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*Why Do Firms Issue Convertible Bonds? An Analysis of the Polish  
Convertible Debt Market between 2009 and 2017*

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Dlaczego przedsiębiorstwa emitują obligacje zamienne?  
Analiza polskiego rynku długu zmiennego w latach 2009–2017

**Keywords:** corporate finance; debt financing; convertible bonds; Polish capital market

**Słowa kluczowe:** finanse przedsiębiorstw; finansowanie długiem; obligacje zamienne; polski rynek kapitałowy

**JEL code:** G10; G30; G32

## Introduction

Since the beginning of the 1990s, the Polish financial market has been earning its reputation as a key market in the region of Central and Eastern Europe (CEE), and the Warsaw Stock Exchange (WSE) is the biggest market of tradable corporate debt in this part of the continent [Grant Thornton, 2018]. This proves that Polish enterprises more and more often raise funds from outside the banking sector and use various debt instruments such as convertible bonds. A relatively small number of convertible bond issues carried out since mid-1996 (over a hundred issues worth nearly PLN 4 billion) compared with the volume of convertible sales worldwide [Calamos, 2017] translates into little interest in the use of hybrid debt on the Polish capital market and an exceptionally low level of knowledge of the reasons for convertible bond issuances carried out by domestic business entities.

The main purpose of this article is to fill this research gap. This work aims at identifying the motives for convertible bond issuances carried out over the period 2009–2017 by companies listed on the WSE. A comprehensive analysis of the financial performance of the issuers will verify why public companies decide to issue convertibles and how their financial situation affects their decision on gaining hybrid capital. The conclusions drawn are in line with mainstream research on the use of convertible debt. They also add to knowledge about the reasons for convertible bond issuances by companies from the CEE and Poland.

According to the literature, the following assumptions can be made. First, some companies may use convertible bonds to finance new investment projects and perceive them as a more favourable alternative to straight bonds and common equity. Second, certain firms may treat convertibles as a cheaper source of capital in financial restructuring processes. Third, some entities may issue convertible bonds to earn tax benefits available in the Polish legal system.

The article is organized as follows. The first part reviews the literature with regard to the motives for convertible bond issues. Part two describes the research sample and discusses the research methodology. Part three presents the research results, and part four sets forth the discussion of key findings.

## 1. Literature review

The literature points out two main motives for convertible bond issues. First, they may help issuers eliminate negative effects of information asymmetry between a company and its external environment that results from investors' constraints with evaluating real risk of the enterprise [Brennan, Schwartz, 1988] or its market value [Stein, 1992]. Second, they may be used to mitigate the agency conflicts between stockholders and bondholders [Green, 1984] and between stockholders and managers [Mayers, 1998; Isagawa, 2002]. The reasons for convertible debt issuance rooted in the agency and information asymmetry theories were confirmed in empirical analyses based on large sample quantitative analysis [i.a. Lewis et al., 2003; Dutordoir, Van de Gucht, 2009] and in qualitative studies among managers [see: Bancel, Mittoo, 2004; Brounen et al., 2006; Bancel et al., 2009]. They also provide the motives for convertible issuances that are more close to business practice. On this basis, convertible debt is often used by undervalued companies as an alternative for common equity or by indebted and unprofitable companies as a cheaper substitute for ordinary corporate bonds and bank loans to restructure their liabilities [Gillet, De La Bruslerie, 2010]. Other reasons for hybrid debt issues include obtaining capital to exercise new investment options [Mayers, 1998], raising funds by smaller companies for further development [Brennan, Schwartz, 1988], financing mergers and acquisitions [Noddings et al., 2001], and earning certain tax benefits [Jalan, Barone-Adesi, 1995].

The modest scale of using convertible bonds in the CEE region is reflected in the lack of research concerning hybrid debt market in this part of the continent, e.g. in Poland. Most of analyses are based on a small research sample and focus largely on debt issues by sector [Pasińska, 2011; Marszałek, 2011], the announcement effect of convertible debt issues [Pasińska, 2010], and reducing cost of capital [Rybka, 2013].

## 2. Research sample and methodology

The empirical research was carried out on the unique database that includes all the identified issues of convertible bonds conducted between 2009 and 2017 by companies listed on the WSE at the moment of convertible issuance. The database was created manually using data from issuers' reports, market disclosures, and press releases. The research sample was then divided into three separate subsamples, each of which contains convertibles issued for investment purposes (i.e. financing mergers and acquisitions, extension of manufacturing capacity; 38 issues), restructuring purposes (i.e. rebuilding the capital base, refinancing bonds and bank credits; 20 issues) and tax purposes (13 issues). After implementing further restrictions (i.e. excluding issues placed on the foreign markets), the final sample includes 71 convertible bond issues carried out by 38 companies.

The empirical analysis was divided into three parts. In part one, the financial situation of the issuers was analysed with respect to their size, market capitalization, profitability, leverage and solvency differentiating between firms that issue convertibles for investment, restructuring and tax purposes. The necessary data was obtained from the last annual financial reports from the year preceding the convertible issue. In part two, the logistic regression model was applied to identify potential factors influencing the issuers' decisions on the use of convertible bonds. In part three, the relationship between the purpose of the issue and a decision of bondholders to exercise a conversion option was examined.

## 3. Research results

Table 1 presents the financial situation of convertible bonds issuers. First, it turns out that all the bonds are issued by medium and large enterprises. However, total assets of companies using hybrid debt for tax optimization are more than twice lower than for entities raising capital for investment and restructuring purposes. The results also indicate strong undervaluation of the issuers, which is proven by three to four times lower market capitalization in relationship to assets ( $H(2) = 4.407$ ;  $p = 0.110$ ) as well as a very low price-to-earnings ratio ( $H(2) = 1.016$ ;  $p = 0.602$ ). Second, statistically significant differences were observed between the issuers' leverage and the purpose of the convertible issue. Companies using hybrid debt for

investment and tax purposes are relatively less indebted in terms of total liabilities in relationship to total assets and to total equity, compared to the entities raising capital for restructuring purposes ( $H(2) = 15.379$ ;  $p < 0.001$  and  $H(2) = 22.148$ ;  $p < 0.001$  relatively). Moreover, enterprises issuing convertibles in restructuring process and tax optimization may encounter difficulties with paying off their financial obligations ( $H(2) = 6.410$ ;  $p = 0.041$ ). Third, companies raising funds to finance investments are characterized by a higher level of return on equity, whereas firms oriented towards accruing tax benefits are balancing on the edge of profitability. Quite noticeable are large losses generated by entities under restructuring ( $H(2) = 9.461$ ;  $p < 0.001$ ).

Table 1. Financial parameters of the convertible bond issuers

Variable	Issue purpose	n	Mean	Median	Standard deviation	p
Total assets (in million PLN)	Investments	38	467.484	221.751	635.557	0.110
	Restructuring	20	655.957	160.466	912.240	
	Taxes	13	104.361	97.706	86.501	
Market capitalization (in million PLN)	Investments	38	217.962	76.024	274.913	0.602
	Restructuring	20	200.872	44.111	436.261	
	Taxes	13	158.038	62.824	276.723	
Price-to-earnings ratio	Investments	37	8.027	6.597	17.341	0.009**
	Restructuring	20	-4.767	-1.073	13.974	
	Taxes	13	4.152	2.420	31.036	
Debt-to-assets ratio	Investments	38	0.507	0.458	0.235	< 0.001***
	Restructuring	20	0.757	0.729	0.293	
	Taxes	13	0.474	0.350	0.429	
Debt-to-equity ratio	Investments	36	1.315	0.847	1.817	< 0.001***
	Restructuring	20	2.853	2.485	2.433	
	Taxes	13	-0.127	0.519	1.400	
EBITDA-to-interests ratio	Investments	34	1.434	0.627	4.754	0.041*
	Restructuring	20	-1.138	-2.996	4.217	
	Taxes	13	-1.393	-1.106	5.619	
Return on equity	Investments	38	0.427	0.095	1.798	< 0.001***
	Restructuring	20	-0.563	-0.562	0.654	
	Taxes	13	-0.234	0.013	0.556	

p – probability in the Kruskal–Wallis test; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

Source: Author's calculations based on his own database.

In the second part, the logistic regression models were applied to evaluate the impact of the issuers' financial situation on the probability of convertible issues carried out for investment, restructuring or tax purposes. The dependent variable is equal to 0 or 1 depending on the purpose of issue. Five independent variables were used in the model: debt-to-assets ratio, debt-to-equity ratio, EBITDA-to-interest coverage ratio, return on equity and price-to-earnings ratio. The results demonstrate that the strongest impacts on the dependent variable have leverage and profitability ( $p < 0.05$ ) (Table 2). The  $B$  coefficients suggest that more indebted and less profitable compa-

nies are more likely to issue convertible bonds for restructuring purposes (Model 1), whereas the probability of issuing convertibles for tax motives increases with a lower level of debt (Model 2 and Model 3). The Chi-square and Hosmer–Lemeshow tests indicate a good fit to the data. The model overall predicts approximately 72–97% of bond issues and explains about 20–89% of variation in the dependent variable.

Table 2. Potential factors affecting convertible bond issues among Polish companies

Investments vs. restructuring								
Variable	B	Standard error	Wald	p	Exp(B)	Model Chi-square [df]	Correct predictions %	Nagelkerke's R-square
Debt-to-assets ratio	3.934	1.769	4.944	0.026**	51.127	27.923 [2]	76.5	0.571
Return on equity	-4.475	1.481	9.137	0.003**	0.011			
Constant	-3.601	1.288	7.822	0.005**	0.027			
Restructuring vs. tax optimization								
Variable	B	Standard error	Wald	p	Exp(B)	Model Chi-square [df]	Correct predictions %	Nagelkerke's R-square
Debt-to-assets ratio	-10.549	4.959	4.525	0.033*	0.000	34.588 [2]	96.9	0.892
Debt-to-equity ratio	-3.724	1.875	3.944	0.047*	0.024			
Constant	7.515	2.993	6.303	0.012*	1836.068			
Investments vs. tax optimization								
Variable	B	Standard error	Wald	p	Exp(B)	Model Chi-square [df]	Correct predictions %	Nagelkerke's R-square
Debt-to-equity ratio	-0.548	0.267	4.230	0.040*	0.578	6.776 [1]	72.7	0.203
Constant	-0.453	0.404	1.261	0.261	0.635			

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

Source: Author's calculations based on his own database.

In the last part of the research, a relationship between the purpose of issue and a decision of bondholders to exercise a conversion option embedded in convertible bonds was examined based on a new sample (62 issues) that was created after elimination of still-active bonds and issues with missing data. It turns out that nearly all the bonds placed on the market for restructuring purposes (15 issues out of 18) and tax motives (12 issues out of 13) were converted into equity (in part or in full). In turn, in case of investment issues, only every third bond was converted into equity (10 out of 31 issues), and most of them were redeemed by issuers at or before maturity. Interestingly, 57% of bonds used in restructuring processes and 72% of bonds sold for tax purposes were converted into common stock within the first seven days after debt issuance.

#### 4. Discussion

The analysis of the Polish convertible bond market between 2009 and 2017 allows final conclusions that confirm initial assumptions regarding the rationales for the use of hybrid debt by domestic companies. First, more than half of bonds are issued to raise capital to finance new investments, mostly by medium and large companies with good financial performance. Such an approach is in line with Mayers' [1998] sequential financing theory. According to this concept, a conversion of bonds into equity during debt maturity leads to favourable changes in the issuers' capital structure that allow them to raise additional capital for completing investment projects. Nevertheless, the results show that only every third convertible bond issued for investment purposes was converted into the issuers' equity. However, this may result from an unfavourable market situation rather than from the issuers' intention to avoid conversion. Moreover, a high undervaluation of issuers at the moment of convertible sale may indicate that companies use hybrid debt to raise equity capital under more favourable conditions compared to the issuance of common stock [Stein, 1992]. It is also worth noting that many convertibles are issued by small, more risky firms striving to gain funds for further development [Brennan, Schwartz, 1988].

Second, one-third of convertible bonds placed in the Polish capital market are used by big, highly indebted and unprofitable entities in restructuring processes. It appears that nearly all the bonds issued as a part of financial rescue plans are converted into equity, more than half of which in the first week after the issuance. It may suggest that companies sell convertible bonds to reduce time and cost of ordinary share issue, so they can be perceived as a source of cheap debt used to restructure liabilities [Gillet, De La Bruslerie, 2010]. To do so, firms redeem higher coupon corporate bonds and bank credits before maturity and replace them with a relatively cheaper hybrid debt that may be soon transformed into equity capital. In this case, convertibles are most often sold to banks, investment funds or special government agencies playing the role of the lender of last resort.

Third, every fifth issue of convertibles is conducted by enterprises to earn tax benefits. Interestingly, all such issues in the Polish market were made by companies related to one stakeholder. However, it seems that it is not a financial situation that motivates firms to use hybrid debt instruments for tax optimization, but rather it is their willingness to achieve tax benefits available in the Polish legal system. This thesis is confirmed by an immediate conversion of almost all the convertibles in the first week after debt issuance.

## Conclusions

The purpose of the article was to identify the motives for the issuance of convertible bonds in the Polish capital market, which fits in the literature on convertible debt financing and complements the studies on rationales for the use of convertibles by companies from Central and Eastern Europe including Poland. The analysis of 71 convertible issues carried out between 2009 and 2017 by 38 firms listed on the Warsaw Stock Exchange leads to a number of conclusions.

First, more than half of convertible bonds are issued by enterprises willing to raise capital to finance new investment projects. They are mainly medium and large entities with good financial performance that, due to their undervaluation, may issue convertible debt to increase equity capital on more favourable conditions compared to the issuance of common stock.

Second, one-third of convertible bonds are used by highly leveraged and unprofitable companies in the financial restructuring processes as a source of backdoor equity financing. In such cases, firms prematurely redeem higher coupon bank credits and corporate bonds without a conversion option and replace them with a relatively cheaper and potentially non-refundable hybrid debt that can be easily transformed into equity capital soon after the issuance of bonds.

Third, every fifth convertible is sold to gain tax benefits available under Polish law. It is noteworthy that all the issues carried out in the domestic capital market for tax motives are related to a single stakeholder.

The biggest limitation of this study, which may influence the key findings, perhaps is the limited sample. However, the sample covers all convertible bond issues carried out in the analysed period, so the paper provides a good overview of the Polish convertible debt market over the last decade. Further research on hybrid debt financing should explain how the performance of the stock market affects a decision of issuers to sell convertible bonds and what the reasons are for the falling number of convertible issues in recent years.

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### **Dlaczego przedsiębiorstwa emitują obligacje zamienne? Analiza polskiego rynku długu zmiennego w latach 2009–2017**

Celem artykułu była identyfikacja przyczyn emisji obligacji zamiennych na polskim rynku kapitałowym. Analiza 71 emisji obligacji przeprowadzonych w latach 2009–2017 przez 38 spółek notowanych na Giełdzie Papierów Wartościowych w Warszawie wykazała, że: po pierwsze, ponad połowa obligacji zamiennych jest emitowana przez niedowartościowane przedsiębiorstwa, znajdujące się w dobrej sytuacji finansowej, w celu pozyskania funduszy na realizację nowych inwestycji, co jest traktowane jako bardziej korzystna alternatywa dla zwykłej emisji akcji; po drugie, co trzecia emisja obligacji zamiennych jest przeprowadzana przez mocno zadłużone i nierentowne spółki w procesach restrukturyzacji pasywów, które traktują dług hybrydowy jako szybszy i tańszy sposób na podwyższenie kapitału własnego w stosunku do emisji akcji; po trzecie, co piąta emisja obligacji zamiennych jest organizowana dla osiągnięcia korzyści podatkowych dostępnych w polskim systemie prawnym.

### **Why Do Firms Issue Convertible Bonds? An Analysis of the Polish Convertible Debt Market Between 2009 and 2017**

The purpose of the article was to identify the motives for the use of convertible bonds on the Polish capital market. First, empirical examination of 71 convertible sales carried out between 2009 and 2017 by 38 issuers listed on the Warsaw Stock Exchange shows that more than half of convertibles are issued by undervalued companies with good financial performance to finance new investment projects, which is a more favourable alternative to the issuance of common stock. Second, one-third of convertibles is used by firms in financial distress to support their restructuring process as a cheaper and faster source of backdoor equity financing. Third, every fifth convertible bond is issued for tax benefits available under Polish law.