

Possible Motives for Floating-Priced Warrant Issues: A Survey on Related Securities

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Possible Motives for Floating-Priced Warrant Issues: A Survey on Related Securities

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1 . Introduction

A warrant allows the holder to purchase the issuing firm's underlying stocks at a predetermined price during a certain span (see Companies Act, Article 2, 21). A floating-priced warrant is an American warrant whose exercise price is not predetermined but is set equal to the previous day's closing price with a certain discount, usually 10%.

Traditionally, warrants are issued in conjunction with bonds or stocks, referred to as warrant bonds and unit offerings. However, the 2002 revision of the Japanese commercial code allows warrants to be issued independently of bonds or stocks, which makes warrants an alternative financing method for firms that are unwilling or unable to issue common stocks immediately. According to JPX's statistics monthly report, warrants have been increasingly issued by Japanese firms. More than 500 Japanese firms conducted over 1500 cases of warrant issues to date, and the total proceeds raised by warrant issues surpassed the size of proceeds raised by SEOs in 2019. In all warrants issued by Japanese firms, around two-thirds of them are floating-priced warrants, which raises the question of why some firms choose to issue floating-priced warrants instead of common stocks.

Since few countries allow independent issuance of warrants, literature documenting warrants issuance is focused on unit IPO (Barry et al., 1991; Schultz, 1993; Jain, 1994; Dunbar, 1995; How & Howe, 2001; Lee et al., 2003), unit SEO (Ng & Smith, 1996; Byoun & Moore, 2003; Byoun, 2004; Bae et al., 2013) and warrant bonds (Finnerty, 1986; Billingsley et al., 1990; Long & Sefcik, 1990) instead of issuing warrants alone. Warrants in a unit offering can act as a sweetener (Finnerty, 1986; Billingsley et al., 1990; Long & Sefcik, 1990), a way to compensate underwriters (Barry et al., 1991; Dunbar, 1995; Ng & Smith, 1996; Bae et al., 2013), a form of staged finance to reduce agency cost of Jensen's (1986) free cash flow problem (Schultz, 1993; Mayers, 1998; Byoun & Moore, 2003) or a signal of firm quality (Jain, 1994; Chemmanur & Fulghieri, 1997; How & Howe, 2001; Byoun & Moore, 2003; Lee et al., 2003).

A close relative to the warrant bond, although the warrant part in the bond is not separatable, is a convertible bond. Hypotheses on the motives for convertible bond issues are debt sweetener and delayed equity hypotheses (e.g., Billingsley & Smith, 1996; Mann et al., 1999; Bancel & Mittoo, 2004);

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risk insensitivity hypothesis (Brennan & Schwartz, 1988; Dorion et al., 2014); back door equity hypothesis (Stein, 1992; Jen et al., 1997); tax shield hypothesis (Jalan, & Barone-Adesi, 1995); sequential financing hypothesis (Mayers, 1998; Isagawa, 2000; Chang et al., 2004); and managerial entrenchment hypothesis (Isagawa, 2002).

One financial innovation devised based on convertible bonds that relate to floating-priced warrants even closely is a floating-priced convertible bond (known as MSCB in Japan). A floating-priced convertible bond is a convertible bond with a resettable strike price. Before the 2002 revision of Japanese commercial law, Japanese firms have relied heavily on floating-priced convertible bonds. Start with Hillion & Vermaelen (2004), Various studies on floating-priced convertible bonds support the last resort hypothesis as the motive of issuance (Chaplinsky & Haushalter, 2005, 2010; Brophy, Ouimet, & Sialm, 2009).

This survey provides possible motives for floating-priced warrant issuance by extensively surveying the literature of the closely related securities. The conclusion favors flotation cost minimization as the primary motive of floating-priced warrant issuance.

2. Literature Review

2.1 Unit IPOs

Barry et al. (1991) first examine the motive of including warrants in an initial public offering. Using 723 commitment IPOs from January 1983 through May 1987, they find that warrant IPO issuers are small, young, risky firms with a high level of information asymmetry. The issue of these firms should be accompanied by higher underwriting fees. However, the US Security and Exchange Commission (SEC) regulates the underwriting fee to a reasonable level. Therefore, they conclude that firms with a higher level of information asymmetry circumvent the regulation of underwriting fees by including warrants in IPOs, and the warrant included will cause the total cost of unit IPO higher than regular IPOs.

Dunbar (1995) then points out that the result of Barry et al. (1991) suffers from self-selection bias. Because firms can choose whether or not to include warrants in IPOs, and use whatever method with lower flotation cost, compare the cost of two groups directly will suffer from self-selection bias. Dunbar (1995) approach this issue by using a system equation estimation proposed by Lee (1978). First, estimate a reduced form of logit regression using unit IPOs and regular IPOs. Second, estimate the inverse mills ratio from the reduced form logit regression and add it to the cost OLS regressions. Third, use predicted cost to create a variable representing the cost reduced by choosing specific flotation methods. Last, add the cost reduction variable to the reduced form logit to estimate the correct partial effect of cost reduction after accounting for self-selection bias. Dunbar (1995) then finds that including warrants in IPO reduces the flotation cost, which is inconsistent with Barry et al.

(1991).

Schultz (1993) approaches the motive of unit IPOs in a review of agency cost consideration. Specifically, Schultz (1993) states that managers have an incentive to take negative NPV projects in the development stage. They do so to maintain their jobs. By including warrants, the offer ties future cash inflow to the project's future performance and force managements to spend the initial proceeds on determining the true value of investment projects. Schultz (1993) proposes four predictions based on the theory. First, many unit IPO firms will turn out to have no profitable projects; therefore, they have higher delisting rates. Second, firms that survived will be more likely to receive additional funds. Third, firms are more likely to issue unit IPOs when their prospects are difficult to evaluate based on existing information. Fourth, unit IPOs will be used where management owns only a small proportion of the firm, thereby bear a lower cost of making poor decisions. Consistent with his prediction, he finds that unit IPOs are often issued by firms from high-tech industries and service industries, where the potential information asymmetry level is high. Moreover, unit IPO firms tend to be smaller, younger, have fewer assets and earnings compared to firms that use regular IPOs. Underwriters of unit IPOs also charge a higher underwriting fee.

Jain (1994) proposes a signaling explanation of the use of unit IPOs. Consistent with Schultz (1993), Jain(1994) also finds that unit IPO issuers tend to be smaller, riskier, and from service or high-tech industries characterized by a high level of information asymmetry. He also finds that unit IPOs are often underwritten by relatively unknown underwriters. Jain (1994) then suggests that issuers include warrants in IPOs to signal their confidence in the future stock performance because warrants tie the future cash inflow to the future stock price appreciation. If the stock price rise, warrants will be exercised, issuers will raise additional capital; if the stock price falls, warrants will not be exercised, issuers will face the situation of short of cash. Therefore, only issuers who are confident in their stock performance issue unit IPOs. This credible signal reduces the flotation cost and is suitable for firms with higher information asymmetry levels.

After that, many empirical studies attempt to differentiate between the agency cost hypothesis and the signaling hypothesis. How & Howe (2001), using 396 IPOs performed by Australian firms from 1988 to 1990, concludes that Australia's case is consistent with both hypotheses. However, Lee et al. (2003) suggest that How & Howe's (2001) result is due to the sample selection bias and misspecified methodology. They use the same sample as How & Howe's (2001) and conclude that the evidence is more consistent with the signaling hypothesis than with the agency cost hypothesis in the case of Australian unit IPOs.

2.2 Unit SEOs

Ng & Smith (1996) use a similar methodology with Dunbar (1995) but shift the focus from unit IPOs to unit SEOs. They conclude that underwriters' willingness to underwrite SEOs with warrants

certificates that underwriters believe the issuing firm is undervalued. This certification effect will lower the flotation costs of unit SEOs compared to standard SEOs.

Byoun & Moore (2003) also examines unit SEOs. They find that unit SEO issuers tend to be small, young, risky firms, and the announcement effect of unit SEOs is lower than standard SEOs, although the difference is insignificant. They argue that the motive of unit SEOs is consistent with both the agency cost hypothesis and the signaling hypothesis.

However, Byoun (2004) examines the long-run stock performance following unit SEO issues and find evidence that unit SEO issuers underperform standard SEO issuers in the long-run. The evidence is inconsistent with the previous study. Consistently, Bae et al. (2013) also find the underperformance in long-run stock and operating performance of unit SEO issuers. They suggest that by including warrants in SEOs, issuers try to take advantage of the signaling effect and certification effect to lower the flotation costs, but these effects do not last in the long-run.

2.3 Warrant Bonds

Finnerty (1986) did an informal survey on institutional shareholders. Most of the institutional investors believe that small, risky firms issue warrant bonds to sweeten their otherwise unattractive straight bonds. Billingsley et al. (1990) empirically studied the firm characteristics of warrant bond issuers and confirmed Finnerty's (1986) congestion. However, they did not find evidence that suggests warrant issuers are more financially distressed than other bond issuers.

This conclusion was also empirically confirmed by Long & Sefcik (1990). They find warrant bond issuers are significantly riskier and slightly smaller than convertible bond issuers. They also find that the warrants' maturity is on average 1/2 of the corresponding bond and 1/3 of average convertible bond maturities. The potential number of stocks that warrant would provide is, on average, 2/3 of the equivalent CB would provide. They then suggest that warrant bond issuers intend to sell bonds instead of equity claims.

Indeed, the motive for issuing warrant bonds should be more straightforward than convertible bonds because issuing firms do not think the stock price will rise in the future; hence the option will not be executed. Therefore, the warrant included in bonds serves as a debt sweetener to lower the coupon rate. Therefore, the stock market should have a more negative reaction to warrant bond offerings than convertible bond offerings.

2.4 Convertible Bonds

Some researchers and practitioners advocate the debt sweetener hypothesis as the motive for issuing convertible bonds. They find that convertible bonds usually have a lower coupon rate than the same rating straight debts and a higher conversion price than the current stock price. They thereby argue that if the stock price goes down in the future, convertible bonds will be redeemed at

maturity, then issuers have accessed debt financing at a lower cost (debt sweetener hypothesis). Alternatively, if the stock price goes up in the future, convertible bonds will be converted, and issuers have sold stocks at a higher price than the time of offering (delayed equity hypothesis). These two reasons are commonly mentioned by issuing firm managers in survey studies.

Brennan & Schwartz (1988) point out the logical fallacy of debt sweetener and delayed equity hypothesis. They suggest that the logic is equal to the argument that buying fire insurance on half of the house is best because if there is not a fire, one will save half of the insurance premium; and if there is a fire, one will still receive half of the insurance pay rather than nothing.

They then argue that convertible bonds are relatively insensitive to firm risk compare to straight debt because an increase in risk will decrease the value of the bond component and increase the value of the equity component; therefore, the value of convertible bonds are unaffected by the market's perception of firm risk. They also point out that convertible bonds help solve the risk-shifting problem proposed by Jensen & Meckling (1976). They suggest that convertible bond issuers tend to have higher market and earnings variability, higher business and financial risk, stronger growth-orientations and shorter corporate histories than their straight debt counterparts.

Stein (1992) suggests that growing firms are reluctant to issue debt because of the high coupon rate and potential risk of financial distress; they also do not want to issue equity because they believe the firm's stock price is undervalued. Even if the stock price is fairly valued, the market will reduce the value of new stocks upon announcement due to the information asymmetry problem proposed by Mayers & Majluf (1984), thereby diluting existing shareholders' value.

Therefore, Stein (1992) claims that growing firms use CB to gradually build their equity base, use call features to force conversion when they think the stock price is fair. Stein (1992) then suggests that convertible bond issuers tend to be highly-leveraged firms, highly-volatile firms with considerable R&D expense and above-average levels of intangible assets.

Jalan & Barone-Adesi (1995) suggest that firms use convertible bonds as delayed equity with tax deductibility due to different tax treatment between coupon payments and dividends. Compared to straight debts, convertible bonds do not face the trade-off between tax shield and potential financial distress. They also suggest that there is a trade-off between the conversion price and coupon rate. Firms that use convertible bonds as substitutes of equity are likely to set the conversion price higher to minimize the dilution, and firms that use convertible bonds as substitutes of debt will seek to reduce the coupon rate.

Mayers (1998) contends that firms use convertible bonds to lower the issuance cost of sequential financing. Sequential financing solves the overinvestment problem proposed by Jensen (1986). Compared to sequentially issuing straight bonds, convertible bonds are cheaper when future capital is needed because by forcing conversion, CB leaves the firm's capital and reduces the leverage. On the other hand, CB will be redeemed when the investment option is not valuable.

According to Mayers (1998), convertible bonds will do a better job when the initial project's value and future investment options are strongly positively correlated, which is a feature often found in focused firms. Mayers (1998) finds that firms who call their convertible bonds have a substantial increase in investment. Moreover, he finds that convertible bond issuers tend to have more leverage, higher market to book ratio of equity, higher R&D to sales ratio and lower tangible assets to total assets ratio than straight bond issuers.

Isagawa (2002) proposes an alternative reason for convertible bond issuance: convertible bond prevents hostile takeover and bankruptcy at the same time. He bases the model upon Zweibel (1996), in which managers gain utility from running the firm and investing in new projects. In the absence of a hostile takeover, the manager is reluctant to issue debt because debt increases bankruptcy risk. Facing hostile takeover risk, the manager voluntarily issues straight debt and distribute cash as dividends, restrain himself from undertaking value-decreasing projects, which would increase the probability of bankruptcy.

Isagawa (2002) argues that convertible bonds raise the firm's ex-ante value so that the management eliminates the potential hostile takeover risk. Using straight debt instead will cause the possibility of bankruptcy even after management undertakes a value-increasing project. By issuing convertible bonds, the manager will still refrain from undertaking value-decreasing projects, thereby defending the potential hostile takeover. The manager will call the convertible bonds after taking the value-increasing project to eliminate the bankruptcy risk.

2.5 Floating-Priced Convertible Bonds (MSCB)

According to Hillion & Vermaelen (2004), a floating-priced convertible bond is a convertible bond with a floating strike price, which allows the investor to convert the bonds into common stocks at a discount from a reference price determined through a look-back period before converting. Two restrictions are often added to prevent conversion at once. First, conversion in a certain lock-up period is prohibited. Second, after the lock-up period ends, the number of new stocks acquired from conversion that can be sold in the secondary market can not exceed a certain percentage of the trading volume. For undervalued firms that are reluctant to issue straight debt due to financial distress consideration, floating-priced convertible bonds are supposed to be an ideal fundraising method because the conversion will take place gradually, hopefully at a higher price than the current stock price even after a discount.

However, floating-priced convertible bonds were under intensive criticize because it undermines existing shareholders' wealth. To be specific, investors have an incentive to short the issuer's stock before conversion. Because floating-priced convertible bond investors short sell the issuer's stock price at a high price and convert to acquire stocks at a low price, the number of stocks acquired from conversion will exceed the number of stocks short sold if the amount of short selling equals the par of

bond, that means there will be stocks left after covering their short position. Investors will undoubtedly benefit from short selling and conversion; the more they short, the more the benefit. Short-selling drives the stock price below the fair value temporarily. Conversion below the fair value impairs existing shareholder value; therefore, the issuer's stock price will drop permanently. This consequence will also attract professional short-sellers because everyone can benefit from short-selling the issuer's stock even if they are not floating-priced convertible bond investors. This so-called death spiral will drive the issuer's stock price down to zero, render the issuer delist from the stock exchange.

Since floating-priced convertible bonds are proven to have a tremendous negative impact on existing shareholder wealth, an important question is why would any firm issue this toxic security. One explanation is that the issuing firm has no choice but to issue floating-priced convertibles. Hillion & Vermaelen (2004) define this situation in the last resort hypothesis.

The last resort hypothesis assumes two groups of investors: existing shareholders and potential outside investors. While existing shareholders believe the stocks are fairly valued, they have no intention to purchase additional stocks due to portfolio optimization consideration or financial constraints. On the other hand, outside investors believe the stocks are overvalued based on the poor performance, weak balance sheet and high information asymmetry level of the issuer. Although outside investors' beliefs may be wrong, they can not be convinced to buy common stocks of the issuer. As a result, the issuer has no other choice but to offer floating-priced convertibles to avoid immediate bankruptcy.

Consistent with predictions of the last resort hypothesis, empirical evidence shows that floating-priced convertible issuers tend to be small, young and risky firms where information asymmetries are likely to be severe (Hillion & Vermaelen, 2004; Chaplinsky & Haushalter, 2005, 2010; Brophy, Ouimet, & Sialm, 2006). In addition, these issuers appear to be highly distressed and have a high delisting rate. Moreover, issuers exhibit poor operating performance compared to matched non-issuers prior to the issuance, and the operating performance keeps deteriorating thereafter. Accordingly, issuers experience negative stock returns in both the short-run and long-run. (Hillion & Vermaelen, 2004; Chaplinsky & Haushalter, 2005).

3. Discussion

For investors, a floating-priced warrant can be homemade by buying a floating-priced convertible bond and selling a straight bond with the same par value. Without the bond part, investors only need to pay for the warrant in the first place, which is trivial compared to the bond's par value. For issuers, however, floating-priced warrants are pure equity finance with uncertainty in the fundraising process because investors can choose the timing and amount of warrant exercise.

On the positive side, when raising capital by floating-priced warrants, the number of new stocks to be issued at warrant exercise is fixed, and the underlying stock price change will only change proceeds raised by warrants but not the number of shares issued. This feature is a significant improvement compared to floating-priced convertibles because it ameliorates the short-selling incentives to a large extent. For investors, the strike price always lower than the current stock price allows them to gain approximately 10% risk-free profit when they exercise their warrants. The higher the stock price, the more the profit. For issuers, the flotation cost is confined up to 10%, regardless of the firm characteristics and stock price level.

To better control the uncertainty in the fundraising process, floating-priced warrant issuers often add the following terms to their warrants. 1) The designation term letting the issuer choose when and how much warrants to be exercised; 2) the retrieval term letting the issuer to retrieve outstanding warrants when they consider no more capital needed; 3) the resell restriction term allows the underwriter of warrants resell their warrants to a third party only under permission of the issuing firm. Of course, these terms that favor the issuer come at a price, which is lowering the issuing price of floating-priced warrants and indirectly raising the issuer's flotation cost.

Since floating-priced warrants are issued independently of common stocks for fundraising purposes, it is not a form of compensation to underwriters. In the fundraising schedule of floating-priced warrants, although new stocks are only issued on exercises, investors tend to exercise all warrants in a very short period. It is because floating-priced warrants can be exercised anytime regardless of the underlying stock price, and they are afraid that the issuer's stock price will decrease in the future since their profits from exercise are 10% of the current stock price. Investors are afraid so because it is known that the market reacts negatively to floating-priced warrant issues, which can be confirmed by the event study conducted by Kaneki et al.(2019). Therefore, floating-priced warrants are not likely to be voluntarily issued to signal firm quality. Also, the certainty that the fundraising will succeed and the swiftness of the fundraising process does not help mitigate the agency cost problem proposed by Jensen (1986).

Finally, although Kaneki et al.(2019) contend the motive of floating-priced warrant issues is consistent with the last resort hypothesis, the story told to justify the last resort hypothesis describes a rather extreme case where the issuer is facing bankruptcy and desperate for cash. In reality, floating-priced warrant issuers do not necessarily face bankruptcy but short for cash to invest in a profitable project. Traditional flotation methods are expensive for issuers with poor historical performance and high levels of information asymmetry. Therefore, floating-priced warrants may be issued to lower the flotation cost since the ceiling of its flotation cost is 10%. Future studies can empirically test this hypothesis.

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