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AUTHORS	Maria Sierpińska Paweł Młodkowski

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Maria Sierpińska (Poland), Paweł Młodkowski (Poland)

Similarity in economy-wide reaction for monetary impulses as another OCA criterion. Monetary policy and trade credit

Abstract

The OCA criteria offered so far by classical OCA theory were focused on high positive correlation of business cycles in economies composing an optimal currency area. This way common monetary policy was suited for all members at the same moment. There was a threat however that despite initial high positive correlation of business cycles, common monetary policy itself would be a cause of divergence. This could be a result of a different reaction of a union's economies to monetary impulses. One of channels central bank uses to influence private sector decisions is a credit one. Authors using a simple framework for capturing monetary policy stance test for substitution of bank credit by trade credit. With a VAR model, the cointegration analysis brings information about the nature of this reaction and lags present in the case of the Polish economy. The next step is to cover with this analysis all other EU countries, both composing EMU and those heading toward EMU accession to answer the question if the ECB is going to have the same influence on them. This way questions about another OCA criterion and rationale for joining EMU will be answered.

Keywords: monetary union, OCA criteria, trade credit, VAR.
JEL Classification: E5, G3.

Introduction

Effectiveness of a common monetary policy in a monetary union depends positively on the level of similarity in all member countries of private agents' response to monetary impulses. Lack of this similarity or explicit opposite reaction to monetary policy instruments could be a significant argument against giving up independence in the area of money. Classical OCA theory does not include this issue explicitly. One can, however, derive it from the general concept of high positive correlation of business cycles in member economies. So far, optimality criteria covered free flow of labor or public transfers (Mundell, 1961), openness to each other (McKinnon, 1963) and diversification of production structures (Kenen, 1969). Experience shows that despite meeting classical OCA criteria, monetary integration does not appear. The reasons are diverse but one of them could be the fact that potential members react to monetary policy instruments in a different or even an opposite manner. Old EU countries that remain outside the EMU are a good example. Now a question about new member states can be posed if their intention to join the Eurozone is reasonable and will not result in economic distress. In this paper a case of Polish economy reaction to monetary policy will be disclosed. The subject is the response of trade credit to monetary policy stance. To test for a hypothesis about the scope of substitution a simple cointegration analysis will be conducted and VAR model for trade credit will be the basis for conclusions about economic response to monetary policy.

So far, one can find trade credit and monetary policy relationship investigations very seldom in Polish literature. They were most often in a form of single paragraphs without any formal quantitative analysis. These tiny parts in scientific papers were only signalling the possibility of interrelation of both categories (the monetary policy stance and the trade credit).

Foreign literature also offers very few publications in this specific area. The only attempt of a direct modeling of monetary policy stance on the propensity to use trade credit was conducted by Nilsen (2002). He was focusing on substituting bank loans with trade credit. His analysis however was not associated at all with monetary integration matters.

On the other hand, monetary integration literature lacks research on private agents' similarity in response to monetary policy instruments. This paper is an attempt to fill this gap and to prepare a basis for introducing a formal optimality criterion for a currency area. This is also a contribution to the discussion about the EMU membership of the new EU member states.

The paper is organized as follows. Section 1 presents monetary policy issues and a factor of similarity of the response of private sector agents to monetary policy stance. In particular, the focus is on enterprises in the non-financial sector. Section 2 offers a review of trade credit theories and empirics in the search for general directives and channels in which monetary policy stance could matter. The results of empirical studies in this regard cover trade credit relationship with monetary policy in developed countries. Section 3 offers a short description of a simple method for capturing monetary policy stance

and its changes in a qualitative and quantitative way. Section 4 presents an empirical study in a Vector Auto Regressive model for trade credit in Poland. The paper closes with conclusions (the last part).

1. Monetary union, monetary policy and similarity in private agents' reaction to monetary policy stance

One of the constitutive features of a monetary union is, together with fixed exchange rates and free flow of capital, the common monetary policy. Lack of autonomy in this regard is a consequence of the impossible trinity (Borowiec, Wilk, 1997, p. 99). Goals of the common monetary policy are achieved, as in case of a national central bank, by influencing three sectors: commercial banks, enterprises and households. Gearing money supply or interest rates the central bank intends to induce desired behavior of these sectors. The problem is that this behavior of all three sectors is a derivative of many factors of socio-economic nature and may differ greatly from country to country. It means that the same instruments of monetary policy will result in a different reaction in countries where past experience and incentives are distinct. Lack of symmetry in private sector reaction might be a significant impediment for the common monetary policy in a monetary union. Effectiveness of employed instruments is therefore different in particular member countries. Theoretically it is possible that behavior induced by the common monetary policy will be totally opposite in different countries. It means that in some countries response to interest rates changes will be opposite to intended and expected.

The monetary union in Europe is so far among countries whose economies respond in a similar way to the monetary policy stance. Heading toward the EMU membership by the new EU member states is associated, however, with a discussion and questions about net benefits. Since they depend on the degree in which the common monetary policy will suite new member economies question about similarity in reaction to the ECB instruments becomes of high importance. This paper tries to formulate an answer to a question about enterprise sector reaction to the monetary policy stance.

A central bank operates in the nominal sphere of an economy. The monetary policy effects however are seen in the real economy. In case of an enterprises sector, the monetary policy can have an influence on a way activities are financed. Demand for liquidity represented by enterprises seems highly procyclical. With the production and sales growth there is a simultaneous increase in demand for capital to finance changes in inventories and other short-term assets. Among suppliers of short-term capital in Europe there are two main categories: banks and suppliers. In accordance with the monetary policy stance, businesses may redesign capital structure, especially short-term liabilities. The choice is simple: loans from banks versus trade credit extended by suppliers. A central bank would miss its goals in a situation when enterprises substitute bank loans with trade credit easily. Then for example, cooling an overheated economy would be ineffective.

2. Rationale for trade credit and the role of monetary policy stance

The literature offers a vast selection of theories explaining reasons for financing assets with trade credit. The following review focuses on those concepts that indirectly or directly link this source of capital with business cycle phases, monetary policy or economic standing of an enterprise.

The theory of financial support was for the first time presented by Schwartz (1974). The incentive to extend trade credit results from the intention to offer financing by entities with strong financial standing to the weaker ones. It should be explained why supplier or a cooperative is a better capital supplier than the banking sector. In this regard most of the authors agree on the feature of cooperatives that know much better financial standing of each other than the banks. This point of view can be found in Emery (1984), Smith (1987) and Brennan, Maksimovic, Zechner (1988). When transactions are conducted systematically (on a daily basis), cooperatives learn about each other and have knowledge about the current financial standing. Therefore they can assess credibility and ability to meet all obligations timely. According to Sierpińska (2002), a seller can indirectly test the financial standing of a buyer by implementing trade credit instruments (discounts for cash payments).

The monetary policy has therefore, according to the above presented theory, an indirect influence on the trade credit through influencing liquidity in the economy. Concept of financial support suggests that demand for the trade credit is negatively correlated with the monetary policy stance. The more expansionary the policy is, the less of the trade credit is used. This is because a restrictive monetary policy hits harder smaller enterprises, than the bigger ones. There is, however, a question of whether the trade credit supply increases with the monetary policy contractions. This theory suggests that businesses with a strong financial standing will increase the support for those experiencing financial distress in the form of trade credit. Choi and Kim (2001) argue that it is also possible for bigger enterprises to protect against restrictive monetary policy. This takes

the form of increasing highly liquid assets in their balance sheets. Therefore they also demand more trade credit from suppliers and decrease propensity to extend it to their customers. As a result, a big enterprise will increase the level of the trade credit utilized during periods of monetary policy contractions. What is more, since the restrictive monetary policy results in liquidity problems at small enterprises, bigger and financially healthier ones may be afraid of defaulting on obligations by their cooperatives. This is a reason for a decreased propensity to extend the trade credit to them. Despite cooperatives knowing each other well, they are not free from the risk of overdue accounts receivable or risk of default. Therefore a flow of the trade credit between financially stable entities might reassemble a setup similar to a financial market situation, where restrictive monetary policy leads to eliminating the weakest and the least efficient entities.

Theory of transaction costs of trade credit was proposed by Ferris (1981). He suggests that trade credit allows for lowering transaction costs associated with paying invoices. In a situation of a long-term relationship between a supplier and a buyer an agreement about deliveries and payments is reached. This way not only the level of inventories can be optimized but also cash flows are adjusted in line with effective cash balance management. Thanks to the trade credit, both sides can achieve high standards of cooperation separating a payments cycle from a deliveries cycle.

This theory may be used to test for the monetary policy influence on the trade credit, since changes in money supply are an incentive to utilize methods of optimizing payments and cash balances mentioned above. Cooperation with the trade credit facilitating payments management allows for overcoming problems resulting from decreased money supply. Cash is substituted by credit money.

Enterprises will use trade credit even if bank loans are a cheaper source of capital. This is because each cooperative should have arranged separately for a bank loan. The joint costs of these two bank loan agreements exceed the costs of one trade credit agreement.

The theory of transaction costs and trade credit offered by Ferris (1981) suggests that with the rise in the interest rate, both accounts receivable and payable increase. This is a feature that makes this concept distinct from all other theories. The author finds full support in empirical data when studying aggregated data for a whole sector. Under this theory, trade credit is perceived as a long-term agreement between trading partners that allows for protecting them from variability of payments and deliveries. Therefore, it places greater emphasis on the cooperative nature of the relationship than on conflicts resulting from short-term variability of market environment. This is the reason why the level of trade credit extended and used grows together with increase in interest rates.

Another theory, that perceives trade credit as a way of checking quality of a product, suggests that it will not respond to changes in financial markets (Long, Malitz, Ravid, 1993). However, for sellers guaranteeing quality by postponing payments it seems much more costly in monetary contraction periods. Despite money scarcity, they will meet the same demand for trade credit from their clients.

Theory of discrimination suggests that in a monopoly trade credit is an implicit discount for some buyers (Petersen and Rajan, 1997). Under the restrictive monetary policy the trade credit offered to financially weak enterprises becomes very valuable to them. This is because of relatively harder external conditions for this category of businesses. Since the cost of extending the trade credit to the weakest customers increases with the severity of their financial distress, the ultimate influence of the monetary policy stance on the way enterprises are financed is not clear.

Emery (1987) suggests that using trade credit is a convenient way of dealing with variable demand. When quantity of goods demanded fluctuates strongly, the seller, instead of adjusting prices or a volume of production, may introduce changes to the trade credit policy. Changing prices and a volume of production is undesirable. This is because of significant costs of adjusting these two variables.

Emery's theory relates to seasonality of sales and seems to have little in common with monetary policy. Money supply however, fluctuates seasonally in most of countries. One can recognize sharp annual cycles. This is a case especially for those economies where the production is seasonal, or where nonresidents send remittances home. In the first case money supply increases when harvested goods are sold. The other case involves peaks for money supply according to traditional holiday patterns.

Nilsen (2002) conducted direct analysis of a trade credit reaction to the monetary policy stance changes. He focused on accounts payable as a substitute for bank loans. The point of departure was an assumption that the trade credit is an inferior good and bank loans are a superior good. The difference between both forms of financing is that deferring payment is always available – in contrast to bank loans. Cost of using trade credit is in most cases higher than that of bank loans. Many authors suggest this relationship. Interested readers should refer

to Wilner (2000), Sierpinska and Wędzki (2002). Then, with decreased bank loans because of monetary policy contraction, the level of trade credit used should also increase. Small enterprises will use the trade credit extensively. Big and financially strong ones will decrease this source of financing in their capital structures. Empirical studies do not support the reasoning presented above. Nilsen (2002) observed that bigger enterprises use the trade credit more extensively than the small ones. It might be a result of protecting themselves from liquidity problems if small cooperatives do not meet their obligations.

The theoretical concepts presented above suggest both direct and indirect relationship between the trade credit as a form of financing assets and the monetary policy stance. It can be summarized as follows. The monetary contraction increases the cost of external interest-bearing sources of financing. Enterprises are forced to increase demand for the trade credit since this is a substitute for bank loans and short-term securities issues. Activity on a liquidity market increases. The trade credit might become also either more costly or harder to obtain (scarce). This will depend on a creditworthiness and a market position on the entity demanding it. Therefore, under restrictive monetary policy it is possible that small enterprises will be using less net trade credit than the bigger ones.

3. A method for measuring monetary policy stance

The methods for assessing monetary policy stance proposed so far are sensitive to specific institutional solutions and characteristics of an economy. There is however a method to recognize direction and size of the monetary developments, that is entirely independent. The concept is based on a specific interpretation of money velocity in the short run. Traditionally, the relation in focus refers to average amount of money and the value of transactions that are serviced by this money.

Henry Thornton (1802) when formulated advices for successful central bankers referred indirectly to velocity of money. Directive no 3 says that a monetary authority can allow for increasing money supply but it must be associated closely with the growth of trade volume ("in the Kingdom"). This should be interpreted as a rule of keeping GDP/M constant. Thornton (1802) allows for departures from this rule only in certain circumstances. Expansionary monetary policy was advised for periods when temporary increase in money demand was occurring. Restrictive stance, on the other hand, was perceived as an appropriate countermeasure for capital flight associated with dissatisfactory exchange rate. Therefore, a central bank without a good reason should keep GDP/MONEY ratio constant.

The velocity of money (V) is given by an equation derived from Fisher's exchange equation:

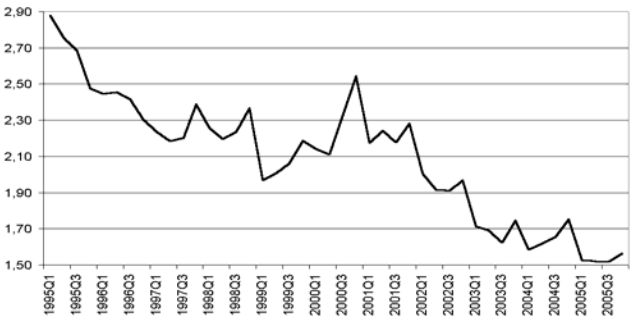
$$M \times V \equiv C \times P / : P$$

$$V \times \frac{M}{P} = C / : \left(\frac{M}{P}\right)$$

$$V = \frac{C}{\frac{M}{P}} \qquad (1)$$

Equation (1) states that the velocity of money circulation (V) depends positively on the real consumption spending (C) and conversely on the real money supply (M/P). Using nominal rather than real numerator that captures most of the transactions serviced by the money stock means using also nominal money supply measures (M) when V is calculated.

Barro (1984) claims that in calculating velocity of money, GDP is used rather than consumption spending (C). However, even this extension and modification is not consistent with theoretical foundations of this ratio (V). This is because GDP covers only final goods and services. To assess the number of times money was used during a period one need to consider all transactions, including those at earlier stages in production processes. Another shortcoming, resulting in understating velocity of money when GDP alone is used, flows from the fact that money in circulation services also trade in financial assets. Only after adding up these transactions one can conclude about velocity of money properly.



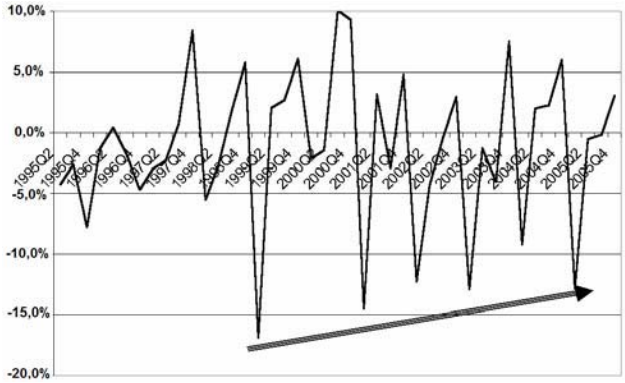
Source: authors' calculations, on the basis of International Financial Statistics, International Monetary Fund, Washington D.C., June 2007.

Fig. 1. Velocity of money circulation in Poland quarterly, 1995-2005

The period covered by this study was the time of systemic transformation in Poland. In addition, transition from centrally planned to market economy witnessed technological changes in financial sector that are always perceived as velocity increasing factors. The nature of this kind of change is never sudden but gradual and long-term. Velocity of

money in Poland however was falling in the whole period. Since the downward trend for GDP/MONEY relationship is inconsistent with expectations formulated with some assumptions about financial innovations and neutrality in monetary policy keeping this ratio constant – the observed developments reflect an increase in money supply in relation to demand represented by GDP. The only rational interpretation is the following. For all periods when GDP/MONEY ratio falls, easing monetary policy should be recognized. The observed deviations from the trend are associated with periods of more restrictive (upward movements) and more expansive (downward movements) monetary policy.

This interpretation is an extension of approach found in Reynard (2007). He treats short-term velocity movements as fully part of the monetary policy transmission process. This paper goes further in using money velocity to recognize monetary policy stance. Interested reader should refer to Młodkowski (2007) for a detailed description of the monetary policy stance indicator based on money velocity fluctuations and the literature review on this topic. For convenient interpretation of the proposed indicator a simple adjustment is needed. To use velocity of money as monetary policy stance indicator it is reasonable to calculate first difference time series. It gives precise information about timing and size of all changes in monetary policy. The indicator is presented below.



Source: authors' calculations, based on International Financial Statistics Database, International Monetary Fund, Washington D.C., May 2007.

Fig. 2. First differences of money velocity (in percent) – a monetary policy stance indicator quarterly: 1995-2006 for Poland

An increase in the value of the indicator means more restrictive policy when quantity of money decreases in relation to demand represented by GDP. A drop in the level of this variable is always associated with relaxing monetary policy and expansion in comparison to every previous period. Due to using quantitative input data it is possible to capture the size and relative strength of changes in monetary policy stance.

In the case of Poland, one can observe some additional features. Intensity of changes toward less restrictive policy is falling (see arrow, Fig. 2). When the size of changes is compared, long-term tendency for more expansionary monetary policy becomes evident from 1999. Since then there were just several reversions toward a more restrictive one. Focusing on the standard deviation for 3-year moving window, a conclusion about monetary policy in Poland can be formulated (Table 1). There were two periods: 1995-1998 and 1999-2006 that differ in a way money supply was adjusted to demand. Initially (1995-1998) the changes were very small, at 4%. Beginning 1999 policy is conducted in a quite different manner, causing standard deviation jump to 8,4% and remain on average around 7%.

Table 1. Moving standard deviation for a monetary policy stance indicator in Poland, 1995-2005 (3-year window)

Sub-period	Standard deviation
1995-97	4,1%
1996-98	3,9%
1997-99	6,7%
1998-00	7,3%
1999-01	8,4%
2000-02	7,5%
2001-03	7,2%
2002-04	6,7%
2003-05	6,8%

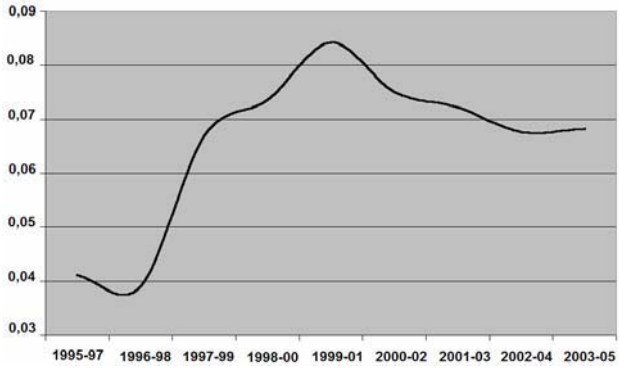


Fig. 3. Moving standard deviation for a monetary policy stance indicator in Poland, 1995-2005 (3-year window)

The proposed indicator for assessing monetary policy stance is based on money supply controlled by monetary authorities and on demand for money balances because of business transactions. Methods that were utilizing money supply only or rates of change of these aggregates were long criticized (Bernanke & Mihov, 1995). Authors indicated the need to consider demand and supply together. The idea presented above is an initial attempt but at this stage already it can be used in a research that requires precise timing and strength of monetary pol-

icy stance changes. Since this approach does not depend on any estimations nor institutional solutions it seems to be well suited also for international comparisons of national monetary policy developments. In the paper this method will be used to capture the monetary policy stance fluctuations to test for a hypothetical influence on the trade credit.

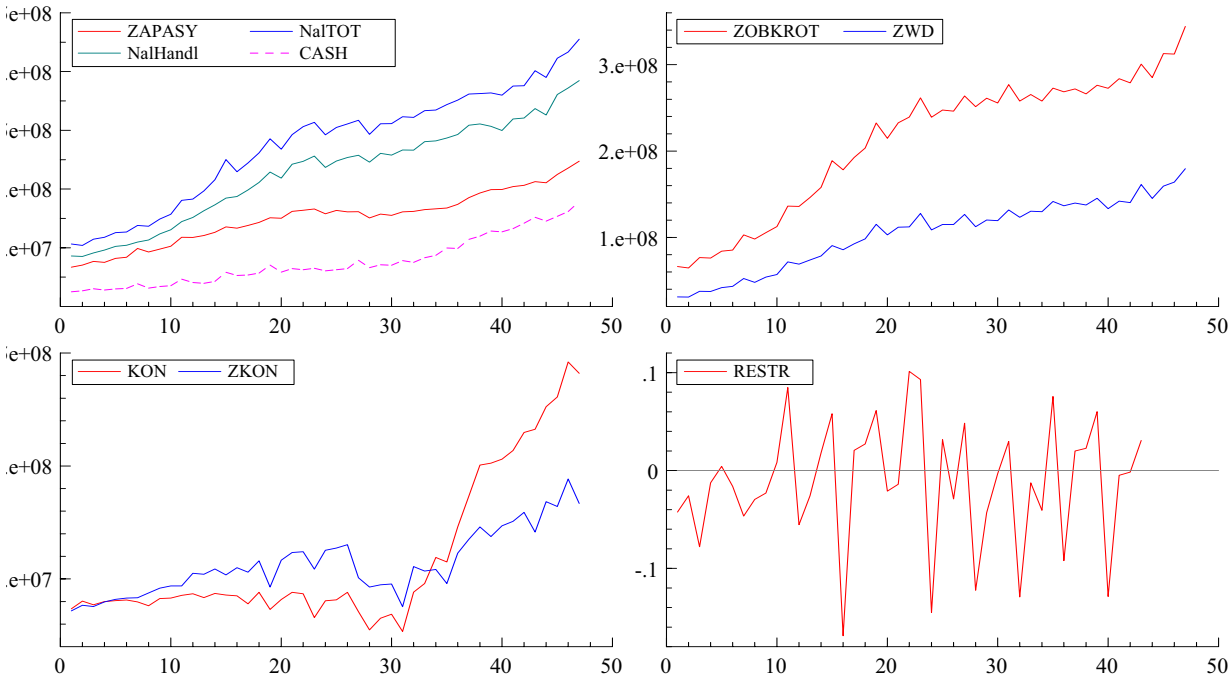
4. The monetary policy stance and the trade credit in Poland

When investigating the trade credit behavior in response to monetary policy stance, fluctuations in the relationship are expected to involve some lags. A hypothesis to be tested perceives extent of utilizing the trade credit as an endogenous variable, driven by a monetary policy stance. The rationale for expected lags flows from the design of the indicator used to capture monetary developments. Since the exogenous variable is not based on public announcements by the Monetary Policy Council but on the actual quantity of money in relation to demand, private agents need some time to recognize the current situation and adjust their behavior. They learn about the monetary policy stance by confronting excessive or scarce cash situation in cooperative relations. Easing the monetary policy is associated with increase of money stock in comparison to money demand. Such a situation should witness a drop in the aggregated volume of trade credit. Improved liquidity allows for settling accounts payable and for benefiting from cash-payment discounts. For the whole economy such a situation improves greatly profitability and lowers bankruptcy risk (Sierpinska, 2002)[1].

In order to verify the hypothesis about the monetary policy-trade credit relationship a simple co-integration exercise will be conducted. The data used for estimations are from IFS database (for monetary policy stance indicator) and from Polish Central Statistical Office (GUS) for the trade credit.

Raw data behavior for all variables are presented in Figure 4. The following acronyms are used: NalHandl – trading accounts receivable, NalTOT – total accounts receivable, CASH – cash, ZAP – inventories, ZWD – accounts payable, ZOBKROT – short-term liabilities, KON – net working capital, ZKON – demand for net working capital, RESTR – monetary policy stance indicator.

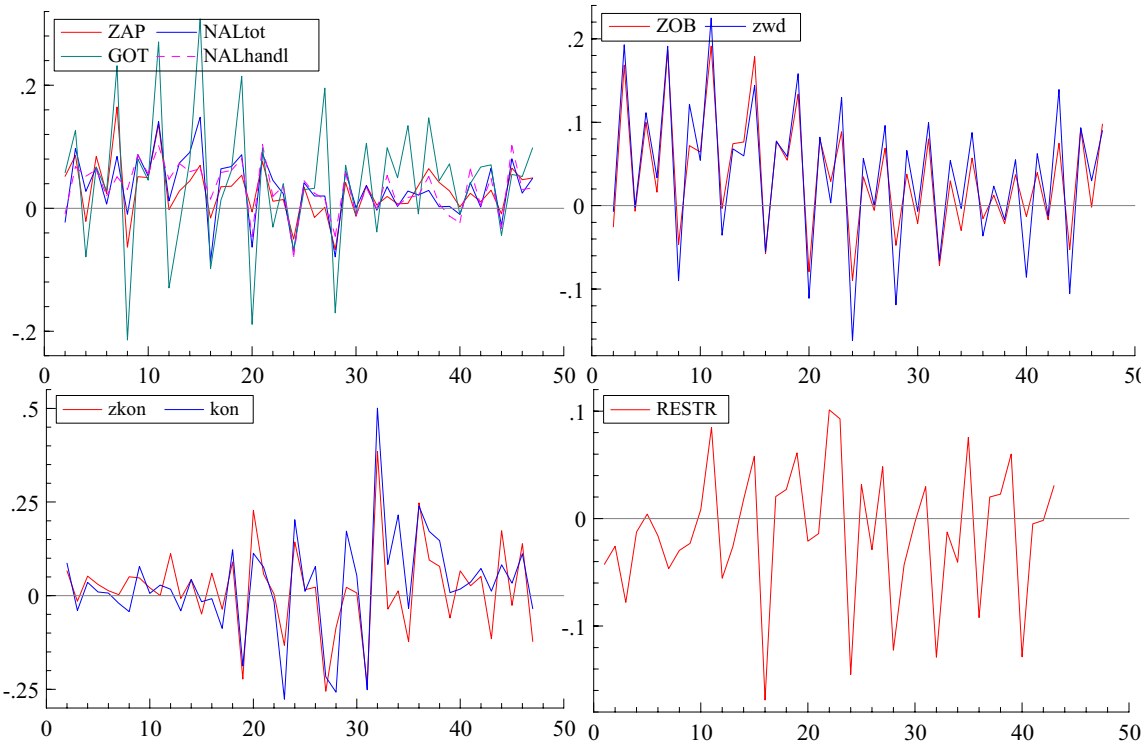
As can be seen, all variables, except for RESTR need to be de-trended prior to cointegration analysis. In order to do it standard de-trending method was used. After calculating natural logarithms and first differences of logarithms, hypothesis of autocorrelation was rejected for both 5% and 1% confidence levels. Appropriate statistics are presented in Table 2. De-trended time series for all variables are shown in Figure 5.



Source: authors' calculations.

Fig. 4. Raw data, 1995-2006 (quarterly)

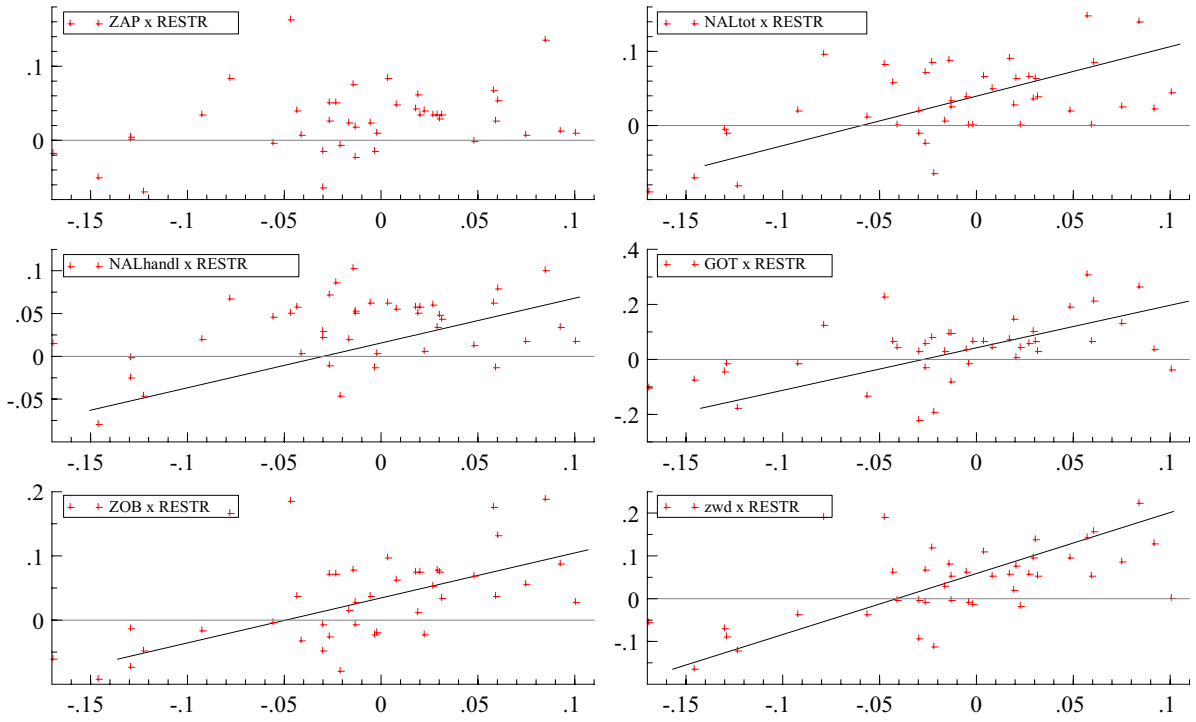
[1] Sierpinska (2002) argues that acquiring goods at a several percent discount allows for improving competitiveness and strengthens market position.



Source: authors' calculations.

Fig. 5. De-trended variables (quarterly)

The acronyms for de-trended variables are as follows: ZAP – inventories, NALtot – total receivables, NALhandl – trade receivables, GOT – cash, ZOB – total short-term liabilities, zwd – accounts payable, zkon – demand for net working capital, kon – net working capital. All variables originating from a balance sheet were casted against monetary policy stance indicator and the cross plots are presented in Figure 6. As can be inferred from these cross plots, there is a positive relationship in most cases. Only ZAP and GOT have uncertain relationship with the monetary policy stance.



Source: authors' calculations.

Fig. 6. Cross plots: balance sheet variables against monetary policy stance

Table 2. Augmented Dickey-Fuller test for the autocorrelation with critical values: 5% = -1,949 and 1% = -2,62

Variable	ADF
RESTR	-7.9966**
ZAP	-5.8950**
NALtot	-5.7070**
GOT	-8.4536**
ZOB	-6.9949**
zwd	-8.1972**
zkon	-8.8339**
kon	-7.3511**
NALhandl	-4.3894**
RESTR	-7.9966**

Note: ** – H0 about autocorrelation is rejected at 1%.
Source: authors' calculations.

The variance-covariance matrix supports expected and assumed relationships. Increase in the monetary policy stance is associated with a negative response only in the case of cash. All estimators of the trade credit (used and extended) respond positively to an increase of restrictiveness in monetary policy.

Table 3. Variance-covariance matrix for de-trended data

	RESTR	ZAP	NALtot	GOT	ZOB	zwd
RESTR	0.0015903					
ZAP	0.00092505	0.0040324				
NALtot	0.0012652	0.0046311	0.0069037			
GOT	-0.00034998	0.00023053	-0.00013469	0.0026466		
ZOB	0.0016887	0.0067324	0.0099191	-0.00043111	0.014814	
zwd	0.0011476	0.0059012	0.0086169	0.00018542	0.012692	0.011515
NALhandl	0.0011278	0.0042731	0.0063262	-0.00022797	0.0090954	0.0079710

Source: authors' calculations.

Commenting on variance-covariance matrix allows for a conclusion about net working capital and monetary policy relationship. Easing monetary policy (drop in the restrictiveness indicator level) results in increase in cash and drop in the trade credit. Interrelationship between cash and receivables confirms appropriateness of the whole framework. Conclusion is the following: the more restrictive monetary policy is, the less cash on hand and propensity to use trade credit is higher in both forms: extended and used.

Unit root test allows to reject hypothesis about non-stationarity of the analyzed time series at every conventional confidence level. At this stage all variables are stationary.

The next step is to test for the optimal lag in the model. For this purpose the following statistics will be used: AIC, SC, HQ. Known nature of monetary impulses lags, allows for testing only three possible lags. Table 4 presents results characteristic with the number of lagged periods in column 1, number of observations in column 2, value of likelihood function in column 3, and statistics SC, HQ and AIC in three last columns.

Table 4. Tests for number of lagged periods

Lag	Observ.	Par	Log-likelihood	SC	HQ	AIC
1	39	56	976,25726	-44,804	-46,336	-48,064
2	39	105	1019,0975	-42,398	-45,270	-47,261
3	39	154	1107,1225	-42,309	-46,521	-49,776

Source: authors' calculations.

Despite SC statistic indicates a 3-quarter lag, two other statistics have the lowest value for a lag length set at 2 quarters. Therefore in the model for the trade credit driven by monetary policy stance two-period lag will be included.

The analysis will be restricted to zwd and NALhandl as the two variables directly describing trade credit used and extended. The other balance sheet variables were included up to this point for cross-checking purposes and validation of relationships recognized. The VECM model is characterized for NALhandl as follows:

Standardized beta eigenvectors

NALhandl	RESTR
1,0000	5,2354
- 7.0607	1.0000

β'x = [1 5,2354] × [NALhandl ; RESTR] = NALhandl + 5,2354 × RESTR.

The normalized parameters for an α-correction vector associated with cointegrating β' vector are:

$\alpha' = [\alpha_1\ \alpha_2] = [-0{,}11754 \quad -0{,}28666]$.

At this stage one can test an alternative definition of β' by testing restrictions imposed on parameters. This can be suggested by economic theories or specific knowledge. In this case (model for the trade credit extended driven by the monetary policy stance) one can test a hypothesis about long-term elasticity of trade credit against monetary policy stance.

The results for a model of trade credit used and monetary policy stance are as follows. Standardized beta eigenvectors are:

zwd	RESTR
1,0000	3,8856
- 1,3361	1,0000

β'x = [1 3,8856] × [zwd RESTR] = zwd + +3,8856 × RESTR.

The normalized parameters for an α-correction vector associated with cointegrating β' vector are:

$\alpha' = [\alpha_1 \alpha_2] = [- 0,27764 \quad - 0,33795]$.

In both cases the estimated coefficients support expectations formulated à priori about the relationship of the trade credit and the monetary policy stance. In the model for the trade credit extended (NALhandl) the significance of monetary policy seems a bit more pronounced. The other model, for trade credit used, indicates some kind of asymmetry. This result (weaker influence of the monetary policy on the trade credit used) can be explained with referring to the balance sheet data characteristics. The Central Statistical Office in Poland gathers information about business entities that passed a certain threshold in the size and scope of their operations. In the case of the data used in this analysis only enterprises employing more than 45 workers were covered in the aggregated time series. Since small enterprises were omitted the mentioned asymmetry was recognized, the results indicate that bigger and stronger entities extend more trade credit to their cooperatives than use when monetary policy becomes more restrictive. This is a direct confirmation of the financial support theory of trade credit presented by Schwartz (1974). The asymmetry in the Polish economy does not confirm the suggestions present in other theories that suggested the significance of the size and position of the enterprise as important factors of trade credit policy.

Conclusions

The empirical study allowed for recognizing the nature of the Polish economy reaction (enterprises sector) to the monetary policy stance. It should be acknowledged that easing monetary policy results in decreasing the trade credit volume. Apart from the direction of change, the study offers an estimate for the strength of this reaction. Now a question is opened if this reaction characteristics are in line with those in the EMU and other EU countries heading toward the EMU membership. It can be argued that dissimilarity in this regard is a significant argument against joining Eurozone. On the other hand, high similarity of business agents' reaction to the monetary policy stance facilitates monetary integration and might be another optimality criterion for a currency area.

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