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Harc, Martina

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**Martina Harc**  
Croatian Academy of Sciences and Arts  
Institute for Scientific Research and  
Artistic Work in Osijek  
Franje Kuhača 29,  
31000 Osijek, Croatia  
harc\_m@hazu.hr  
Phone: +38531214928

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# THE RELATIONSHIP BETWEEN TANGIBLE ASSETS AND CAPITAL STRUCTURE OF SMALL AND MEDIUM-SIZED COMPANIES IN CROATIA

## ABSTRACT

The asset structure of companies should matter for financing decisions. Small and medium-sized companies in Croatia may use tangible assets as collateral, either providing more access to creditors or as a guarantee in case of bankruptcy. The aim of this paper is to investigate the relationship between tangible assets and the capital structure of Croatian small and medium-sized enterprises. Most previous studies have shown various relationships between tangible assets and leverage. This study has been conducted on a sample of 500 Croatian SMEs for the period between 2005 and 2010. The data used for the empirical analysis were taken from companies' annual reports. The Pearson Correlation Coefficient is applied in order to examine the relationship between tangible assets and leverage measures. The results of this research indicate that tangible assets are differently correlated with short-term and long-term leverage. The relationship between tangible assets and short-term leverage is negative and statistically significant in all observed years. The relationship between tangible assets and long-term leverage is positive in all observed years and statistically significant. The results show that small and medium-sized companies use their collateral to attract long-term debt, which means that small and medium-sized companies use lower costs and the interest rate of long-term debt in relation to short-term debt. These findings correspond with the maturity matching principle, according to which long-term assets are financed with long-term financing and short-term assets are financed with short-term funds. These results suggest that tangible assets have a positive impact on the long-term debt of Croatian SMEs because tangible assets constitute a positive signal to the financial institutions, which can request the selling of these assets in case of bankruptcy. These findings are consistent with the trade-off theory which predicts a positive relation between leverage and tangibility, but also with the pecking order theory, which is generally interpreted as predicting a negative relation between leverage and tangibility.

**Keywords:** Tangible assets, capital structure, leverage, small and medium-sized enterprises

## 1. Introduction

Capital structure choice is one of the most important decisions faced by firm management (Degryse et al., 2010). Capital structure refers to the way a firm is financing its assets through a combination of equity and debt (Titman and Wessels, 1988). The process of financing takes a very important place in firm management because it must ensure financial continuity necessary for growth and maintaining competitiveness in their environment. This is especially evident in transition economies, where due to underdeveloped capital markets debt remains the main source of financing. Capital structure can be defined as a mixture of a firm's capital with debt and equity. The form of financing and types of funding sources will define a firm's capital structure.

Capital structure theories offer a number of determinants that are responsible for various impacts on capital structure, while the empirical literature tends to find evidence that firms behave in accordance with the theoretical predictions (Shamshur, 2010). Mostly they focus on those determinants which are more likely to have a major role on leverage decisions. Although there have been various studies analysing capital structure, it is still debated what the determinants of capital structure are and how they impact capital structure decisions. Since Modigliani and Miller published their seminal paper in 1958, the issue of capital structure has generated great interest among researchers. From the theoretical point of view, existing empirical studies widely used two models of capital structure: the trade-off theory and the pecking order theory. The trade-off theory implies that a company's capital structure decisions involve a trade-off between the tax benefits of debt financing and the costs of financial distress. The pecking order theory points out that there is a certain order in financing, starting from retained earnings as a primary source of internal financing, then moving to debt and using equity only as the last resort. Each of these theories suggests how certain determinants affect capital structure. According to theories, researchers found various impacts of determinants on capital structure depending on the country they are analysing.

In this paper the focus is on one determinant: tangible assets. Why tangible assets? Firstly, because the asset structure of companies should matter for financing decisions. Small and medium-sized com-

panies in Croatia may use tangible assets as collateral, either providing more access to the creditor or as a guarantee in case of bankruptcy. Olakunle and Oni (2014) pointed that tangibility of assets is characterized by the effect of the collateral values of assets on a firm's leverage level. Secondly, the type of assets that a firm possesses can be considered as an ambiguous factor in the determination of the debt-equity ratio. The cost of financial distress depends of the types of assets that a firm has. If a firm retains large investments in land, equipment and other tangible assets, it will have smaller costs of financial distress than firms that rely on intangible assets (Daskalakis and Psillaki, 2008). Thirdly, tangible assets are relatively easy to identify in contrast to intangible assets, which are more difficult to identify, separate, utilize, account or imitate. It is important to see whether tangible assets are in function of debt or not, and whether the hypotheses support the pecking order theory or the trade-off theory.

This paper adds to the existing literature by examining the relationship between tangible assets and the capital structure of small and medium-sized enterprises (SMEs). These enterprises represent important parts of all economies in terms of both their total number and their job offer and job creation. One of the major topics that has been analysed in previous studies is how SMEs finance themselves. Financing is an essential part of operating any business. Without adequate access to financing potential the growth of a firm is jeopardized. In reality, obtaining finance and other banking services has never been easy for small and medium-sized enterprises. According to Degryse et al. (2010), large companies are more aware of better financing methods, since they employ more financial and administrative staff and may have a stronger bargaining position towards lenders. Croatia is a country in transition and a new member of the European Union, and as such it is an interesting case study. In a country like Croatia the private equity market is poor and the financial system is bank-based, so the role of debt is fundamental. It is important to analyse whether there is a positive or negative correlation between the capital structure and tangible assets of Croatian small and medium-sized enterprises.

According to the existing empirical studies and results of the researches, the research hypotheses of this paper are formed as follows. The first hy-

pothesis is: tangible assets are positively related to leverage and the trade-off theory predicts a positive relation between leverage and tangibility. This relationship exists because tangible assets are easier to collateralize and they suffer a smaller loss of value when firms go into distress. Since firms tend to match the maturity of assets with maturity of liabilities, tangibility should be positively related with leverage (Koksal et al., 2013). Degryse et al. (2010) argues that the positive effect on total debt comes entirely from long-term debt, so an additional hypothesis is that tangible assets are positively related to long-term leverage. The second hypothesis is: tangible assets are negatively related to leverage, i.e. the negative relationship between leverage and asset structure indicates that firms that employ lots of tangible assets seem to rely more on internal funds generated from these assets, which is predicted by the pecking order theory. Based on the discussion above, Bas et al. (2009) and Degryse et al. (2010) argue that short-term debt is negatively related with asset tangibility. According to them, the second additional hypothesis is: tangible assets are negatively related to short-term leverage.

This article is organized as follows: Section 2 reviews the relevant theoretical and empirical literatures on how tangible assets influence capital structure. Section 3 presents a description of the methodology that includes a description of data and variables, and methods applied in the research. Sections 4 and 5 present the results, discussion and conclusions.

## **2. Literature review and previous studies**

According to recent papers, although there is no consensus among authors on the direction of the relationship, asset structure plays an important role in determining the capital structure (Ellili and Farouk, 2011). Harris and Raviv (1991) argue that the larger share of tangible assets increases the liquidation value of a company. This is due to the fact that the tangible assets constitute collateral for the debt in case of bankruptcy. Morellec (2001) argues that when a firm is solvent, asset sales increase the firm value by allocating assets to better uses. He also argues that when the firm is in distress, asset sales represent the cheapest source of funds for the firm. Moreover, asset sales allow the firm to finance continued operation of its remaining assets without requiring external capital. Sanyal and Mann (2010)

examined the financial structure of start-up firms. They found that start-ups with more tangible assets as potential collateral are more likely to use external debt in the financial structure, since these assets have a high liquidation value. As the authors above concluded, collateral value of assets was found to be an important determinant in capital structure. Recent papers confirmed either a negative or positive relation between tangibility and capital structure. Koksal et al. (2013) investigated the factors that determine the capital structure choices in Turkey. They used tangibility as a proxy for the type of assets. They found that tangibility appears to be the key determinant of long-term leverage (positive relationship), but is not important for short-term leverage (negative relationship). Their empirical findings suggested that the trade-off theory is a better description of the capital structure of Turkish firms than the pecking order theory. In their study, Daskalakis and Thanou (2010) investigated determinants of capital structure of Greek SMEs in the period between 2003 and 2007. They found that the firms' debt ratio is negatively related to asset structure. They concluded that firms that generate relatively high internal funds tend to avoid debt financing. Thus, firms that rely more on tangible assets tend to use less debt than firms with relatively fewer tangible assets. Psillaki and Daskalakis (2008) investigated the capital structure of Greek, French, Italian and Portuguese small and medium-sized enterprises. They argue that the costs of financial distress depend on the types of assets that a firm employs. If a firm retains large investments in land, equipment and other tangible assets, it will have smaller costs of financial distress than a firm that relies on intangible assets. Thus, firms with more tangible assets should issue more debt. On the other hand, large holdings of tangible assets may imply that a firm has already a stable source of return, which provides more internally generated funds and discourages it from turning to external financing. So, the negative relationship between leverage and asset structure indicates that firms employ lots of tangible assets and seem to rely more on internal funds generated from these assets, which is predicted by the pecking order theory. They found that asset structure is significant and negatively correlated with leverage. A possible explanation is that firms with lots of tangible assets may have already found a stable source of return, which provides them more internally generated funds and discourages them from turning to external financing. Campello and Giambina (2011)

examined the relation between corporate asset structure and capital structure by exploiting variation in the salability of tangible assets. They argued that tangible assets are often illiquid, so they show that redeployability of tangible assets is the main determinant of corporate leverage for firms that are more likely to face credit frictions, especially during periods of tight credit. Their evidence shows that tangible assets drive capital structure to the extent that they are redeployable. Only the component of asset tangibility that responds to salability has explanatory power over firm leverage. They found that the relation between redeployability and leverage is important and pronounced in firms for which the collateral resource is particularly important in the borrowing process. For large firms, in contrast, redeployability is an irrelevant driver for leverage. La Rocca et al. (2009) examined the strategic financing choices of small businesses through the lens of the business life cycle. They conclude that tangibility has a positive relationship with debt, but its intensity varied across a firm's life cycle. Their research shows that young firms have less-tangible assets in the form of stock, which makes them more reliant on collateral assets to secure debt and obtain credit under better terms. In the growing and mature stages of a firm's life cycle, this effect decreases, but is still relevant. Degryse et al. (2010) expected asset tangibility to be positively correlated with debt as it provides collateral. They found strong support concerning the positive relationship between total debt and collateral. The positive effect on total debt came entirely from long-term debt, as short-term debt is negatively affected by the collateral. Since the collateral is a way to reduce risk of SMEs, these firms can fully use their collateral to attract long-term debt. For the firm, the costs of long-term debt are lower because banks charge relatively higher interest rates on short-term loans. These findings are in accordance with the maturity matching principle that long-term assets are financed with long-term financing and short-term assets are financed with short-term funds. Bas et al. (2009) studied the determinants of capital structure decisions of small and private firms in 25 developing countries from five different regions. They confirmed the importance of firm level factors in accordance with the capital structure theory. Based on the maturity matching principle, long-term debt is financed by long-term assets, implying that as asset tangibility increases, firms borrow more long-term debt, while short-term debt is negatively related with asset tangibility. Leverage is negatively related with asset

tangibility because firms in their sample had more short-term debt than long-term debt, suggesting that small firms with more collateral borrow less short-term debt, but their results showed that medium firms with more collateral also borrow less. Heyman et al. (2007) examined the determinants of debt-equity choice and the debt maturity choice for a sample of small, privately held firms in the creditor oriented environment of Belgium. They hypothesized a positive relation between the proportion of tangible assets and the debt ratio of small firms. Their results strongly confirmed the hypothesis that firms seek to match the maturities of assets and liabilities, meaning that firms with less tangible assets have a lower debt ratio. This study confirmed that leverage increases with asset tangibility. Deari and Deari (2009) analysed which determinants influence a company's leverage. They selected two samples. The first one was made up of Macedonian companies registered on the Macedonian Stock Exchange, and the second sample consisted of Macedonian small and medium businesses. They found that tangibility is negatively associated with leverage for listed and unlisted companies and is consistent with the implication of the pecking order theory. They concluded that Macedonian listed companies are evaluated from lenders not just based on tangibility assets, but also from other perspectives, for example goodwill. The authors also found that managers, mostly of unlisted companies, believe that for approving loans in their business plan, profitability and growth are more important than tangibility. Han-Suck Song (2005) analysed the capital structure determinants of Swedish firms. Tangibility confirmed to be highly statistically significant for all three debt measures. The results showed that tangibility has a positive relationship with the total debt ratio and the long-term debt ratio, while it is negatively related to the short-term ratio. Their results supported the maturity matching principle: long-term debt is used to finance fixed tangible assets, while non-fixed tangible assets are financed by short-term debt. According to overall assets, Herciu and Ogrea (2012) argued that a firm is highly competitive as long as its managers are able to mix tangible and intangible assets in the most effective and efficient manner. Therefore, a firm can get the same score of competitiveness by using a different combination of assets and by giving different importance coefficients to the tangible and intangible assets.

### 3. Methodology

For the purposes of this research a data sample consisting of Croatian firms was selected. The sample contains small and medium-sized enterprises as defined in the Accounting Act. A small enterprise has an average of up to 50 employees and an annual income of up to HRK 65 million. A medium enterprise has an average of up to 250 employees and an annual income of up to HRK 260 million. They are randomly selected from the Financial Agency database. The sample consists of 500 Croatian SMEs for the period between 2005 and 2010. The year 2005 is the reference year, and the number of SMEs decreased or stayed the same in other years, depending on whether the SMEs survived and submitted financial statements to the Financial Agency every year (in 2006 the number of observed SMEs was 386, in 2007 447 SMEs, in 2008 425 SMEs, in 2009 380 SMEs and in 2010 366 SMEs). Some enterprises appear twice or three times, while others appear for all six years which makes the dataset unbalanced. The sample included enterprises from all industry sectors in accordance with the National Classification of Activities, except enterprises in public administration and defence, the insurance industry and pension funds. Financial statements in the form of balance sheets and income statements were available for all SMEs in the sample. Different measures of leverage are used in past papers and each leverage measure is defined in a different way. In general, two most common proxies of leverage exist, such as calculated at book value of equity and at market value of equity (Loof, 2004). The most commonly used measure for leverage is defined as total debt over total assets. In this paper, the short-term and long-term debt ratio will be considered separately. Debt is measured by its book value. Market values are not known for SMEs. Managers have to base their financing decisions on book values.

Following Degryse et al. (2010), in this research the leverage of a company is calculated as the ratio of total debt to total assets, long-term debt to total assets and short-term debt to total assets. Research papers offer similar definitions of tangible assets. Many authors used a similar measure of tangibility. Koksál (2013) defined tangibility as the ratio of net fixed assets to total assets. Daskalakis and Thanou (2010) and Psillaki and Daskalakis (2008) measured the assets structure as the ratio of tangible assets divided by the total assets of the firm. Campello and

Giambina (2011) measured overall tangibility as the ratio of total tangible assets to book value of assets. La Rocca et al. (2009) measured tangibility as the ratio of property, plant and equipment to total book assets. Degryse et al. (2010) measured tangible assets as ratio of tangible fixed assets to total assets. According to the authors mentioned in this paper, tangibility is measured as the ratio of tangible assets to total assets.

Descriptive statistics consist of the mean and the standard deviation. The mean deviation represents the average of the sample. The standard deviation measures the amount of variation or dispersion from the average. In order to examine the relationships between variables and to test the hypotheses set out in the study, the Pearson correlation coefficient, which determines the degree to which two variables covary, is used.

### 4. Results

Descriptive statistics of the used ratios are given in Table 1. The numbers in the *mean* column represent mean values of each ratio calculated for all 500 firms in the sample. The numbers in the *standard deviation* column represent *standard deviation* values of each ratio calculated for all 500 firms in the sample.

It is interesting to notice that Croatian SMEs have more short-terms loans than long-term loans (they are high short-term levered around 58%). But in general, Croatian SMEs are highly levered (around 70% in the observed period). It is interesting to notice that despite the global economic crisis, Croatian SMEs increased their tangible assets. The reason might be that companies which retain investments in land, equipment and other tangible assets will have smaller costs of bankruptcy than companies that rely on intangible assets.

In order to examine the relationship between tangible assets and leverage, correlation coefficients between the tangible assets and leverage ratios are calculated. The aim is to examine whether high tangible assets means less leverage or vice versa. The results are presented in Table 2.



**Table 1** Descriptive statistics of ratios used in the research

Variable	Year	Mean	Standard deviation
Tangible assets in total assets	2005	0.27	0.29
	2006	0.27	0.28
	2007	0.27	0.28
	2008	0.30	0.31
	2009	0.31	0.32
	2010	0.32	0.32
	2011	0.33	0.29
L1 = Ratio of liabilities and assets (total liabilities/total assets)	2005	0.74	0.36
	2006	0.74	0.39
	2007	0.72	0.42
	2008	0.70	0.40
	2009	0.69	0.41
	2010	0.70	0.42
	2011	0.72	0.40
L2 =Ratio of long-term liabilities and assets (long-term liabilities/total assets)	2005	0.06	0.12
	2006	0.13	0.26
	2007	0.13	0.25
	2008	0.13	0.27
	2009	0.13	0.26
	2010	0.13	0.24
	2011	0.14	0.26
L3 = Ratio of short-term liabilities and assets (short-term liabilities/total assets)	2005	0.58	0.39
	2006	0.60	0.39
	2007	0.59	0.42
	2008	0.57	0.40
	2009	0.57	0.43
	2010	0.57	0.42
	2011	0.58	0.41

Source: Author's calculation

The results of this research indicate that tangible assets are differently correlated with different measures of leverage. The first hypothesis in this research is that tangible assets are positively related to leverage. Different measures of leverage show different results. When total debt to total assets is measured, the results show that there is no significant positive correlation between leverage and tangible assets. According to the first additional hypothesis, tangible assets are positively related to long-term leverage. The results show that the relationship between tangible assets and long-term leverage is positive and statistically significant in all the observed years. The second hypothesis is that there is a negative relationship between tangible assets and leverage. The results also show that when we measure leverage as total debt over total assets, there is no significant negative correlation between leverage and tangible assets. The second additional hypothesis is that tangible assets are negatively related to short-term leverage. The results show that the relationship between tangible assets and short-term leverage is negative and statistically significant in all the observed years. The results show that small and medium-sized companies use their collateral to attract long-term debt, which means that small and medium-sized companies use lower costs and the interest rate of long-term debt in relation to short-term debt. These findings are in accordance with the maturity matching principle that long-term assets are financed with long-term financing and short-term assets are financed with short-term funds. These results suggest that tangible assets are positively correlated with long-term debt of Croatian SMEs because tangible assets constitute a positive signal to the financial institutions that can request the selling of these assets in case of bankruptcy. This means that firms with less tangible assets have a lower debt ratio. These findings are consistent with the trade-off theory which predicts a positive relation between leverage and tangibility but also with the pecking order theory which is generally interpreted as predicting a negative relation between leverage and tangibility.

**Table 2** *The correlation coefficients between tangible assets and leverage ratios*

Average leverage ratios for 2005-2010	2005	2006	2007	2008	2009	2010
Total debt/Total assets	0.048 (0.316)	0.053 (0.310)	-0.015 (0.756)	-0.033 (0.519)	-0.013 (0.815)	0.024 (0.667)
Long-term debt/Total assets	0.204* (0.000)	0.322* (0.000)	0.282* (0.000)	0.329* (0.000)	0.262* (0.000)	0.279* (0.000)
Short-term debt/Total assets	-0.158* (0.001)	-0.173* (0.001)	-0.187* (0.000)	-0.244* (0.000)	-0.174* (0.001)	-0.145* (0.008)

*Note: The figures in parenthesis indicate the statistical significance of the correlation coefficient*

*Source: Author's calculation*

*\*statistically significant at the 5% level of significance*

## 5. Conclusion and discussion

Previous studies that analysed determinants of capital structure showed various impacts of tangible assets on capital structure depending on the country which they analysed. This paper adds to the existing literature by examining the relationship between tangible assets and the capital structure of small and medium-sized companies in Croatia. Previous studies showed that tangible assets are an important determinant of capital structure. Tangible assets are easy to collateralize, and are commonly assumed to be positively correlated with leverage. The results of this research showed that tangible assets are differently correlated with different measures of leverage, which confirmed that it is important to observe the capital structure through different measures of leverage. The results confirmed the maturity matching principle, that long-term assets are financed with long-term financing and short-term assets are financed with short-term funds. Similar results were reported in research papers by authors like Koksal et al. (2013), Degryse et al. (2010) and Han-Suck Song (2005) who found that tangibility has a positive relationship with the long-term debt ratio, while it is negatively related to the short-term ratio. The results of this research showed that Croatian small and medium-sized companies increased their tangible assets in the period of economic crisis. Small and medium-sized companies in Croatia may use tangible assets as collateral, either providing more access to creditors or as guarantee in case of bankruptcy. This conclusion supports Degryse et al. (2010), who argued that collateral is a way to reduce risk of small and medium-sized companies which use their collateral to attract long-term debt.

For the companies, the costs of long-term debt are lower because banks charge relatively higher interest rates on short-term loans. The results showed that the proportion of short-term debt in total debt is much larger than long-term debt. These findings are in accordance with the maturity matching principle that long-term assets are financed with long-term financing and short-term assets are financed with short-term funds. The general lesson is that the economic importance of tangible assets is different for different measures of leverage. Maturity matching is an important factor in choosing between short-term and long-term debt. Following Hercio et al. (2012), companies with more tangible assets are more competitive. They argue that companies are highly competitive as long as its managers are able to mix tangible and intangible assets in the most effective and efficient manner. For further research it would be interesting to explore different combinations of tangible and intangible assets to see how they affect leverage.



## Appendix

**Table 3** *Company activities pursuant to the Regulations on the Classification of Business Entities according to the National Classification of Activities from the year 2002, which refers to the reference year*

Activities	Company percentage share in total activity (%)
companies dealing in agriculture, hunting and related service activities	0.6
companies dealing in fishing, fish hatchery and fish ponds	0.2
companies dealing in crude oil extraction and natural gas	0.2
companies dealing in extraction of other ores and stone	0.8
companies dealing in food and beverage production	1.4
companies dealing in textile production	2
companies dealing in clothes production	0.4
companies dealing in tanning and dressing of leather	0.2
companies dealing in wood processing, manufacturing goods from wood and cork; except furniture; producing straw objects and wickerwork materials	0.2
companies dealing in publishing and printing	2.4
companies dealing in producing chemicals and chemical products	0.4
companies dealing in producing tire and plastic products	0.8
companies dealing in producing other non – metal mineral products	0.8
companies dealing in producing metal products, except machines and equipment	1.4
companies dealing in producing machines and appliances	1
companies dealing in producing electrical machines and appliances	0.4
companies dealing in producing radio – television and communication devices and equipment	0.6
companies dealing in producing medical, precision and optical instruments and clocks	0.2
companies dealing in producing motor vehicles, trailers and semi – trailers	0.2
companies dealing in producing other means of transport	0.4
companies dealing in producing furniture and other manufacturing industries	1
companies dealing in recycling	0.2

companies dealing in producing electricity supply, gas, steam and hot water	0.2
companies dealing in engineering	11
companies dealing in motor vehicles and motorcycles trade	2.8
companies dealing in wholesale and trade intermediation, except trade in motor vehicles and motorcycles	21.8
companies dealing in retail, except trade in motor vehicles and motorcycles	10.4
companies dealing in hotels and restaurants	4
companies dealing in land transport and pipeline transport	3
companies dealing in water transport	0.4
companies dealing in support and assistance in transportation; travel agencies activity	3
companies dealing in postal services and telecommunication	0.2
companies dealing in financial intermediation, except insurance and pension funds	0.6
companies dealing in support activities in financial intermediation	0.2
companies dealing in real estate business	4.4
companies dealing in renting out machinery and equipment	1.4
companies dealing in computer and related activities	3
companies dealing in research and development	0.2
companies dealing in remaining business activities	14.4
companies dealing in education	1
companies dealing in health care and social care	0.6
companies dealing in recreational, culture and sport activities	1
companies dealing in other service activities	0.6
<b>TOTAL</b>	<b>100</b>

*Source: Author's calculation*

## REFERENCES

1. Accounting Act, (NN 109/97, 54/13, 121/14) Article 3, Available at: <http://www.zakon.hr/z/118/Zakon-o-ra%C4%8Dunovodstvu> (Accessed on: November 28, 2014)
2. Bas, T., Muradoglu, G., Phylaktis, K. (2009), "Determinants of capital structure in developing countries", Available at: <http://www.efmaefm.org/0EFMSYMPOSIUM/2010-China/papers/determinants%20of%20capital%20structure%20in%20developing%20countries.pdf> (Accessed on: September 20, 2014)
3. Campello, M. Giambina E. (2011), "Capital structure and the redeployability of tangible assets", Tinbergen Institute Discussion Paper, No.11-091/2/DSF24.
4. Daskalakis, N., Psillaki, M. (2008), "Do country of firm explain capital structure? Evidence from SMEs in France and Greece", *Applied financial economics*, Vol. 18, No. 2, pp. 87-97.
5. Daskalakis, N., Thanou, E. (2010), "Capital structure of SMEs: to what extent does size matter?", Available at: [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1683161](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1683161) (Accessed on: September 20, 2014)
6. Deari, F., Deari, M. (2009), "The determinants of capital structure: evidence from Macedonian listed and unlisted companies", Available at: <http://ideas.repec.org/a/aic/journal/y2009v56p91-102.html> (Accessed on: September 20, 2014)
7. Degryse, H., Goeij, P., Kappert, P. (2010), "The impact of firm and industry characteristics on small firms capital structure", *Small Bus Econ*, Vol. 38, No. 4, pp. 431-447.
8. Song, H. (2005), "Capital structure determinants: an empirical study of Swedish companies", CEIS Electronic working paper series, Available at: <http://papers.cesis.se/CESISWP25.pdf> (Accessed on: September 23, 2014)
9. Harris, M., Raviv, A. (1991) "The theory of capital structure", *Journal of Finance*, Vol. 46, No. 1, pp. 297-355.
10. Heyman, D., Deloof, M., Ooghe, H. (2007), "The financial structure of private held Belgian firms", *Small business economics*, Vol. 30, No. 3, pp. 301-313.
11. Herciu, M., Ogorean, C., Belascu, L. (2012), "Leveraging tangible and intangible assets by using a possible firm competitiveness index", *Global business and economics review*, Vol. 14, No. 1/2, pp. 115-124.
12. Koksall, B., Orman, C., Oduncu, A. (2013), "Determinants of capital structure: evidence from a major emerging market economy", Available at: <http://mpira.ub.uni-muenchen.de/48415/> (Accessed on: September 23, 2014)
13. La Rocca, M., La Rocca, T., Cariola, A. (2009), "Small business financing. Financial preferences throughout the life cycle of a firm", Available at: [http://www.researchgate.net/publication/242086295\\_Small\\_Business\\_Financing\\_Financial\\_preferences\\_throughout\\_the\\_life\\_cycle\\_of\\_a\\_firm](http://www.researchgate.net/publication/242086295_Small_Business_Financing_Financial_preferences_throughout_the_life_cycle_of_a_firm) (Accessed on: September 22, 2014)
14. Loof, H. (2004), "Dynamic optimal capital structure and technical change", *Structure Change and Economic Dynamics*, Vol. 15, No. 4, pp. 449-468.
15. Morellec, E. (2001), "Asset liquidity, capital structure and secured debt", *Journal of financial economics*, Vol. 61, No. 2, pp. 173-206.

16. Ellili, N. O. D., Farouk, S. (2011), „Examining the capital structure determinants: empirical analysis of companies traded on Abu Dhabi Stock Exchange“, *International research journal of finance and economics*, No. 67, pp. 82-96.
17. Olakunle, A. O., Oni, E. O. (2014) “Assessing the impact of asset tangibility on capital structure: choice for listed firms in Nigeria”, Available at <http://www.aebjournal.org/articles/0203/020301.pdf> (Accessed on: September 20, 2014)
18. Sanyal, P., Mann L. (2010), “The financial structure of startup firms: the role of assets, information and entrepreneur characteristics”, Available at: <https://www.bostonfed.org/economic/wp/wp2010/wp1017.pdf> (Accessed on: September 22, 2014)
19. Shamsur, A. (2010), “Access to capital and capital structure of the firm”, CERGE-EI WP No. 429, Available at <http://dx.doi.org/10.2139/ssrn.1721455> (Accessed on: September 20, 2014)
20. Titman, S., Wessels, R. (1988), “The determinants of capital structure choice”, *Journal of Finance*, Vol. 43, No. 1, pp. 1-19.

*Martina Harc*

## **VEZA IZMEĐU MATERIJALNE IMOVINE I STRUKTURE KAPITALA MALIH I SREDNJIH PODUZEĆA U HRVATSKOJ**

### **SAŽETAK**

Imovina poduzeća važna je za donošenje financijskih odluka u poduzeću. Mala i srednja poduzeća u Hrvatskoj koriste materijalnu imovinu u svojstvu kolaterala prema financijskim institucijama ili kao jamstvo u slučaju stečaja poduzeća.

Cilj ovog rada je istražiti vezu između materijalne imovine poduzeća i strukture kapitala malih i srednjih poduzeća u Hrvatskoj. Većina prethodnih istraživanja pokazala je i pozitivnu i negativnu vezu između materijalne imovine poduzeća i strukture kapitala. Istraživanje za ovaj rad provedeno je na uzorku od 500 malih i srednjih poduzeća u Hrvatskoj u razdoblju od 2005. do 2010. godine. Za poduzeća u uzorku na raspolaganju su bili godišnji financijski izvještaji poduzeća u obliku računa dobiti i gubitka te bilance. Da bi se ispitala veza između materijalne imovine poduzeća i strukture kapitala, korišten je Pearsonov koeficijent korelacije. Rezultati istraživanja potvrdili su da materijalna imovina poduzeća različito utječe na kratkoročnu i dugoročnu zaduženost poduzeća. Veza između materijalne imovine poduzeća i kratkoročne zaduženosti poduzeća je negativna i statistički značajna u svim godinama promatranja. Veza između materijalne imovine poduzeća i dugoročne zaduženosti poduzeća je pozitivna i statistički značajna u svim godinama promatranja. Rezultati ukazuju da mala i srednja poduzeća koriste materijalnu imovinu kao kolateral prilikom dugoročnog zaduživanja i na taj način koriste niže kamatne stope i niže troškove obrade kredita u odnosu na kratkoročno zaduživanje.

Rezultati istraživanja pokazuju da se poduzeća financiraju po principu dospijeća, odnosno da se kratkotrajna imovina financira kratkoročnim sredstvima, a dugotrajna imovina dugoročnim financijskim sredstvima. Rezultati istraživanja pokazali su da je veza između materijalne imovine i dugoročnog zaduživanja pozitivna jer materijalna imovina za financijske institucije predstavlja jamstvo na način da ju mogu unovčiti u slučaju stečaja poduzeća.

S obzirom kako mjerimo zaduženost poduzeća, rezultati istraživanja podupiru teoriju izbora koja predviđa pozitivnu vezu između materijalne imovine i zaduženosti poduzeća, no također rezultati istraživanja podupiru i teoriju postupka slaganja koja predviđa negativnu vezu između materijalne imovine i zaduženosti poduzeća.

**Ključne riječi:** materijalna imovina, struktura kapitala, zaduženost, mala i srednja poduzeća