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EFFICIENCY OF ACCOUNTS RECEIVABLE MANAGEMENT IN POLISH INSTITUTIONS

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ANNOTATION

Accounts receivable management should contribute to realization of basic financial purpose of an enterprise which is the realization of such strategy which is linked with its owner (or its stake holders) wealth maximization. The enterprise performance and value maximization strategy realization is more effective when it is realized in the most efficiency way. It is also executed with a focus on risk and uncertainty (Gentry 1988, Michalski 2012). This paper presents the consequences that can result from operating risk to determine the level of accounts receivable in the enterprise. The change in the level of accounts receivables in an enterprise increases net working capital level and influence costs of holding and managing accounts receivables. As illustration material is used data collected from 2009 and 2010 financial statements of over 3000 Polish enterprises.

JEL classification: G32, G11, M11, D81, O16, P33, P34

KEY WORDS

efficiency of decisions, accounts receivable management, entrepreneurial finance

INTRODUCTION

The topic of the paper is linked with scientific inquiries in the area of global financial markets and financial systems in the discussion how the post crisis changes influence current accounts receivable management in firms. The general attention of the paper is paid to the European financial and sovereign debt crisis, changing the cost of capital rate for the firm and in the result their decision in the choice the most suitable accounts receivable policy. The impact of the financial crisis in the Polish enterprises makes the accounts receivable management more flexible because the managers rather prefer to be more careful and should use more flexible accounts receivable approach to gain higher level of sale. The main contribution of the paper is to check if the model expected changes, had the place. The empirical data from Polish firms shows STAR/ASSETS relation growth, that inform about more flexible accounts receivable policy choice. Similarly STAR/CA relation growh confirms more flexible accounts receivable policy choice. The same way STAR/EBIT relation growth means more flexible choice in accounts receivable policy. That means the empirical data from Polish firms for 2009-2010 years suggests that for Polish managing teams risk aversion has stronger influence on current assets investment policy than pure economic indicators. The financial aim of the enterprise is maximization of enterprise value. Financial literature contains information about numerous factors that influence enterprise financial efficiency. Among those contributing factors is the extent of the net working capital and the elements shaping it, such as the level of cash tied up in accounts receivable, inventories, the early settlement of accounts payable, and operational cash balances (Michalski 2010). Not all enterprises has to do with all aspects of liquidity decisions or current assets management. Part of them serve their clients only as service

providers with no or almost no inventory cycle presence. Other enterprises use do not produce anything but only redistribute final products, but many of them have full or almost full operating cycle with inventories of raw materials, final products inventories, accounts receivables and cash (Michalski 2009).

AIM AND METHODOLOGY

The paper discuss the level of accounts receivable investment which are the result of trade credit terms. The decision whether to extend the trade credit terms, is a compromise between limiting the risk of allowing for the payment postponement from unreliable purchasers and gaining new customers by way of a more liberal enterprise trade credit policy (Michalski 2007). This decision shapes the level and quality of accounts receivable. Robishek (Robishek 1965, Gentry 1988, Michalski 2008d) discus risk involved to accounts receivable decisions, which must be accepted by financial institutions pledging of accounts receivable of the enterprise. Smith (Smith 1973, Gentry 1988) predicts and Michalski (Michalski 2008a) shows that portfolio theory may be used to decrease accounts receivable risk. Friedland (Friedland 1966, Gentry 1988) agree with, that current assets could be viewed in portfolio context. Pringle and Cohn (Pringle 1974, Gentry 1988) and later Michalski (Michalski 2012, Michalski 2008c) try to adapt the CAPM theory to working capital elements. Bierman and Hausman (Bierman 1970, Gentry 1988) discuss the granting policy of an enterprise and shows that trade credit policy requires balancing the future sales gains against possible losses. Lewellen, Johnson and Edmister (Lewellen 1972, Lewellen 1973, Gentry 1988) explain how and why traditional devices used for monitoring accounts receivable should be changed by new and better ones. Freitas (Freitas 1973, Gentry 1988, Michalski 2008b) shows relation between liquidity and risk during accounts receivable management. The question discussed in this article concerns the making decisions by enterprises in accounts receivables area.

If holding accounts receivable on a level defined by the enterprise provides greater advantages than negative influence, the enterprise efficiency will grow. Changes in the level of accounts receivable affect the efficiency of the enterprise. To measure the effects that these changes produce, we use the following formula, which is based on the assumption that the enterprise efficiency is the sum of the future free cash flows to the enterprise (FCF), discounted by the rate of the cost of capital financing the realization of enterprise performance and value maximization strategy:

$$\Delta V = \sum_{t=1}^{n} \frac{\Delta FCF_t}{\left(1 + CoC\right)^t},$$
(1)

where ΔV = enterprise efficiency increase (measured as enterprise value growth); ΔFCF_t = future free cash flow growth in period t; and CoC = cost of capital financing the strategy serving here as discount rate.

To estimate changes in accounts receivable levels, we accept discount rate equal to the average weighted cost of capital (CoC). Such changes and their results are strategic and long term in their character, although they refer to accounts receivable and short run area decisions, see: (Maness, Zietlow 1998, pp. 62-63; Michalski 2008c). The basic financial aim of the enterprise is not only the enterprise value creation but as close as possible realization of the performance and value maximization strategy of that enterprise. For assessment of financial decision enterprises, should be used rules claiming that the higher risk should be linked with the higher cost of capital rate used to evaluate the future results of current decision. That is positively connected with the level of efficiency and effectiveness in realization of the enterprise performance and value maximization strategy. Cost of financing accounts

receivables policy is a result of the risk included to the enterprise strategy of financing and/or investment in accounts receivables (Michalski 2008b).

During estimation of the free cash flows, the holding and increasing of accounts receivables ties up money used for financing accounts receivables. If accounts receivables level increases, the enterprise must utilize and tie up more money, and this decreases free cash flows. Production level growth necessitates increased levels of cash, inventories, and accounts receivable. A part of this growth will be covered with current liabilities that automatically grow with the growth of production and sales. The remaining cash requirements (that are noted as net working capital requirements increase: ΔNWC) will require a different form of financing.

Accounts receivables policy decisions changing the terms of trade credit create a new accounts receivable level. Consequently, accounts receivable policy has an influence on enterprise efficiency. This comes as a result of alternative costs of money tied in accounts receivable and general costs associated with managing accounts receivable. Both the first and the second involve modification of future free cash flows and as a consequence the enterprise efficiency changes (Michalski, 2008b).

Case. The enterprise managing team forecasts that its cash revenues without changing current policy will be at the level $CR_0 = 100000$ €. According to the same forecast $VC = 40\% \times CR$. Forecasted operating costs of accounts receivable management in the enterprise, $k_{AAR} = 28\%$. Cost of capital rate, CoC = 14%. Without change of accounts receivable policy 40% of the enterprise customers use 1% cash discount paying on the 10th day. The remaining customers pay at the 30th day. Forecasted bad debts losses are 2% of *CR*. The changes of accounts receivables policy (from 1/10, net 30 to 2/7, net 45) considered by enterprise managing team will result: 60% of enterprise customers use 2% cash discount paying on the 7th day. The remaining customers will pay at the 45th day. Forecasted bad debts losses will grow up to 3% of *CR*. Forecasted cash revenues after accounts receivable policy change reach $CR_1 = 140000$ €. The effects of changes in accounts receivable policy would be felt for seven years. The horizon could be, according to enterprise forecast finite or infinite and depends on information collected by managing team.

Without change of accounts receivables policy, 60% of cash revenues is collected on the 30th day, the rest: 40% will be regulated up to the 10th day, so the ACP_0 is:

$ACP_0 = 0,6 \times 30 + 0,4 \times 10 = 22$ days. The ACP_1 after change is:

$ACP_1 = 0,4 \times 45 + 0,6 \times 7 = 22,2$ days.

That is why expected increase of average level of accounts receivable is:

$\Delta AAR = (22,2 - 22) \times \dfrac{140000}{360} + 0,4 \times 22,2 \times \dfrac{100000}{360} = 2544$ €. Therefore as a result of trade credit policy change, the average state of accounts receivable will grow for 2544 €.

Then is possible to forecast $\Delta EBIT$:

$(1 - T) \times \Delta EBIT = 40000 \times 0,6 - 28\% \times 2544 - (3\% \times 140000 - 2\% \times 100000) +$
$- (2\% \times 140000 \times 60\% - 1\% \times 100000 \times 40\%) = 19808$ € $= \Delta NOPAT = FCF_{1..7}$

Next the managing team of the enterprise can estimate change in the enterprise efficiency:

$\Delta V = -2544 + \dfrac{19808}{0,14} \times \left(1 - \dfrac{1}{1,14^7}\right) + \dfrac{2544}{1,14^7} = 83415$ €.

RESULTS

There are possible three ways of managing of accounts receivable. The restrictive policy with as small as possible levels of accounts receivables, the flexible policy with as liberal policy in accounts receivables as needed to activate the cash revenues collection and the moderate accounts receivables policy in the middle.

More restrictive solutions are cheaper thanks to smaller costs of managing accounts receivables but they are also linked with higher level of operational risk. That results with higher cost of capital from financing and smaller efficiency from free cash flows generated by enterprise operations. On the other side, more flexible solutions are linked with lower level of operational risk. That results with lower cost of capital from financing and higher efficiency from free cash flows generated by enterprise operations.

Generally aimed on realization of the performance and value maximization strategy enterprises, should to choose more safe and more flexible accounts receivable policies. In fig. 1. there is data collected for Polish enterprises, for years 2009 and 2010. We can observe the levels of accounts receivables for enterprises which maintain inventories and manage the account receivables (the firms without positive levels of inventories and accounts receivables were excluded).

Fig. 1. Short-term receivables in Polish enterprises in 2009 & 2010. Logarithmic scale.
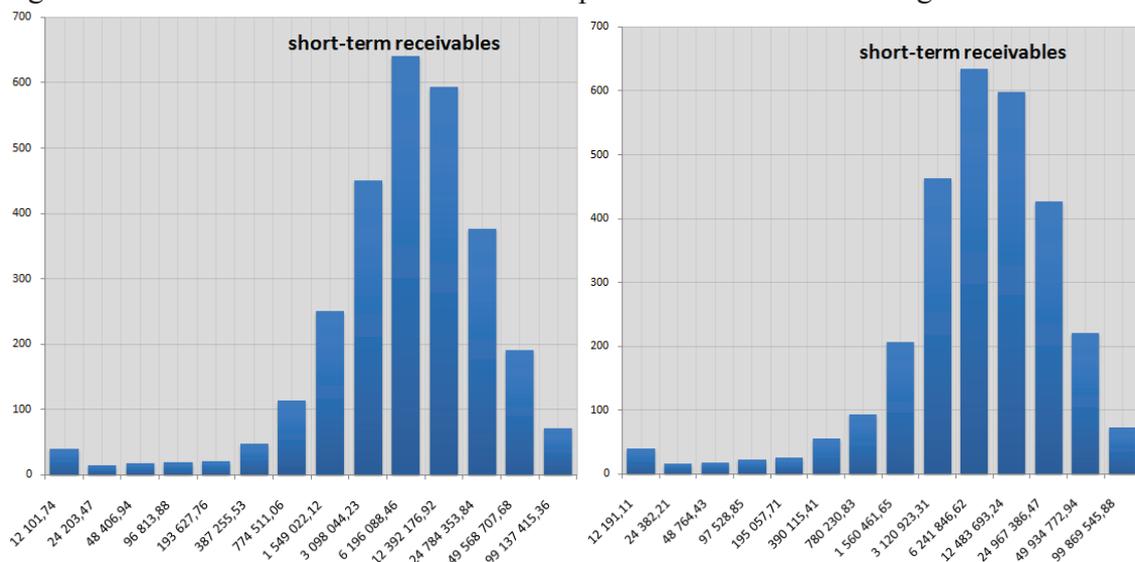
Source: [MPB]

Table 1. Short-term receivables levels in Polish enterprises in 2009.

2009	EBIT	STAR	LTAR	Assets	STAR / Assets	CA	STAR/CA	STAR / receivables	STAR / EBIT
Size of population	2849	2849	2849	2849	2849	2849	2849	2849	2849
Arithmetic mean	3 292 702	9 589 012	5 674 661	49 395 776,53	19,41%	22 323 618,37	42,95%	62,82%	291,22%
Standard deviation	8 237 739	12 845 123	11 398 657	71 617 824,23	17,94%	27 705 380,40	46,36%	52,98%	155,93%
median	1 535 471	5 041 646	1 903 299	26 326 133	19,15%	13 528 211	37,27%	72,59%	328,35%
winsorized mean	2 082 807	6 196 786	2 786 793	32 720 427	18,94%	15 841 729	39,12%	68,98%	297,52%
Truncated mean	7 464 247	19 513 339	10 397 329	95 510 064	20,43%	46 215 826	42,22%	65,24%	261,42%

Source: [MPB]
Where: EBIT - Earnings before interests and taxes, STAR – short–term accounts receivables, LTAR – long term accounts receivables, CA – current assets.

Table 2. Short-term receivables levels in Polish enterprises in 2010.

2010	EBIT	STAR	LTAR	Assets	STAR / Assets	CA	STAR/CA	STAR / receivables	STAR / EBIT
Size of population	2895	2895	2895	2895	2895	2895	2895	2895	2895
Arithmetic mean	6 128 007	10 200 088	7 459 651	51 622 850,66	19,76%	25 816 933,06	39,51%	57,76%	166,45%
Standard deviation	114 053 220	13 269 409	79 643 984	72 782 931,91	18,23%	114 441 428,67	11,59%	14,28%	11,63%
median	1 561 971	5 513 386	1 991 597	28 374 432	19,43%	14 476 417	38,09%	73,46%	352,98%
winsorized mean	2 108 182	6 807 918	2 924 743	34 426 438	19,78%	17 001 172	40,04%	69,95%	322,93%
Truncated mean	7 791 792	20 849 569	11 126 899	100 489 005	20,75%	48 619 139	42,88%	65,20%	267,58%

Source: [MPB]

CONCLUSIONS

The main contribution of the paper is to check if the accounts receivable management model expected changes had the place. The empirical data from Polish firms shows STAR/ASSETS relation growth, that inform about more flexible accounts receivable policy choice. Similarly STAR/CA relation growth confirms more flexible accounts receivable policy choice. The same way STAR/EBIT relation growth means more flexible choice in accounts receivable policy. That means the empirical data from Polish firms for 2009-2010 years suggests that for Polish managing teams risk aversion has stronger influence on current assets investment policy than pure economic indicators.

Fig. 2. Short-term receivable policy changes in Polish enterprises in 2009 & 2010.

2009	Indicator	Change	2010
0.82	β	↗	0.83
10,00%	CC	↘	9,40%
18.9%	STAR / ASSETS	↗ (5%)*	19,8%
39.1%	STAR / CA	↗ (2.4%)**	40%
298%	STAR / EBIT	↗ (8.4%)***	323%

Source: [MPB]

Where: EBIT - Earnings before interests and taxes, STAR – short–term accounts receivables, CA – current assets.

Accounts receivable management decisions are very complex. On the one hand, too much money is tied up in accounts receivables, because of an extreme liberal policy of giving trade credit. This burdens the enterprise with higher costs of accounts receivable service with additional high alternative costs. Additional costs are further generated by bad debts from risky customers. On the other hand, the more liberal accounts receivable policy could help enlarge inflows from cash revenues. Data used for our calculations comes from over 3000 Polish enterprises and their financial statements. Because not all of them use accounts receivables management in connection to real operational cycle with inventories was used only that of them which have positive levels of accounts receivables. For our information is helpful median and winsorized mean, which show that short term accounts receivable to total assets was in 2009 and 2010 years in Polish enterprises near to 19,4%; the relation short term assets to earnings before interests and taxes was in 2009 and 2010 years near to 264% (truncated mean). That shows that firms generally use rather stable policy in managing accounts receivable.

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TABLE OF CONTENTS