

EFFICIENCY ANALYSIS OF TRADE CAPITAL MANAGEMENT IN SERBIA

¹Radojko LUKIC

²Miro SOKIC

¹Faculty of Economics, University of Belgrade, Kamenicka 6, Belgrade, Serbia
rlukic@ekof.bg.ac.rs

²Dunav Insurance Company a.d.o. Belgrade, Macedonian 4, Belgrade, Serbia
miro.sokic@dunav.com

Abstract

For the achievement of certain goals (economic, social and environmental), it is necessary to manage capital in trade as efficiently as possible. For this purpose, it is very important to know the key determinants of the return on trade equity. In this paper, we have studied the impact of (twelve) key factors of the return on trade equity in Serbia in 2015 and 2016, by applying particular theoretical and methodological findings. This knowledge is very important when it comes to applying the adequate measures to improve the efficiency of trade capital management (return on equity) in Serbia in the future.

Keywords: theory of capital structure, determinants, performance, financial leverage, trade in Serbia

1. INTRODUCTION

Capital management is a very current, complex, significant and specific trade problem (Abdou et al., 2012; Ajanthan, 2013; Anhin, 2014; Berman, 2013; Evans, 2005; Gleason, 2005; Chevalie, 1995; Hielgen, 2014; Kamatth, 2013; Kaya, 2014; Lee, 2014; Levy, 2014; Li et al., 2014; Little, 2011; McGoldrick, 2002; Shin, 2014; Van der Wijst, 1993; Yu, 2014). The subject of research in this paper are (twelve) key efficiency determinants of Serbian trade capital management. The aim and purpose of this researches to examine the observed problems in as much detail as possible, by using particular theoretical and methodological knowledge as the informational support for improvement, through the application of adequate selective efficiency measures for capital management in Serbian trade in the future. This, among other things, represents the scientific and professional contribution of this paper.

There is an abundance of literature devoted to the analysis of efficiency factors of capital management in the trade of the countries of developed market economy (Kumar, 2017). There is also literature that specifically deals with problems of efficient capital management in Serbian trade (Lukic 2011, 2012, 2013, 2014a, b, c, d, 2015a, b 2016, 2017). In this paper, such literature shall serve as a theoretical and methodological basis for concrete empirical research conducted on the example of Serbian trade.

The standard research hypothesis in this paper is that the efficient capital management significantly contributes to the improvement of the overall trade performance. For these purpose, it is necessary to know the key efficiency factors of capital management in trade. Such factors are the subject-matter of research of this paper, conducted on the example of trade in Serbia.

The standard research methodology applied on the problems observed in this paper is based on the study of literature, ratio analysis, DuPont analysis model, strategic profit model and radar diagram model.

When analysing the factors of influence to the efficiency of capital management in Serbian trade by applying the given methodology, we used the original empirical data obtained from the Business Registers Agency.

2.IMPORTANCE OF TRADE IN SERBIA

The efficiency of capital and overall performance management is significantly influenced by the position and significance of trade in the overall economy of Serbia. In view of this, Table 1 shows the share of trade in the total number of companies, total number of employees and total income of the overall economy of Serbia for the period 2014 – 2016.

TABLE 1 - IMPORTANCE OF TRADE IN SERBIA IN 2014 – 2016

	Share of trade in the total number of companies of the overall economy of Serbia (%)	Share of trade in the total number of employees of the overall economy of Serbia (%)	Share of trade in the total income of the overall economy of Serbia (%)
2014	34.97	19.68	32.95
2015	34.44	19.80	33.45
2016	33.73	19.77	34.98

Note: Author's calculation

Source: Annual Bulletin of Financial Statements, Agency for Business, 2014 and 2016. Registers of the Republic of Serbia, Belgrade.

The data in the above table show that in 2016, the share of trade in the total number of companies of the overall Serbian economy amounted to 33.73%, in the total number of employees of the overall Serbian economy –to 19.77% and in the total income of the overall Serbian economy –34.98%. This alone shows that trade is a very important sector for creating an added value to the overall economy of Serbia. The share of trade in the total revenues(i.e. in creating the added value)of the overall Serbian economy has increased on the annual basis in the analysed period. For these reasons, it is necessary to manage the trade capital in Serbia as efficiently as possible. This is the reason why it is very important to know the key factors which represent the subject-matter of research of this paper.

3. EBIT AND EBT IN SERBIAN TRADE

Significant measures of performance for all sectors (trade as well) include the earnings before interest and taxes (EBIT) and earnings before taxes (EBT). These measures of performance in Serbian trade in 2015 and 2016 are presented in the Table 2 below.

TABLE 2 - EBIT AND EBT IN SERBIAN TRADE, 2015 AND 2016 (IN SALES PERCENTAGE)

	2015	2016	%
Gross margin (gross margin / sales)	13.95%	13.83%	-0.86%
Selling, general and administrative expenses (selling, general and administrative expenses/sales)	9.36%	9.24%	+1.20
Earnings before Interest and Taxes (EBIT) (earnings before interest and taxes/sales)	4.82%	4.59%	-4.77%
Interest (interest/sales)	0.75%	0.48%	-34.66%
Earnings before Taxes (EBT)(earnings before taxes/sales)	4.07%	4.11%	+0.73%

Note: Author's calculation

Source: Annual Bulletin of Financial Statements, Agency for Business, 2014. and 2016. Registers of the Republic of Serbia, Belgrade

The data in the above table show that, in the trade of Serbia in 2016, as compared to 2015, the gross margin was reduced by 0.86%, the selling, general and administrative expenses increased by 1.20%, the earnings before interest and taxes (EBIT) decreased by 4.77%, the interest fell by 34.66% and the earnings before tax (EBT) increased by 0.73%. This affected, in the appropriate way, the return on equity in Serbian trade. The return on trade equity in Serbia, declared as the ratio between EBIT and capital, amounted to 15.30% in 2015 and to 17.15% in 2016, meaning there was an increase. The return on trade equity in Serbia, declared as the ratio between EBT and capital, amounted to 12.89% in 2015 and 15.31% in 2016, meaning there was an increase according to this criterion as well. (Author's calculation on the basis of data obtained from the 2014 and 2015 Annual Bulletin of Financial Statements Agency for Business Registers of the Republic of Serbia, Belgrade). Thus, the efficiency of capital management in Serbian trade in 2016 increased, as compared to 2015.

4. MEASUREMENT AND DETERMINANTS OF RETURN ON TRADE EQUITY IN SERBIA

Return on Equity (ROE) is a significant profitability measure for all companies, including the trading ones. It is calculated as the ratio between net profit and capital. The return on equity accounts for the difference between market and book value of equity (P/B ratio), in a positive sense, which can be expressed by a linear regression model as follows (Vashakmadze 2015):

$$\frac{P}{B} = a + b * ROE$$

Where: P – market share prices B – book value of a share and b – regression model coefficients and ROE – return on equity.

The application of this regression model in Serbian trade is limited, since a small number of companies are listed on the stock exchanges.

For considering the key factors, the return on equity (ROE) is calculated using the *DuPont* model, also known as the Strategic Profit Model.

$$ROE = \frac{Profit}{Sales} \times \frac{Sales}{Assets} \times \frac{Assets}{Capital}$$

According to the given model, the key ROE determinants are sales revenues (profit rate), asset turnover ratio and financial leverage. The table 3 is in the form of *DuPont* model analysis and/or the form of the so-called strategic profit model, and it shows the return on equity in 2015 and 2016 trade in Serbia.

TABLE 3 - THE RETURN ON TRADE EQUITY IN SERBIA, 2015 AND 2016

	2015	2016	%
Return on equity (net profit/capital)	11.96%	13.22%	+18.14%
Sales revenues (net profit/capital)	3.54%	3.56%	+0.56%
Asset turnover ratio (sales/assets)	1.24	1.29	+4.03%
Financial leverage (assets/equity)	2.55	2.88	+12.94%

Note: Author's calculation

Source: Annual Bulletin of Financial Statements, 2014 and 2016. Agency for Business Registers of the Republic of Serbia, Belgrade

The data in the above table show that, in the trade of Serbia in 2016, as compared to 2015, the return on equity increased by 18.14%, the sales revenues grew by 0.56%, asset turnover ratio increased by 4.03% and the financial leverage was higher by 12.94%. This had a positive effect on the overall trade performance (economic, social and environmental) in Serbia. What needs to be pointed out in particular is that the increased return on equity in Serbian trade occurred largely through an increase of financial leverage, which, having in mind its characteristics, might result in some negative effects in the future.

Recently, a new special model for measuring the return on equity has been developed, which includes twelve components as ROE determinants (Vashakmadze 2013-2015, Martirosyan 2014, Mishchik, 2015, Nenno, 2016).

According to this model, the return on equity is determined by the following formula:

$$ROE = \left(\frac{GP}{S} - \frac{SG\&A}{S} \right) * \frac{EBT}{EBIT} * \frac{NI}{EBT} * \left[\frac{362}{\frac{Cash * 365}{S} + \frac{AR * 365}{S} + \frac{Inv * 365}{S} + \frac{Other CA * 365}{S} + \frac{PPE * 365}{S} + \frac{Other FA * 365}{S}} \right] * \left(\frac{D}{E} + \frac{NIBL}{E} + 1 \right)$$

Where: S – sales; GP – gross profit; SG&A – selling, general and administrative expenses; EBIT - earnings before interest and taxes; EBT - earnings before taxes; NI- net income; Cash – cash and cash equivalents; AR – accounts receivable; Inv – inventory; Other CA – Other current assets; NIBL – non-interest bearing liability; PPE

– property, plant and equipment; Other FA – other fixed assets; D – book value of debt; and E – book value of equity.

The 2015 and 2016 return on trade equity in Serbia was calculated by using this model.

The 2015 return on trade equity in Serbia amounted to:

$$ROE_{15} = \left(\frac{381262}{2731999} - \frac{249665}{2731999} \right) * \frac{110904}{131597} * \frac{96841}{110904} * \left[\frac{362}{\frac{127907 * 365}{2731999} + \frac{506731 * 365}{2731999} + \frac{531767 * 365}{2731999} + \frac{232306 * 365}{2731999} + \frac{566660 * 365}{2731999} + \frac{224402 * 365}{2731999}} \right] * \left(\frac{1338182}{859749} + \frac{943843}{859749} + 1 \right) = 13.07\%$$

The 2016 return on trade equity in Serbia amounted to:

$$ROE_{16} = \left(\frac{416470}{3009651} - \frac{278335}{3009651} \right) * \frac{123297}{138135} * \frac{107351}{123297} * \left[\frac{362}{\frac{154677 * 365}{3009651} + \frac{550182 * 365}{3009651} + \frac{586769 * 365}{3009651} + \frac{236450 * 365}{3009651} + \frac{582520 * 365}{3009651} + \frac{207040 * 365}{3009651}} \right] * \left(\frac{1519834}{805009} + \frac{1103540}{805009} + 1 \right) = 16.84\%$$

We conclude that, according to this model as well, the 2016 return on equity in trade in Serbia exceeded by 28.84% the 2015 ROE.

The return on equity is affected by multiple factors. In accordance with the new presented model of measuring the return on equity, Table 4 and Figure 1 show twelve key efficiency determinants of capital management (and value creation) in 2015 and 2016 trade in Serbia.

TABLE 4 - EFFICIENCY DETERMINANTS OF CAPITAL MANAGEMENT IN TRADE IN SERBIA, 2015 AND 2016

	2015	2016	%
Gross margin (margin / sales)	13.95%	13.83%	-0.86%
General cost ratio (general costs / sales)	9.13%	9.24%	+1.20%
Financial cost ratio (financial costs / sales)	1.90%	1.39%	-26.84%
Tax effects (tax / sales)	0.51%	0.52%	+1.96%
Cash management (sales / cash)	21.35	19.45	-8.89%
Accounts receivable management (sales/ accounts receivable)	5.39	5.47	+1.48%
Inventory management (sales/inventory)	5.13	5.12	-0.19
Other current asset turnover ratio (sales / other current assets)	11.76	12.72	+8.16%
Property, plant and equipment management (sales/property, plant and equipment)	4.82	5.16	+7.05%
Other tangible asset management (sales / other tangible assets)	12.17	14.53	+19.39
Financial leverage (total liabilities/capital)	1.55	1.88	+21.29
Non-interest bearing liability (non-interest bearing liability/capital)	1.09	1.37	+25.68%

Note: Author's calculation

Source: Annual Bulletin of Financial Statements, 2014 and 2016. Agency for Business Registers of the Republic of Serbia, Belgrade

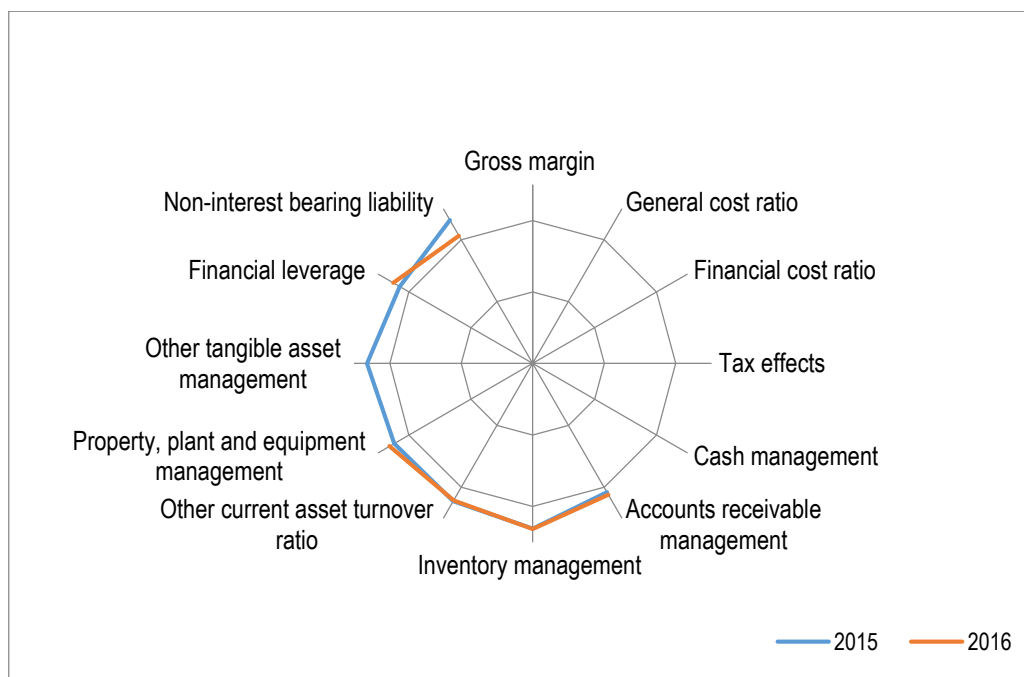


FIGURE 1 - RADAR DIAGRAM MODEL OF RETURN ON TRADE EQUITY FACTOR IN SERBIA, 2015 AND 2016

Data in the table above show that the 2016 increase of return on trade in Serbia, compared to 2015, was significantly affected by the increase of financial leverage and/or non-interest bearing liability (as a component of financial leverage). On the other hand, such increase was also, to a large extent, affected by the reduction of financial expenses. The influence of other factors on the return on equity in Serbian trade was of different intensity and character (positive or negative), depending on their nature

Table 5 summarizes the indicators in three groups for the purpose of reviewing their impact on trade value creation in Serbia in 2016.

TABLE 5 - INDICATORS OF PROFITABILITY, EFFICIENCY AND SOLVENCY OF TRADE IN SERBIA IN 2016

	Factor 1 - Profitability	Factor 2 - Efficiency	Factor 3 - Solvency
Gross margin (%)	13.83		
General cost ratio (%)	9.24		
Financial cost ratio (%)	1.39		
Tax effects (%)	0.52		
Cash management		19.45	
Accounts receivable management		5.47	
Inventory management		5.12	
Other current asset turnover ratio		12.72	
Property, plant and equipment management		5.26	
Other tangible asset management		14.53	
Financial leverage			1.88
Non-interest bearing liability			1.37

The obtained correlation analysis results presented in Table 6 show a statistically significant positive correlation between the profitability and solvency of trade in Serbia in 2016.

TABLE 6 - CORRELATION ANALYSIS OF PROFITABILITY, EFFICIENCY AND SOLVENCY OF TRADE IN SERBIA IN 2016

Correlation Matrix				
		Profitability	Efficiency	Solvency
Correlation	Profitability	1.000	.490	.995
	Efficiency	.490	1.000	.486
	Solvency	.995	.486	1.000
Sig. (1-tailed)	Profitability		.201	.000
	Efficiency	.201		.203
	Solvency	.000	.203	

Note: Author's calculation by assistance of SPSS Statistics programme

By means of factor analysis, we will examine the significance of particular indicators in terms of creating value for trade in Serbia. Table 7 shows the significance tests.

TABLE 7 - FACTOR ANALYSIS ADEQUACY TESTS

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.596
Bartlett's Test of Sphericity	Approx. Chi-Square	10.434
	df	3
	Sig.	.015

Note: Author's calculation by assistance of SPSS Statistics programme

Table 8 shows the communalities (factor load) obtained by factor analysis.

TABLE 8 - COMMUNALITIES OF FACTOR ANALYSIS

Communalities		
	Initial	Extraction
Profitability	1.000	.931
Efficiency	1.000	.488
Solvency	1.000	.929

Extraction Method: Principal Component Analysis.

Note: Author's calculation by assistance of SPSS Statistics programme

Here, profitability is explained by four components which account for 93.10%, whereas the rest is accounted for by unspecified components. Similar interpretation applies to other factors (efficiency, solvency). Data in Table 9 show that profitability indicators influence the creation of added trade value in Serbia by 78.26%.

TABLE 9 - EXTRACTION OF FACTOR ANALYSIS OF TRADE PERFORMANCE INDICATORS IN SERBIA

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.348	78.266	78.266	2.348	78.266	78.266
2	.647	21.556	99.822			
3	.005	.178	100.000			

Extraction Method: Principal Component Analysis.

Note: Author's calculation by assistance of SPSS Statistics programme

The foregoing in itself indicates that, for the achievement of profit goals with the maximum satisfaction of the needs of consumers in the trade of Serbia, special attention should be paid to increasing sales and, in particular, reducing total costs by applying the "new business models".

5. CONCLUSIONS

As known, capital management plays an important role in the overall trade performance management. When it comes to measuring the efficiency of trade capital management, the so-called Strategic Profit Model is mostly applied. This model points to the key factors that affect the return on equity.

Based on the empirical analysis conducted in this paper by using the abovementioned model, it was established that the increased return on trade equity in Serbia in 2016, compared to 2015, was especially brought about by increased financial leverage, which was confirmed when we applied the model that includes twelve components as ROE factors.

The increase in return on equity through the increase of financial leverage is limited, as the interest expenses increase, which influence the reduction of net profits as a key component, as well as business risk. Bearing this in mind, the increase in the return on equity in Serbia should be occasioned by the reduction of operating expenses, increasing inventory turnover, more efficient use of tangible assets, knowledge economy, introduction of modern cost management concepts, application of enterprise resource planning (ERP), developing the concept of customer management, introducing the concept of product category management, the growing use of Japanese business philosophy, application of modern information and communication technology, introducing the Radio Frequency Identification (RFID) system and other relevant measures. This would have a positive effect on the increase in sales and the reduction of total costs and/or the increase in profit as a component of return on equity.

REFERENCES

- Abdou H. A., Kuzmic A., Pointon J. and Lister R.J. (2012). Determinants of Capital Structure in the UK Retail Industry: A Comparison of Multiple Regression and Generalized Regression Neural Network. *Intelligent Systems in Accounting, Finance and Management*, 19 (3), 151-169.
- Ajanthan A. (2013). Determinants of Capital Structure: Evidence from Hotel and Restaurant Companies in Sri Lanka. *International Journal of Scientific and Research Publications*, 3 (6), 1-8.
- Anhin H. and Wenhe. L. (Kamla-Raj 2014). A Study on Debt Sources Structure. Term Structure and Investment Level of Listed Retail Companies. *Anthropologist*, 17(3), 769-775.
- Berman B. and Evans J. R. (2013). *Retail Management*. Boston: Prentice Hall.
- Chevalier J. A. (1995). Capital Structure and Product-Market Competition: Empirical Evidence from the Supermarket Industry. *The American Economic Review*, 85 (3), 415-435.

- Evans J. R. (2005). Are the Largest Public Retailers Top Financial Performers? A Longitudinal Analysis. *International Journal of Retail & Distribution Management*, 33(11), 842-857.
- Gleason K., Mathur L. and Mathur I. (2000). The Interrelationship between Culture, Capital Structure and Performance: Evidence from European Retailers. *Journal of Business Research*, 50, 185-191.
- Bulletin of Financial Statements, 2014 and 2016*. Agency for Business Registers of the Republic of Serbia, Belgrade.
- Hielgen M. (2014). The impact of Cultural Clusters on Capital Structure Decisions: Evidence from European Retailers. University of Twente. The Netherlands, 1-10.
- Kamath V. R. and Kulkarni S. (2013). Ratio as a Tool of Financial Analysis for Indian Retail Sector Companies. *IOSR Journal of Business and Management*, 10(5), 32-34.
- Kumar V., Anand A. and Song H. (2017). Future of Retailer Profitability: An Organizing Framework. *Journal of Retailing*, 93(1), 96-119.
- Kaya H. D. (March 2014). The Impact of Leverage on Trade Firm' Profitability and Liquidity Measures. *International Journal of Business and Social Science*, 5(3), 66-70.
- Lee B. (2014). Capital Structure and Predation: Evidence from Retail Industry. McCombs School of Business. University of Texas. Austin, 1-42.
- Levy M. Weitz. B. A. and Grewal D. (2014). *Retailing Management*. New York: McGraw- Hill.
- Li C. et al. (2014). Working Capital Management. Corporate Performance and Strategic Choices of the Wholesale and Retail Industry in China. *The Scientific World Journal*. 14. Article ID 953945. 15.
- Little P. L., Mortimer J. W., Keene M.A. and Henderson L.R. (2011). Evaluating the Effect of Recession on Retail Firms' Strategy using DuPont Method: 2006-2009. *Journal of Finance and Accountancy*, 7, 1-7.
- Lukic R. (2011). *Evaluation of business performance in retail*. Beograd: Faculty of Economics.
- Lukic R. (2012). Sustainable Development of Retail in Serbia. *Review of International Comparative Management*, 13 (4), 574-586.
- Lukic R. (2014a). The Economic and Financial Status of Trade Entrepreneurs in Serbia. *Economic and Environmental Studies*, 14 (3), 239 -264.
- Lukic R. (2014b). The Profitability of Trade in Serbia. *Asian Journal of Management Research*, 4 (3), 485-500.
- Lukic R. (2014c). The Analysis of the Efficiency of Trade Costs Management in Serbia. *Economia. Seria Management*, 17(2), 1-15.
- Lukic R. (2014d). Analysis of the Efficiency of Small Independent Retailers in Serbia. *Eurasian Journal of Business and Economics*, 7(73), 37-39.
- Lukic R. (2015a). The Capital Structure Determinants in Trade of Serbia. *Business Excellence and Management*, 5(4), 37-39.
- Lukic R. (2015b). The Impact of Firm Size on Performance of Trade in Serbia. *Economic and Environmental Studies*, 15(4), 379-395.
- Lukic R. (2017). *Accounting for Commercial Enterprises*. Belgrade: Faculty of Economics.
- Martirosyan E.G. and Vashakmadze T.T. (2014). SUN Cube: A New Stakeholder Management System for the Post-Merger Integration Process. *Zagreb International Review of Economics & Business*, 17(1), 1-13.
- McGoldrick P. J. (2002). *Retail Marketing*. London: The McGraw-Hill Companies.

- Mishchik S.A. (2015). Ertsgammy – The Basic Principles of Construction of the Space Integrity – System Ability to Live. *Theoretical & Applied Science*, 01(21), 164-172.
- Moatti V. et al. (2014). Disentangling the Performance Effects of Efficiency and Bargaining Power in Horizontal Growth Strategies: An Empirical Investigation in the Global Retail Industry. *Strategic Management Journal*. Article first published online: 9 APR 2014 | DOI: 10.1002/smj.2244. 1-13.
- Nenno I. (2016). Structural Analysis of the Business Model of the Specialised Sea Trade Port “Oktybrsk”. *Ukrainian Journal Economist*, 9, 4-10.
- Phillips M., Anderson. S. and Volker. J. (July 2010). Understanding Small Private Retail Firm Growth using the Sustainable Growth Model. *Journal of Finance and Accounting*, 3, 1-11.
- Shin S. and Eksioglu. B. (May/June 2014). Effects of RFID Technology on Efficiency and Profitability in Retail Supply Chains. *The Journal of Applied Business Research*. The Clute Institute, 30(3), 633-646.
- Van der Wijst N. and Thurik. R. (1993). Determinants of Small Firm Debt Ratios: An Analysis of Retail Panel Data. *Small Business Economics*, 5(1), 55-65.
- Vashakmadze T. (2013). Introducing the Erstgamma Model for Performance and M&A Analysis. *Economics and Entrepreneurship*, 7(6),- .
- Vashakmadze T., Martirosyan. E. and Sergeeva. A. (2015). Creating Value in a Retail Business. Evidence from the Russian Food Market. *Journal of Corporate Finance Research*, 1 (33), 48-58.
- Yu W., Ramanathan R. and Nath. P. (2014). The Impacts of Marketing and Operations Capabilities on Financial Performance in the UK Retail Sector: A Resource-Based Perspective. *Industrial Marketing Management*, 43, 25-31.