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IMPACT OF ACCOUNTS RECEIVABLE MANAGEMENT ON THE PROFITABILITY DURING THE FINANCIAL CRISIS: EVIDENCE FROM SERBIA

Abstract:

The competitive nature of the business environment requires firms to adjust their strategies and apply financial policies to survive and enable growth. In most firms,receivables represent large financial sources invested in asset and involve significant volume of transactions and decisions. This paper investigates how public companies listed at the regulated market in the Republic of Serbia manage their accounts receivables during the recession times. A sample of 108 firms is used, which are the most successful Serbian firms listed at the Prime and Standard Listing as well as the Multilateral Trading Platform of the Belgrade Stock Exchange. The accounts receivables policies are examined in the crisis period of 2008-2011. In order to explore the relation between accounts receivables and firm's profitability, the short-term effects are tested. The study shows that between accounts receivables and two dependent variables on profitability, return on total asset and operating profit margin, there is a positive but no significant relation. This suggests that the impact of receivables on firm's profitability is changing in times of a crisis.

Key words: *accounts receivable,profitability,management, financial crisis, Belgrade Stock Exchange.*

1. Introduction

Accounts receivable measures the unpaid claims a firm has over its customers at a given time, usually comes in the form of operating line of credit and ismainly due within a relatively short time period (up to one year). The volume of accounts receivableindicatesfirm's supply of trade credit whileaccounts payable shows its demand of trade credit. The study of accounts receivable and accounts payable during periods of financial crisis is an important topic, particularly when the global economy is going through a credit shock. During global financial crisis, characterized byhigh liquidity risk faced by the banks, trade credits may increase, operating as a substitute for bank credits, or decrease - acting as their complement.Bastos and Pindado (2012), for example,suggest that credit constraints during a financial crisis cause firms holding high levels of accounts receivable to postpone payments to suppliers, which act in the samemannerwith their suppliers. This gives rise to a trade credit contagion in the supply chain characterized by a cascading effect.The current financial crisis provides economists a unique opportunity to study the role of alternative financial sources during periods of breakdown of institutional financing.

Accounts receivablesare one of the most important part of working capital. Receivables often represent large investment in asset and involve significant volume of transactions and decisions.However, there areconsiderable differences in the level of receivables in firms around the world. Demirgüç-Kunt and Maksimovic (2001)present evidence that in countries such as France, Germany, and Italy accounts receivable exceeds a quarter of firms' total assets, while Rajan and Zingales (1995) find that 18% of the total assets of US firms consists of receivables. In different theories,the existence ofreceivables is explained by commercial reasons, transaction-cost motivations, and financial incentives (Bastos & Pindado, 2007; Deloof & Jegers, 1999; Marotta, 2005; Petersen & Rajan, 1997).Accounts receivable management is a crucial filed of corporate finance because of its effects on a firm's profitability and risk, and consequently on the firm's value. Yet, the main body of the literature of accounts receivables focuses on studying the relation with firm's profitability at the developed capital markets and during the non-crisis period.

Understanding the effects of a financial crisis on receivables management is especially important to Serbia as a transition country.Trade credit is an important source of finance for Serbian firms and, therefore, it can make a strong contribution to firms' profitability and the development of the whole economy. In this context, the aim of this paper is to examinethe impact of accounts receivable management on the profitability of the Serbian companies during the financial crisis, in the period 2008-2011. The study investigates whether companies have to change their non-crisis accounts receivables management policies when the economy is into a recession. In order to test the relation between accounts receivables and a firm's profitability, the short-term effects will be tested in times of a crisis.

The contribution of the paper is twofold. Firstly, it extends the existing empirical literature on relationship between firms's profitability and accounts receivables in developing and transitional economiesin the crisis period, by focusingthe analysis on the Serbianlisted firmswhere, up to now,no research has been conducted. Secondly, this

study verifies some of the previous findings by testing the relationship between accounts receivables management and the profitability of the sample firms, and thus broadens the possibilities for cross-country comparisons in the field of profitability determinants.

The structure of this paper is as follows. In Section 1,a summary of previous research on the effects of accounts receivable management on firm's profitability is given. In the next section we describe the sample, define the measures of profitability as well as the explanatory variables, and finally, test the potential determinants of on profitability. In Section 3we provide conclusions, emphasise some limitations of the study and propose the objectives of future research.

2. Literature review

The goal of accounts receivables management is to maximize shareholders wealth. Receivables are large investments in firm's asset, which are, like capital budgeting projects, measured in terms of their net present values (Emery et al., 2004). Receivables stimulates sales because it allows customers to assess product quality before paying, but on the other hand, debtors involve funds, which have an opportunity cost. The three characteristics of receivables - the element of risk, economic value and futurity explain the basis and the need for efficient management of receivables.According to Berry and Jarvis (2006) a firm setting up a policy for determining the optimal amount of account receivables have to take in account the following:

- The trade-off between the securing of sales and profits and the amount of opportunity cost and administrative costs of the increasing account receivables.
- The level of risk the firm is prepared to take when extending credit to a customer, because this customer could default when payment is due.
- The investment in debt collection management.

Academicians have studied accounts receivable individually, but mostly as a part of working capital management,from various points of view.Bougheas et al. (2009), for example, focuses the research on the response of accounts receivable to changes in the cost of inventories, profitability, risk and liquidity.The other authors explore the impact of an optimal receivables management, i.e. the optimal way of managing accounts receivables that leads to profit maximization. Researches realized by Deloof (2003), Laziridis and Tryfonidis (2006), Gill et al (2010), Garcia-Teruel and Martinez-Solano (2007), Samiloglu and Demirgunes (2008) andMathuva (2010) done in Belgium, Greece, USA, Spain, Turkey, and Kenyarespectively, all point out to a negative relation between accounts receivables and firm profitability (Table 1). In other words, having an accounts receivable policy which leads to a low as possible accounts receivables has as a result the highest profitability.Contradicting evidence is found by Sharma and Kumar (2011), who find a positive relation between ROA and accounts receivables.

Table 1 Summary of previous research on the effects of receivables turnover on firm's profitability

Research	Sample, period	Type of relation
Deloof (2003)	1009 large Belgian non-financial firms for the 1992-1996 period	Significant negative relation on profitability
Lazaridis and Tryfonidis (2006)	131 companies listed in the Athens Stock Exchange (ASE) for the period of 2001-2004	Significant negative relation on profitability
Gill et al (2010)	88 American firms listed on New York Stock Exchange for the period 2005 - 2007	Significant negative relation on profitability
García-Teruel and Martínez-Solano(2007)	8,872 Spanish SMEs for the period 1996-2002	Significant negative relation on profitability
Samiloglu and Demirgunes (2008)	Istanbul Stock Exchange (ISE) listed manufacturing firms for the period of 1998-2007	Significant negative relation on profitability
Mathuva (2010)	30 firms listed on the Nairobi Stock Exchange (NSE) for the periods 1993 to 2008	Significant negative relation on profitability
Sharma and Kumar (2011)	263 non-financial BSE 500 firms listed at the Bombay Stock (BSE) from 2000 to 2008	Significant positive relation on profitability
Baveld (2012)	37 large firms in The Netherlands, during the non-crisis period of 2004-2006 and during the Financial Crisis of 2008 and 2009	Significant negative relation on profitability

However, the main body of the literature of accounts receivables focuses on studying in the environment of developed capital markets and during the non-crisis period. The consequences of a financial crisis on receivables is of enormous relevance,since a crisis causes trade credit contagion as a consequence of financial contagion between financial intermediaries (Bastos and Pindado, 2012). Researches on trade credit during financial crises are done in case on Japan's crisis (Fukuda et al., 2006), for the Asian crisis (Love et al 2007) and for the recent global financial crisis (Yang, 2001, Bastos and Pindado, 2012). As to researches that study relationship between profitability and accounts receivables during current global crisis period, it is worth mentioning the study done by Baveld (2012). It this study that investigates how public listed firms in The Netherlands manage their working capital, two periods are compared - the non-crisis period of 2004-2006 and the financial crisis period of 2008 - 2009. Baveld's study indicate a statistically significant negative relation between accounts receivables and gross operating profit during non-crisis period. On the other hand, during crisis period, no significant relation between these two variables is observed. This result may suggest that the relation between accounts receivables and firm's profitability is changed in times of a crisis in the way that some firms should not keep their accounts receivables at minimum in order to maximize profitability during crisis periods.

Taking into consideration the results of study done by Baveld (2012) and the others above mention studies, the aim of this research is to examinethe impact of accounts

receivable management on the profitability of the Serbian companies during the financial crisis, in the period 2008-2011.

3. Empirical Analysis

3.1 Sample and Data Description

We tested the regression model of profitability on the sample consisting of real-sector publicly traded companies whose shares are quoted on the regulated market of the Belgrade Stock Exchange. We compiled the basis of financial statements (source: Serbian Business Registers Agency - SBRA) for those publicly-listed companies that were quoted in all the segments of regulated stock exchange market, that met the size criterion in all analyzed years (meaning big or medium enterprises) and operated in real sector (financial firms are excluded from the sample). In such an initial stadium of defining the sample, we had 432 firms in total. After the Decision on Stock Exchange Reorganization, brought on 27/04/2012, we excluded from the sample all the companies shifted from OTC market to be quoted in MTP (*Multilateral Trading Platform*) segment, since they did not belong to Regulated market and were not active in the previous 180 days regarding share trading of the particular issuer. We also excluded companies with consolidated financial statements in any of the analyzed years, as well as those companies whose loss was over the amount of capital so that they were practically financed only from borrowed sources, and accordingly, the value of financial leverage equals one.

The sample contains the financial data for 4 years in sequence, in period from 2008 to 2011. The final sample, representing the basis for the empirical study, comprises a total of 108 big and medium publicly-listed non-financial companies, whose shares are quoted on the regulated segment of the Belgrade Stock Exchange. These companies are mostly the result of mass corporatization in Serbia at the beginning of 21st century, as a part of the process of Serbian transition to market economy and private property. The most significant share in the sample structure by the criterion of sector or business belongs to companies from processing industry (52%), agriculture, forestry and fishing (14,9%), transportation and storage (10,2%) and construction (8,4%).Financial statements of these companies are prepared following the International Accounting Standards (IAS), or International Financial Reporting Standards (IFRS).

Total number of observations for each variable is 432 (108*4). When we consider the four-year value average or the value for one year only, total number of observations is 108. We have processed the data from companies' financial statements and calculated dependent and independent variables within the regression model, which is defined in the following text.

3.2. Descriptive statistics

The ratio analysis mainly uses two types of profitabilitymeasures – margins and returns. Margins ratios(Gross profit margin, Operating profit margin, Net profit margin, Cash-flow margin)describe the firm's ability to translate sales into profits at various

stages of measurement. Ratios that calculate returns represent the firm's ability to measure the overall efficiency of the firm in generating returns for its shareholders (Return on asset, Return on equity, Return on capital, Cash return on assets and so on). Many different measurements of firm profitability are used by the researchers who studied the relation between accounts receivable and profitability. The simplest and the most used ratio,that relates the profitability of a company with its assets,is Return on Assets (ROA). It is calculatedas net income divided by total assets.

Two profitability measures are used in this study:*Operating Profit Margin* (OPM), calculated as operating profit divided by total assets and*Return on Total Assets* (ROTA) calculated as earnings before interest and tax divided by total assets.ROTA measures the ability of general management to utilize the total assets of the business in order to generate profits, whileOperating Profit Margin shows the profitability of sales resulting from regular business. Operating income results from ordinary business operations and excludes other revenue or losses, extraordinary items, interest on long term liabilities and income taxes.

The descriptive statistics of two profitability measures and explanatory variables are reported in Table 2, while the correlation matrix is presented in Table3. The measures of profitability, as well as the explanatory variables (receivables turnover ratio, accounts receivable to revenue ratio, size and liquidity), are averaged for the period 2008-2011. Size is the natural logarithm of net sales. Liquidity is measured by current ratio (current assets/current liabilities). Receivables turnover ratio measures the average period for which sales revenue will be held in accounts receivable. This ratio is usually used to describe the efficiency and effectiveness of receivables collection. The trends in accounts receivable to revenue ratio highlight tendency in the degree of investment in accounts receivable.

The results of dependent variables, *Return on Total Assets* (ROTA) and *Operating Profit Margin* (OPM), exhibit that the mean of ROTA (OPM) of all firms analyzed is 0.047 (0.032). The distribution of ROTAis positively skewed, with kurtosis of 0.083, which describes that the scores for the ROTAs are clusteredaround the mean in the right-hand tail. On the other hand, the distribution of OPM is negatively skewed, with kurtosis of 17.716, which indicates that the more peaked distribution is skewed to the left. It can be observed that the profitability of Serbian companies whose shares are traded on a regulated market is not at a significant level. But, having in mind the analyzed crisis period, the fact that they still operate in profit zone is indicative.

The average number of days accounts receivables for the Serbian companies listed at the regulated market is 69,5 days. This is far below the value of RTR of the whole Serbian economy in 2011, which is, according to Eurostat data, 128 days. The natural consequence of crisis environment is a conservative behavior of Serbian companies. The most significant crisis effect is related to corporate growth and is reflected in the fact that companies postpone planned investments. All the attention is concentrated on providing cash, given that the real sector is primarily faced with liquidity risk, and the need for working capital is increasing in time of crisis. The difficulties in collection of receivables are becoming serious as the crisis progresses.The value of receivables turnover ratio continually increases in the analyzed crisis period, starting from 66, 4

days in 2008, and reaching 73,1 days in 2011. The increase in input prices and increased exchange rates, together with the problematic collection of receivables affected the operating result.

Table2 Summary statistics

	ROTA	OPM	ARRR	RTR	SIZE	LIQ
Mean	,044636	,032373	,194138	69,50925	5,864046	2,400914
Median	,035425	,03137716	,143752	51,50000	5,816000	1,587933
Std. Deviation	,067246	,13817079	,136127	48,26746	,492433	2,478863
Variance	,005	,019	,019	,100	,242	6,145
Skewness	,369	-2,883	1,120	1,151	,408	2,850
Std. Error of Skewness	,233	,233	,233	,233	,233	,233
Kurtosis	,083	17,716	,692	,867	,016	9,891
Std. Error of Kurtosis	,461	,461	,461	,461	,461	,461
Minimum	-,109028	-,846249	,027984	10,0000	4,696000	,233524
Maximum	,220683	,377185	,625985	228,000	7,255000	15,843705

The average value of accounts receivable to revenue ratio describes the accounts receivables management of Serbian companies in the crisis time too. The value of this ratio for the sample is 19,41%, telling that almost 20% of total sales revenue is related to the unpaid sales. As the crisis progresses, from 2008 to 2011, the value of ARRR increases (from 18% to 20,4%), indicating that the amount of cash that is tied up with the slow payingcustomers is growing. Yet, this numbers are still below the share of receivables in the net revenue of 25% evidencedin France, Germany, and Italy by Demirgüç-Kunt and Maksimovic (2001).

The results on the average collection period for Serbian companies are higher than the findings of some studies done in non-crisis period. Deloof (2003) find an average of RTR of 54,64 days in Belgium, Gill et al. (2010) of 53,48 days in the US. On the other hand, Garcia-Teruel and Martinez-Solano (2007) present evidence on the average receivables turnover ratio for Spanish firms of 96,82 days, Samiloglu and Demirgunes (2008) and Lazaridis and Tryfonidis (2006) findaverage receivables turnover ratio in Turkey and Greece is 139,07 and 148,25 respectively.

Table 3 shows correlation coefficients of all variables. ROTA and OPM are dependent variables. Concerning the explanatory variables, relatively high correlation coefficients (higher than 0.5) are observed only in case of ARRR and RTR.The results of the correlation analysis shows that the number of days accounts receivables as well as accounts receivable to revenue ratio positively relate to both the dependent variables - return on total assets and operating profit margin. This indicatesthat in crisis time, a higher level of accounts receivables could induce a higher profit in the Serbian case. Contradicting evidence is found with the correlation analysis of Bavald (2009), who finds a negative relation between the number of days accounts receivables and a firm's profitability in the crisis time in the case of the Netherlands. The results of Bavald's correlation analysis show a negative relation between the number of days accounts

payables and both return on assets and gross operating profit. This indicates that managers can create value by keeping the levels of accounts receivables to a minimum.

Table3 The correlation matrix of profitability and independent variables

	ROTA	OPM	ARRR	RTR	SIZE	LIQ
ROTA	1					
OPM	(,680)**	1				
ARRR	(,329)**	,142	1			
RTR	(,293)**	,127*	(,959)**	1		
SIZE	(,385)**	(,436)**	(,283)**	(,253)*	1	
LIQ	(,298)**	(,405)**	-,116	-,059	,086	1

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

Sales and liquidity show also a positive relation on the dependent variables, which is consistent with the findings of Deloof (2003), and Baveld (2012). A shortcoming of Pearson correlations, that they are not able to identify the causes from consequences(Deloof, 2003), will be overcome by the regression analysis.

3.3 Regression model

The regression analysis used in this study is based on the following equations:

(1) $OPM_{it} = \beta_0 + \beta_1 ARRR_{it} + \beta_2 RTR_{it} + \beta_3 SIZE{it} + \beta_4 LIQ_{it} + \varepsilon_{it}$
(2) $ROTA_{it} = \beta_0 + \beta_1 ARRR_{it} + \beta_2 RTR_{it} + \beta_3 SIZE{it} + \beta_4 LIQ_{it} + \varepsilon_{it}$

where OPM and ROA measures the firm profitability, SIZE, the company size as measured by natural logarithm of sales, ARRR, the accounts receivable to revenue ratio, RTR, receivables turnover ratio, LIQ, the current liquidity ratio. The analysis utilizes fixed effect regression model for the whole sample (Table 4).

The results of regression analysis indicate a positive relation between accounts receivables and return on total assets, which is not statistically significant. Table 4 also shows a stronger, but positive relation between accounts receivables and the second dependent variable – operating profit margin. This finding is not surprising taking into account that operating profit margin describes the profitability of sales resulting from the core business, which is highly influenced by the amount of receivables and the collection effectiveness.

As it is pointed out by Baveld (2012), the absence of any significant relation for both the dependent variables may indicate that the relation between accounts receivables and firm's profitability is changed in times of a crisis.These regression resultscould beexplained by the fact that Serbia is an transition and emerging market where most of the firms are seen more profitable if they give their clients more trade credit. Indeed, these finding are contradicting with the results on the impact on receivables on firm's profitability in many developed counties (see Table 1), but consistent with Sharma and Kumar (2011), who also find a positive relation between ROA and accounts

receivables in the case of India.The conclusion can be made that large and medium listed firms in Serbia use to keep their levels of accounts receivables to a high level during crisis years.

Table 4 Regression model results for two dependant variabes:
Return on Total Asset and Operating Profit Margin

Independent variable		Dependent variable: ROTA				Dependent variable: OPM			
		Coeff.	Std. Error	t-statistic	Sig.	Coeff.	Std. Error	t-statistic	Sig.
(Constant)		-,280*	,085	-3,281	,001	-,908	,167	-5,445	,000
ARRR		,056	,093	,601	,549	,306	,181	-1,686	,095
RTR		,041	,039	1,042	,300	,184	,077	2,397	,018
SIZE		,038*	,012	3,219	,002	,108*	,023	4,659	,000
LIQ		,008*	,002	3,545	,001	,020*	,004	4,525	,000
Weighted statistics									
R square		,300				,367			
Adjusted R square		,273				,343			
SE of regression		,057				,112			
F-statistic		11,033				14,937			

* Significant at 5% level

Table 4 shows that R-squared value is 0.300 (0.367) indicating that 30% (36.7%) variance in *Return on Total Assets* (*Operating Profit Margin)* as dependent variable can be explained through four independent variables used.

4.Conclusion

This study explores how large and medium sized companies listed at the regulated market segment of the Belgrade Stock Exchange manage their accounts receivables in the most profitable way during a crisis period, from 2008 to 2011.The analysis of the relation between accounts receivables and two dependent variables on profitability,return on total asset and operating profit margin, indicates a positive, but no significant relation. This impliesthat managers of the most successful Serbian companies are of the opinion that it's profitable, and thus beneficial for their firms, to support their financially constraint customers by increasing the level of thereceivables. In this way, companies secure their future sales and survival in crisis times. Companies take into account the trade-off between extending trade credits and incresing thedefault risk involved on the one hand, and the short-term and the long-term benefits of such a receivables management on the other hand. Profitability and creation value for shareholders over crisis time is achieved by increasing the accounts receivable levels.

This study is featured at least by three main limitations. In the first place, it is based on the data of the Serbian non-financial firms listed at the regulated market. Therefore, a generalization of the results of this research for the whole economy (financial firms, non-listed firms) is not acceptable. Secondly, the analysis is limited to afour-year crisis

period, not taking into account the impact on receivables on profitability in a previous, non-crisis period. It this way, a comparative approach could not be applied and the differences between non-crisis and crisis period could not be compared and highlighted. Finally, the correlation and regression analysis is conducted using the Return on Total Assets and Operating Profit Margin as dependent variables, and fourindependent variables. In this respect, future research should comprise a more comprehensive set of explanatory variables and should be based on a larger and comprehensive database.

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