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Determinants of the Issuance of Convertible Bonds with Early Redemption Option

Summary

Key words: *financing, hybrid securities, convertible bonds, call option, put option*

Hybrid securities are financial instruments which combine features of debt and equity. Such construction makes them a perfect tool, or sometimes even the only way to raise capital by companies which face difficulties in acquiring funding from other external sources (e.g. by issuing shares or ordinary bonds). All hybrid instruments used by firms (e.g. convertible bonds, convertible preferred shares, bonds with warrants) may be variously modified (e.g. by ensuring mandatory conversion) and can include several provisions (e.g. *call, put* or *reset*) which change their initial nature and help enterprises to achieve different investment and operational objectives.

Convertible bonds are one of the most popular hybrid securities used by companies all over the world. Motivations behind issuing them listed in theoretical accounts published since 1980s. have been reflected in a market practice. As pointed out by researchers, convertibles can be used by issuers to minimize the negative effects of information asymmetry between the company and its external environment, to mitigate agency conflicts between shareholders, bondholders and managers or to finance new investment projects. They are valued by managers mainly because they make it possible to avoid issuing undervalued stock, to alleviate dilution of earnings per share, to reduce the costs of debt, or to establish less restrictive covenants in comparison with straight debt.

A lot of convertibles include a call and a put option. A call feature allows an issuer to redeem bonds or to force conversion before maturity. The related literature and the market practice show that such provision has two implications. Firstly, it can help firms to avoid difficulties with redeeming the par value of debt at maturity. Secondly, it increases the flexibility of managers involved in an investment process and enables them to take proper

actions depending on operating performance of a company and the current market situation. By contrast, a put option allows non-profitable companies to attract new investors who get a right to withdraw their capital whenever they predict that such investment will not give them enough profit. At the same time, it can be successfully used by profitable firms and serve them to compensate bondholders for the low coupon of the securities issued.

Previous research on hybrid debt concentrates mainly on *plain vanilla* instruments and ignores the problem of callable and puttable convertibles. So far, no papers containing a complex comparative analysis of certain types of convertible debt have been published and nobody has identified the exact motives for issuing them among contemporary companies. Most articles present only theoretical findings whose empirical verification leads to conclusions which are completely divorced from market reality. They cannot be used to formulate any practical recommendations for business entities.

The primary intention of the thesis is to fill the research gap presented above. Its main aim is to identify the rationale for issuing convertible bonds that can be paid off before maturity on request of issuers or bondholders, and to compare it with the motives for issuing *plain vanilla* convertibles. The specific research objectives are: (1) to estimate selected issue parameters of callable, puttable and puttable/callable convertibles and to compare them with terms of issue of *plain vanilla* convertible debt, (2) to analyse and to compare financial parameters of the issuers of *plain vanilla*, callable, puttable and puttable/callable convertibles.

In order to identify the premises for issuing convertibles concerning exclusively the operating and investing activity of companies and ignoring the speculative and tax-related motives, the research sample contains only issues carried out by service and manufacturing entities. Due to a high liquidity and maturity of the market, a broad public generation and the fact that one quarter of convertibles have been issued in United States and a half of them in the local currency, the sample encompasses the issues made on the American market and denominated in the American dollar. The initial data for the analysis were taken from the Bloomberg database. The final sample comprises 1983 issues carried out between January 2003 and November 2014.

The main hypothesis of the dissertation is as follows:

H1: Callable, puttable and puttable/callable convertibles are issued by more indebted and less profitable firms with a higher level of financial liquidity than issuers of *plain vanilla* convertible debt.

Because the pool of issuers which use debt with embedded options includes the issuers of different types of convertibles, it is necessary to widen the research field and to formulate three specific hypotheses:

H1A: callable convertibles are issued by more indebted and less profitable companies but which have bigger growth opportunities than issuers of *plain vanilla* convertibles.

H1B: puttable convertible bonds are issued by more indebted, less profitable firms with smaller growth opportunities than issuers of *plain vanilla* convertible debt.

H1C: puttable/callable convertible debt is issued by more indebted companies with smaller growth opportunities, but which are more profitable than issuers of *plain vanilla* convertibles.

In order to achieve main and specific objectives of the thesis, several statistical and econometric methods have been used, i.e. statistical significance tests (Mann-Whitney test, Kruskal-Wallis test, ANOVA), data reduction techniques (exploratory factor analysis), and models which allow for a multivariate analysis of selected bonds' issuance parameters and financial data of their issuers (logistic regression and classification trees). All calculations were performed by means of a software package used for statistical analysis – *IBM SPSS Statistics 22*.

The results of the research show that convertibles with call or/and put options are issued by more indebted companies than issuers of *plain vanilla* debt. By using a call feature firms may avoid difficulties with redeeming nominal value of bonds at maturity because it gives them a possibility to pay off instruments or to force an early conversion if their prospects deteriorate in the later period. A put provision raises a demand for new bonds despite a high financial risk of an issuer, due to the right to withdraw invested funds during the whole maturity period.

It was noticed that issuers of hybrid debt with options are not threatened with losing their financial liquidity, which makes it easier for them to raise capital. The preliminary assumptions concerning the profitability of the issuers were wrong because they turned out to be more profitable than companies that issue *plain vanilla* debt.

As for callable convertibles, they are used mostly by smaller, more indebted, unprofitable firms, whose operating incomes do not cover their interest liabilities. However, they have bigger growth opportunities, which may suggest that such instruments serve companies to gain financial means to start new investment projects that will help them to improve their operating performance.

Issuers of puttable convertibles are in a similarly bad financial situation – they are unprofitable, highly indebted and very close to losing their liquidity. Adding a put option attracts investors to share capital which will help a given firm to finance its operating

activities conjoined with implementing a restructuring process at the same time. Such instruments are probably not issued to raise funds for new investment projects due to a high risk of exercising a put provision by bondholders before maturity.

As far as puttable/callable hybrid debt is concerned, it is used by the biggest, most profitable and liquid companies, but which are more indebted and have smaller growth opportunities than issuers of *plain vanilla* convertibles. These instruments are treated as a long-term capital and a cheaper alternative for a straight debt. The rationale for using a call and a put provision in this case is different than adding these features to hybrid debt separately. A put option compensates a bondholder for a low coupon and a call option protects an issuer from difficulties with redeeming par value of bonds at maturity. Puttable/callable convertibles tend not to be used to gain capital for new investments for fear of an unexpected exercise of a put option by investors.

The thesis is structured as follows. Chapter one describes a problem of financing, a concept of the capital and its sources. It then presents the idea of hybrid securities as well as the role which they play as a financing tool among contemporary companies. Finally, it elaborates on the main types of hybrid instruments.

Chapter two provides the premises for issuing convertible bonds under perfect and non-perfect market conditions. In order to shed light on the differences between an academic approach and market practice, theoretical insights are juxtaposed here with well-known qualitative research. The chapter concludes with a description of methods of convertible bonds pricing.

Chapter three discusses the motives for the issuance of callable and puttable convertibles and the optimal strategy of exercising detached provisions under both perfect and non-perfect market conditions.

Chapter four provides an empirical verification of the hypotheses put forward in the dissertation. It includes a comprehensive analysis of parameters of the issuance and convertibles issuers' financial data. The objective behind this analysis is to answer a key question: why and in which cases companies choose to issue convertibles bonds with call, put or put/call features and why they do not decide to use *plain vanilla* debt?