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AN ANALYSIS REGARDING CASH HOLDINGS. EMPIRICAL STUDY ON THE BUCHAREST STOCK EXCHANGE LISTED FIRMS

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Abstract

Worldwide corporate cash holdings have significantly increased and have become an important tool for managers. This study explores the factors that influence firms' behavior regarding cash holdings and the signal that financial conservatism is sending to potential investors. Our data consists in annual observations collected through the Reuters Eikon platform. It includes companies listed on the Bucharest Stock Exchange, the investigated period being 2005-2014. The econometric analysis employs multivariate regression for an unbalanced panel data, using the OLS technique. The results show a positive correlation of cash holdings with the value registered by this indicator in the previous period, fact that might be interpreted as an attempting of the companies to maintain a target level of cash. Also, the results showed a non-linear relationship between leverage and cash holdings, while the tangible assets determine a negative correlation. As regards firm size and ownership concentration, the correlations were not statistically validated.

Keywords: cash holdings; liquidity; leverage; cash flow.

JEL classification: C23; G31; L25.

1. INTRODUCTION

Worldwide, the percentage of cash holdings kept by companies has significantly increased over the last decades (Amess *et al.*, 2015). Ferreira and Vilela (2004) observed that in the early 2000s, the companies from the Economic and Monetary Union (EMU) countries kept about 15% of their total assets in cash, while in the US, liquid assets represented almost a quarter of total assets. Bates *et al.* (2009) considers that this situation was caused by the higher cash flows volatility and the potential risk associated with this issue, the decrease of working capital and the investments in research and development (R&D). Kling *et al.* (2014) identified four factors that generate demand for cash: the transaction costs, the caution reasons, the investment opportunities and the self-interest of managers. Therefore, cash holdings analysis needs to be correlated with variables that assess

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corporate performance and risk, with specific characteristics of the economies where the companies came from, as well as with shareholders protection level.

According to the classical theory, a high level of cash is associated with a low level of debt. This explains the correlation between future investment opportunities and firm financing capacity. If a firm anticipates investment opportunities, it will change its current financing policy in order to prepare for the next phase. These transformations are strongly correlated with company's current financial position and its ability to obtain external financing. Companies that do not face financial difficulties, do not prepensely hold cash, but rather use this resource to reduce debt. An exception from this situation may occur when firms might obtain some benefit from postponing debt. On the other hand, the companies that are facing financial constraints, if they are not considering new investment projects, their financing policy will be similar with the companies that are not experiencing any difficulties. In a contrary situation, if a company wants to invest in future projects, it will strive to accumulate cash reserves from the current cash flow, and moreover, it will choose not to use this resource to pay the debt. Therefore, investment opportunities and financing capacity are the key indicators in determining the financing policy.

If the market had no imperfections, the value of companies would not be related with their financial decisions (Stiglitz, 1974). In such an environment, cash holdings would have no relevance. However, Jensen (1986) argues that a high level of cash is a tool that managers have at their disposal, allowing them to increase the control and to implement projects without seeking the shareholder consent. Besides that, the markets have many imperfections and this fact is more obvious in developing countries. Among the issues that accentuate this situation it could be mentioned: the bankruptcy costs (Al-Najjar and Belghitar, 2011), the poor level of control exerted by the financial institutions (Ferreira and Vilela, 2004) and the difficulties in accessing funding in those countries where neither the banking system, nor the capital market is properly developed (La Porta *et al.*, 2000).

The investigation of this issue on emerging markets was formerly performed mainly for large countries such as Russia, India, Brazil or China (Al-Najjar, 2013). We believe this is probably one of the reasons why the results revealed that there are similar factors influencing cash holdings level in developing countries and developed ones too. Starting from this assumption, we wanted to test these aspects on the Romanian market, taking into account specific features such as the role of bank financing and ownership concentration. We wanted to contribute identifying, testing and analyzing the impact of the factors that influence cash holding behavior in Romania, starting from models previously elaborated in the literature.

In light of these aspects, Romanian economy could be seen as a paradox. These characteristics have emerged in the context of the fast and significant changes that occurred since the ’90s, reform that had an overall favorable result. The re-orientation of the economy toward the capitalist market, the massive privatization, the re-opening and development of the capital market and the amendments made in legislation in order to achieve harmonization with the European law represent only some of these issues. In the same time, Romania has made considerable progresses concerning the quality of financial reporting. The reform had begun in 1994, by implementing accounting procedures inspired by the French system. Laptes and Popa (2013, p. 6) explain that by using the French accounting system „the patrimony items were classified as assets, based on the economic destination, and as liabilities, based on their source. Liquidity and chargeability represented only second criteria”. Only after 2001, when Romania started to implement relevant accounting directives, assets and liabilities have been classified into fixed assets and current assets, and

long-term liabilities and current liabilities, proving a clear grouping by liquidity and chargeability. The accounting standardization and convergence with the international accounting practices has the aim to increase comparability and credibility of the information disclosed in the financial statements. Also, it offers to potential investors' valuable information about the firm's economic capacity to create future liquidities.

Therefore, despite the limited database, we find appropriate to conduct a study on the Romanian market, which analyzes the behavior of the companies regarding cash holdings.

Romanian companies operate in a dual environment, fact that is caused on the one hand by the low legal protection of shareholders rights, and on the other hand by the firm's propensity to choose the bank loans over the capital market. Without starting a debate about banking or capital market oriented-systems, following Gerschenkron (1962) and La Porta *et al.* (2000), we consider that in the course of the economic development process, the bank monopoly is a required stage necessary for the further development of the market. Bank loans are granting only after a detailed analysis. Apart of checking the previous financial stability of the company, bank financing is approved only if the mandatory collateral is satisfactory and, in many cases, it involves a detailed presentation of how the borrowed funds will be used. Therefore, in such a context, banks have not only a creditor role, but also an informative role, acting as a signal for the potential investors.

At the same time, it should not be forgotten the tendency of shareholders concentration in the case of Romanian companies. In this regard, at least two aspects have to be mentioned. First of all, in Romania, small and medium size enterprises (SMEs) must be seen in a particular way. In many cases, the management of the company overlaps with the main shareholder, in other words, the entrepreneur himself sometimes represents the company. Therefore, the management utility function overlaps with the shareholder value maximization. In this case, the agency costs are rather taken by the creditors. This situation will determine banks to require even more restrictive and burdensome conditions, which ultimately will cause more difficulty for some firms in accessing financing. Second of all, in the case of listed companies, it is interesting to investigate what impact does the level of ownership concentration have on cash holdings? In other words, how does the presence of a major shareholder influence the so-called "insiders" regarding in this issue (La Porta *et al.*, 2000). The objective is testing if, in such circumstances, shareholders may influence the decisions regarding cash allocation, for instance, for dividends distribution or saving it for prospective investment opportunities.

The remainder of this paper is organized as follows. Section 2 will be dedicated for the presentation of the main points of view and results found in the literature concerning this topic. Based on those considerations, the research assumption we will formulated and motivated. In Section 3, we will present the econometric models and in Section 4 the results that were obtained. In Section 5, conclusions will be drawn.

2. LITERATURE REVIEW

This study was developed considering the two main sources of funding used by most of companies: cash flow and leverage. The motivation resides in the fact that the level of available resources and how these funds are allocated determine the capital structure, modify the relationship between internal and external investors, influence the investment policy of and therefore, affect the corporate performance of the firms. In the body of literature, two lines of research previously analyzed could be identified. The first direction

has been focused on the factors that influence companies' behavior regarding cash holdings and the second one has been concentrated on the bivalent relationship between financial constraints and cash flow sensitivity, a phenomenon that appears in the context of information asymmetry.

In order to explain firm behavior regarding financing and cash holding policies, it can be noticed the impact of the pecking order and the trade off theories.

Pecking order adepts believe that profitable companies keep a high level of cash in order to finance the new projects from internal sources. Resorting to indebtedness is regarded as a secondary option, and lastly it is considered the issuance of new shares, because of the negative impact of asymmetric information. In fact, ranking the financing options came precisely in the context of information asymmetry (Myers and Majluf, 1984). In case of issuing new shares, the potential investors have considerably lower information compared with the management. For this reason, the price they would be willing to pay for the new securities may not be profitable for the company. In some cases, companies may even reconsider the idea of issuing new shares. Consequently, cash holdings will hover according with the investments that the companies intend to implement. Saving cash resources will not be a problem for the management if it does not involves a cost.

On the contrary, the tradeoff theory states that companies which hold assets fastly convertible into cash, have no need to preserve increased cash holdings. These firms can overcome any liquidity crisis or the inability to obtain external financing from the capital market by transforming those assets into cash. Thus, liquid assets are a substitute for cash (Ferreira and Vilela, 2004) and therefore, the liquidity level has to be determined as a balance between the costs and the benefits associated with each financing source. In this regard, Ozkan and Ozkan (2004) state that companies which are constantly distributing dividends can overcome the situations of financial distress, caused by the decreasing of the investments internal resources, without incurring high costs, by reducing the payments of dividends.

Guney *et al*. (2007) argue that the relationship between leverage and cash is not linear. Thus, up to a certain level of leverage, firms will decrease liquidity. But after a certain point, which is not no longer perceived as sustainable, companies will begin to increased cash holdings in order to stave off the potential financial constraints. Disequilibrium appears when the high level of leverage causes the increase of financing cost, because of the higher risk prediction made by the creditors. This phenomenon is known as moral hazard and it can be explained by the fact that companies will have to counterbalance the increased cost of financing by investing in riskier projects, which have higher expected profitability. Such a scenario is very likely to cause financial distress and a high cash flow sensitivity. Also, the cash flow of firms that are highly indebted will be mainly divided among creditors and the shareholders will have few benefits from any positive results.

To the contrary, Fazzari *et al*. (2000) state that a low level of leverage may be associated with the company's inability to obtain external financing. This hypothesis can become relevant if the firm consistently reports a very low level of debt and especially when it is associated with other features, such very small or very young companies.

Beside the factors that determine cash savings and the optimal level of cash holdings, other studies have taken into account the development of new liquidity ratios in order to overcome the shortcomings of the prior indicators, issues that appeared in the context of the market development (Melyk and Birita, 1974; Gitman, 1974; Shulman and Cox, 1985). Among these indicators it could be mentioned the comprehensive liquidity index, the cash conversion cycle index and the net liquidity balance index.

Almeida *et al.* (2004) addressed the issue cash flow sensitivity to cash. The authors consider that it can be perceived if a company faces financial constraints by its propensity to hold cash. Thus, financial constraints are an important determinant of companies' behavior in terms of cash holdings. The companies that foreshadow financial distress will seek to protect themselves against this threat by holding more cash. Since cash savings involve reducing or even waving current investments, such situation is costly for the firms. The companies that do not face financial constraints have not benefit from saving cash, but also keeping it does not involve any cost. Therefore, if a company is not in a situation of financial difficulty, its financial policy cannot be forecasted, or in other words, there is no optimal cash policy.

Other authors claim that there are at least two fundamental advantages that cash holdings may generate (Opler *et al.*, 1999). On one the hand, the companies will not have to bear the transaction costs to obtain funding and they should not liquidate any assets in order to repay the outstanding debt. On the other hand, these companies may use their liquid assets for investments and for continuing the activity even in situations when they do not have any other external financing sources or these are very expensive. In a graphical way, the authors represented the optimal necessary of liquid assets as the intersection point between the curve of marginal cost of liquid assets and marginal cost of the deficit of liquid assets. At the same time, the authors noted that companies which hold an excess cash generally do not assign those funds for shareholders. Neither the investments in new projects or new acquisitions have results above the average. Besides that, the investments diversification without a clear purpose will finally lead to a decrease of shareholder wealth. Because of this arguments, the authors to conclude that an excess of cash rather „covers a hole in management pockets".

The results of the previous study are antagonistic with the classical assumptions which state profitable firms tend to keep a higher level of cash (Chudson, 1945), because of the benefits brought by the scale economies (Vogel and Maddala, 1967; Meltzer, 1963) or by the competitive advantages achieved from anticipation and fast adaptation to the new market opportunities (Baskin, 1987).

This issue is defined as the agency cost paid by shareholders and it arises when shareholders interests are not convergent with those of the management or those of the controlling shareholders. This is a controversial problem and fundamentally depends on the situation of the firm. For the companies that have enough profitable investment opportunities, most likely there will be an alignment of interests between management and shareholders, and therefore the agency cost becomes a false problem. On the other hand, the flexibility granted by a high level of cash will always be a temptation for the management. This resource allows managers to make investments that the stock market would not be willing to finance, protect the firm against potential takeover attempts and also from situations where the company would have to issue new shares under unfavorable circumstances, generated by the information asymmetry.

Therefore, cash holdings seem to be positively related with future investment opportunities and risk of the company, but also negatively associated with proxies regarding outside investors protection. When investors' rights are extensively and well enforced by the law, they are willing to finance companies. In contrast, when the legal system is not supportive, the corporate governance and the access to external financing are not functioning well. It is generally accepted that common law systems offers the highest level of protection for outside investors. At the opposite, the French civil law system has the

lowest level of protection. The German civil law and the Scandinavian countries are considered to be between these systems, offering better protection especially for creditors.

Kalcheva and Lins (2007) argue that in the countries with a lower level of shareholders protection, the management control tends to be higher. This fact seems to be related with a decrease of companies' value.

La Porta *et al.* (2000) consider that beside the legal system, the enforcement of the law, the effectiveness of the law courts and the quality of the accounting standards make a significant difference. These three elements are fundamentally influenced by the level of economic development.

Khurana *et al.* (2006) agree with this point of view. After performing an international analysis, the authors noticed the level of economic development is positively associated with companies' access to financing and that, this fact determines the decrease of concern for maintain a high level of cash. Another important aspect this study revealed is that the way of collecting data reported by the companies, may also be one of the factors leading to divergent results. For example, companies often invest their reserves in risky and illiquid assets. In fact, dividing liquid assets into cash and short-term investments shows that these elements are not interchangeable. Besides, in countries with a low level of corporate governance, the percentage of short-term investments in liquid assets is lower because managers do not perceive those funds as cash.

Bennedsen and Wolfenzon (2000) provide a countervailing argument. The authors consider that when the investors protection is weak, the control divides between several shareholders - and none of them can control firm decisions without the others approval – which can be considered as a commitment for limiting the expropriation. If there is not just a single controlling shareholder, the approval of the board is necessary for the major decisions, and the investors are interested in limiting the expropriation or distributing the profit for dividend payments.

Ozkan and Ozkan (2004) analyzed the cash holdings issue when a major shareholder that has the ability to control management. In this hypothesis, cash level will depend on his interest, usually a positive relationship beeng expected. The same study shows that the banks have better information compared to other inverstors and so the banks pay a lower cost of information asymmetry. Gathering and processing information during the assessment and monitoring process allow banks to make better evaluations than other creditors. This is one of the reasons why receiving bank loans is viewed as a positive signal regarding the firms.

Al-Najjar (2013) conducted an analysis on several emerging countries (Brazil, Russia, India and China), using as sample benchmark of companies from the US and UK. The results revealed that similar factors affect cash holdings both in developing and developed countries. Also a positive correlation between cash holdings and firm size was obtained. However, the result changes depending on the state, a cross-country effect being noticed. As concerning leverage, according with Al-Najjar and Belghitar (2011), a negative relationship with cash has been obtain.

As regards the relationship between firm size and cash holdings, the main issue asses companies' financial stability compared with their size, and the second one associate liquidity with information asymmetry. Basically, it is believed that large firms have higher resources than the smaller ones and, furthermore, that these firms obtain external financing at lower costs. Also, diversifying their activity provides stability and makes the costs associated with bankruptcy to be theoretically lower. On the contrary, the cost of financing is higher for the smaller firms and affects their future investments and development.

Therefore, larger companies will not strive to store cash because cash holdings will rather become a non-justified cost. On the other hand, the lower level of information asymmetry provides managers a higher flexibility in managing the financial policy and the higher level of cash support this flexibility. In bigger firms, management is separated from the shareholders structure. Jensen and Meckling (1976) called this issue as the „agency problem". This means managers can decide to keep a high level of cash because that gives them flexibility and the opportunity to invest in projects for their own benefit, and not for the shareholders value maximization. This situation is even more risky and more frequent in countries with a low level of shareholders protection (Dittmar *et al.*, 2003). In these countries, shareholders have a lack of methods to put pressure on managers. But in the same time, it should be noticed that managers also have fewer options to obtain financing, because in these states the capital market is usually underdeveloped. Therefore, especially the small businesses, but not only, will tend to save cash in order to overcome more easily any future situations of financial constraints.

On the Romanian case, the implications generated by cash holdings have been poorly studied. Previous researches have been especially focused on the relationship between capital structure and corporate financial performance (Vatavu, 2015), or particularly in the context of financial crisis triggered in 2007 (Sumedrea, 2015). Other studies have analyzed the liquidity and solvability indicators (Chiriac, 2015). As regards liquidity, the banking system was mainly considered (Munteanu, 2012; Roman and Sargu, 2014). Bank's liquidity and solvency are factors of great importance particularly when the post-transitional banking sectors are considered. Having prudent liquidity ratios, adapted to the various phases of economic cycle, could prevent future collapses of the banking sector.

One of the few studies that included Romania in an international analysis was performed by Hall *et al.* (2014). The paper is centered on the countries from Central and Eastern Europe, data being collected for the period 2001-2010. The conclusions showed that unlisted firms keep more cash holdings than the listed ones. A second result is that in market oriented countries, the level of cash is higher. Third of all, the authors noticed that, during the transition process to capitalism, similar factors affect the cash holdings level, both for listed and unlisted companies. As regards Romania, it is mentioned a fixed assets percentage between 51.4% and 71.5%, while the share of tangible assets oscillates between 44.0% and 52.1%. Cash holdings level was about 7%. An important conclusion is that the relationship between leverage and cash holdings is not linear. The paper indicates that, if in developed markets a negative correlation between long term debt and cash holdings is observed, this situation does not apply for developing countries. The explanation resides in the fact that capital marked are less developed in these countries and a growth of long term debt would lead to an increase of the financial distress risk. Consequently, cash holdings resources have the role to minimize the risk of financial distress or bankruptcy.

3. DATABASE AND METHODOLOGY

For this analysis, data was collected for the period 2005-2014. Financial and accounting information were collected from Eikon Reuters database or extracted from the companies financial reports. The information about the ownership structure was collected from Central Depository, Bucharest Stock Exchange and companies' periodical reports. Companies from financial and insurance sector were excluded. Lastly, information was obtained for 52 firms, from the following sectors: food, chemical, construction,

pharmaceutical, manufacturing, metallurgy, sales, machines and components, transport and storage, tourism and utilities.

The statistical and econometric analysis was conducted in SPSS.23. Since only financial ratios have been employed, we did not consider that inflation may have a significant effect. The variables and the method of calculation are presented in Table no. 1.

Table no. 1 – Definition of the variables

Dependent variable	
CASHRATIO	Ratio of Cash and Cash equivalents / Total net assets; Total net assets = Total assets - Cash and Cash equivalents
Independent variables	
LEVERAGE	Ratio of Total debt / Total assets
CR	Current liquidity = Ratio of Current Assets / Current Liabilities
OCFM[1)]	Self-financing capacity = Ratio of (Net profits + Amortization + Depreciation) / Sales
SIZE1	Total assets
SIZE2[2)]	Categorical variable regarding the number of employees: ≤49=1 (EMP1); ≤249=2(EMP2); ≥250=3(EMP3)
LTDTD[3)]	Ratio of Long term debt / Total debt
SHDTD	Ratio of Short term debt / Total debt
TANG[4)]	Ratio of Fixed assets / Total assets
CCC[5)]	Cash conversion cycle = Inventory Outstanding Days + Sales Outstanding Days - Payable Outstanding Days
INVDAYS	Inventory Outstanding Days
AGE	The number of years since the company was listed
STSHARE	The percentage of shares held by the largest shareholder
NDSHARE	The percentage of shares held by the second large shareholder
RDSHARE	The percentage of shares held by the third large shareholder
D1	Dummy variable, takes the value of 1 if the firm reports long-term debt, 0 otherwise
D2[6)]	Dummy variable, takes the value of 1 if the firm assets value is higher than the level of third decile of sample total assets, 0 otherwise
D3	Dummy variable, takes the value of 1 if the firm pays dividends, 0 otherwise
D4[7)]	Dummy variable, takes the value of 1 if the participation owned by the largest shareholder is lower than 50%, 0 otherwise
D5[8)]	Dummy variable, takes the value of 1 if the firm leverage level is lower than the level of first decile of the sample leverage, 0 otherwise
D6[8)]	Dummy variable, takes the value of 1 if the firm leverage level is between the first and the third decile of the sample leverage, 0 otherwise
D7[8)]	Dummy variable, takes the value of 1 if the firm leverage level is higher than the level of the third decile of the sample leverage, 0 otherwise
D8	Dummy variable, takes the value of 1 if there is an institutional investor in the ownership structure, 0 otherwise
D9	Dummy variable, takes the value of 1 if the cash flow is positive, 0 otherwise.

Notes:

[1)] According to Molinari (2013), the self-financing capacity of a company has been calculated as cash flow. Molinari mentioned that calculating the variable using this method rules out the possibility of a high correlation with companies size, measured by total assets.

[2)] Company size is seen as the number of permanent employees. The accounting data was transformed into a categorical variables. The Eurostat criteria used in the European Union was employed to classify the companies into small, medium and large firms. The analysis does not include micro companies (companies with less than 9 employees).

[3)] In accordance with Guney *et al.* (2007), debt maturity was introduced as an alternative to leverage, aiming to capture the correlation with cash holdings.
[4)] Using the approach of Frank and Goyal (2009), asset tangibility was introduced as a control factor. Almeida and Campello (2007) argue that this factor influences the liquidation value of assets and therefore has a significant impact on the relationship between companies and creditors.
[5)] To avoid the endogeneity between the dependent variable and independent factors, free cash flow was introduced as a control variable. This approach has previously been used by Al-Najjar (2013).
[6)] The risk of a company was related with the value of its assets, according with Almeida *et al.* (2004). Companies whose value of asset is below the third decile of the sample are the companies that may face financial constraints. This kind of approach has been previously used by Gilchrist and Himmelberg (1995). The authors believed that small firms are generally younger, less visible and more vulnerable to market imperfections.
[7)] Based on the conclusions set out by La Porta *et al.* (2000) and Ozkan and Ozkan (2004), a dummy variable that indicate whether there is a control shareholder in the ownership structure was introduced. Also, a dummy variable that that points out the existence of a shareholder which has more than 50% from the shares was introduce. It points out the specific feature of the Romanian market regarding ownership concentration.
[8)] To verify if the cash flow sensitivity depends on leverage, we employed the method of Molinari (2013) and we created three dummy variables according to the level of financial leverage. The results of the above mentioned study showed that cash-flow sensitivity is expected to grow with the increasing of leverage.

Source: own processing

Before applying the econometric modeling, an important issue concerned normalizing data series. The main difficulty in terms of data normalization is the existence of outliers, fact that causes the displacement of the average. SPSS reports as extreme values those observations that are situated at a distance from the median of more than 3 multiplied with the distance between the third and the first quartile (Q1-Q3). An approaches used in such situations is eliminating the outliers, but taking the risk of limiting the results representativeness. In this study, since the database is quite restricted, we approached another method called data winsorisation. This method requires transforming data by limiting the outliers, in order to reduce their effect. In this regard, the variables have been winsorizated to 90%, so that all the values below the 5th percentile were set to the value of this percentile and all values greater than the 95th percentile were set to the 95th percentile, using 95% confidence interval.

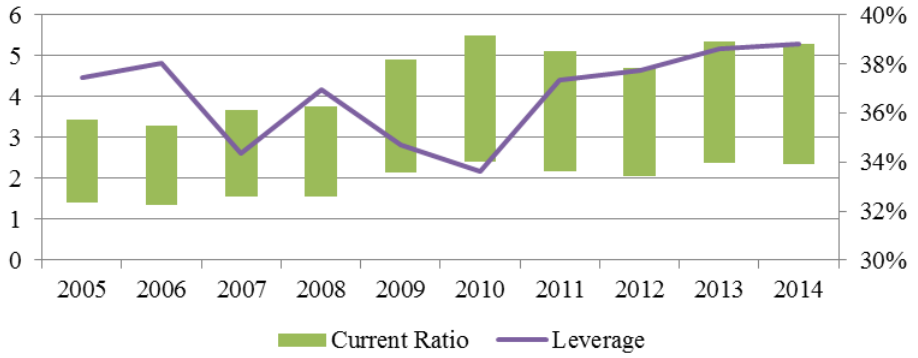
In Table no. 2, we can see the average value of CASHRATIO was 0.06. The median value is below the average, leading to a positive skewness. This fact indicates that most of the observations have a value below the average, but there are also some observations much higher than the average, which generates the positive skewed distribution. As concerning liquidity, the average value is relatively close to the median. This situation is similar for OCFM which records an average value of 0.08 and a median value of 0.07. Leverage registered an average value of 36.77%. Also, regarding leverage, we have noticed a minimum value was 4%, while the maximum was 95%. This situation may by caused be the fact that part of the companies from our sample has reported no long-term debt. During the entire period, a total number of 184 observation with 0 long-term debt were registered. This fact can be consider as a firm's predilection for short-term loans, but also can suggest the incapacity of some firms in obtaining external financing (Fazzari et al., 2000). Besides, the average value of short-term to total debt ratio was nearly double than long-term to total debt

ratio. Figure no. 1 reveals a clearer view on how indebtedness and liquidity evolved during 2005 to 2014 for the analyzed companies.

Table no. 2 – Descriptive Statistics

	N	Mean	Median	Std. Deviation	Skewness	Kurtosis	Minimum	Maximum
CASHRATIO	484	0.06	0.02	0.08	2.00	3.23	0.00	0.34
OCFM	452	0.08	0.07	0.14	-0.10	0.10	-0.25	0.39
CR	501	2.22	1.55	1.83	1.60	1.80	0.38	7.44
LEVERAGE	506	0.36	0.30	0.25	0.71	-0.35	0.04	0.95
LTDTD	520	0.16	0.03	0.216	1.00	-0.43	0.00	0.64
SHDTD	506	0.283	0.230	0.200	0.84	-0.18	0.03	0.74
TA (mii $)	506	164464	51120	334500	3.14	8.80	7796	1434809
EMP	373	988	544	1098	1.71	2.05	73	4170
CF	459	-347.99	83.70	8793.93	0.32	2.45	-21145	24462
TANG	500	0.59	0.59	0.18	-0.05	-0.69	0.24	0.93
CCC	497	152.87	108.70	166.19	0.86	0.34	-111	570
INVDAYS	491	158.56	105.80	146.85	1.36	1.03	13.22	558.30
STSHARE	507	53.54	54.59	22.09	0.02	-0.79	0.00	99.63
NDSHARE	507	11.84	12.50	10.33	0.38	-0.51	0.00	44.69

Source: results obtained using SPSS.23



Source: results obtained using Excel

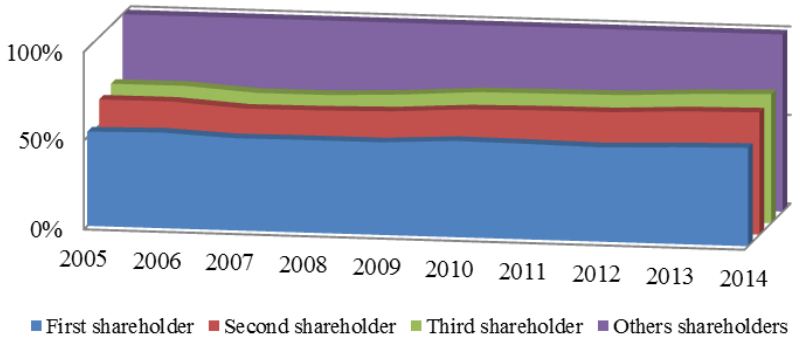
Figure no. 1 – Leverage and liquidity evolution, 2009-2014

We can notice that from 2006 to 2007 and especially between 2009 and 2011, leverage registered a significant decrease, while the liquidity indicator followed an upward trend. After 2011, leverage recorded an ascending evolution and liquidity remained just about the highest level registered in 2010. This situation may be explained by the panic and the precautionary measures generated by the financial crisis.

The mean value for the variable TANG was almost 60%, which means that Romanian companies hold more than a half of their assets in tangible assets. As regards this situation, we agree with the assumption of Almeida and Campello (2007) which considered that if the access to external financing is difficult, then tangible assets act as a credit multiplier, helping companies to continue their investment policy. Thereby, companies that have a higher proportion of tangible assets are less sensitive to shocks. Also, having easier access to credits, should stimulate their investment policy. On the other hand, for those companies

that have sufficient internal funds and do not face financial constraints or financing difficulties, assets tangibility should not be a key factor of their financial policy.

The variables SHSHARE and NDSHARE measure the level of shareholding concentration in the Romanian market. On average, the percentage held by the largest shareholder is greater than 51%. Also, the average participation of the first and second shareholders represents approximately 65% of the equity. This means that minority shareholders hold on average only a third part of the shares. The situation has maintained almost constant during the period under review, as we can see in Figure no. 2.



Source: results obtained using Excel

Figure no. 2 – Shareholders' structure

As concerning firm size, given the fact that Romanian companies are using in a great proportion the bank loans as external financing source, we start from the assumption that size does not have a decisive impact on companies' decision to save cash. We considered that firms are motivated to maintain a target level of liquidity in order to prevent shocks and avoid the risk of being unable to meet the payment obligations. The presence of a majority shareholder that control managers, may limit their power of decision, crucially influence the investment policy and also decide to allocate the profit according with his personal interest.

Given all these aspects, we performed the econometric analysis starting from the following hypotheses:

H*$_1$: The level of cash holdings tend to adjust to a target level.*

H*$_2$: There is positive/negative relationship between leverage and cash holdings.*

H*$_3$: There is a negative relationship between the level of short-term debt ratio and cash holdings.*

H*$_4$: There is a positive relationship between company size and cash holdings.*

H*$_5$: There is a positive relationship between the percentage of tangible assets and cash holdings.*

H*$_6$: There is a positive relationship between ownership concentration and cash holdings.*

In Table no. 3 is presented the correlation matrix of the variables. Its importance lies in the fact that high correlations between the independent variables may generate partial multicollinearity. Although it is not itself a problem, multicollinearity generates the instability of residues and coefficients when new observations are included or some observations are excluded. Therefore, it is important not to include simultaneously in the models variables that present a high correlation.

Table no. 3 – Pearson Correlation

	CASHRATIO	OCFM	CR	LEVERAGE	TA	EMP	LTDTD	SHDTD	TANG	STSHARE	NDSHARE	AGE	CCC	INVDAYS
CASHRATIO	1													
OCFM	0.18**	1												
CR	0.52**	0.22**	1											
LEVERAGE	-0.26**	-0.33**	-0.61**	1										
TA	-0.07	0.16**	-0.17**	0.13**	1									
EMP	-0.01	0.06	-0.24**	0.23**	0.71**	1								
LTDTD	-0.14**	0.01	-0.12**	0.22**	0.12**	0.11*	1							
SHDTD	-0.25**	-0.33*1	-0.61**	0.85**	0.10*	0.22**	-0.21**	1						
TANG	-0.23**	0.20**	-0.18**	-0.18**	0.19**	0.18**	0.34**	-0.07	1					
STSHARE	-0.06	-0.01	-0.05	0.09*	0.11**	0.28**	0.01	-0.05	-0.02	1				
NDSHARE	-0.02	0.03	-0.07	-0.04	0.08	0.04	-0.04	0.04	0.13**	-0.42**	1			
AGE	-0.13**	-0.17**	-0.05	0.21**	-0.02	-0.01	-0.02	0.06	-0.24**	-0.00	-0.08	1		
CCC	-0.16**	-0.10*	0.11**	-0.09*	-0.26**	-0.33**	-0.15**	-0.05	-0.29**	-0.11*	-0.01	0.31**	1	
INVDAYS	-0.09*	-0.13**	0.04	0.00	-0.21**	-0.19**	-0.03	-0.00	-0.18**	-0.17**	0.05	0.35**	0.72**	1

Notes: **Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Source: results obtained using SPSS.23

4. ANALYSIS AND RESULTS

The econometric models have been estimated by OLS, using multivariate regression, as presented in the following equations. The dependent variable was treated in the same time as an independent lag variable.

$$y_{it} = \beta_0 + \beta_1 y_{it-1} + \mu_{it} \quad (1)$$

where: y_{it}=CASHRATIO; β_0= the constant; $\mu_{it}=\phi_t + \varepsilon_{it}$, ϕ_t= the unnoticed time specific effect that in a certain period of time affect in the same way all the objects, but that varies in time; ε_{it} is the error term, independent and identically distributed, with mean 0 and variance σ^2; i=1,…,52; t=2005,…,2014.

Fixed effects were considered since the beginning taking into account the two major advantages offered by this model. First of all, it eliminates the effects that may be caused by the unnoticed variables that are correlated with the dependent variable. Second of all, using this type of model offers a better control of the explanatory variables that have missing values. The main disadvantage is given by the fact that dummy variables that do not vary over time cannot be included in the model. In order to avoid multicollinearity, we have introduced t-1 time variables. The year 2014 was considered the benchmark and it was not included in the model.

$$y_{it} = \beta_0 + \beta_1 y_{it-1} + \beta_2 x_{1t} + \mu_{it} \quad (2)$$

where: x_{1t}=the leverage.

$$y_{it} = \beta_0 + \beta_1 y_{it-1} + \beta_2 x_{1t} + \beta_3 x_1^2{}_t + \mu_{it} \quad (3)$$

Subsequently, the model was extended by inserting additional explanatory variables:

$$y_{it} = \beta_0 + \beta_1 y_{it-1} + \beta_2 x_{1t} + \beta_3 x_1^2{}_t + \ldots + \gamma_i z_{it} + \mu_{it} \quad (4)$$

where: z_{it} = the vector of the other explanatory variables.

The results are presented in Table no. 4.

Table no. 4 – The regression results

Dependent variable	CASHRATIO							
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Constant	-0.026 (-0.207)	-0.007 (-0.060)	-0.043 (-0.353)	-0.039 (-0.255)	-0.079 (-0.544)	-0.100 (-0.612)	0.166 (1.188)	-0.330* (-1.765)
CASHRATIO (-1)	0.535*** (13.253)	0.498*** (12.186)	0.483*** (11.845)	0.348*** (7.931)	0.357*** (8.110)	0.339*** (7.854)	0.339*** (7.805)	0.341*** (7.736)
LEVERAGE	-	-0.159*** (-3.869)	-0.593*** (-4.087)	-0.811*** (-5.229)	-0.810*** (5.223)	-	-	-
LEVERAGE^2	-	-	0.450*** (3.117)	0.679*** (4.532)	0.654*** (4.389)	-	-	-
SHDTD	-	-	-	-	-	0.081 (1.206)	-	-
LTDDT	-	-	-	-	-	-	-0.078* (-1.928)	-
SIZE1	-	-	-	-0.014 (-0.315)	-	0.010 (0.262)	0.021 (0.524)	-0.034 (-0.729)
EMP1	-	-	-	-	0.059 (0.213)	-	-	-
EMP2	-	-	-	-	-0.119 (-1.009)	-	-	-
OCFM	-	-	-	0.087* (1.740)	0.077 (1.531)	0.060 (1.273)	0.117*** (2.813)	0.083* (1.649)
CR	-	-	-	-	-	0.477*** (8.091)	0.486*** (8.662)	-
CCC	-	-	-	-0.157*** (-3.516)	-0.144*** (-3.211)	-	-	-0.239*** (-3.998)
INVDAYS	-	-	-	-	-	-	-	0.150*** (2.680)
WORKCAP	-	-	-	0.047 (1.155)	0.052 (1.256)	-	-	0.048 (1.143)
TANG	-	-	-	-0.326*** (-6.395)	-0.317*** (-6.299)	-	-	-0.315*** (-5.932)
AGE	-	-	-	-0.134** (-2.533)	-0.120** (2.263)	-	-	-0.170*** (-3.124)
D2	-	-	-	-	-	-	-	0.126 (1.330)
D3	-	-	-	0.183** (2.084)	0.143 (1.670)	-	-	0.192** (2.155)

Dependent variable	CASHRATIO							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
D4	-	-	-	-	-	-	-	0.071 (0.860)
D5	-	-	-	-	-	-0.021 (-1.113)	-0.455*** (-3.012)	-0.637*** (-4.344)
D6	-	-	-	-	-	-0.113 (-0.907)	-0.233** (-2.439)	-0.006 (-0.059)
D8	-	-	-	-0.136 (-1.419)	-0.128 (-1.326)	-	-	-0.196* (-1.990)
D9				-	0.207** (2.201)	0.230*** (2.617)	-	0.240** (2.504)
STSHARE	-	-	-	-0.112*** (-2.575)	-	-	-	-
NDSHARE	-	-	-	-0.001 (-0.166)	-	-	-	-
Fix effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	463	463	463	395	395	406	406	392
Adjusted R^2	0.274	0.296	0.309	0.441	0.432	0.442	0.435	0.441
F	18.843***	18.682***	18.265***	14.561***	14.640***	19.907***	20.557***	13.383***
Condition Index	5.988	5.994	7.460	11.779	11.142	10.200	7.954	13.476
DB	1.84	1.82	1.82	1.82	1.80	1.83	1.83	1.79

Notes: t Stat values are displayed in brackets. F represents the F Fisher test. ***, **, * indicate the coefficients that are significant at 1%, 5%, respectively 10% level.

Source: results obtained using SPSS.23

Table no. 4 summarizes the results obtained from regressions. The variables CASHRATIO, LEVERAGE, SIZE1 and CR were previously convert by log transformations in orden to normalize the data. Dummy variables EMP1 and EMP2 were obtained from the categorized variable SIZE2. EMP1 takes the value of 1 if the number of employees is ≤ 49, 0 otherwise; EMP2 takes the value of 1 if the number of employees is within the range [50; 249], 0 otherwise, EMP3 is the control group and takes the value of 1 if the number of employees is ≥ 250, 0 otherwise. CASHRATIO(-1) is $CASHRATIO_{t-1.}$ LEVERAGE^2 was obtained by square transformation of the variable LEVERAGE. In order to check if the mean of the dependent variable is homogeneous across the three groups, we applied the H test of Kruskal-Wallis. The result shows that the null hypothesis of mean equality can not be reject. Condition Index (Belsley, 1976) was used to test if the results might affected by the presence of collinearity. This indicator shows a potential problem if it registers values greater than 30.

Hypotheses verification

H_1: The result of model (1) confirms the first hypothesis, showing a positive correlation between the level of CASHRATIO at time t and t-1. This fact may suggest that firms tend to adjust their level of cash to a target level. For cautionary reasons, companies tend to maintain the level of cash holdings in certain parameters, but this process is affected by systemic factors.

H_2: In accordance with the second hypothesis, the results indicate a negative correlation with variable leverage. However, it can be observed in the third model that by transforming the variable to square, the relationship becomes positive and statistically significant. The results are consistent with Guney *et al.* (2007) who showed that after a certain level of debt, the firms will tend to increase cash resources in order to prevent certain circumstances of financial constraints. Also, in our sample, the coefficient of short-term debt rate is not statistically significant, refuting the third hypothesis (H_3). Our results are not convergent with the conclusion of Hall *et al.* (2014) for developing countries, a study that included also Romania. An explanation could be fact that Romanian firms mainly uses short terms debt and they finance their current assets though commercial debt.

H_4: Regarding size, the relationship is not statistically significant, both in terms of total assets and number of employees. Thus, the fourth hypothesis could not be validated. This result could be generated by the fact that this sample includes only listed companies.

H_5: The results confirm assumption of a negative relationship between tangible assets and cash holdings. Almeida and Campello (2007) explain that tangible assets offer stability, functioning as a credit multiplier for the companies, which leads them to reduce of cash holdings.

H_6: In terms of ownership concentration, the relationship is not conclusive. Basically, it seems to be a negative correlation, fact that is mainly determined by the percentage of shares held by the largest shareholder. The conclusion is also similar as regards the presence of institutional investors in the ownership structure, but the relationship has been statistically validated only in the last model. Thus, the considerations of La Porta *et al.* (2000) regarding the weak shareholders protection and the risk to be expropriated by a major shaholder is counterbalance by the difficulties is obtaining external funding.

Also, as it might be predicted, cash conversion cycle adversely affect the level of cash holdings, while average outstanding inventory days generate a positive influence. Self-financing capacity is also positively correlated with the dependent variable. Molinari (2013) considers this indicator has a cyclical trend, similar with the growth rate of the company. In other words, it is a proxy of investment opportunities: if it increases, it will lead to an increase of cash holdings. As a consequence, the result is also similar regarding the dummy variable D9 which concerns the cash flow reported by companies.

Lastly, the analysis revealed a negative correlation with the age of the companies. According to Gilchrist and Himmelberg (1995), this happens because young companies are less known and more vulnerable. Companies with a longer history are more stable, have better access to finance and therefore will not strive to store cash.

5. CONCLUSIONS

In this study we wanted to test certain factors that influence companies' behavior regarding cash holdings. Carrying out the analysis on the Bucharest Stock Exchange listed companies faces the challenge of a reduced database, but on the other side, the importance of the results came precisely from identifying and testing hypotheses previously certified in only on developed markets.

For this analysis was employed multivariate linear regression, applied on an unbalanced panel data, information collected for the period 2005-2014. Fixed temporal effects were also employed. This method provides the advantage of eliminating the negative consequences that may arise because of the unobserved variables that are correlated with the

dependent variables. Fix effects simultaneously controls the problem of the lack of certain observations in the variables.

The results of the study showed that cash ratio depends on the cash level registered on previous period, the correlation being positive. The cash level is also negatively correlated with leverage, but after a certain level of indebtedness, the relationship becomes positive, fact that has leaded us thinking that the relationship between leverage and cash holdings is not linear. Contrary to previous researches, the size of the companies, measured both through total asset and employees number, is not a significant factor. On the other hand, the assets tangibility and the age of the companies are negatively correlated with the dependent variable. Also, although the relationship seems to be negative, the overall conclusion is that cash holdings do not depend on the ownership concentration, nor the institutional investors seems to have a significant impact.

The results obtained may be of interest both for academics and practitioners, taking into consideration the novelty of testing these issues on the Romanian market. Thereby, for managers, but also for investors, the factors presented in the first part of the paper and the results may facilitate the understanding and awareness of the implications generated by cash holdings. They may consider these conclusions in order to adapt their decisions according with the economic cycle stage and the transformations appeared at macroeconomic level, such as monetary policies decisions or fiscal changes.

In the same time, this study may complement the analysis conducted for Romania regarding the impact of leverage on performance. This will help managers to balance their decisions regarding cash holdings and leverage level, in the same time being aware of the signals sent to potential investors. As Georgescu and Chiriac (2012, p. 20) state, „the loans generate fixed expenses concerning the interests, they reduce the financing costs and create a situation in which the leverage effect may be used in the company's advantage". But in the same study it is mentioned that „the company is running the risk of not reaching a profitability of assets at least equal to the costs related to these ones".

In conclusion, we believe the results bring more information on the analyzed aspects, for the Romanian economy. Also, given the limited database, we believe the outcomes should be interpreted in the context of this sample of companies. However, the methodology can be applied for other countries, especially for developing markets with similar financial systems.

References

Al-Najjar, B., 2013. The financial determinants of corporate cash holdings: Evidence from some emerging markets. *International Business Review*, *22*(1), 77-88. doi: http://dx.doi.org/10.1016/j.ibusrev.2012.02.004

Al-Najjar, B., and Belghitar, Y., 2011. Corporate cash holdings and dividend payments: Evidence from simultaneous analysis. *Managerial and Decision Economics*, *32*(4), 231-241. doi: http://dx.doi.org/10.1002/mde.1529

Almeida, H., and Campello, M., 2007. Financial constraints, asset tangibility, and corporate investment. *Review of Financial Studies*, *20*(5), 1429-1460. doi: http://dx.doi.org/10.1093/rfs/hhm019

Almeida, H., Campello, M., and Weisbach, M. S., 2004. The cash flow sensitivity of cash. *The Journal of Finance*, *59*(4), 1777-1804. doi: http://dx.doi.org/10.1111/j.1540-6261.2004.00679.x

Amess, K., Banerji, S., and Lampousis, A., 2015. Corporate cash holdings: Causes and consequences. *International Review of Financial Analysis*, *42*, 421-433. doi: http://dx.doi.org/10.1016/j.irfa.2015.09.007

Baskin, J., 1987. Corporate liquidity in games of monopoly power. *The Review of Economics and Statistics*, *69*(2), 312-319. doi: http://dx.doi.org/10.2307/1927239

Bates, T. W., Kahle, K., and Stulz, R., 2009. Why do U.S. firms hold so much more cash than they used to? *The Journal of Finance, 64*(5), 1985-2021. doi: http://dx.doi.org/10.1111/j.1540-6261.2009.01492.x

Belsley, D. A., 1976. Multicollinearity: Diagnosing its presence and assessing the potential damageit causes least-squares estimation. *NBER Working Paper Series, 154*. https://core.ac.uk/download/files/153/6645718.pdf.

Bennedsen, M., and Wolfenzon, D., 2000. The balance of power in closely held corporations. *Journal of Financial Economics, 58*(1-2), 113-139. doi: http://dx.doi.org/10.1016/S0304-405X(00)00068-4

Chiriac, S. C. V., 2015. Considerations regarding the evolution of the liquidity and solvency indicators of the most important Romanian HORECA companies in the period 2010-2013. *Procedia Economics and Finance, 32*, 833-840. doi: http://dx.doi.org/10.1016/S2212-5671(15)01527-0

Chudson, W., 1945. *The Pattern of Corporate Financial Structure*. New York: National Bureau of Economic Research.

Dittmar, A., Mahrt-Smith, J., and Servaes, H., 2003. International corporate governance and corporate cash holdings. *Journal of Financial and Quantitative Analysis, 38*(1), 111-133. doi: http://dx.doi.org/10.2307/4126766

Fazzari, S. M., Hubbard, R. G., and Petersen, B. C., 2000. Financial constraints and corporate investment: response to Kaplan and Zingales. *NBER Working Paper Series, 5642*.

Ferreira, M., and Vilela, A., 2004. Why do firms hold cash? Evidence from EMU countries. *European Financial Management, 10*(2), 295-319. doi: http://dx.doi.org/10.1111/j.1354-7798.2004.00251.x

Frank, M. Z., and Goyal, V. K., 2009. Capital structure decisions: Which factors are reliably important? *Financial Management, 38*(1), 1-37. doi: http://dx.doi.org/10.1111/j.1755-053X.2009.01026.x

Georgescu, I. E., and Chiriac, I., 2012. The analysis of the influential factors of the absorbing companies' performance. *Analele ştiinţifice ale Universităţii "Al.I. Cuza" din Iaşi. Ştiinţe economice / Scientific Annals of the Alexandru Ioan Cuza University of Iasi. Economic Sciences, 59*(1), 3-25. doi: http://dx.doi.org/10.2478/v10316-012-0001-1

Gerschenkron, A., 1962. *Economic Backwardness in Historical Perspective. Cambridge*. Mass.: Belknap Press of Harvard University Press.

Gilchrist, S., and Himmelberg, C., 1995. Evidence on the role of cash flow for investment. *Journal of Monetary Economics, 36*(3), 541-572. doi: http://dx.doi.org/10.1016/0304-3932(95)01223-0

Gitman, L. J., 1974. Estimating corporate liquidity requirements: A simplified approach. *Financial Review, 9*(1), 79-88. doi: http://dx.doi.org/10.1111/j.1540-6288.1974.tb01453.x

Guney, Y., Ozkan, A., and Ozkan, N., 2007. International evidence on the non-linear impact of leverage on corporate cash holdings. *Journal of Multinational Financial Management, 17*(1), 45-60. doi: http://dx.doi.org/10.1016/j.mulfin.2006.03.003

Hall, T., Mateus, C., and Mateus, I. B., 2014. What determines cash holdings at privately held and publicly traded firms? Evidence from 20 emerging markets. *International Review of Financial Analysis, 33*, 104-116. doi: http://dx.doi.org/10.1016/j.irfa.2013.11.002

Jensen, M., 1986. Agency costs of the free cash flow, corporate finance and takeovers. *The American Economic Review, 76*, 323-329.

Jensen, M., and Meckling, W., 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360. doi: http://dx.doi.org/10.1016/0304-405X(76)90026-X

Kalcheva, I., and Lins, K. V., 2007. International evidence on cash holdings and expected managerial agency problems. *Review of Financial Studies, 20*(4), 1087-1112. doi: http://dx.doi.org/10.1093/rfs/hhm023

Khurana, I. K., Martin, X., and Pereira, R., 2006. Financial development and the cash flow sensitivity of cash. *Journal of Financial and Quantitative Analysis*, *41*(04), 787-807. doi: http://dx.doi.org/10.1017/S0022109000002647

Kling, G., Paul, S. Y., and Gonis, E., 2014. Cash holding, trade credit and access to short-term bank finance. *International Review of Financial Analysis*, *32*, 123-131. doi: http://dx.doi.org/10.1016/j.irfa.2014.01.013

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R., 2000. Investor protection and corporate governance. *Journal of Financial Economics*, *58*(1-2), 3-27. doi: http://dx.doi.org/10.1016/S0304-405X(00)00065-9

Laptes, R., and Popa, A. F., 2013. The dynamics of the Romanian financial reporting. *Analele ştiinţifice ale Universităţii "Al.I. Cuza" din Iaşi. Ştiinţe economice / Scientific Annals of the Alexandru Ioan Cuza University of Iasi. Economic Sciences*, *60*(1), 1-19. doi: http://dx.doi.org/10.2478/aicue-2013-0010

Meltzer, A. H., 1963. The demand for money: A cross-section study of business firms. *The Quarterly Journal of Economics*, *77*(3), 405-422. doi: http://dx.doi.org/10.2307/1879569

Melyk, L. Z., and Birita, A., 1974. Comprehensive liquidity index as a measure of corporate liquidity. *Scientific and Behavioral Foundation of decision sciences*, 162-165.

Molinari, M., 2013. Joint analysis of the non-linear debt-growth nexus and cash-flow sensitivity: New evidence from Italy. *Structural Change and Economic Dynamics*, *24*, 34-44. doi: http://dx.doi.org/10.1016/j.strueco.2012.11.003

Munteanu, I., 2012. Bank liquidity and its determinants in Romania. *Procedia Economics and Finance*, *3*, 993-998. doi: https://doi.org/10.1016/S2212-5671(12)00263-8

Myers, S. C., and Majluf, N. S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187-221. doi: http://dx.doi.org/10.1016/0304-405X(84)90023-0

Opler, T., Pinkowitz, L., Stulz, R., and Williamson, R., 1999. The determinants and implications of corporate cash holdings. *Journal of Financial Economics*, *52*(1), 3-46. doi: http://dx.doi.org/10.1016/S0304-405X(99)00003-3

Ozkan, A., and Ozkan, N., 2004. Corporate cash holdings: An empirical investigation of UK companies. *Journal of Banking & Finance*, *28*(9), 2103-2134. doi: http://dx.doi.org/10.1016/j.jbankfin.2003.08.003

Roman, A., and Sargu, A. C., 2014. Banks liquidity risk analysis in the new European Union member countries: Evidence from Bulgaria and Romania. *Procedia Economics and Finance*, *15*, 569-576. doi: https://doi.org/10.1016/S2212-5671(14)00512-7

Shulman, J. M., and Cox, R. A., 1985. An integrative approach to working capital management. *Journal of Case Management*, *5*(6), 64-68.

Stiglitz, J. E., 1974. On the irrelevance of corporate financial Policy. *The American Economic Review*, *64*(6), 851-866.

Sumedrea, S., 2015. How the Companies did Structure their Capital to Surpass Crises? *Procedia Economics and Finance*, *27*, 22-28. doi: http://dx.doi.org/10.1016/S2212-5671(15)00967-3

Vatavu, D., 2015. The impact of capital structure on financial performance in Romanian listed companies. *Procedia Economics and Finance*, *32*, 1314-1322. doi: http://dx.doi.org/10.1016/S2212-5671(15)01508-7

Vogel, R. C., and Maddala, G. S., 1967. Cross-section estimates of liquid asset demand by manufacturing corporations. *The Journal of Finance*, *22*(4), 557-575. doi: http://dx.doi.org/10.1111/j.1540-6261.1967.tb00292.x

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