	800

Our sample consists of convertible debt offerings filed by industrial companies trading on NYSE, Amex and Nasdaq between 1995 and 2014. Panel A reports the descriptive statistics for institutional variable. Panel B reports the descriptive statistics for control variable. Appendix 1 gives the definition and source for all variables.

Table 3

Univariate test

Variable	Below-median	Above-median	Difference	Diff. of means t-statistic
Panel A: institutional variables				
INSTOWN	0.6721	0.5849	0.0872	2.8516***
MAXINSTOWN	0.1005	0.1271	-0.0266	-1.8887*
INSTOWN_HHI	0.06	0.0778	-0.0178	-3.1457***
Dedicated_own	0.0556	0.0912	-0.0356	-2.4039**
Transient_own	0.1762	0.1997	-0.0235	-1.2970
Quasi-indexer_own	0.4548	0.3672	0.0876	3.0967***
Growth_own	0.1772	0.1933	-0.0161	-0.8280
VALUE_own	0.1899	0.1728	0.0171	0.8881
Growth&income_own	0.3411	0.3057	0.0354	1.5565
Dedicated number	3.7800	4.5400	-0.76	-1.2134
Quasi-indexer number	112.5100	73.8800	38.63	4.5998***
Transient number	64.6600	49.7100	14.95	3.0685***
Growth number	36.1400	30.8900	5.25	1.4930
Value number	59.0100	35.9400	23.07	5.5951***
Growth&income number	97.8300	67.3100	30.52	4.4056***
Panal B: control variables				
Stock market run-up	0.1109	0.2215	-0.1106	-3.19***
Financial slack/total assets	0.1698	0.2037	-0.0339	-1.5573
Total proceeds/market value	0.2144	0.2105	0.0039	0.1445
Return on asset(%)	0.0365	0.0292	0.0073	0.5388
Short-term debt/total assets	0.0392	0.0298	0.0094	1.2563
Long-term debt/total assets	0.2556	0.2519	0.0037	0.1983
Stock return volatility	0.4737	0.6594	-0.1857	-6.5057***
Total assets (millions)	10719.4376	2947.7884	7771.6492	2.4021**
Market -to-book ratio	2.0816	2.8684	-0.7868	-2.6148***
Sales growth	0.3091	0.7844	-0.4753	-2.4931**
Stock market run-up	0.0582	0.0529	0.0053	0.3077
Stock market volatility	0.1783	0.1918	-0.0135	-1.2001
Leading indicator	0.827	0.6761	0.1509	1.1539
Conversion Premium	38.1600	28.7000	9.46	1.8678*

Table 3 presents average values of issuer and issue characteristics and pairwise significance tests of differences in means. We divide our data into two subsamples by the median of delta of 0.78. Those convertible bonds with delta below the median are considered as more debt-like and those with above mean are considered as more equity-like". Appendix 1 gives the definition and source for all variables. ***Significant at the 1% level;**Significant at the 5% level; *Significant at the 10% level.

Table 4

Tobit regression analysis of delta of convertibles on institutional ownership

Variables	1	2	3	4	5	6	7	8
Intercept	0.8871***	0.7532***	0.7188***	0.8942***	0.8549***	0.8746***	0.8626***	0.8471***
	(15.1314)	(26.7815)	(47.1694)	(15.0336)	(12.8842)	(15.0397)	(12.1787)	(12.8886)
INSTOWN		-0.0273		-0.0202			-0.0098	
		(-0.8669)		(-0.6946)			(-0.3103)	
INSTOWN_HHI		0.2886*	0.3381**		0.1688		0.1466	0.1457
		(1.6994)	(2.1878)		(1.0284)		(0.819)	(0.8964)
MAXINSTOWN			0.1217*			0.1701***		0.1675***
			(1.942)			(2.8723)		(2.8269)
Conversion premium	-0.0507***			-0.0512***	-0.0505***	-0.0488***	-0.0508***	-0.0487***
	(-3.101)			(-3.1335)	(-3.0935)	(-3.0194)	(-3.1068)	(-3.0141)
Stock price run-up	0.0566**			0.0541**	0.0543**	0.0615**	0.0534**	0.0594**
	(2.2354)			(2.1184)	(2.1403)	(2.4496)	(2.0912)	(2.361)
Fianncial slack/total assets	-0.0029			0.0028	0.004	-0.0021	0.0059	0.0038
	(-0.059)			(0.0569)	(0.0806)	(-0.0433)	(0.1178)	(0.0783)
Total proceeds/market value	-0.0104			-0.0092	-0.0107	-0.0145	-0.01	-0.0147
	(-0.8664)			(-0.7576)	(-0.8932)	(-1.2132)	(-0.8287)	(-1.2313)
ROA	0.065			0.061	0.0725	0.0916	0.0696	0.0977
	(0.9104)			(0.8516)	(1.012)	(1.2863)	(0.9625)	(1.367)
Short-term debt/total assets	-0.551***			-0.5515***	-0.5676***	-0.5665***	-0.5657***	-0.5807***
	(-4.905)			(-4.913)	(-5.0084)	(-5.0923)	(-4.9848)	(-5.1731)
Long-term debt/total assets	0.0431			0.0429	0.0359	0.0365	0.0367	0.0303
	(0.8788)			(0.8741)	(0.7245)	(0.7512)	(0.7403)	(0.6189)
Total assets (log)	-2.8134***			-2.6789***	-2.5248***	-3.0863***	-2.4972***	-2.8327***
	(-3.7974)			(-3.5003)	(-3.1906)	(-4.1761)	(-3.1364)	(-3.583)
Market -to-book ratio	0.003			0.0032	0.0032	0.0013	0.0032	0.0014
	(0.8092)			(0.8446)	(0.8492)	(0.3368)	(0.861)	(0.3782)
Sales growth	0.0035			0.0029	0.0035	0.0051	0.0032	0.0051
	(0.7191)			(0.5922)	(0.7173)	(1.0573)	(0.6488)	(1.0507)
Stock market run-up	0.0496			0.0573	0.0535	0.0321	0.0568	0.0358
	(0.6211)			(0.7114)	(0.6705)	(0.405)	(0.7052)	(0.4511)
Stock market volatility	0.2977**			0.2921*	0.2986**	0.3273**	0.2957*	0.3276**
	(1.9646)			(1.926)	(1.9729)	(2.1784)	(1.9507)	(2.1824)
Leading indicator	-0.0039			-0.0058	-0.0044	0.0006	-0.0052	0.0001
	(-0.2745)			(-0.3988)	(-0.3075)	(0.0402)	(-0.3605)	(0.0069)
Log Likelihood	174.5201	139.9323	141.4332	174.7611	175.0481	178.6007	175.0962	179.002
N	377	377	377	377	377	377	377	377

This table presents the Tobit regressions analysis of the impact of institutional ownership and institutional ownership concentration on delta of convertible debt issues. The dependant variable is delta. Delta, is, by definition, censored from both below (by the value of zero) and above (by the value of one). To obtain consistent estimates, we estimate regressions as Tobit model with double censoring. Regression (1) uses only control variables. Regression (2) includes only total institutional ownership and intuitional concentration ratio. Regression (3) includes only the largest institutional ownership and intuitional concentration ratio. Regressions (4) - (6) extend the (1) by adding total institutional ownership, institutional ownership concentration, and the largest institutional ownership respectively. Regression (7) uses total institutional ownership, concentration. Regression (8) includes the largest institutional ownership, ownership concentrations at the same time. Appendix 1 gives the definition and source for all variables. ***Significant at the 1% level;**Significant at the 5% level; *Significant at the 10% level.

Table 5

Tobit regression analysis of delta of convertibles on institutional ownership based on investment horizon

Panel A

Variables	1	2	3	4	5	6	7
Intercept	0.769***	0.891***	0.8953***	0.8709***	0.8908***	0.8771***	0.8854***
	(49.4175)	(15.4643)	(15.3864)	(12.8561)	(15.4832)	(12.6511)	(12.7481)
Dedicated_own	0.0665	0.1402**	0.1401**	0.1345**	0.0899	0.1352**	0.0913
	(0.9834)	(2.2081)	(2.2078)	(2.0932)	(1.1421)	(2.104)	(1.1506)
Quasi-indexer_own	-0.1182***	-0.0887**	-0.0637	-0.0831**	-0.103***	-0.0631	-0.1007**
	(-3.2496)	(-2.4597)	(-1.0511)	(-2.2193)	(-2.6834)	(-1.0403)	(-2.3998)
Transient_own	0.1628**	0.121**	0.1301**	0.1257**	0.0856	0.1326**	0.0889
	(2.5258)	(2.0278)	(2.0908)	(2.0873)	(1.2566)	(2.1245)	(1.232)
INSTOWN			-0.0299			-0.0248	
			(-0.5132)			(-0.4193)	
INSTOWN_HHI				0.0985		0.0852	0.0265
				(0.5651)		(0.4814)	(0.139)
MAXINSTOWN					0.1167		0.1099
					(1.0754)		(0.9252)
Conversion premium		-0.0537***	-0.0532***	-0.0532***	-0.0532***	-0.0529***	-0.0531***
		(-3.351)	(-3.322)	(-3.3168)	(-3.3258)	(-3.2973)	(-3.3155)
Stock price run-up		0.0514**	0.0517**	0.0512**	0.0508**	0.0515**	0.0508**
		(2.0491)	(2.0613)	(2.0398)	(2.0287)	(2.0509)	(2.0273)
Fianncial slack/total assets		0.0324	0.0336	0.0338	0.0322	0.0347	0.0326
		(0.652)	(0.6766)	(0.681)	(0.6493)	(0.6975)	(0.6564)
Total proceeds/market value		-0.0078	-0.0078	-0.0084	-0.0086	-0.0083	-0.0087
		(-0.6578)	(-0.6574)	(-0.7039)	(-0.7269)	(-0.6969)	(-0.7343)
ROA		0.0853	0.0841	0.0906	0.0914	0.0889	0.0924
		(1.218)	(1.2002)	(1.2832)	(1.3024)	(1.2567)	(1.3099)
Short-term debt/total assets		-0.5699***	-0.5727***	-0.5798***	-0.5721***	-0.5808***	-0.5747***
		(-5.1959)	(-5.2169)	(-5.2223)	(-5.2233)	(-5.2315)	(-5.1759)
Long-term debt/total assets		0.0429	0.0418	0.0383	0.0387	0.038	0.0377
		(0.8947)	(0.8719)	(0.7869)	(0.8059)	(0.7816)	(0.7763)
Total assets (log)		-2.6134***	-2.5794***	-2.4806***	-2.6061***	-2.4702***	-2.5708***
		(-3.4898)	(-3.4321)	(-3.1618)	(-3.4852)	(-3.1477)	(-3.2553)
Market-to-book ratio		0.0018	0.0016	0.0018	0.0015	0.0016	0.0015
		(0.4808)	(0.4189)	(0.4823)	(0.4101)	(0.4301)	(0.4143)
Sales growth		0.003	0.0029	0.0032	0.0031	0.0031	0.0031
		(0.6199)	(0.6101)	(0.6582)	(0.6452)	(0.6445)	(0.653)
Stock market run-up		0.0291	0.0305	0.0294	0.0375	0.0306	0.0371
		(0.3686)	(0.3869)	(0.3731)	(0.473)	(0.3877)	(0.4678)
Stock market volatility		0.2679*	0.2706*	0.2702*	0.2777*	0.2721*	0.2778*
		(1.7965)	(1.8138)	(1.8119)	(1.8617)	(1.8242)	(1.862)
Leading indicator		-0.0099	-0.0097	-0.0095	-0.0095	-0.0094	-0.0094
		(-0.6906)	(-0.6794)	(-0.6613)	(-0.6652)	(-0.6559)	(-0.6583)
Log Likelihood	145.3809	183.9625	184.0942	184.1221	184.5399	184.21	184.5496
N	377	377	377	377	377	377	377

Table 5 Continued: *Panel B*

Variables	1	2	3	4	5	6	7
Intercept	0.8016***	0.7931***	0.7902***	0.7614***	0.7899***	0.7402***	0.7621***
	(57.3246)	(12.0758)	(11.8764)	(10.5687)	(12.1428)	(9.6672)	(10.679)
Dedicated number	0.1651	0.2997**	0.3145**	0.3013**	0.3352**	0.3509**	0.336**
	(1.1845)	(2.1018)	(2.0599)	(2.116)	(2.3638)	(2.2659)	(2.3722)
Quasi-indexer number	-0.0601***	-0.0706***	-0.0708***	-0.0706***	-0.0678***	-0.0713***	-0.0679***
	(-3.4807)	(-4.1661)	(-4.1747)	(-4.1722)	(-4.0324)	(-4.2129)	(-4.0398)
Transient number	0.006	0.008	0.008	0.0082	0.0105	0.0083	0.0106
	(0.1998)	(0.2484)	(0.2476)	(0.2564)	(0.3277)	(0.2567)	(0.3335)
INSTOWN			0.0082			0.027	
			(0.2711)			(0.8107)	
INSTOWN_HHI				0.1682		0.2297	0.1476
				(1.0618)		(1.3088)	(0.9394)
MAXINSTOWN					0.1575***		0.1548***
					(2.727)		(2.6809)
Conversion premium		-0.0558***	-0.0557***	-0.0557***	-0.0542***	-0.0551***	-0.054***
		(-3.5331)	(-3.5228)	(-3.5266)	(-3.4586)	(-3.4934)	(-3.454)
Stock price run-up		0.0423*	0.043*	0.04	0.0466*	0.0415*	0.0445*
		(1.7159)	(1.7349)	(1.6192)	(1.904)	(1.675)	(1.8135)
Fianncial slack/total assets		0.0273	0.0257	0.0342	0.0282	0.0314	0.0342
		(0.5637)	(0.5267)	(0.7007)	(0.5873)	(0.6424)	(0.7075)
Total proceeds/market value		-0.0117	-0.012	-0.012	-0.0149	-0.0131	-0.0151
		(-0.9941)	(-1.0166)	(-1.0202)	(-1.2723)	(-1.1134)	(-1.2909)
ROA		0.0834	0.0846	0.0908	0.1054	0.0976	0.1115
		(1.2032)	(1.2184)	(1.3056)	(1.5248)	(1.3941)	(1.6083)
Short-term debt/total assets		-0.6072***	-0.607***	-0.6238***	-0.619***	-0.6292***	-0.6334***
		(-5.5451)	(-5.5436)	(-5.6477)	(-5.7039)	(-5.6911)	(-5.7858)
Long-term debt/total assets		-0.0095	-0.0091	-0.0165	-0.0106	-0.0179	-0.0168
		(-0.19)	(-0.1826)	(-0.3289)	(-0.2145)	(-0.356)	(-0.3368)
Total assets (log)		-0.6457	-0.7002	-0.3649	-1.0789	-0.4425	-0.8252
		(-0.6558)	(-0.6968)	(-0.3584)	(-1.092)	(-0.4331)	(-0.8066)
Market-to-book ratio		0.005	0.005	0.0052	0.0033	0.0051	0.0034
		(1.349)	(1.3404)	(1.3879)	(0.8745)	(1.3758)	(0.9155)
Sales growth		-0.0002	0	-0.0002	0.0014	0.0004	0.0014
		(-0.0486)	(-0.0072)	(-0.0503)	(0.3003)	(0.0848)	(0.2934)
Stock market run-up		0.0045	0.0004	0.0085	-0.0116	-0.0038	-0.0079
		(0.058)	(0.0049)	(0.1081)	(-0.1494)	(-0.0479)	(-0.1016)
Stock market volatility		0.2976**	0.2997**	0.2983**	0.3233**	0.3056**	0.3235**
		(2.0283)	(2.04)	(2.0362)	(2.2206)	(2.0835)	(2.2245)
Leading indicator		-0.0072	-0.0066	-0.0077	-0.0036	-0.0059	-0.0041
		(-0.5184)	(-0.4698)	(-0.5544)	(-0.2612)	(-0.4207)	(-0.297)
Log Likelihood	152.7495	187.8466	187.8834	191.5286	188.4095	188.7379	191.9693
N	377	377	377	377	377	377	377

Table 5 Continued:

This table presents the results of Tobit regressions analysis of the impact of institutional ownership based on investment horizon on delta following Bushee(2001). The dependant variable is delta. Delta, is, by definition, censored from both below (by the value of zero) and above (by the value of one). To obtain consistent estimates, we estimate regressions as Tobit regressions with double censoring. Panel A reports the result for using the ownership of dedicated, quasi-indexer and transient institutions. Regression (1) of Panel A reports the results by regressing delta on the ownership of dedicated, quasi-indexer and transient institutions only. Regression (2) uses the ownership of dedicated, quasi-indexer, transient institutions and control variables. Regressions (3)-(5) report results by adding total institutional ownership, institutional ownership concentration and the largest institutional ownership as control variable respectively. Regressions (6) and (7) provide the result by adding two of them at a time. Panel B reports the result for using the number of dedicated, quasi-indexer and transient institutions as explanatory variables. Regression (1) of Panel B reports the results by regressing delta on the number of dedicated, quasi-indexer and transient institutions only. Regression (2) uses the number of dedicated, quasi-indexer, transient institutions and control variables. Regressions (3)-(5) report result by adding total institutional ownership, institutional ownership concentration and the largest institutional ownership respectively. Regressions (6) and (7) provide the result by adding two of them at a time. Appendix 1 gives the definition and source for all variables. ***Significant at the 1% level;**Significant at the 5% level; *Significant at the 10% level.

Table 6

Tobit regression analysis of delta of convertibles on institutional ownership based on investment style

Panel A

Variable	1	2	3	4	5	6	7
Intercept	0.7625***	0.8564***	0.8724***	0.8097***	0.8663***	0.8403***	0.8679***
	(49.5158)	(14.4495)	(14.638)	(11.8636)	(14.7444)	(11.8553)	(12.1003)
Growth&income_own	-0.1173**	-0.1219**	-0.0604	-0.1132**	-0.1662***	-0.0636	-0.1668***
	(-2.2924)	(-2.2948)	(-0.9728)	(-2.1203)	(-3.0286)	(-1.0228)	(-2.9127)
Growth_own	0.181***	0.1477***	0.1754***	0.1546***	0.0564	0.1759***	0.0555
	(3.5882)	(2.9245)	(3.3494)	(3.0527)	(0.9476)	(3.3605)	(0.8618)
VALUE_own	-0.012	0.066	0.0908	0.0703	-0.0122	0.09	-0.013
	(-0.2078)	(1.1581)	(1.5587)	(1.234)	(-0.1944)	(1.5461)	(-0.1971)
INSTOWN			-0.0857*			-0.0735	
			(-1.8859)			(-1.5411)	
INSTOWN_HHI				0.2301		0.1469	-0.0074
				(1.3684)		(0.8345)	(-0.0385)
MAXINSTOWN					0.2902***		0.2925**
					(2.82)		(2.4599)
Conversion premium		-0.0481***	-0.0484***	-0.0475***	-0.0493***	-0.0479***	-0.0493***
		(-2.9817)	(-3.0131)	(-2.9484)	(-3.0862)	(-2.9865)	(-3.0845)
Stock price run-up		0.0663***	0.0629**	0.0644**	0.0597**	0.0622**	0.0597**
		(2.6236)	(2.4959)	(2.5548)	(2.3798)	(2.47)	(2.38)
Fianncial slack/total assets		0.0071	0.0187	0.0145	0.0247	0.0218	0.0246
		(0.1441)	(0.3794)	(0.2949)	(0.5044)	(0.4417)	(0.5016)
Total proceeds/market value		-0.011	-0.0092	-0.0119	-0.0118	-0.0101	-0.0117
		(-0.9034)	(-0.7595)	(-0.9831)	(-0.9809)	(-0.8284)	(-0.9775)
ROA		0.0873	0.0837	0.1001	0.1026	0.0923	0.1024
		(1.2319)	(1.1858)	(1.4032)	(1.4591)	(1.2958)	(1.4467)
Short-term debt/total assets		-0.5261***	-0.5345***	-0.5494***	-0.5497***	-0.5481***	-0.5491***
		(-4.7179)	(-4.8115)	(-4.8819)	(-4.9667)	(-4.8861)	(-4.9189)
Long-term debt/total assets		0.0312	0.029	0.0209	0.0261	0.0227	0.0264
		(0.6428)	(0.6)	(0.4278)	(0.5434)	(0.4661)	(0.5428)
Total assets (log)		-2.4392***	-2.2597***	-2.1033***	-2.3954***	-2.0707**	-2.4059***
		(-3.1441)	(-2.9045)	(-2.5907)	(-3.1194)	(-2.5577)	(-2.9528)
Market-to-book ratio		0.0019	0.0016	0.0019	0.0005	0.0016	0.0005
		(0.5025)	(0.423)	(0.5135)	(0.1421)	(0.4411)	(0.1385)
Sales growth		0.0038	0.003	0.004	0.0038	0.0033	0.0038
		(0.777)	(0.62)	(0.8329)	(0.8024)	(0.6763)	(0.8001)
Stock market run-up		0.073	0.0757	0.0739	0.084	0.0759	0.084
		(0.9029)	(0.9403)	(0.9154)	(1.0475)	(0.943)	(1.048)
Stock market volatility		0.3276**	0.3268**	0.333**	0.3335**	0.3304**	0.3334**
		(2.1825)	(2.1876)	(2.2236)	(2.2452)	(2.2128)	(2.2437)
Leading indicator		-0.0095	-0.0102	-0.009	-0.0108	-0.0098	-0.0108
		(-0.6523)	(-0.7025)	(-0.6199)	(-0.7464)	(-0.6743)	(-0.7474)
Log Likelihood	144.3801	180.056	181.8259	180.99	183.9908	182.1738	183.9915
N	377	377	377	377	377	377	377

Table6 Continued: *Panel B*

Variable	1	2	3	4	5	6	7
Intercept	0.8171***	0.7136***	0.7113***	0.671***	0.7097***	0.6483***	0.6711***
	(64.7784)	(11.6271)	(11.3336)	(9.8852)	(11.657)	(8.8702)	(9.9654)
Growth&income number	-0.0938***	-0.1292***	-0.1283***	-0.1336***	-0.1236***	-0.1299***	-0.1278***
	(-3.0937)	(-4.0907)	(-4.0054)	(-4.2233)	(-3.9368)	(-4.0707)	(-4.0593)
Growth number	0.1772***	0.1723***	0.1724***	0.1772***	0.1714***	0.179***	0.1759***
	(4.3627)	(4.2963)	(4.2987)	(4.4151)	(4.3082)	(4.4578)	(4.4151)
Value number	-0.0907**	-0.0872**	-0.0892**	-0.0836**	-0.0883**	-0.093**	-0.085**
	(-2.3798)	(-2.367)	(-2.3137)	(-2.2707)	(-2.4147)	(-2.417)	(-2.3246)
INSTOWN			0.005			0.0257	
			(0.1748)			(0.833)	
INSTOWN_HHI				0.2229		0.2793*	0.2025
				(1.4511)		(1.6651)	(1.3268)
MAXINSTOWN					0.1399**		0.1358**
					(2.5139)		(2.4435)
Conversion premium		-0.0535***	-0.0534***	-0.0531***	-0.0519***	-0.0525***	-0.0516***
		(-3.5053)	(-3.4967)	(-3.4922)	(-3.4278)	(-3.4525)	(-3.418)
Stock price run-up		0.0557**	0.0562**	0.0532**	0.0597**	0.055**	0.0573**
		(2.3381)	(2.3429)	(2.2309)	(2.5227)	(2.3)	(2.418)
Fianncial slack/total assets		0.039	0.0379	0.0478	0.0387	0.0444	0.0467
		(0.8368)	(0.8065)	(1.0203)	(0.8381)	(0.9452)	(1.0055)
Total proceeds/market value		-0.0097	-0.0099	-0.0102	-0.0128	-0.0115	-0.0132
		(-0.8585)	(-0.8726)	(-0.9059)	(-1.1357)	(-1.0102)	(-1.1714)
ROA		0.0577	0.0585	0.0673	0.0783	0.0739	0.0865
		(0.8593)	(0.8693)	(1.0011)	(1.1682)	(1.0928)	(1.2877)
Short-term debt/total assets		-0.5335***	-0.5329***	-0.5554***	-0.5441***	-0.5577***	-0.5637***
		(-5.0422)	(-5.0336)	(-5.2107)	(-5.1812)	(-5.2353)	(-5.3276)
Long-term debt/total assets		-0.0582	-0.0583	-0.0685	-0.0597	-0.0714	-0.069
		(-1.2036)	(-1.2047)	(-1.4051)	(-1.2453)	(-1.4618)	(-1.4274)
Total assets (log)		1.0463	1.0215	1.4414	0.6742	1.4126	1.0438
		(1.1317)	(1.0921)	(1.4994)	(0.7259)	(1.4698)	(1.0788)
Market-to-book ratio		0.0007	0.0007	0.0008	-0.0008	0.0006	-0.0007
		(0.1959)	(0.1804)	(0.2325)	(-0.2289)	(0.1641)	(-0.1844)
Sales growth		-0.0006	-0.0005	-0.0007	0.0009	0	0.0008
		(-0.1385)	(-0.1072)	(-0.1447)	(0.1937)	(0.0088)	(0.1793)
Stock market run-up		0.0754	0.0741	0.0805	0.063	0.075	0.068
		(0.9892)	(0.9677)	(1.058)	(0.8327)	(0.9841)	(0.8996)
Stock market volatility		0.3767***	0.3792***	0.3764***	0.4014***	0.3896***	0.4004***
		(2.6354)	(2.6396)	(2.6406)	(2.8248)	(2.7193)	(2.8244)
Leading indicator		-0.0053	-0.0048	-0.0061	-0.0016	-0.0037	-0.0024
		(-0.3975)	(-0.3515)	(-0.458)	(-0.1172)	(-0.2702)	(-0.1799)
Log Likelihood	167.5307	201.0584	201.0737	202.1083	202.4549	205.0702	204.1921
N	377	377	377	377	377	377	377

Table6 Continued:

This table presents the results of Tobit regressions analysis of the impact of institutional ownership based on investment style on delta following Bushee and Goodman (2001). The dependant variable is delta. Delta, is, by definition, censored from both below (by the value of zero) and above (by the value of one). To obtain consistent estimates, we estimate regressions as Tobit regressions with double censoring. Panel A reports the result of using growth, value and growth and growth&income institutional ownership. Regression (1) of Panel A reports the result by regressing delta on the ownership of growth, value and growth and growth and income institutions only. Regression (2) use the ownership of growth, value and growth and growth and income and control variables. Regressions (3)-(5) report results by adding total institutional ownership, institutional ownership concentration and the largest institutional ownership respectively. Regression (6) and (7) provide the results by adding two of them at a time. Panel B reports the results by using the number of growth, value and growth&income institutions. Regression (1) of Panel B reports the results by regressing delta on using the number of growth, value and growth and growth and income institutions only. Regression (2) use the number of growth, value and growth and growth and income institutions. Regressions (3)-(5) report results by adding total institutional ownership, institutional ownership concentration and the largest institutional ownership as control variables respectively. Regression (6) and (7) provides the result by adding two them at a time. Appendix 1 gives the definition and source for all variables. ***Significant at the 1% level;**Significant at the 5% level; *Significant at the 10% level.

Table 7

Cumulative abnormal returns around the announcement date

Days	N	Cumulative abnormal return (%)	Precision weighted CAAR (%)	Patell Z	p-value	Generalized sign Z	p-value
(-3,+3)	377	-4.62***	-4.16***	-11.944	<.0001	-7.171	<.0001
(-1,0)	377	-1.9***	-1.9***	-10.218	<.0001	-4.591	<.0001
-1	377	0.1	0.01	0.096	0.4618	0.465	0.3211
0	377	-2***	-1.91***	-14.546	<.0001	-5.829	<.0001
1	377	-2.88	-2.4***	-18.26	<.0002	-7.067	<.0002
(0,+1)	377	-4.88***	-4.32***	-23.197	<.0001	-11.401	<.0001
(-1,+1)	377	-4.78***	-4.31***	-18.885	<.0001	-10.576	<.0001

This table reports the cumulative abnormal returns in different windows around the announcement date. Daily excess returns are calculated by taking the difference between the actual daily return and the expected return based on the market model parameter estimates. Market model parameters are estimated over a period from 240 to 40 days before the initial announcement, with the minimum estimation window is 40 days. The results we report use value-weighted index from the CRSP market index file.

Table 8

Regression analysis of stock returns around convertible debt announcement on institutional ownership

Variable	1	2	3	4	5	6	7	8
Intercept	0.0236	-0.0199*	-0.0472***	0.0373	0.0077	0.0223	0.034	0.0057
	(0.7384)	(-1.8064)	(-8.8269)	(1.1688)	(0.2246)	(0.6966)	(0.9566)	(0.1666)
INSTOWN		-0.0414***		-0.0339***			-0.0327**	
		(-3.1872)		(-2.7202)			(-2.3652)	
INSTOWN_HHI		-0.0425	0.0527		0.0919		0.0166	0.0956
		(-0.7222)	(0.9247)		(1.3913)		(0.2333)	(1.4583)
MAXINSTOWN			-0.0457**			-0.0371*		-0.0384*
			(-2.1732)			(-1.9166)		(-1.9573)
Delta	-0.0867***			-0.0894***	-0.0886***	-0.0823***	-0.0896***	-0.0841***
	(-3.9351)			(-4.0851)	(-4.0226)	(-3.6793)	(-4.1003)	(-3.7611)
Fianncial slack/total assets				-0.047**	-0.0533**	-0.0572***	-0.0466**	-0.0531**
	(-2.5872)			(-2.0943)	(-2.4237)	(-2.6009)	(-2.0983)	(-2.429)
Total proceeds/market value	-0.0127***			-0.011**	-0.013***	-0.0118***	-0.0111**	-0.0121***
	(-2.802)			(-2.4958)	(-2.8976)	(-2.6411)	(-2.5219)	(-2.7328)
Return on asset(%)	-0.002			-0.0077	0.0024	-0.0078	-0.0067	-0.0034
	(-0.052)			(-0.201)	(0.063)	(-0.2042)	(-0.1717)	(-0.0893)
Short-term debt/total assets	-0.0082			-0.01	-0.0182	-0.0022	-0.0118	-0.0124
	(-0.1775)			(-0.2336)	(-0.3992)	(-0.0473)	(-0.2685)	(-0.2684)
Long-term debt/total assets	0.0092			0.0094	0.0055	0.0107	0.0087	0.0069
	(0.3907)			(0.4131)	(0.2355)	(0.4548)	(0.3824)	(0.2949)
Total assets (log)	-0.3138			-0.0987	-0.164	-0.2438	-0.0791	-0.0855
	(-0.9991)			(-0.3248)	(-0.4911)	(-0.7697)	(-0.2457)	(-0.2542)
Market-to-book ratio	0.004*			0.0041*	0.004*	0.0043**	0.0041*	0.0044**
	(1.8282)			(1.8998)	(1.8424)	(2.0151)	(1.8977)	(2.0376)
Sales growth	-0.0017			-0.0027	-0.0017	-0.0021	-0.0026	-0.0021
	(-0.4792)			(-0.742)	(-0.4744)	(-0.5776)	(-0.7358)	(-0.5748)
Stock market run-up	0.082**			0.0932***	0.0837**	0.085**	0.0932***	0.0868**
	(2.388)			(2.7262)	(2.432)	(2.4755)	(2.7252)	(2.5243)
Stock market volatility	-0.0687			-0.081	-0.0686	-0.0776	-0.0805	-0.0779
	(-1.1459)			(-1.3699)	(-1.1542)	(-1.3002)	(-1.3704)	(-1.3147)
Leading indicator	-0.0017			-0.0049	-0.002	-0.0027	-0.0048	-0.003
	(-0.2937)			(-0.8422)	(-0.3398)	(-0.4611)	(-0.8359)	(-0.5155)
R-Square	0.16	0.0276	0.0094	0.1774	0.164	0.1648	0.1776	0.169
N	377	377	377	377	377	377	377	377

The table provides the sectional regression of announcement date abnormal returns on the institutional ownership and control variables.The dependant variable is the CAR (Cumulative Abnormal Return) calculated using one factor market model over the window (0, 1). The market returns used to calculate abnormal returns in this table are the CRSP value-weighted market returns. Regression (1) reports the results for the abnormal returns using only control variables. Regression (2) and (3) report the results by using only institutional ownership variables. Regressions (4) - (6) extend the (1) by adding total institutional ownership, institutional ownership concentration, and the largest institutional ownership respectively. The t-values are computed with heteroskedasticity-consistent standard error terms (White, 1980). Appendix 1 gives the definition and source for all variables. ***Significant at the 1% level;**Significant at the 5% level; *Significant at the 10% level.

Table 9

Regression analysis of stock returns around convertible debt announcement on institutional ownership based on investment horizon

Panel A

Variable	1	2	3	4	5	6	7
Intercept	-0.0295***	0.0369	0.0347	0.0374	0.0374	0.0338	0.0408
	(-4.3924)	(1.15)	(1.068)	(1.0705)	(1.1601)	(0.9306)	(1.1249)
Dedicated_own	0.0368	0.0149	0.0149	0.0151	0.0071	0.0146	0.0062
	(1.6477)	(0.6712)	(0.6663)	(0.6506)	(0.2305)	(0.6285)	(0.2018)
Quasi-indexer_own	-0.0433***	-0.0426***	-0.053**	-0.0428***	-0.0449***	-0.053**	-0.0464***
	(-2.7728)	(-2.8335)	(-2.336)	(-2.8247)	(-2.7118)	(-2.3425)	(-2.6431)
Transient_own	-0.0227	-0.0128	-0.0166	-0.0129	-0.0183	-0.0165	-0.0205
	(-1.0496)	(-0.6007)	(-0.759)	(-0.5862)	(-0.7503)	(-0.7411)	(-0.7509)
INSTOWN			0.0125			0.0128	
			(0.5221)			(0.5099)	
INSTOWN_HHI				-0.0024		0.0044	-0.0173
				(-0.0347)		(0.0604)	(-0.2224)
MAXINSTOWN					0.0184		0.0228
					(0.4596)		(0.517)
Delta		-0.092***	-0.0917***	-0.092***	-0.0925***	-0.0917***	-0.0925***
		(-4.0582)	(-4.0493)	(-4.0634)	(-4.0899)	(-4.0571)	(-4.0914)
Fianncial slack/total assets		-0.0421*	-0.0427*	-0.0422*	-0.0421*	-0.0426*	-0.0424*
		(-1.8663)	(-1.8709)	(-1.8793)	(-1.8661)	(-1.8814)	(-1.8879)
Total		-0.0103**	-0.0103**	-0.0103**	-0.0105**	-0.0104**	-0.0104**
		(-2.3904)	(-2.3934)	(-2.3883)	(-2.4221)	(-2.4031)	(-2.4078)
Return on asset(%)		-0.0064	-0.0059	-0.0065	-0.0054	-0.0056	-0.0061
		(-0.1675)	(-0.1525)	(-0.169)	(-0.1415)	(-0.1434)	(-0.1581)
Short-term		-0.0081	-0.0067	-0.0079	-0.0088	-0.0071	-0.0071
		(-0.1863)	(-0.1518)	(-0.1764)	(-0.2015)	(-0.1589)	(-0.1585)
Long-term		0.0116	0.012	0.0117	0.011	0.0118	0.0116
		(0.5152)	(0.5329)	(0.5173)	(0.4844)	(0.5224)	(0.5129)
Total assets (log)		-0.0697	-0.083	-0.0729	-0.0703	-0.0775	-0.0928
		(-0.2305)	(-0.2753)	(-0.2249)	(-0.2327)	(-0.2395)	(-0.2826)
Market-to-book		0.0044**	0.0045**	0.0044**	0.0044**	0.0045**	0.0043**
		(2.0444)	(2.0444)	(2.0449)	(2.0128)	(2.0402)	(2.0011)
Sales growth		-0.003	-0.0029	-0.003	-0.0029	-0.0029	-0.003
		(-0.817)	(-0.8131)	(-0.821)	(-0.8094)	(-0.8145)	(-0.8215)
Stock market run-		0.0934***	0.0928***	0.0934***	0.0947***	0.0928***	0.095***
		(2.7454)	(2.7233)	(2.7438)	(2.7554)	(2.7236)	(2.7686)
Stock market		-0.0902	-0.0916	-0.0903	-0.0886	-0.0915	-0.0886
		(-1.5043)	(-1.5135)	(-1.5104)	(-1.4792)	(-1.5184)	(-1.4783)
Leading indicator		-0.0066	-0.0066	-0.0066	-0.0065	-0.0066	-0.0066
		(-1.1135)	(-1.1234)	(-1.1197)	(-1.1056)	(-1.1268)	(-1.1165)
R-Square	0.0421	0.1878	0.1884	0.1878	0.1882	0.1884	0.1883
N	377	377	377	377	377	377	377

Table9 Continued: *Panel B*

Variable	1	2	3	4	5	6	7
Intercept	-0.0565***	0.0271	0.0354	0.0109	0.0247	0.026	0.0078
	(-8.7194)	(0.8173)	(1.0697)	(0.306)	(0.7416)	(0.6952)	(0.2189)
Dedicated number	0.2555***	0.1674***	0.1216**	0.1681***	0.1582***	0.1293**	0.1586***
	(5.8258)	(3.2783)	(2.1052)	(3.3203)	(3.0764)	(2.229)	(3.1126)
Quasi-indexer number	-0.0092	-0.0159**	-0.0151**	-0.016**	-0.0162**	-0.0153**	-0.0163**
	(-1.4901)	(-2.4774)	(-2.3912)	(-2.5583)	(-2.4632)	(-2.4299)	(-2.5467)
Transient number	0.0097	0.0089	0.0089	0.009	0.0083	0.009	0.0084
	(0.9156)	(0.7554)	(0.7587)	(0.7754)	(0.7018)	(0.7679)	(0.7193)
INSTOWN			-0.0244*			-0.0205	
			(-1.7292)			(-1.2916)	
INSTOWN_HHI				0.0943		0.0468	0.0975
				(1.4546)		(0.6466)	(1.5157)
MAXINSTOWN					-0.0326		-0.0339*
					(-1.6101)		(-1.6527)
Delta		-0.1034***	-0.1031***	-0.1054***	-0.0996***	-0.1041***	-0.1015***
		(-4.5253)	(-4.499)	(-4.6089)	(-4.284)	(-4.5311)	(-4.3647)
Fianncial slack/total assets		-0.0474**	-0.0424*	-0.0434**	-0.0476**	-0.0412*	-0.0435**
		(-2.1806)	(-1.9343)	(-2.0115)	(-2.1964)	(-1.9007)	(-2.019)
Total proceeds/market value		-0.0122***	-0.0114**	-0.0125***	-0.0116**	-0.0117***	-0.0119***
		(-2.6938)	(-2.5762)	(-2.7756)	(-2.5851)	(-2.6352)	(-2.6651)
Return on asset(%)		0.0001	-0.0031	0.0047	-0.0045	-0.0004	0
		(0.0039)	(-0.0812)	(0.1224)	(-0.1192)	(-0.009)	(-0.0006)
Short-term debt/total assets		-0.0284	-0.0285	-0.0387	-0.0234	-0.0336	-0.034
		(-0.6282)	(-0.6553)	(-0.8658)	(-0.5114)	(-0.7556)	(-0.7486)
Long-term debt/total assets		0.0051	0.0043	0.0014	0.0056	0.0026	0.0017
		(0.2177)	(0.1874)	(0.0578)	(0.2379)	(0.1114)	(0.0722)
Total assets (log)		-0.1007	0.0586	0.0526	-0.0105	0.1093	0.1515
		(-0.2247)	(0.1331)	(0.1125)	(-0.0232)	(0.2377)	(0.3186)
Market-to-book ratio		0.0043*	0.0043*	0.0043*	0.0046**	0.0043*	0.0046**
		(1.8482)	(1.877)	(1.859)	(2.0274)	(1.8742)	(2.046)
Sales growth		-0.0024	-0.003	-0.0024	-0.0027	-0.0029	-0.0027
		(-0.6501)	(-0.8135)	(-0.6445)	(-0.7389)	(-0.7919)	(-0.7354)
Stock market run-up		0.0678*	0.0793**	0.0695**	0.0707**	0.0783**	0.0725**
		(1.9463)	(2.23)	(1.9905)	(2.0255)	(2.2005)	(2.0744)
Stock market volatility		-0.0716	-0.0797	-0.0716	-0.0789	-0.0784	-0.0792
		(-1.1968)	(-1.356)	(-1.2067)	(-1.3199)	(-1.3446)	(-1.3359)
Leading indicator		-0.004	-0.0058	-0.0043	-0.0047	-0.0056	-0.005
		(-0.6869)	(-1.0007)	(-0.7388)	(-0.8091)	(-0.9824)	(-0.8684)
R-Square	0.0482	0.1852	0.193	0.1888	0.1894	0.1938	0.1933
N	377	377	377	377	377	377	377

Table9 Continued:

The table provides the results of the cross sectional regressions of announcement date abnormal returns on the institutional ownership based on investment horizons following Bushee (2001). The dependant variable is the CAR (Cumulative Abnormal Return) calculated using one factor market model over the window (0, 1). The market returns used to calculate abnormal returns in this table are the CRSP value-weighted market returns. The t-values are computed with heteroskedasticity-consistent standard error terms (White, 1980). Panel A reports the result for using the ownership of dedicated, quasi-indexer and transient institutions. Regression (1) reports the results for the abnormal returns using only institutional ownership of dedicated, transient and quasi-indexer. Regression (2) shows the result using institutional ownership of dedicated, transient and quasi-indexer and control variables. We add total institutional ownership, institutional ownership concentration and the largest institutional ownership respectively in regression (3) to (5). In regressions (6) and (7), we add two of them at a time. We do not use total institutional ownership and the largest institutional ownership in one regression since they are highly correlated. Panel B reports the results by using the number of dedicated, quasi-indexer and transient institutions instead. Regression (1) of Panel B reports the results by regressing abnormal returns on the number of dedicated, quasi-indexer and transient institutions only. Regression (2) use the number of dedicated, quasi-indexer, transient institutions and control variables. Regressions (3)-(5) report results by adding total institutional ownership, institutional ownership concentration and the largest institutional ownership respectively. Regressions (6) and (7) provide the result by adding two them at a time. The t-values are computed with heteroskedasticity-consistent standard error terms (White, 1980). Appendix 1 gives the definition and source for all variables. ***Significant at the 1% level;**Significant at the 5% level; *Significant at the 10% level.

Table 10

Regression analysis of stock returns around convertible debt announcement on institutional ownership based on investment style

Panel A

Variable	1	2	3	4	5	6	7
Intercept	-0.0313***	0.0276	0.0321	0.0206	0.0336	0.0274	0.0373
	(-4.8289)	(0.8732)	(0.9967)	(0.604)	(1.0449)	(0.7588)	(0.9917)
Growth&income_own	-0.0428**	-0.0323	-0.021	-0.031	-0.0428*	-0.0216	-0.0443*
	(-2.1676)	(-1.5254)	(-0.8972)	(-1.4728)	(-1.8461)	(-0.9059)	(-1.8484)
Growth_own	-0.0023	-0.0068	-0.0012	-0.0055	-0.0263	-0.0011	-0.0285
	(-0.1233)	(-0.3403)	(-0.0588)	(-0.2683)	(-1.0917)	(-0.0522)	(-1.047)
VALUE_own	-0.018	-0.0216	-0.0167	-0.0207	-0.0385*	-0.0168	-0.0403*
	(-0.9455)	(-1.0969)	(-0.8714)	(-1.0534)	(-1.7595)	(-0.8753)	(-1.717)
INSTOWN			-0.016			-0.0142	
			(-0.8596)			(-0.6936)	
INSTOWN_HHI				0.0386		0.0228	-0.0177
				(0.5855)		(0.3162)	(-0.2217)
MAXINSTOWN					0.0648		0.0703
					(1.5823)		(1.4354)
Delta		-0.0859***	-0.0878***	-0.0869***	-0.0906***	-0.0881***	-0.0906***
		(-3.8487)	(-3.891)	(-3.8824)	(-4.0479)	(-3.9081)	(-4.0517)
Fianncial slack/total assets		-0.0495**	-0.0473**	-0.0482**	-0.0454**	-0.0468**	-0.0457**
		(-2.2591)	(-2.0965)	(-2.2084)	(-2.0456)	(-2.0947)	(-2.0685)
Total proceeds/market value		-0.0107**	-0.0104**	-0.0109**	-0.011**	-0.0106**	-0.011**
		(-2.4227)	(-2.3576)	(-2.4771)	(-2.5231)	(-2.3931)	(-2.5185)
Return on asset(%)		-0.0084	-0.0088	-0.0062	-0.0042	-0.0074	-0.0049
		(-0.2174)	(-0.2264)	(-0.1572)	(-0.1101)	(-0.1871)	(-0.1258)
Short-term debt/total assets		-0.0014	-0.0038	-0.0058	-0.0089	-0.0062	-0.0075
		(-0.0305)	(-0.0864)	(-0.1253)	(-0.2002)	(-0.1359)	(-0.1671)
Long-term debt/total assets		0.01	0.0097	0.0083	0.0091	0.0087	0.0098
		(0.4335)	(0.4223)	(0.3612)	(0.397)	(0.3803)	(0.4265)
Total assets (log)		-0.069	-0.0406	-0.0157	-0.0717	-0.0124	-0.0964
		(-0.2201)	(-0.13)	(-0.0469)	(-0.2313)	(-0.0374)	(-0.2788)
Market-to-book ratio		0.0042*	0.0042*	0.0042*	0.0039*	0.0042*	0.0039*
		(1.9533)	(1.8919)	(1.9514)	(1.7275)	(1.8912)	(1.6894)
Sales growth		-0.0026	-0.0027	-0.0025	-0.0025	-0.0027	-0.0026
		(-0.7065)	(-0.7475)	(-0.6927)	(-0.6907)	(-0.7382)	(-0.6993)
Stock market run-up		0.0987***	0.0991***	0.0988***	0.1009***	0.0991***	0.1011***
		(2.778)	(2.7872)	(2.7772)	(2.862)	(2.7863)	(2.8742)
Stock market volatility		-0.0824	-0.0823	-0.0813	-0.0805	-0.0817	-0.0808
		(-1.3793)	(-1.3773)	(-1.3681)	(-1.346)	(-1.3754)	(-1.3537)
Leading indicator		-0.0056	-0.0057	-0.0055	-0.0059	-0.0057	-0.006
		(-0.909)	(-0.9312)	(-0.8996)	(-0.9578)	(-0.9263)	(-0.9711)
R-Square	0.0294	0.1795	0.181	0.1801	0.1842	0.1812	0.1843
N	377	377	377	377	377	377	377

Table 10 Continued: *Panel B*

Variable	1	2	3	4	5	6	7
Intercept	-0.0469***	0.0091	0.0244	-0.0069	0.0071	0.0197	-0.0097
	(-8.0619)	(0.2871)	(0.7646)	(-0.2011)	(0.2231)	(0.5427)	(-0.2847)
Growth&income number	0.0086	-0.0048	-0.0115	-0.0072	-0.006	-0.0117	-0.0085
	(0.8822)	(-0.4006)	(-0.9222)	(-0.579)	(-0.4973)	(-0.9329)	(-0.6852)
Growth number	-0.0015	-0.0012	-0.0014	0.0015	-0.0014	-0.0008	0.0013
	(-0.103)	(-0.0786)	(-0.0953)	(0.0983)	(-0.0966)	(-0.0507)	(0.0883)
Value number	-0.0179	-0.0178	-0.0039	-0.0163	-0.0169	-0.0042	-0.0153
	(-1.4087)	(-1.5084)	(-0.3134)	(-1.3886)	(-1.4214)	(-0.3426)	(-1.295)
INSTOWN			-0.0333**			-0.0316**	
			(-2.5622)			(-2.1936)	
INSTOWN_HHI				0.0936		0.0229	0.098
				(1.3936)		(0.3132)	(1.4737)
MAXINSTOWN					-0.039**		-0.0404**
					(-1.9734)		(-2.0164)
Delta		-0.0987***	-0.0988***	-0.1014***	-0.0944***	-0.0994***	-0.097***
		(-4.0711)	(-4.1013)	(-4.1613)	(-3.8634)	(-4.1118)	(-3.9534)
Fianncial slack/total assets		-0.051**	-0.0434*	-0.0471**	-0.0509**	-0.0428*	-0.0469**
		(-2.3141)	(-1.958)	(-2.148)	(-2.3235)	(-1.9504)	(-2.1471)
Total proceeds/market value		-0.0129***	-0.0117***	-0.0132***	-0.0121***	-0.0118***	-0.0124***
		(-2.8614)	(-2.6716)	(-2.9694)	(-2.7104)	(-2.6955)	(-2.8162)
Return on asset(%)		0.0017	-0.0031	0.006	-0.0041	-0.0018	0.0003
		(0.0435)	(-0.0792)	(0.1538)	(-0.105)	(-0.0447)	(0.0067)
Short-term debt/total assets		-0.0171	-0.0209	-0.0276	-0.0117	-0.0233	-0.0225
		(-0.3595)	(-0.4659)	(-0.5823)	(-0.2427)	(-0.5061)	(-0.4689)
Long-term debt/total assets		-0.0029	-0.002	-0.0072	-0.002	-0.0031	-0.0065
		(-0.1183)	(-0.0865)	(-0.2936)	(-0.0822)	(-0.1309)	(-0.2664)
Total assets (log)		0.1769	0.3364	0.343	0.273	0.3688	0.4505
		(0.414)	(0.8104)	(0.7588)	(0.6313)	(0.8281)	(0.9845)
Market-to-book ratio		0.0042*	0.0045*	0.0042*	0.0046**	0.0045*	0.0046**
		(1.8173)	(1.9654)	(1.819)	(2.0209)	(1.9642)	(2.0312)
Sales growth		-0.0023	-0.0032	-0.0023	-0.0027	-0.0032	-0.0027
		(-0.6238)	(-0.8669)	(-0.6202)	(-0.7311)	(-0.8586)	(-0.7297)
Stock market run-up		0.081**	0.0882**	0.0829**	0.0835**	0.0883**	0.0856**
		(2.2927)	(2.5171)	(2.3382)	(2.3645)	(2.5174)	(2.4148)
Stock market volatility		-0.0554	-0.0757	-0.0554	-0.0652	-0.0747	-0.0655
		(-0.9049)	(-1.2723)	(-0.9137)	(-1.0682)	(-1.2667)	(-1.0845)
Leading indicator		-0.0014	-0.0048	-0.0017	-0.0024	-0.0047	-0.0028
		(-0.23)	(-0.809)	(-0.2903)	(-0.4047)	(-0.7989)	(-0.4749)
R-Square	0.0031	0.1681	0.1834	0.1722	0.1836	0.1778	0.1734
N	377	377	377	377	377	377	377

Table 10 Continued:

The table provides the results of cross sectional regressions of announcement date abnormal returns on the institutional ownership based on investment style following Bushee and Goodman (2007). The dependant variable is the CAR (Cumulative Abnormal Return) calculated using one factor market model over the window (0, 1). The market returns used to calculate abnormal returns in this table are the CRSP value-weighted market returns. The t-values are computed with heteroskedasticity-consistent standard error terms (White, 1980). Panel A reports the result for using the ownership of growth, value, and growth and income. Regression (1) reports the result for the abnormal returns using only institutional ownership of dedicated, transient and quasi-indexer. Regression (2) shows the result of using institutional ownership of growth, value, growth&income and control variables. We add total institutional ownership, institutional ownership concentration and the largest institutional ownership respectively to regression (3) to (5). In regressions (6) and (7), we add two of them at a time. We do not use total institutional ownership and the largest institutional ownership in one regression since they are highly correlated. Panel B reports the results for using the number of growth, value, and growth and income instead. Regression (1) of Panel B reports the result by regressing delta on the number of growth, value and growth&income institutions only. Regression (2) use the number of d growth, value and growth&income institutions and control variables. Regressions (3)-(5) report results by adding total institutional ownership, institutional ownership concentration and the largest institutional ownership respectively. Regression (6) and (7) provides the result by adding two them at a time. Appendix 1 gives the definition and source for all variables. ***Significant at the 1% level;**Significant at the 5% level; *Significant at the 10% level.