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**FINANCIAL STRUCTURE OF MINING SECTOR COMPANIES DURING AN ECONOMIC SLOWDOWN****STRUKTURA FINANSOWANIA PRZEDSIĘBIORSTW W SEKTORZE GÓRNICZYM  
I WYDOBYWCZYM W OKRESIE SPOWOLNIENIA GOSPODARCZEGO**

The global economic crisis that started in 2007 in the area of finance, expanded over the subsequent years to the business sphere, and resulted in a drop of demand and production almost in any field of business activity. Access to foreign sources of finance, especially to loans, has become more difficult and expensive. In such circumstances, enterprises have had to resort more often to their own capital generated by the issue of shares, and to retained profit. Banks have limited their loans for business entities, reduced credit periods, and raised credit margins as well as their levels of collaterals. The McKinsey research into the changes that occur in the structures of sources of finance confirms that the share of equity capital in the structure of financing of non-financial enterprises has visibly grown, and their crediting scopes have been limited all over the European Union as well as in the euro zone. The global tendencies as regards directions of changes in the structure of the sources of corporate financing have also been reflected in Poland.

The economic slowdown has resulted in changes in the structures of corporate financing. Mining companies have risen the shares of their equity capital in their general sources of financing. This tendency corresponds to the changes of structure of corporate financing in Poland and Europe. Enterprises have resorted to bank loans to a lesser degree than in times of better market situation. In mining, public companies have increased their crediting, while in private sector the tendency has been reverse. Enterprises tend to use more flexible debiting forms as compared to credits by way of issue of long-term corporate bonds. Mining companies have developed issue programs that are to be implemented over three-year periods. Before, only Katowicki Holding Węglowy [Katowice Mining Holding] had issued bonds.

The present publication is an attempt at assessing the changes in the structure of corporate financing within the mining sector in the circumstances of economic slowdown. The changes have been assessed against the background of changes in the structure of financing of other business entities. Three problems have been identified and subjected to research. The first concerns the increasing share of equity capital in the structure of corporate financing in mining enterprises. The second issue concerns the scope of corporate crediting. And the third issue relates to the time structure of corporate debt. The said issues have been analysed in the conditions of economic slowdown.

**Keywords:** economic crisis, mining companies, financial structure, sources of funds

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Kryzys gospodarczy w świecie zapoczątkowany w 2007 roku w sferze finansów objął w kolejnych latach sferę gospodarczą i spowodował spadek popytu i produkcji prawie we wszystkich obszarach działalności gospodarczej. Dostęp do obcych źródeł finansowania zwłaszcza kredytów stał się trudniejszy i droższy. W tych warunkach przedsiębiorstwa zmuszone były szerzej finansować się kapitałami własnymi pozyskanymi z emisji akcji i zysków zatrzymanych. Banki ograniczyły kredyty dla podmiotów gospodarczych, skróciły okres kredytowania podnosząc marże kredytowe i poziom zabezpieczeń. Badania dotyczące zmiany struktury źródeł finansowania przeprowadzone przez firmę McKinsey potwierdzają, że w całej Unii Europejskiej oraz w strefie euro nastąpiło wyraźne zwiększenie udziału kapitałów własnych w strukturze finansowania przedsiębiorstw niefinansowych i ograniczenie zakresu ich kredytowania<sup>1</sup>. Światowe tendencje w zakresie kierunków zmian w strukturze źródeł finansowania przedsiębiorstw znalazły również odzwierciedlenie w Polsce.

W okresie spowolnienia gospodarczego wystąpiły zmiany struktur finansowania przedsiębiorstw. Spółki górnicze zwiększyły udział kapitałów własnych w źródłach finansowania ogółem. Tendencja ta odpowiada zmianom struktury finansowania przedsiębiorstw w Polsce i w Europie. Przedsiębiorstwa w mniejszym stopniu niż w okresie wysokiej koniunktury korzystały z kredytów bankowych. W sektorze górniczym spółki publiczne zwiększyły zakres kredytowania swojej działalności w sektorze prywatnym wystąpiła tendencja odwrotna. Przedsiębiorstwa zamierzają korzystać z bardziej elastycznej formy długu w relacji do kredytów z emisji obligacji korporacyjnych długookresowych. Spółki górnicze przygotowały programy emisji, które będą realizowane w najbliższych trzech latach ich funkcjonowania. Dotychczas obligacje emitował tylko Katowicki Holding Węglowy.

Niniejsza publikacja stanowi próbę oceny zmian struktury finansowania przedsiębiorstw sektora górniczego i wydobywczego w warunkach spowolnienia gospodarczego. Zmiany te ocenione zostały na tle zmian struktury finansowania przedsiębiorstw w gospodarce. Sformułowane zostały trzy problemy badawcze. Pierwszy z nich dotyczy wzrostu udziału kapitałów własnych w strukturze źródeł finansowania przedsiębiorstw górniczych. Kolejny problem wiąże się z zakresem kredytowania przedsiębiorstw. Natomiast trzeci obejmuje strukturę czasową zadłużenia firmy. Powyższe problemy zostały przedstawione w warunkach spowolnienia gospodarczego.

**Słowa kluczowe:** kryzys gospodarczy, przedsiębiorstwa górnicze, struktury finansowania, źródła finansowania

## 1. Introduction

The global economic crisis, which begun in the financial sector in 2007, spread to the wider economy in following years, leading to a drop of demand and production in almost all business sectors. Accessing external sources of funds, particularly loans, became more difficult and expensive. In these circumstances, enterprises were forced to finance themselves to a greater extent with own capital obtained by issuing shares and retaining profits. Banks significantly cut back on lending to companies and shortened the tenor while raising credit margins and collateral requirements. McKinsey's research on changes in the source of funds structure confirms that in the entire EU and in the euro zone, the share of own capital clearly increased in the financial structure of non-financial companies while lending to them was reduced<sup>2</sup>.

Global trends of changes in the structure of sources funding companies have also been reflected in Poland. The asset structure of companies did not change in the analysed period. Fixed assets represent some 60% and working assets some 40% of the total assets of enterprises. So the

<sup>1</sup> Eurostat za S. Jędrzejczyk, *Finansowanie długiem – wybór między emisją obligacji a kredytem*. Konferencja, Rynek obligacji korporacyjnych, hipotecznych i samorządowych w Polsce. Warszawa 4 październik 2011.

<sup>2</sup> Eurostat, from S. Jędrzejczyk, *Finansowanie długiem – wybór między emisją obligacji a kredytem (Debt financing – choice between issuing bonds and a loan)*. Conference: Corporate, mortgage and local government bond market in Poland, Warsaw, 4 October 2011.

economic crisis has not impacted the structure of corporate assets in Poland. However, a clear trend to increase the proportion of own capital in total sources of funds has been noted in the sources of funds structure. In 2007, the proportion of own capital in the sources of funds structure amounted to 50.5%, and in 2010, to 58.6%, a growth of as much as 8.1%.<sup>3</sup>

This article attempts to assess changes in the financial structure of mining sector enterprises when the economy is slowing down. These changes have been assessed on the background of changes in the corporate financial structure in the whole economy. Three research theses were formulated.

During an economic slowdown, mining enterprises:

- increase the proportion of own capital in the breakdown of sources financing them;
- contract less loans, and this drives them to find other forms of debt;
- have a maturity structure of debt mismatched with the structure of the financed assets.

## 2. Factors determining the enterprise financial structure

The operation of companies is inseparably linked with raising capital allowing them to run their business. There are various definitions of capital. It can most generally mean the source financing the assets of an economic entity. Capital is also defined as the entirety of internal and external resources invested in an enterprise which constitute a certain total value, have potential and create wealth (Janasz et al., 2007, p. 16). In the financial sense, capital is the result of cash flowing into the company from shareholders and debtors. When it is invested in the company's operations, its value grows – a financial surplus arises (Iwin-Garzyńska, 2007, p. 235).

The requirements for capital and its structure depend on the strategy of company activity and development, its internal ability to finance itself and on raising external capital. The way in which the capital requirement is satisfied is determined by the financing strategy which should allow the company to develop such a capital structure as would guarantee the maximum return on own capital while keeping financial risk within reasonable limits.

Decisions on the capital structure entail choosing the ratio of own capital to borrowed capital. In this area, the problems concern (Bielawska, 2009, p. 16-17):

- assessing the minimum cost-effectiveness of debt resulting from confronting the profitability of assets with the cost of external capital;
- selecting the level of financial leverage;
- selecting instruments for raising capital and their financial consequences.

The selection of funding sources depends on many factors. The literature breaks them down into two basic groups: micro-economic – dependent on the specific nature of the business and the manager's financial decisions; and macro-economic – related to the macro environment of companies. Among micro-economic factors, the following are decisive: the cost of raising capital, the company size, the return on assets and their structure, the type of products manufactured as well as the level of the interest-related and non-interest tax shield. Macro-economic factors mainly include: the tax system, inflation or the capital market climate. The impact of such varied factors means that capital structures of individual companies or sectors differ significantly from one another.

<sup>3</sup> “Balance sheet financial results of enterprises, 2005, 2006, 2007, 2008, 2009”

When selecting the source of funds, the **cost of raising them** is important. It is equal to the expected rate of return on the invested capital at a given level of risk (Duliniec, 2001, p. 72). The cost of capital can be analysed as the average cost or the marginal cost. The average cost of capital is made up of the costs of own capital and of external capital. The cost of own capital is usually lower than of external one. This is due to the higher financial risk, as creditors have priority before shareholders in the distribution of profits or assets if the company is liquidated. When calculating the cost of external capital, its split into loans and issues of bonds should be taken into account. This is because it is not just the nominal value of the cost, like the interest on a bank loan, that is important, but also the repayment structure, i.e. its schedule. A higher cost may be offset by a more favourable repayment structure that is better matched to the future ability to pay. The direct cost of a specific source of funds should be considered as well as future costs, e.g. the opportunity cost (Rutkowski, 2003, p. 264). The cost of external capital from bond issues depends, in turn, on the rate and frequency of interest payments, the redemption date and the issue price obtained when selling bonds and tax savings (Duliniec, 2001, p. 85).

The **company size** undoubtedly impacts the ability to furnish this company with external capital, and in particular to raise it from capital markets. A number of authors indicate that the debt ratio of an entity rises along with its size. The reason is that large companies are relatively more capable of contracting debt with less technical difficulty and at relatively lower transaction costs than small companies. Consequently, they tend to take on more debt (Gajdka, 1997, p. 252; Jerzemowska, 1999, p. 55).

In the financial system theory, the problem of small companies' limited access to capital is called the Macmillan gap or own capital gap (Kubiak, 2006, p. 110). The size of the enterprise determines the cost of issuing securities. Compared to large ones, small enterprises bear higher costs of new issues of shares and long-term debt securities. This is why they prefer short-term debt in the form of bank loans as well as other, alternative short-term sources, like factoring or issuing short-term debt securities. This is confirmed by results from the research of Q. Min, who found that managers of small enterprises adjust the capital structure to completing a short investment cycle (Min, 2008, p. 22).

The level of debt is heavily influenced by the structure of assets held. The greater the pledge value of assets, the more the company can use debt as a source of finance. Plant, property and equipment (tangible fixed assets) have a higher pledge value than intangibles. Research by Barclay, Smith and Morellec (2006) indicates that the debt capacity of an enterprise wanting to finance intangibles is lower than its debt capacity for financing plant, property and equipment. This is due to intangibles having a lower pledge value than tangible fixed assets. Their high share in the structure of company assets may cause these companies to be underinvested. Consequently, companies should use relatively more own capital to finance intangibles, and relatively more debt to finance plant, property and equipment. Literature emphasises the positive relationship between assets with high collateral value and the debt level. The greater the proportion of these assets in total assets, the more willing the creditors are to extend credit and loans and the higher the company debt should be (Akhtar, 2005, p. 326).

The subject of the **rate of return** as a factor influencing the capital structure can be viewed through the eyes of potential investors. Companies with highly profitable assets will attract potential investors interested in buying their securities. If the rate of return on assets is lower than expected, potential investors cannot earn the required rate of return, so they have no interest in buying the company's securities. This, in turn, restricts the company's access to external capital (Ostaszewski & Cicirko, 2005, p. 138).

The **risk** of company operations can be seen as another factor determining its capital structure. Usually two types of risk are distinguished: operational and financial. These risks are interconnected. Operational risk is about the volatility of operating profit in time and is due to the uncertain demand for the company's products, the price of these products and the problem of covering operating costs when these prices are too low. This risk comes from the asset structure not being flexibly matched to changes in the environment and from under-utilisation of production capacity. Operational risk increases along with the growing proportion of fixed costs in total operating costs. Consequently, this risk can be measured by the break-even point. The higher the break-even point, the higher the risk of doing business in this industry (Ostaszewski & Cicirko, 2005, p. 146). Industries with lower business risk, e.g. food processing and retailing, are less risky, while the processing industry with cycles in technological processes is more risky (Kędzior, 2006, p. 163). The level of operational risk influences the extent to which the enterprise uses external sources of finance. Companies with low operational risk and more stable operating conditions can generally more debt than higher risk companies (Antkiewicz, 2002, p. 33).

Financial risk is thus associated with the company's use of external sources of funds and issues of preferred shares. As the debt level grows, so does the risk of not having cash to pay fixed financial expenses like interest, fees and margins on long-term loans as well as dividends on preferred shares. It can therefore be said that financial risk is borne by ordinary shareholders, as it reduces the profit to be distributed. At its foundation lies financial leverage, whose increase pushes financial risk up. The risk premium is the difference between the return on own capital and the return on total capital.

Financial leverage is a tool for influencing the return on ordinary shares. Using external capital allows the enterprise to raise the effectiveness of its own capital. Achieving a positive effect of financial leverage evidenced by the increase of own capital depends on two conditions being met (Sierpińska & Jachna, 2007, p. 311):

- the return on total capital measured by profit on operating activity exceeds the average interest rate on debt;
- the company maintains the right capital structure, because too much debt can push up the interest on external capital as the risk of the borrower becoming insolvent and unable to service the debt on a current basis increases.

Decisions on the proportion of external capital reflect an attempt to balance the tax shield with the increased probability of becoming unable to service debt.

A number of researchers studying the capital structure, including J. Lowe, T. Naughton and P. Taylor (1994), point out that this structure depends on the type of product manufactured by the company under consideration (the unique nature of this product). The more unique the product a company manufactured, the higher the cost of bankruptcy caused by liquidating the company. As higher debt makes bankruptcy and liquidation more likely according to this view, the more unique the product, the more debt the company uses to finance itself (Gajdka, 2002, p. 299).

The selection of sources of funds is influenced by such factors as the income tax rate which determines the size of the tax shield and the non-interest tax shield. The tax shield is understood as the benefits that the tax payer reaps from reduced corporate tax liabilities. These benefits arise because interest on external capital is deducted from the income tax base, which means that the cost of outside capital, in the form of interest, is lower than the cost of own capital in the form of dividends, which are paid out of profit after tax. However, as the debt level grows, so does the

cost of own capital, because of the increasing financial risk. Yet, at the same time, the share of own capital in total capital falls, so the average cost of capital is reduced.

In identifying factors driving the capital structure, a lot of attention has been paid in the literature to non-interest tax shields, namely depreciation and investment tax credits. A major role in research on the impact of non-interest tax shields on corporate capital structure has been played by H. DeAngelo and R.W. Masulis (1980). They demonstrated that companies whose depreciation tax shields are large compared to expected cash flows use less external capital to finance their operations.

Apart from micro-economic drivers, corporate capital structure is also influenced by **macroeconomic factors** of its macro-environment. The macro-environment is the set of conditions resulting from the socio-economic system which influence the operation of the enterprise on the domestic and international market. This system produces certain stimuli which can represent an opportunity or a threat to company operations. One very important driver in the current slowing economy are the projections of the future business cycle, because business risk depends on these projections. They determine the projected demand and prices for the company's products as well as the supply and prices of materials it buys. Optimistic forecasts justify a decision to grow the company and take loans financing additional operations. A pessimistic outlook on how the macroeconomic situation will unfold leads to conservatism in operations (Rutkowski, 2003, p. 264).

The capital market situation represents another important factor influencing the development of the capital structure. Depending on the situation in this market, the rates of return of instruments representing both own and external capital may change, i.e. both the cost of capital and the differences between these rates, and this changes the relative attractiveness of alternative methods of financing (Gajdka, 2002, p. 297).

Inflation is a significant factor determining the target debt level. An analysis of American companies shows that debt grows when the inflation rate is moderate. When the inflation rate goes up, companies reduce their debt. This is because inflation encourages enterprises to reduce their demand for long-term loans due to high risk, while it boosts demand for loans to finance the operating activity of enterprises. However, high inflation is accompanied by restrictive monetary policies aimed at reducing the influx of money into the economy by setting interest rates at the appropriate, high level (Szydło, 2004).

These selectively presented drivers of corporate capital structure can exert a stronger or weaker impact on this structure at various times and in various enterprises.

The selection of capital sources and maintaining the correct proportions between them depends on very many specific conditions concerning the operation of a specific company. Financial theory has not produced a universal formula yet that would enable the optimum capital structure to be determined taking into account the rate of return on these different types of capital and a rational risk level. The reason is that this structure depends on many complex factors which constantly change. Still, in the circumstances of a specific company, certain rules can be defined which should be followed when deciding on the right capital structure. When optimising the capital structure, one should particularly look to the long-term goal of the enterprise, but also see the interdependence between the current operations and development activities, should skilfully assess the relationship between the financial leverage and the cost of capital, and also realise the need to periodically review the long-term financial strategy in line with the changing economic, social or political conditions (Ostaszewski, 2003, p. 264).

### 3. Financial structure of Polish mining companies

Mining is a very capital-intensive sector. It has fixed assets worth over PLN 40bn, which generate certain fixed costs of their maintenance, and these represent a high proportion of total costs. Figures published by the Central Statistical Office about the mining section of classification has been used to analyse the directions of change in the financial structure of mining companies. In 2009, the state held 63% of the total assets of this section of the NACE (Polish: *PKD*). The share of the private sector in the analysed period of time ranged from 34% to 40%. The high proportion of fixed assets in the total assets of enterprises makes them very sensitive to funding source selection. Companies should mainly use permanent capital with maturity longer than the accounting year. This capital should finance fixed assets which dominate in the total assets of companies from this sector.

Figures presented in Table 1 indicate that the asset structure of the mining sector has not shown major volatility in the analysed period. The proportion of fixed assets to total assets fluctuated around 72% in 2005-2010, and of working assets around 28%. In the last year of this period, the share of working assets in total assets grew again from 27.4% in 2005 to 32.8% in 2009, mainly due to an increase in inventories and accounts receivable. It should be noted that the asset structure of state-owned companies is not much different from private ones, so it must be due to the specific nature of processes carried out in this sector.

TABLE 1

Asset and liability structure of mining and extraction companies in Poland, 2005-2009, in %

Item	2005	2006	2007	2008	2009	2010
Fixed assets	72.3	70.6	71.4	71.7	72.6	67.2
– state-owned	76.8	79.1	79.5	77.8	75.2	*
– private sector	63.7	56.8	58.8	62.4	68.2	*
Working assets	27.7	29.4	28.6	28.3	27.4	32.8
– state-owned	23.2	20.9	20.5	22.2	24.8	*
– private sector	36.3	43.2	41.2	37.6	31.8	*
Own capital	41.4	44.6	47.8	50.5	49.7	53.2
– state-owned	33.0	33.3	33.7	36.2	37.8	*
– private sector	56.8	62.8	69.6	71.9	69.6	*
Liabilities and reserves for liabilities	58.6	55.4	52.2	49.5	50.3	46.8
– state-owned	67.0	66.7	66.3	63.8	62.2	*
– private sector	43.2	37.2	30.4	28.1	30.4	*
Breakdown of liabilities and reserves						
long-term	20.5	19.1	17.3	17.5	18.1	10.3
short-term	79.5	80.9	82.7	82.5	81.9	89.7
Long-term liabilities as a % of total liabilities	6.0	5.2	4.3	4.3	4.7	4.8
Permanent capital	47.4	49.8	52.1	54.8	54.4	58.0
– state-owned	40.7	40.4	39.1	41.4	43.4	*
– private sector	59.5	64.8	72.2	74.7	72.7	*
Estimated average cost of raising capital	6.0	6.0	6.0	7.0	5.0	

Source: own calculations based on Central Statistical Office data – Balance Sheet Financial Results of Enterprises 2005, 2006, 2007, 2008, 2009 and Balance Sheet Financial Results of Economic Entities, 2010 – preliminary results published by the Office on Oct. 28, 2011.

\* no data by sector.

During the economic slowdown of 2007-2010, the proportion of own capital in funds financing operations of mining sector companies increased both among state-owned and private companies, with a higher growth at state-owned ones. Thus the claim that the proportion of this capital rises in total sources funding Polish enterprises is vindicated by the mining sector as well. However, own capital increased faster in the private sector. State-owned companies used more debt as a source financing their operations than private ones did. Whereas at state-owned companies own capital averaged 35% of total sources of finance in the analysed period, in the private sector, this proportion amounted to almost 70%, or even 74% in 2008. Differences in the financial structure of mining companies from the state and private sector are also due to company sizes. The private companies are smaller and they support core processes of mining companies as well as their sales. State-owned enterprises are large and they include companies mining coal, which can afford a higher level of debt, since they generate significantly greater cash flows allowing them to service this debt on time. In addition, these companies benefited from state guarantees, making lending to them safe for financial institutions.

Own capital combined with long-term debt represents permanent capital. This covers slightly more than half of the sector's assets. A conclusion can therefore be formulated that the financial structure of the sector is not well matched to its asset structure. The proportion of long-term debt to total debt is too low, which can lead to losing liquidity.

A question thus arises whether the mismatch between the structure of funding sources characteristic for the whole sector is the same in the private and the state sector. Figures from Table 1 indicate that the financial structure of private enterprises is completely different from that of state owned firms. It is dominated by own capital, which together with long-term debt accounts for almost 73% of their total funding sources. Thus fixed assets are fully paid for with permanent capital whose maturity exceeds one year. In the state sector, a clear deficit of long-term capital is visible. This capital accounts for 43.4% of the total, while fixed assets represent 75.2% of total assets, which demonstrates a maturity mismatch between funding sources and the structure of assets held.

What is of major importance in financing enterprises is the debt structure. If long-term liabilities account for too large a proportion of debt, this pushes the average cost of capital up and reduces the range of profitable investments. If, on the contrary, the proportion of these liabilities is too small, this leads to negative financial consequences: the loss of liquidity, increasing costs of overdue payments to suppliers and possibly even the bankruptcy of the enterprise. In the sector analysed, the proportion of long-term liabilities in the structure of debt is too low. In the analysed period, this proportion fell in state-owned companies from 25.7% in 2006 to 18.4% in 2009, whereas private companies exhibited the opposite trend. There, the share of long-term liabilities grew from 10% in 2006 to 17% in 2009. If it is additionally noted that the proportion of own capital to total sources of funds amounts to 70%, and together with long-term sources represents some 75% of liabilities, it can be said that the financial structure of private mining companies corresponds to their asset structure.

At mining enterprises, almost half of the debt consists in reserves and accrued expenses with the nature of reserves whose amount can be estimated but their payment date cannot. Reserves are established due to the risk of liabilities appearing in future periods. They can be of various nature. At mining companies they are mainly associated with closing down mines and remedying the consequences of mining damage and the loss of the original value of the natural environment. The largest item among those is the mine closure fund.

TABLE 2

Breakdown of liabilities and reserves for liabilities at mining companies, 2005-2009, %

Item	2005	2006	2007	2008	2009
Liabilities and reserves for liabilities, PLN million	23,701.1	23,850.0	23,188.2	24,864.7	27,467.3
Change, 2005 = 100					
Breakdown, %					
1. Reserves	39.8	43.2	47.8	47.8	45.9
2. Long-term liabilities	10.2	9.4	8.3	8.6	9.3
– loans	1.7	2.3	2.7	2.7	4.0
– liabilities evidenced by debt securities	0.07	*	0.02	0.02	0.4
3. Short-term liabilities	38.4	39.6	39.5	40.6	42.3
– loans	1.7	2.8	3.6	3.3	3.5
– liabilities evidenced by debt securities	*	*	*	*	1.5
– on account of deliveries and services	11.5	12.6	12.8	13.6	13.7
– taxes, duties and other levies	10.1	9.7	9.6	8.7	8.0
– payroll	3.4	3.3	4.0	4.4	4.0
– other	12.7	11.2	9.5	10.6	11.6
4. Accruals and prepayments	10.6	7.8	4.4	3.0	2.5

Source: own calculations based on Central Statistical Office data – Balance Sheet Financial Results of Enterprises 2005, 2006, 2007, 2008, 2009

Another hypothesis presented in the introduction is that lending to companies is restricted during an economic slowdown. Companies all over the world had less outstanding loans during the crisis than during economic expansion.

TABLE 3

Proportion of loans to total liabilities in the mining sector, 2005-2009

Item	2005	2006	2007	2008	2009
Loans, PLN million	809.0	1,245.0	1,452.3	1,475.8	2,078.9
Change, 2005 = 100	100.0	153.9	116.6	101.6	140.9
Proportion of loans to total liabilities					
– all companies	3.4	5.2	6.3	5.9	7.6
– public sector	1.9	4.3	4.8	3.5	5.3
– private sector	7.8	7.8	11.1	14.3	15.4
Loan breakdown					
– long-term	50.2	45.3	42.6	44.9	53.2
– short-term	49.8	54.7	57.4	55.1	46.8
– specified purpose loans	69.2	70.4	71.9	72.6	81.7
– unspecified purpose loans	30.8	29.6	28.1	27.4	18.3
– domestic	100.0	85.8	93.9	89.6	91.5
– foreign	0.0	14.2	6.1	10.4	8.5

Source: own calculations based on Central Statistical Office data – Balance Sheet Financial Results of Enterprises 2005, 2006, 2007, 2008, 2009, data unavailable for 2010

Figures from Table 3 demonstrate that the proportion of loans to total liabilities of mining companies shrunk slightly in 2008, but it grew in 2009 among both state-owned and private companies. Loans accounted for over 15% of the debt of private companies in 2009, while this proportion was three times lower at state-owned ones. Thus the claim that lending to companies was curtailed during the economic slowdown is not true in the mining sector. It should also be noted that in the analysed period, the maturity structure of loans did not change significantly. The proportion of long-term loans to total loans ranged from 43% to 53%. What did fall was the share of unspecified purpose loans: from almost 31% in 2005 to 18% in the last year of the period. The breakdown of loans now includes foreign loans granted by parent companies to their subsidiaries operating in Poland. They account, on the average, for 10% of loans contracted by companies from this sector.

The extent of lending to mining companies depends greatly on their debt level, the collateral offered and the company's ability to repay the debt from the cash flows it generates. When commodity prices are rising, these parameters can be favourable regardless of a slowing economy. Lower lending to state-owned than to private companies is due to the higher level of debt of the former and their ability to use more merchant credit to finance operations. They enjoy a much stronger market power than small companies which are the sub-suppliers for mining. Thus they can negotiate longer payment terms of invoices for deliveries and prevent overdue debts from arising, a risk stemming from the incorrect debt structure.

During the economic crisis, global mining companies restricted their use of bank loans due to banks' increased requirements, restrictions in accessing lines of credit and the higher financial cost of servicing debt which generally resulted from the increased credit risk of mining sector entities. On the contrary, enterprises from this sector made wider use of bond issues as a source financing their operations. The conditions for raising interest-bearing debt evidenced by bonds from financial markets also deteriorated significantly, but bonds mature in medium- to long term, which means that investors ready to invest in them must obtain higher yields on the securities they buy.

By issuing corporate bonds, mining corporations have ensured their stable operation in the future and secured the funds for growth investments. In addition, positive ratings of bond programs and their effective floating on financial markets confirms that investors view the foundations of the mining sector's future growth as stable.

Polish companies from the hard coal sector also use bonds to finance their CAPEX programs. To increase production, companies must invest some PLN 10bn in the next few years, in 2011 alone, investment expenditure exceeded PLN 3bn. Jastrzębska Spółka Węglowa spent over PLN 1.1bn on investments, Kompania Węglowa PLN 950m, Lubelski Węgiel Bogdanka PLN 700m and Katowicki Holding Węglowy some PLN 600m in 2011. [Company figures] Along with the growth of production, companies need additional funds to finance their operating activity. The financial standing of the above companies varies greatly, so they need different strategies for financing their business (Klank, 2001). Jastrzębska Spółka Węglowa intends to issue bonds worth PLN 1bn as a safety buffer guaranteeing its liquidity during a deep economic crisis.

Katowicki Holding Węglowy is now experienced in bond issues, having floated PLN 300m of bonds on the market in 2009. This was the first transaction of this type, connected with developing hard coal mining in Poland. Coal bonds were registered, which is due to the nature of the issue. They were offered to selected investors, particularly those with which Katowicki Holding Węglowy S.A. had business ties. Thus they were purchased by buyers of coal produced

by KHW S.A. mines, with which buyers the Company has long-term contracts, by suppliers of goods and services to the Company and other investors, including financial ones. The bonds were issued to finance investment projects, settle mature payables for deliveries and services and repay bank loans. Katowicki Holding Węglowy intends to issue PLN 1.05bn of bonds, and when this is confronted with its planned CAPEX, it means that some of the funds will finance investments while the rest – current operations. The Holding has also planned issuing bonds convertible to shares. The issue would be close to PLN 900m and would be associated with the Company debuting on the Warsaw Stock Exchange.

Kampania Węglowa is also planning a bond issue, since it is unable to source funds from the stock exchange and will have to find funds to finance both its investment projects and current operations. The decision to issue bonds will be preceded by an analysis of the cost-effectiveness of using this source of finance when bank loans are also available. No bond issue is planned by Bogdanka, which has calculated that financing with bank loans will be cheaper than issuing bonds. This company is highly credit-worthy.

## 4. Conclusion

The financial structure of the mining sector is not exempt from change trends in the structure of sources financing Polish enterprises. The choice of sources financing state-owned mining companies is conditional mainly on maintaining liquidity and their rate of growth measured by the volume of coal and other raw materials produced. Changes in commodity prices on global markets make companies' financial results highly volatile, which influences their level of financial risk and their selection of debt types. In the mining sector, the choice of funding sources is significantly dependent on company size. Large companies can use long-term debt to a greater extent than small ones. However, the maturity structure of sources financing state-owned enterprises is not well matched to their assets. The proportion of long-term debt should be higher.

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## References

- Akhtar S., 2005. *The Determinants of the Capital Structure for Australian Multinational and Domestic Corporations*. Australian Journal of Management, Vol. 30, nr 2.
- Antkiewicz S., 2002. *Akcje i obligacje w finansowaniu przedsiębiorstw*, Biblioteka Menedżera i Bankowca. Warszawa.
- Barclay M.J., Smith C.W., Morellec E., 2006. *On the Debt Capacity of Growth Options*. Journal of Business, Vol. 79, nr 1.
- Bielawska A., 2009. *Nowoczesne zarządzanie finansami przedsiębiorstw*. Wydawnictwo C.H.Beck, Warszawa.
- DeAngelo H., Masulis R.W., 1980. *Optima Capital Structure under Corporate and Personal Taxation*, Journal of Financial Economics, no. 8.
- Duliniec A., 2001. *Struktura i koszt kapitału w przedsiębiorstwie*. WN PWN, Warszawa.
- Gajdka J., 1997. *Empiryczna weryfikacja wybranych teorii struktury kapitału w warunkach polskich*. W: R. Borowiecki (red) *Restrukturyzacja a konkurencyjność przedsiębiorstw*, AE w Krakowie, Kraków.

- Gajdka J., 2002. *Teorie struktury kapitału i ich aplikacja w warunkach polskich*. Wydawnictwo Uniwersytetu Łódzkiego, Łódź.
- Iwin-Garzyńska J., 2007. *Wartość jako istota kapitału*. „Prace Naukowe AE we Wrocławiu”, nr 1152.
- Janasz K., Janasz W., Wiśniewska J., 2007. *Zarządzanie kapitałem w przedsiębiorstwie*, Difin, Warszawa.
- Jerzemowska M., 1999. *Kształtowanie struktury kapitału w spółkach akcyjnych*. PWN, Warszawa.
- Kędzior M., 2006. *Wpływ struktury kapitału na wartość przedsiębiorstwa*. Zeszyty Naukowe Akademii Ekonomicznej w Krakowie, nr 702.
- Klank M., 2011. *The determinants in the development of coal mining sector productivity*. Arch. Min. Sci., Vol. 56, No 3.
- Kubiak J., 2006. *Kształtowanie struktury kapitału przez małe przedsiębiorstwa w Polsce w latach 2002-2004*. W: Szczepankowski P. (red.) *Problemy zarządzania finansami we współczesnych przedsiębiorstwach*, VIZJA PRESS&IT, Warszawa.
- Lowe J., Naughtman T., Taylor P., 1994. *The impact of Corporate Strategy on the Capital Structure of Australian Companies*, Managerial and Decision Economics, nr 15.
- Min Q., 2008. *Prediction difficulty, financial strength and debt maturity*. Journal of Modern Accounting and Auditing, April 2008, vol.4, No 4 (serial No 35).
- Ostaszewski J., 2003. *Zarządzanie finansami w spółce akcyjnej*. Difin, Warszawa.
- Ostaszewski J., Cicirko T., 2005. *Finanse spółki akcyjnej*, Difin, Warszawa.
- Rutkowski A., 2003. *Zarządzanie finansami*. PWE, Warszawa.
- Sierpińska M., Jachna T., 2007. *Metody podejmowania decyzji finansowych*. WN PWN Warszawa.
- Szydło S., 2004. *Stopy procentowe banków komercyjnych*. Bank i Kredyt, nr 8.
- Titman S., 1984. *The effects of Capital Structure on a Firm's Liquidation Decision*. Journal of Financial Economics, nr 13.

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