CHANGES IN THE MEDIUM AND LARGE ENTERPRISE SECTOR IN POLAND IN THE PERIOD 1993 – 2001 AND THE IMPACT OF MONETARY POLICY

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ABSTRACT

The study of the monetary transmission mechanism in transition economies encounters a series of methodological obstacles, which are typical for countries at this stage of development. These include, among others: periods of high inflation, which tends to distort financial information; changes in the ownership and organizational structure; reforms of the public statistics. The author believes these factors hinder significantly the fundamental MTM analyses for transition economies. The paper attempts to present changes, which are easier to document and which were witnessed in the medium and large company sector in Poland in the period 1993 – 2001. The author selects those changes, which, in the light of the transmission mechanism studies in developed economies, influence the mechanism's operation. The paper looks for example at such characteristics as: credit concentration, firm size and changes in production concentration, changes in the ownership and sectoral structure, the level of financial leverage. The research is based primarily on the analysis of unidentifiable unit records from the GUS[2] F-01 (cost-benefit statement) and F-02 (balance sheet) reports. The analysis covers circa 15 – 20 thousand medium and large companies, which submit the reports. High credit concentration indicates that, apart from macroeconomic conditions, the MTM may be determined additionally by sectoral aspects of monetary policy. On the other hand, a low level of financial leverage or a large share of trade credit may suggest a relatively weaker impact of the interest rate channel. The paper analyzes selected issues of financing constraints and the potential phenomenon of credit rationing. In this section the quantitative data is supplemented by qualitative information from the National Bank of Poland surveys, which has been conducted since 1995. The sample covered several hundreds of companies. The results do not confirm the popular opinion that all Polish companies are financially constrained (within the meaning of the definition proposed by Kaplan and Zingales). Moreover, the results indicate a moderate impact of the "classical" MTM elements, which are caused by asymmetric information. Large Polish companies have a relatively long relationship with banks and usually use the services of more than one lending institution. The research has confirmed, however, a relatively weak transmission of the central bank interest rates' reduction into the company sector. The effect of the decrease is hampered on the one hand by the classical mechanism of asymmetric reaction of the commercial banks' interest rates, which is particularly strong during economic downturn, and on the other hand by the asymmetric reaction of the companies to changes in credit interest rates.

I.   INTRODUCTORY REMARKS

Generally speaking, economists, as noted by B.S.Bernanke and M.Gertler, seem to agree that monetary policy, at least in the short run, exerts a significant influence on the real economy. The opinions about the transmission mechanism are however much less unanimous[3]. In the case of Poland the study of monetary transmission mechanism in the enterprise sector is even more complex. Apart from classical methodological problems, which abound even for developed economies, there is a series of specific complications, which are likely to appear in the case of transitional economies. The list of problems that are specifically Polish includes, *inter alia*:

- High inflation in the 90s, which distorted some of the balance sheet relations in companies. The need for revaluation of certain assets can be a source of particular problems, since the procedure is always to some extent arbitrary and lags behind the inflationary fluctuations in prices of certain assets.
- Significant changes in the area of public statistics related to financial reporting in companies. Among the most important are the changes in the company population surveyed by the GUS, in some classification systems (by ownership or type of activity) and finally in the scope and layout of financial statements. The changes result from the necessity to adapt Polish accounting standards to international requirements.
- Statistics on the costs of financing included in companies' mandatory statistical reports, which are not detailed enough. As a result the possibility to assess the cost of capital in companies is limited, which significantly reduces the applicability of some of the modern methodologies used to study the transmission mechanism in enterprises.
- No obligation for companies to submit a cash flow statement as a universal statistical standard. As a result the sources of funds in companies are difficult to study and consequently it becomes hard to construct proper measures of financial constraints in firms, which is a central category in some of the modern transmission mechanism theories.
- A relatively shallow capital market, which is practice limits, if not completely eliminates, the use of empirically verifiable analytical patterns based on Tobin's Q theory.
- Presentation of some important balance sheet items of many companies in multiple currencies, which implies a significant role of the exchange rate channel. Unfortunately, the 90s witnessed a change in the exchange rate regimes, which undoubtedly led to a serious modification of firms' efforts to adapt. Additionally, Polish public statistics lacks data on balance sheet items of individual companies by currency, which adds to the difficulty of an in-depth analysis of these channels.

The limitations mentioned above are primarily of a statistical and formal nature. However, attention should also be paid to more deeply entrenched obstacles. Most notably, since the outset of the transition monetary policy has been affecting the

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[3] Cf. B.S.Bernanke, M.Gertler, Inside the Black Box: The Credit Channel of Monetary Policy Transmission, NBER Working Papers Series, Working Paper No.5146, June 1995

companies in an environment, which was undergoing sweeping changes, while the companies themselves were changing significantly. While in a stable economy we can differentiate between two "types" of sources of credit: development and rescue credit, which are linked to the business cycle, in Poland there were also periods of "optimism in lending to support change" (ex. at the initial stage of transition, perhaps also in the period of rapid economic growth in 1996 – 1997). It seems therefore that in the period under study the significance of various channels of monetary transmission mechanism in Poland fluctuated significantly. Thus, it is difficult to find a single analytical pattern or to apply methodologies, which assume invariance of some interdependencies over time.

Considering the abovementioned difficulties, a question arises whether it is at all possible to conduct systematic studies of the monetary transmission mechanism for Polish companies? As for the period of the next two or three years one can be optimistic; inflation has been curbed and there have been significant changes in the Polish public statistics, which facilitate research of this kind, although the "accession shock" might prove to be a basic methodological problem. The issue is more complex, for the reasons mentioned above, when it comes to formulating current estimates. Politicizing the topic complicates the task even further. A popular thesis that monetary policy (and in particular interest rates) exerts a destructive influence on Polish firms assumes *a priori* an extremely strong monetary transmission mechanism.

Thus, a quantitative description (model) of monetary transmission mechanism for Polish companies seems at present not only extremely difficult to construct, but also to involve a considerable risk of methodological bias. The paper applies the following, hybrid solution. On the one hand we have analyzed a series of financial characteristics of the enterprise sector, which can – in the light of the MTM models, which have been empirically verified in developed economies – affect monetary transmission in the case of Polish companies. On the other hand, the article uses qualitative data based on the results of annual company surveys. The survey has been carried out in the Department of Statistics of the National Bank of Poland since 1995 and concerns, among others, some of the aspects of the monetary transmission mechanism (MTM).

The paper is divided into three parts. The first section presents a diagram of potential channels through which monetary policy can affect companies. The first part offers also a short description of selected features of the enterprise sector, which, according to the empirical tests to date, play an important role in the transmission channels' operation. The next section presents selected financial characteristics of the enterprise sector, which determine the distinctive nature of the monetary transmission mechanism in Poland, based on the public statistical data. The last part of the paper discusses the most important conclusions of the analysis of qualitative data, collected in the annual company survey of the National Bank of Poland, which concerns selected aspects of the MTM.

The paper uses two major sources of information. The "quantitative" part is based mainly on the unidentifiable unit records from the GUS F-01 and F-02 forms. It is worth stressing that the data spans different periods. The GUS F-01 form provides relatively comparable data for the whole[4] period 1993 – 2001. In the case of the F-02 report, when the article was written, only the data for 2000 was available. It is also here

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[4] Data for the first half of 2002 is now available. However, for methodological reasons we are using systematically whole-year data (as of December).

that the problem of data comparability is more acute. Although we will highlight the problem as we go on in the paper, it is worth noting here that some balance sheet data for 1993 – 1994 does not meet the comparability criteria. Some data based on the F-02 forms will therefore only be presented starting from 1995.

The qualitative data used in the paper is based on the annual company survey of the National Bank of Poland. The survey has been conducted since 1995 and covers at present 470 large and very large firms, which cooperate with the Bank on a free and voluntary basis. The survey is carried out by regional branches of the Bank, which ask the companies about the basic aspects of their financial standing and development problems in the medium and long run. The sample, however, is not completely representative, especially as for the firm size (they companies surveyed are larger[5] than in the general population) and financial standing (it is slightly better[6] than in the population). Since each annual survey has its main theme and a unique character resulting from current conditions, and the situation in Poland is characterized by significant dynamics the annual survey information provides time series of comparable data only for some of the aspects. It should be noted that the survey of 2001 was dedicated to the monetary transmission mechanism. Therefore its results constitute the major source of data in the paper. In some aspects the data is supplemented by the National Bank of Poland's quick monitoring information. Quick monitoring is a quarterly company survey concerning the companies' present situation and their reaction to current economic events.

To conclude the introductory remarks it should be emphasized that the paper, as suggested by its title, does not cover small enterprises, in which the monetary transmission mechanism may operate completely differently and whose influence on the economy may nonetheless be quite significant. Unfortunately, neither the GUS data nor any information available to the National Bank of Poland enables an in-depth study of this area.

II.   CHANNELS OF MONETARY TRANSMISSION INTO THE ENTERPRISE SECTOR

The objective of this part of the paper is to offer a synthetic[7] overview of the most important mechanisms of monetary transmission into the enterprise sector. What we are most interested in is not however the mechanism of operation of individual channels themselves, but rather the set of conditions which "activate" them.

In modern monetary transmission theories MTM is defined as a process in which monetary policy decisions are transformed into changes of income and inflation[8]. The channels of monetary transmission (see Chart 1) can be divided into three basic categories:

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[5] The GUS data used in the paper covers large and medium-sized enterprises.

[6] It can hardly be expected that weak companies should come voluntarily to "boast" for free of their problems in the central bank.

[7] An excellent traditional synthesis can be found in F.S.Mishkin, The Channels of Monetary Transmission: Lessons for Monetary Policy, NBER Working Paper 5464, February 1996, or in a more modern version in: M.Azali, The Transmission Mechanism and the Channels of Monetary Policy, free notes, 2001

[8] Cf. B.J.Taylor, The Monetary Transmission Mechanism: An Empirical Framework, Journal of Economic Perspectives, 9/1995

- Monetary channel(s)
- Classical lending (credit) channel
- Credit rationing channels

It should be noted that the division is arbitrary[9], at least in the sense that mechanisms, which are operative within each channel are closely interrelated. The last fifteen years have witnessed the publication of many significant studies devoted to this problem in developed economies. The results exhibit however little cognitive convergence. Empirical studies suggest that various transmission channels coexist[10] and there may not even be a single dominant mechanism among them. The ongoing debate about the MTM shows dynamic changes in its operation, together with some weakening of its impact on the economy[11]. The situation of developing economies is even more ambiguous, since there are fewer studies and the statistical problems are more serious. Naturally, the paper does not propose to offer a conclusion of the extensive theoretical debate. We could however venture a statement that an important cumulative value in the process of studying the transmission mechanism is to collect the largest possible body of evidence to support the thesis that price elements (ex. interest rates) are not the only factors affecting credit demand and supply, or corporate investment decisions. MTM studies have "unveiled" a number of important factors, which modify or catalyze the transmission of monetary policy impulses into the enterprise sector and which can have practical[12] significance for monetary policy and the actions of central banks. These include, among others:

- Firm size[13]
- Balance sheet structure, firm asset quality, capacity to generate financial surplus[14]
- Firm asset pricing (valuation) possibilities[15]
- Role of non-bank sources of credit[16] (trade credit and non-bank credit institutions)

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[9] R.G.Hubbard goes even further and argues that the term "money view" and "credit view" are not always well defined – see R.G.Hubbard, Is There Credit Channel for Monetary Policy, NBER, Working Paper 4977/1994

10 There are also differences across countries, even within the same culture. The differences could for example be witnessed across European countries before the EMU – cf. M.Ehrmann, Will EMU Generate Asymmetry?: Comparing Monetary Policy Transmission Across Countries, European University Institute Working Paper No.98/28.

[11] Cf. K.N.Kuttner, P.Moser, The Monetary Transmission Mechanism: Some Answers and Further Questions, FRBNY Economic Policy Review, May 2002, which discusses the significance of financial innovations in weakening the impact of the transmission mechanism.

[12] It should perhaps be noted here that for some economists the type of the channel of monetary transmission has limited impact on the choice of the optimal monetary policy rule. Cf. J.B.Taylor, The Monetary Transmission Mechanism and The Evaluation of Monetary Policy Rules, Stanford University, September 1999. If this were true, the discussion about the dominant transmission channel would not be very practical from the point of view of the tasks of the central bank.

[13] Cf. M.Gertler, S.Gilchrist, "Monetary Policy, Business Cycles and the Behavior of Small Manufacturing Firms", Quarterly Journal of Economics, Vol.109, No.2

[14] Cf. H.Almeida, M.Campello, Financial Constrains and Investment – Cash Flow Sensitivities. New Research Directions, December 2001, J.B.Chatelain, A.Generale, I.Hernando,U.von Kalckreuth, P.Vermeulen, Firm Investment and Monetary Policy Transmission in the Euro Area, Banco de Espana 2001

[15] Cf. E.Gaiotti, A.Generale, Does Monetary Policy Have Asymmetric Effects? A Look at Investment Decisions of Italian Firms, Working Paper 110, ECB, December 2001

- Sectoral structure of the economy[17]
- Restrictiveness of the law, supervisory regulations[18]
- Legal forms of organization[19]

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[16] Cf. M.Valderrama, Credit Channel and Investment Behavior in Austria: A micro-econometric approach, Working Paper 58 of Oesterreichische Nationalbank

[17] Cf. J.Farès, G.Srour, The Monetary Transmission Mechanism at the Sectoral Level, Working Paper, Bank of Canada 2001-27

18 Interesting remarks and suggestions about further reading can be found in:: R.G.Hubbard, Capital-Market Imperfections, Investment, And The Monetary Transmission Mechanism, Columbia University 2001. A more thorough analysis of the "bank channel" can be found in: J. Van den Heuvel, The Bank Capital Channel of Monetary Policy, Department of Finance, The Wharton School, University of Pennsylvania, November 1999 (last version – 2002)

[19] S.G.Cecchetti, Legal Structure, Financial Structure, and the Monetary Policy Transmission Mechanism. Working Paper No. 7151, NBER
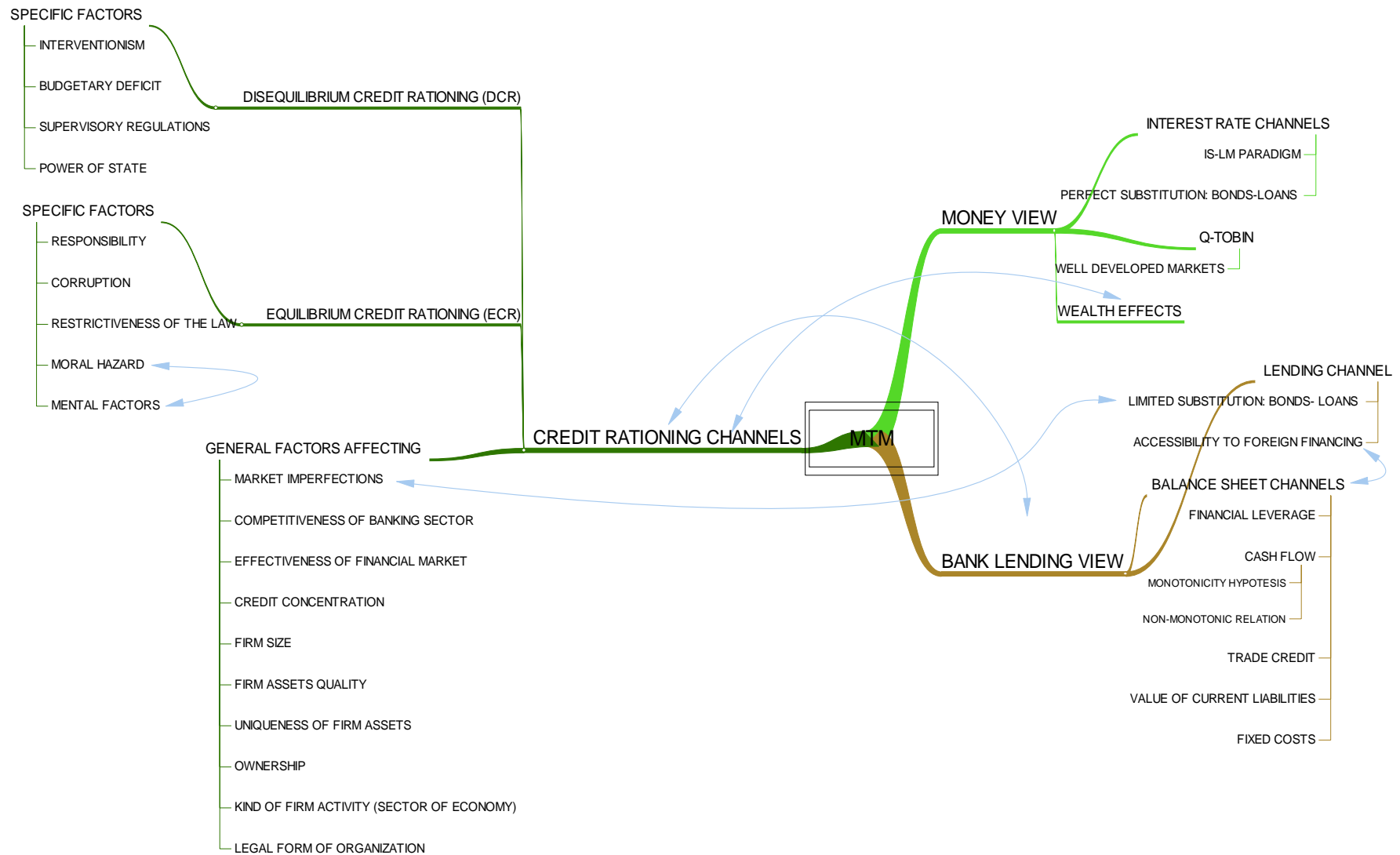
SPECIFIC FACTORS
— INTERVENTIONISM
— BUDGETARY DEFICIT
DISEQUILIBRIUM CREDIT RATIONING (DCR)
— SUPERVISORY REGULATIONS
— POWER OF STATE

SPECIFIC FACTORS
— RESPONSIBILITY
— CORRUPTION
— RESTRICTIVENESS OF THE LAW
EQUILIBRIUM CREDIT RATIONING (ECR)
— MORAL HAZARD
— MENTAL FACTORS

GENERAL FACTORS AFFECTING
— MARKET IMPERFECTIONS
— COMPETITIVENESS OF BANKING SECTOR
— EFFECTIVENESS OF FINANCIAL MARKET
— CREDIT CONCENTRATION
— FIRM SIZE
— FIRM ASSETS QUALITY
— UNIQUENESS OF FIRM ASSETS
— OWNERSHIP
— KIND OF FIRM ACTIVITY (SECTOR OF ECONOMY)
— LEGAL FORM OF ORGANIZATION

CREDIT RATIONING CHANNELS

MTM

MONEY VIEW

INTEREST RATE CHANNELS
IS-LM PARADIGM
PERFECT SUBSTITUTION: BONDS-LOANS

Q-TOBIN
WELL DEVELOPED MARKETS

WEALTH EFFECTS

BANK LENDING VIEW

LENDING CHANNEL
LIMITED SUBSTITUTION: BONDS- LOANS
ACCESSIBILITY TO FOREIGN FINANCING

BALANCE SHEET CHANNELS
FINANCIAL LEVERAGE
CASH FLOW
MONOTONICITY HYPOTESIS
NON-MONOTONIC RELATION
TRADE CREDIT
VALUE OF CURRENT LIABILITIES
FIXED COSTS

Chart 1. Selected conditions of the monetary transmission mechanism in the enterprise sector

The next two sections of the paper will attempt to document some of the MTM conditions mentioned above in the Polish company sector.

III. SELECTED CONDITIONS OF THE MONETARY POLICY'S IMPACT ON THE COMPANY SECTOR BASED ON QUANTITATIVE DATA[20]

High credit concentration in the Polish company sector seems to be one of the basic facts, which affect the operation of the monetary transmission mechanism in Poland. Fig. 1 and Fig. 2 show that in 2001 one hundred biggest borrowers absorbed circa 55% of the total loans and credits and as much as 70% of the long-term loans and credits.
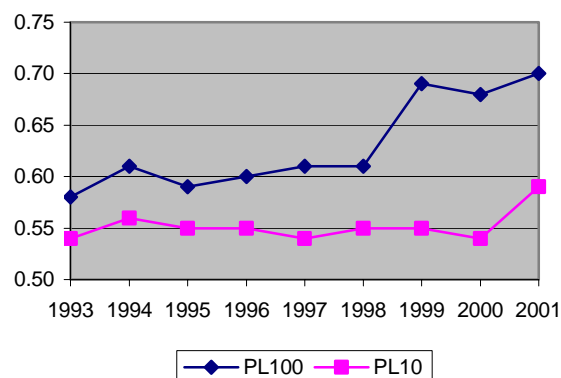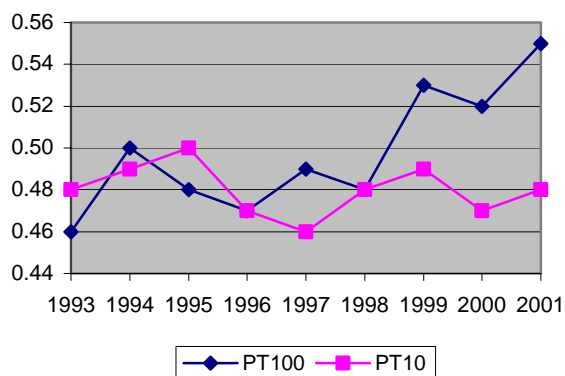
Fig. 1 Share of 100 biggest borrowers in credits and loans[21] for the whole company sector[22] (PT100) and of 10 biggest borrowers in the debt of 100 biggest (PT10) in 1993-2001 – total loans and credits. Data as of the end of December.

Fig. 2 Share of 100 biggest borrowers in credits and loans for the whole company sector (PL100) and of 10 biggest borrowers in the debt of 100 biggest (PL10) in 1993-2001 – long term loans and credits. Data as of the end of December.

Since 1998 there was a rapid increase in credit concentration. It should also be noted that high credit concentration was witnessed in the group of 100 biggest borrowers. For total debt the share of the biggest 10 in the group of the top 100 borrowers ranges from 46% to 50%. For long-term debt until 2000 their share oscillated around 55% while in 2001 it rose even up to 60%.

The picture of credit concentration is complemented by the analysis of the degree of overlapping between the groups. Fig. 3 and Fig. 4 present the shares of NACE (Polish Classification of Activities, PKD) divisions and of individual companies, which remained in the top 100 borrowers group for the number of years marked on the Y-axis. The comparison concerns long-term debt. As shown below, as many as 30% of the NACE divisions remained in the sample for at least 7 years (within a 9-year period under study). A very large percentage of NACE divisions – almost 19% - stayed in the group throughout the whole period of 9 years. For individual companies, circa 16% of firms in the sample remained in the largest

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[20] In handling some of the data, especially of a relational character, we have deleted, as a standard procedure, the first and the last percentile from the sets of data on individual companies. This method is often applied in MTM studies for the company sector, which are based on individual data analysis. The majority of the calculations presented in this section of the paper have been done in the SAS® system.

[21] Since reporting categories in GUS statistical forms have changes, it is impossible, within this source of information, to gather data exclusively on companies' credit liabilities for the whole period 1993 – 2001. Therefore we have to resort to the "credits and loans" category, which is used interchangeably with the terms "debt" and "credits", unless the meaning in context suggests otherwise.

[22] It should be borne in mind that, depending on the year, the sector consisted of circa 15 to 25 thousand companies!

borrowers' group for at least 5 years (in a 7-year time frame[23]). Almost 6% of companies remained in the group throughout the whole period. It is worth noting that if the group of companies rotated each year the whole period of analysis would cover 700 biggest borrowers. As it was, the group consisted of 272 firms (the "rotation" coefficient
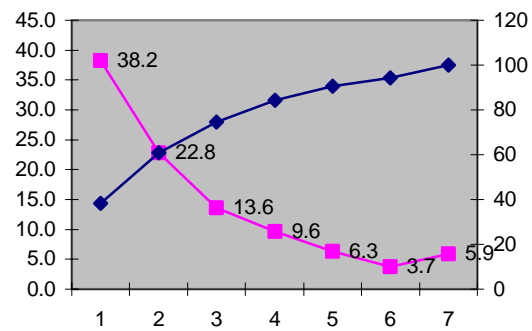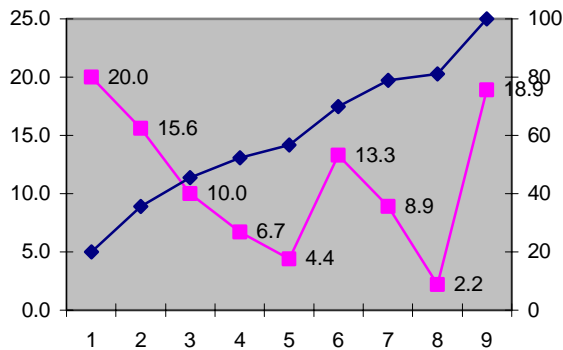

Fig. 3 Distribution of the period (in years) in which individual NACE[24] (PKD) divisions remained in the group of top 100 borrowers in 1993-2001 – pink line, left vertical scale. Distribution function marked in blue.

Fig. 4 Distribution of the period (in years) in which individual companies remained in the group of top 100 borrowers in 1993-2001 – pink line, left vertical scale. Distribution function marked in blue.

of circa 30%). Generally speaking, the composition of the group of the biggest borrowers was relatively stable. This picture of credit concentration gives rise to a number of questions and problems for the monetary transmission mechanism analysis in the large and medium[25] firm sector in Poland.

First of all, the ownership structure in the group of the largest borrowers differs from the characteristics of the whole population (see Fig. 5 and Fig. 6). Even as late as in 2001 the share of the State Treasury companies was twice as high as in the general population. The share of state-owned companies in the group was also significantly higher. Since, as has been repeatedly mentioned, the management of such companies is heavily politicized the question about the role of economic calculus in their credit and investment decisions, and thus about the monetary policy's impact on this group of companies, seems very legitimate. It should however be emphasized that 2001 witnessed a significant improvement of the ownership structure in the sub-population of 100 biggest borrowers.

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[23] Since the GUS has changed company identifiers, which are used by the national Bank of Poland, the analysis could only be conducted starting from 1995.

[24] In the population covered by the GUS F-01 forms in the analyzed data sets this level of classification consisted of circa 200 classification units. The rotation coefficient amounted to circa 45%.

[25] It should be stressed again at this point, that the analysis does not cover small companies, which, despite their relatively limited share in the total credit liabilities of the economy, can play a significant role in the monetary transmission mechanism. This issue is however beyond the scope of this study.
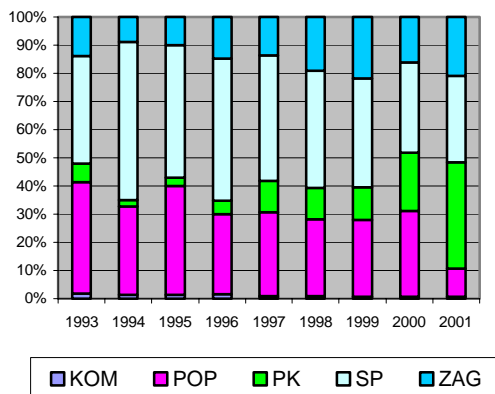
Fig. 5 Ownership structure (in %) of the top 100 borrowers in 1993-2001, measured by the income of individual ownership groups. KOM - municipal, POP – state-owned, PK - domestic private, SP – State Treasury, ZAG – foreign.
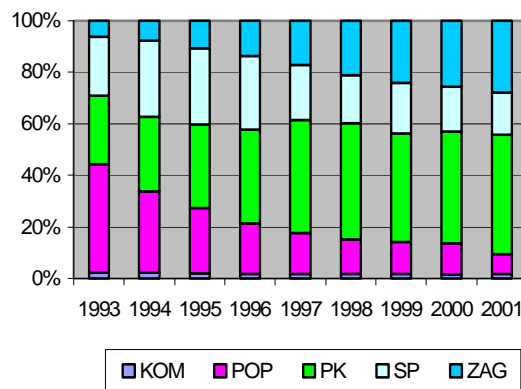
Fig. 6 Ownership structure (in %) of the F-01 population in 1993-2001, measured by the income of individual ownership groups. KOM - municipal, POP – state-owned, PK - domestic private, SP – State Treasury, ZAG – foreign.

There is one more important feature of the top 100 borrowers (for long term loan), which merits some attention in our analysis. According to of the GUS F-02 form data for 2000 the group accounted for as much as 44.4% of foreign credits and loans[26]. The share of foreign loans and credits in the total debt of individual companies was also quite high. It amounted on average to 42% of the debt. (for those companies out of 100 which had foreign debt). Thus, foreign debt played an important role also on the level of individual companies from the top 100. As a result, even if – despite the reservations mentioned above – we accept that monetary parameters affect significantly economic decisions of this group of companies, it remains unresolved to "whose" monetary policy they respond. At this level of debt one could expect a strong interference of domestic policy and some elements of the EU policy. The exchange rate channel is likely to be strong as well.

Summing up, credit concentration in Poland, at least for the reasons mentioned above, justifies a question about adequate tools for studying the monetary transmission mechanism in the group of medium and large firms in our country. With such a high concentration aggregate values of credit and investment[27] are largely dominated by individual actions of a small group of companies, which operate in a relatively limited number of sectors, some of which can take "politicized" decisions, and which are additionally sensitive not only to the domestic monetary policy. In this situation, both the results of some macroeconomic analysis of the MTM and of the research based on panel methods, which are very popular in this area of study can be confusing and ambiguous (especially when the sample is too large).

Apart from the problem of credit concentration, a series of other changes in Polish companies can exert a significant influence on the transmission mechanism. The discussion of those issues should start with important changes in the ownership and organizational structure of Polish companies in the 90s. Fig. 6 shows clearly a significant increase in the share of private companies, both Polish and foreign, in the total number of firms. On the basis of the data from the GUS F-01 reports it can be estimated that at the end of 2001 those two types of ownership forms generated 74% of the sector's income. The transformation in the ownership

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[26] According to the GUS terminology these are only loans and credits from non-residents. F-02 forms do not cover other foreign currency liabilities. The picture drawn here is therefore incomplete. However, even though the data on the concentration of other foreign currency liabilities in this group is missing it can be expected to be quite high as well. It should be noted here that F-02 form for 2000 covered data from circa 46,300 companies. 100 companies constitute therefore only a fraction of the population.

[27] Which are heavily concentrated themselves.

structure was accompanied by profound changes in the organizational form of companies – see Table 1. This in turn led to a change in the monetary transmission mechanism. It was necessitated, if not by other factors, by limited room for arbitrary and discretionary decisions, which are common in the management of state companies, and by an increase in the share of joint-stock companies and limited liability companies - organizational structures, which offer potentially more transparent forms of management, supervision and accountability. These changes should have limited, at least theoretically, the phenomenon of credit rationing. Unfortunately, though the issue has not been properly researched yet, the economic practice shows that the effects of these changes may be ambiguous. The basic reason seems to be the legal factor. Due to obsolete or even defective legal regulations, in particular within the contract law, and more and more protracted legal procedures, it is only to a limited degree that ownership and organizational changes in companies translate into more effective and flexible bank credit supply.

Table 1 Structure of Polish companies by organizational form in 1992- 2001 (in %)

ORGANIZATIONAL FORM	1993	1994	1995	1996	1997	1998	1999	2000	2001
STATE-OWNED ORGANIZATIONAL UNITS	2.13	2.07	1.93	1.91	2.02	2.87	1.63	1.35	0.02
STATE ENTERPRISES	23.12	19.58	14.91	11.31	8.51	6.06	6.51	4.93	3.92
JOINT STOCK COMPANIES	5.86	7.46	9.24	10.2	10.62	10.98	15.78	15.54	15.71
CIVIL PARTNERSHIPS	0.2	0.23	0.23	0.26	0.25	0.23	0.18	0.16	2.79
REGISTERED PARTNERSHIPS	2.92	3.69	5.04	7.08	8.9	10.14	7.89	8.26	5.78
LIMITED LIABILITY COMPANIES	29.23	32.28	36.18	38.44	40.18	41.83	43.94	47.13	49.61
CO-OPERATIVES	28.4	26.33	23.74	20.72	18.26	15.52	13.85	12.34	12.02
OTHERS	8.13	8.37	8.72	10.08	11.25	12.38	10.21	10.29	10.15

According to literature, the sectoral structure of production[28] and its other characteristics, such as concentration, cycles of stock turnover, nature of manufactured goods (durables) constitute another important factor, which determines the operation of the monetary transmission mechanism. On the basis of the results of studies it has been assumed that sectors such as construction, transport and industrial production are relatively more sensitive to monetary shocks than for example services (financial, non-financial, social). The reaction of mining[29] may be ambiguous. Haimowitz[30] argues that durable good industries exhibit larger output and price responses to price shocks than other sectors. Industries with high inventory-to-sales ratios are associated with smaller price responses. High concentration industries are found to exhibit larger output responses, but smaller price responses.

In the period 1993 – 2001 many of the above characteristics in the Polish company sector exhibited relatively high stability. Stability is characteristic in particular for the revenue structure on the level of NACE (PKD) sections – see Table 2. More marked changes can be witnessed in "mining" and "post and telecommunications". The results of Ganley and Salmon[31] imply that circa 51% of the manufacturing section could be more sensitive to monetary shocks than other sectors. The results show however a strong diversification of the response function within the "manufacturing" section.

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[28] Cf. G.Fares, R.Srour, op.cit. pp.10-13.

29 Cf. J.Ganley, C. Salmon, The Industrial Impact of Monetary Policy Shocks: Some Stylized Facts, Bank of England Working Paper No. 68/1997
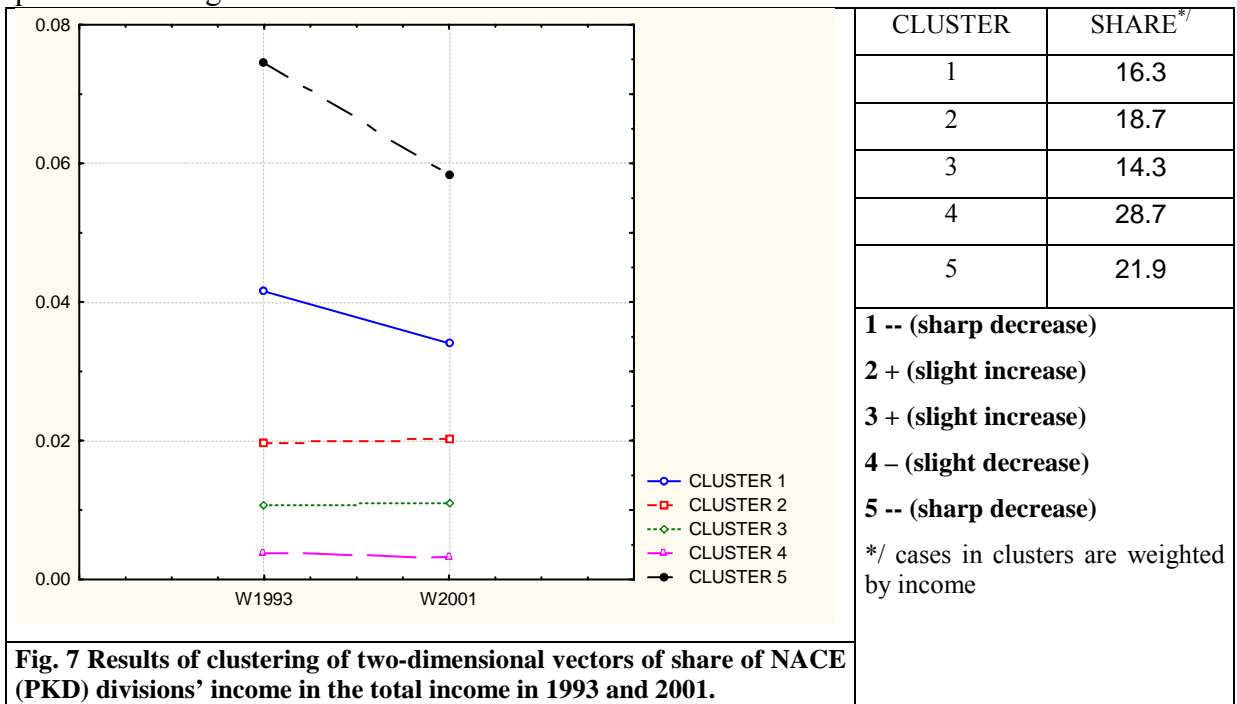
[30] Cf. J.H.Haimowitz, Monetary Policy Shocks and Price Stickiness: An Analysis of Price and Output Responses to Policy in Manufacturing Industries, Federal Reserve Bank of Kansas City, RWP 96–07.

[31] While we think about analogies, we have to bear in mind the differences in the level and type of classification applied by the authors – see J.Ganley, C. Salmon, op.cit., pp. 29-30

Table 2 Revenue structure in NACE (PKD) sections in 1993 – 2001 (in %) for companies submitting GUS F-01 forms.

POLISH CLASSIFICATION OF ACTIVITIES SECTION	1993	1994	1995	1996	1997	1998	1999	2000	2001
CONSTRUCTION	5.63	5.31	5.29	5.44	5.92	6.28	6.17	6.08	5.47
MANUFACTURING	39.71	40.78	42.76	40.95	40.10	37.88	42.13	41.81	40.84
MINING	5.52	5.50	5.05	4.42	4.06	3.39	3.57	3.39	3.47
TRADE AND REPAIRS	25.99	24.53	24.29	26.63	27.79	29.89	25.81	26.71	26.23
POST AND TELECOMMUNICATIONS	1.76	1.90	1.91	2.00	2.07	2.44	3.09	3.23	3.72
ELECTRICITY	10.78	11.48	10.49	9.95	9.05	8.51	9.01	8.17	9.36
TRANSPORT	5.53	5.12	4.79	4.42	4.31	3.99	3.90	3.93	4.58
OTHERS	5.08	5.38	5.42	6.20	6.69	7.62	6.32	6.69	6.32

The above superficial presentation of structural changes can be criticized for a high level of aggregation at which the changes were analyzed, namely the NACE (PKD) sections. Therefore, it has been complemented with a revenue structure comparison in 1993 and 2001 at the level of divisions. The analysis covered 202 NACE (PKD) divisions. At this level more significant changes were noted. First of all, the average ratio of structural change[32] between 1993 and 2001 amounted to circa 6.2%. To study the nature of the changes in greater detail the set of two-dimensional share vectors (in 1993 and 2001) was clustered. The results are presented in Fig. 7.

CLUSTER	SHARE[*/]
1	16.3
2	18.7
3	14.3
4	28.7
5	21.9

1 -- (sharp decrease)

2 + (slight increase)

3 + (slight increase)

4 – (slight decrease)

5 -- (sharp decrease)

*/ cases in clusters are weighted by income

Fig. 7 Results of clustering of two-dimensional vectors of share of NACE (PKD) divisions' income in the total income in 1993 and 2001.

The results indicate that at this level of disaggregation in the period 1993 – 2001 there was a significant drop in the share of divisions, which used to be "large" in 1993. No new "large" divisions emerged; the decrease was however compensated by a relatively dynamic

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[32] Defined as:

$$\sqrt{\sum_{i=1}^{n}(u_i^{1993} - u_i^{2001})^2} = \frac{\sqrt{\dfrac{\sum_{i=1}^{n}(u_i^{1993} - u_i^{2001})^2}{n}}}{\dfrac{1}{n}}$$, which explains the use of the term "average" – 1/n is the

average share in the structure, while the numerator is the average distance between the new and the old structure.

development of divisions of very little significance in 1993. As a result a new, less concentrated division structure was created.

Similar conclusions can be drawn from the analysis of production concentration by NACE (PKD) subsections[33]. Lorentz concentration ratios were calculated for individual subsections. Distribution of the coefficients is presented in Fig. 8. It is worth noting that in 2001 the share of the subsections with the concentration ratio above 70% dropped in comparison with 1993 by circa 8 percentage points.

The importance of these changes for the companies' sensitivity to monetary policy seems however more complex than simple adaptation of the results of Haimowitz quoted here. On the one hand a flatter, and thus a less monopolistic sectoral structure seems less capable of inflationary movement of prices in the event of monetary policy shocks. From the perspective of the "portfolio paradigm" such a structure seems more diversified and thus more resistant to various shocks. On the other hand, however, a flat structure can be more sensitive to competition, including import competition, and thus it can react more strongly to the influence of the exchange rate channel.
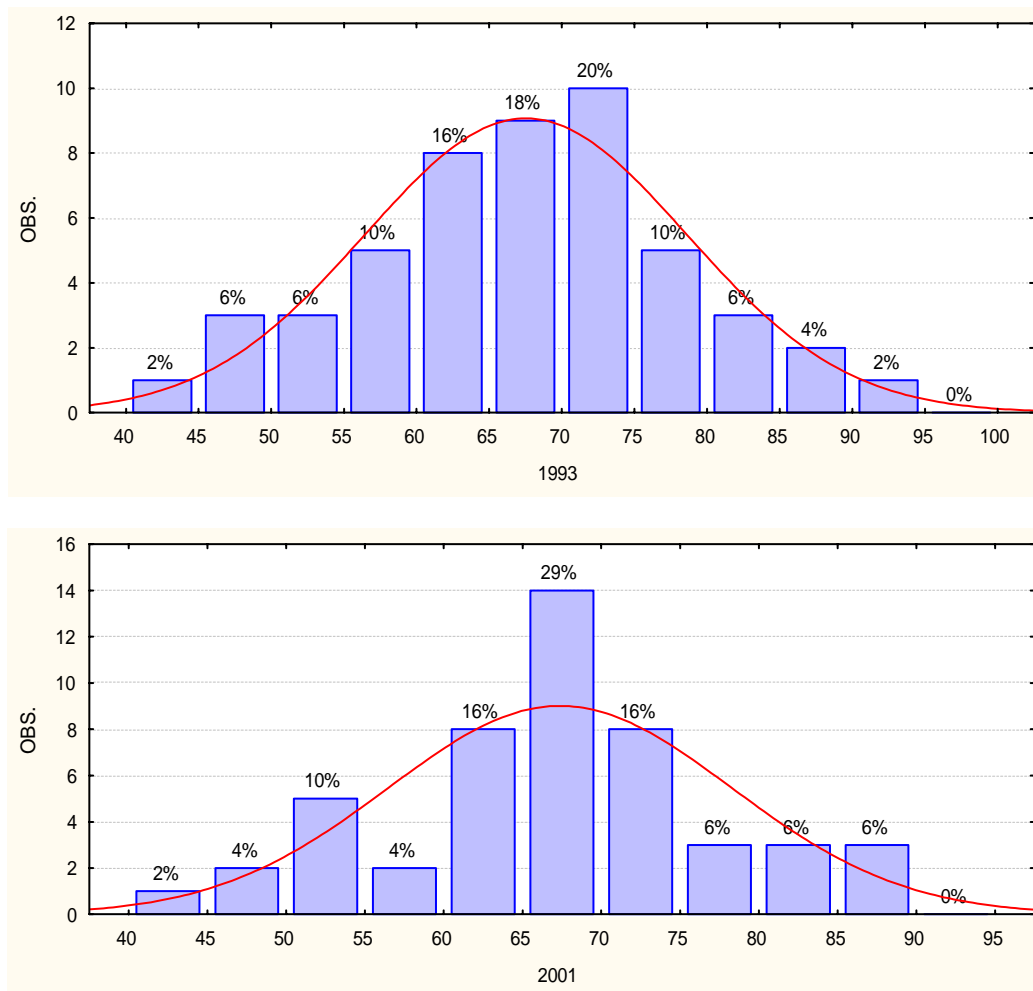
Fig. 8 Histograms of the Lorentz concentration ratios in 1993 and 2001 for the classification by NACE (PKD) subsections.

Additionally, this sensitivity can be extended also to the reaction to "foreign" monetary shocks in the countries (regions), which import from Poland. It should be noted that a flat structure usually means a lack of sectors of brand leaders and leading articles, which would be

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[33] The classification offers a division of the population of circa 15,000 companies into 50 classes.

exported on such a scale as to be well recognized on foreign markets and have there a well-established position, less vulnerable to changes of the local economic situation. In such a case, a change in monetary policy in the country, which imports Polish goods, especially if it leads to a drop in currency value, can push the goods out of the foreign market relatively more quickly. In conclusion it should be emphasized, however, that despite the above suggestions, the impact of the concentration characteristics discussed in the paper on the monetary transmission mechanism is, from a theoretical point of view, complex and ambiguous, although difficult to challenge as such[34].

In the period 1993 – 2001 the company sector witnessed a series of changes, which directly enhanced its potential borrowing capacity. These included at least two factors:

- Increase in the companies' asset size
- Improved term debt coverage ratio (by fixed assets)

As for the first element, the changes in the concentration of activity in the period 1993 – 2001 were accompanied by changes in the firm size. Empirical analysis of the phenomenon, which would require data on individual companies, is however very difficult, among others because in 1999 the GUS introduced a new firm size criterion. As a result the level of employment in the companies covered by some of the statistical reports within the framework of public statistics was increased. This in turn resulted in an automatic increase of larger companies' share and a simultaneous complete elimination of the smallest firms from the population surveyed. Therefore, abrupt changes witnessed in that year have to be interpreted with caution. Inflation was also a serious problem, as it limited the comparability of nominal values over time. Additionally, inflation was accompanied by an associated problem of asset revaluation, mentioned before, which led to an abrupt increase of its value.

To present the measure of the change in the size of companies we have applied decimal classification of firms by their size[35]. Fig. 9 shows that in the period under study the share of medium-sized companies (class A-3) increased significantly. In contrast, there was a slight drop in the share of small and the smallest companies in the classification system (class A-4 and A-5, respectively). The share of the largest companies (class A-1) remained stable. On the basis of the data available to the National Bank of Poland it is difficult to interpret the changes of the large firms' share (class A-2) witnessed since 1999 because of the methodological alterations in the GUS, mentioned above. Since the investment dynamics in the period 1996 – 1997 was high, it can be assumed that the share of this group of enterprises rose here as well, although the increase is likely to have been smaller than that shown in Fig. 9.

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[34] The impact depends, among others, on the plus or minus sign of the money multiplier. Cf. M.Mazzoli, Credit channel and Industrial Firm's Market Power, Department of Economics University of Modena and Reggio Familia, April 12, 2000

[35] The condition to be met by a company to belong to a given class is the following:

$j \in Ai \; when \; i = pr \log_{10}(\dfrac{u_j}{\sum\limits_{k=1}^{n} u_k})$, where u_j – asset value, n – number of companies in the sample in a given year, and pr – characteristic of a common logarithm. The advantage of this classification is its "theoretical" insensitivity to inflation.
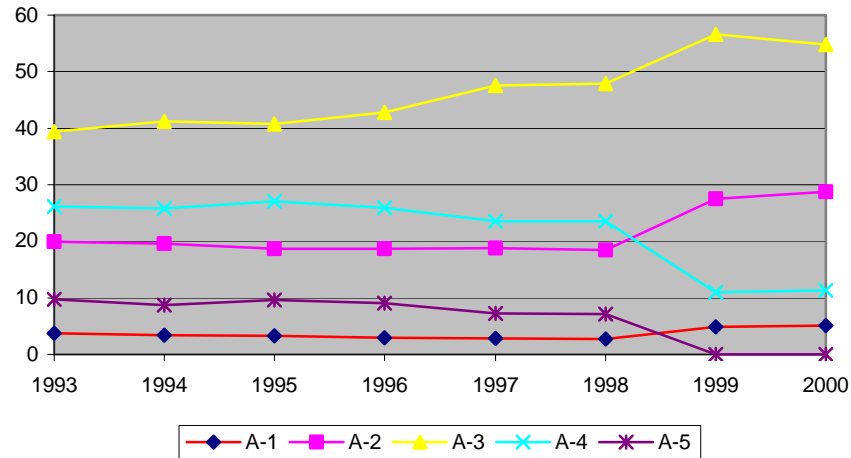
Fig. 9 Decimal classification of assets in 1993 – 2000 (on the basis of the GUS F-02 reports). The X-axis represents the share of individual firm size classes (in %).
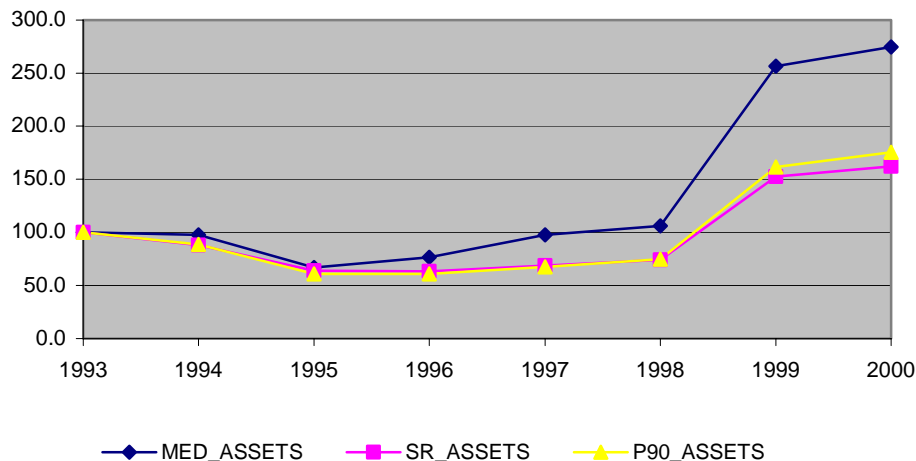

Fig. 10 Median (MED._ASSETS), mean (SR_ASSETS) and 9th decile (P90_ASSETS) of the real asset value in companies covered by the GUS F-02 reports in the period 1993-2000 (1993=100).

The analysis of Fig. 10 confirms a significant increase of the companies' real asset value in the period 1993 – 2000. Interestingly, the median asset size exhibits higher dynamics than the mean and the ninth decile. It indicates a relatively more dynamic asset growth in small and medium-sized companies than in the largest firms. Again however, a detailed discussion of the extent of asset growth in the company sector seems difficult. The problems are analogous to the case of decimal classification. Additional difficulties are caused by distortions of nominal values caused by inflation.

To sum up this part of the discussion, it should be stressed that, in accordance with modern theories of the role of firm size in the MTM, the changes described above can indicate some decrease in firms' sensitivity to monetary impulses. Companies holding larger assets are potentially better customers for banks, also because they are able to offer a higher value of the collateral. The phenomenon can be illustrated more directly by the ratio of the

companies' fixed assets to their long-term debt (see Fig. 11). Since 1995 the ratio was improving continuously. However, a simultaneous increase of fixed assets' depreciation rate[36] (see Fig. 12) might constitute a problem, since it can lead to some decrease in the value of assets, which can be used as potential collateral.
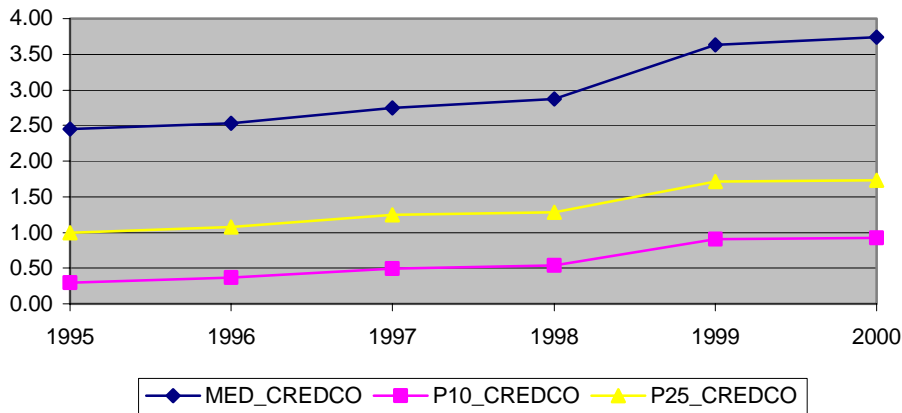

Fig. 11 Selected characteristics of the distribution (MED._CREDCO – the median of the ratio, P10_CREDCO - first decile of the distribution, P25_CREDCO – first quartile) of the fixed assets - to - term debt ratio in the period 1993 – 2000.
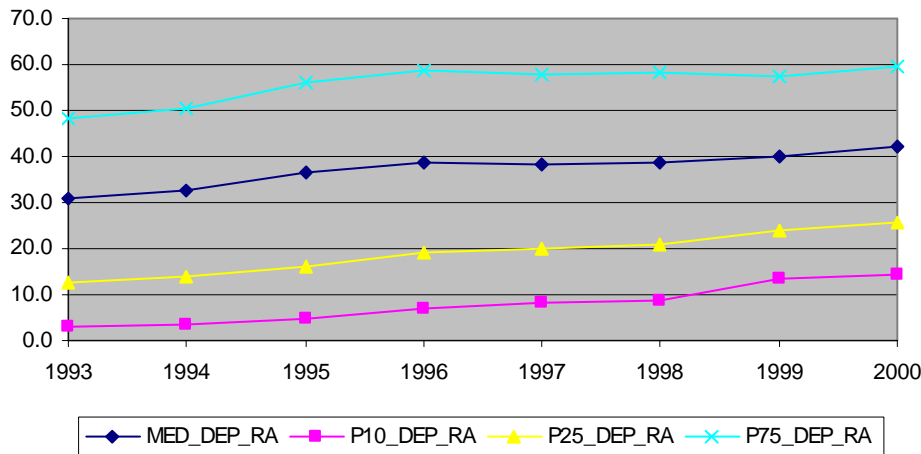
Fig. 12 The median (MED_DEP_RA), the first decile (P10_DEP_RA) the first quartile (P25_DEP_RA) and the third quartile (P75_DEP_RA) of depreciation rate in the period 1993-2000 (in %)

Another factor, which has exerted a negative influence on the potential capacity of the companies more recently, could also be the deteriorating ratio of cash flow to total credits and loans. It should be noted that since 1998 the ratio worsened for all the distribution characteristics discussed above. Moreover, the first decile is negative for the whole of the period under study. Thus, according to the data, current debt service capacity of the Polish companies could have been decreasing recently. We are using here the subjunctive mood since, as we will see in the next section of the article, debt servicing is a priority for our companies. A decreasing cash flow does not have to mean, therefore, a decline in debt servicing, but it will rather lead to a default on other liabilities. It is an easy solution, in particular for large enterprises, in the case of which radical collection of outstanding non-bank

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[36] Defined as the ratio of the depreciation value to total net fixed assets and their depreciation value

16

liabilities is limited for political and sometimes economic reasons. This phenomenon offers an explanation of the paradox why some sub-periods between 1993 and 2001 witnessed a dynamic supply of credit for some groups of large low-profitability or even loss-making enterprises. This kind of lending activity was profitable for banks. The companies contracted relatively large debts, which brought large interest income for the bank at limited costs of examining the companies' creditworthiness and at reduced outlays necessary for lending. The loans, due to the priority of their servicing, were paradoxically quite risk-free for the bank, even though the financial standing of the borrower was often quite poor.
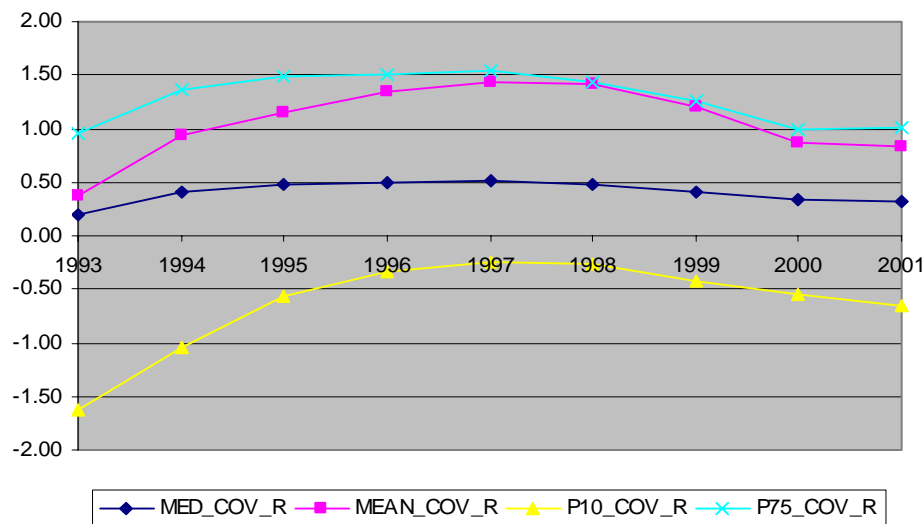
Fig. 13 The median (MED_COV_R), mean (MEAN_COV_R) and third quartile (P75_COV_R) of the operational cash flow to total credits and loans ratio in the period 1993-2001.

We will now present some remarks about the sensitivity of Polish companies to changes of monetary policy, and in particular interest rate volatility. There seems to be at least three factors, which are responsible for relatively smaller vulnerability of Polish companies to activities undertaken within the framework of monetary policy:

- A relatively low share of borrowers with long term debt
- A low level of financial leverage
- A high share of trade credit in the liabilities

Fig. 14 presents the basic information on the share of companies with debt. Although the share of firms with credit liabilities was growing continuously throughout the period 1994 – 2001, with some stability in 2000 – 2001, still in 2001 only circa 40% of the companies had long-term debt. In the case of a large group of companies, which do not have any debt, in particular no long-term debt and those, which have only short-term debt, interest rate change, even by several points, can result in only slight cash flow volatility. A potential increase in companies' sensitivity to this type of shocks can result from the fact that in the period under study there was a significant growth of their debt, both short- and long-term, (see Fig. 15) for both small and larger credits.
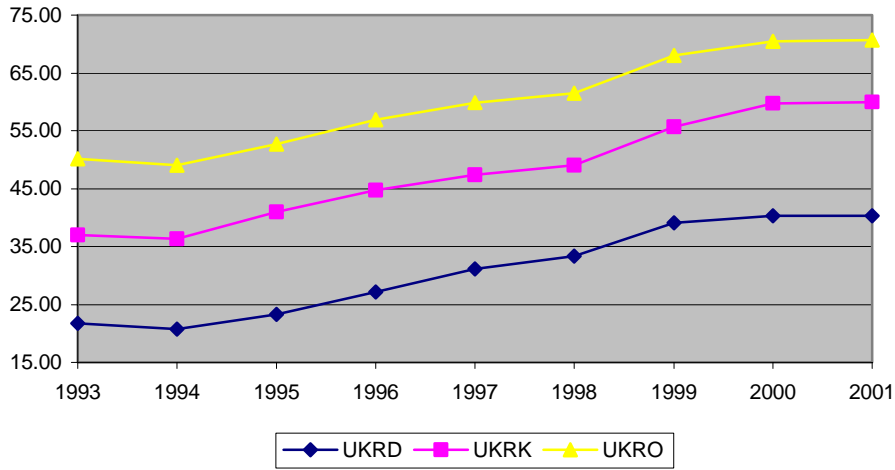
Fig. 14 The share of companies with long-term credits and loans (UKRD), short-term credits and loans (UKRK) and debt (UKRO) in the period 1993 – 2001 (in % of the population submitting F-01 reports)
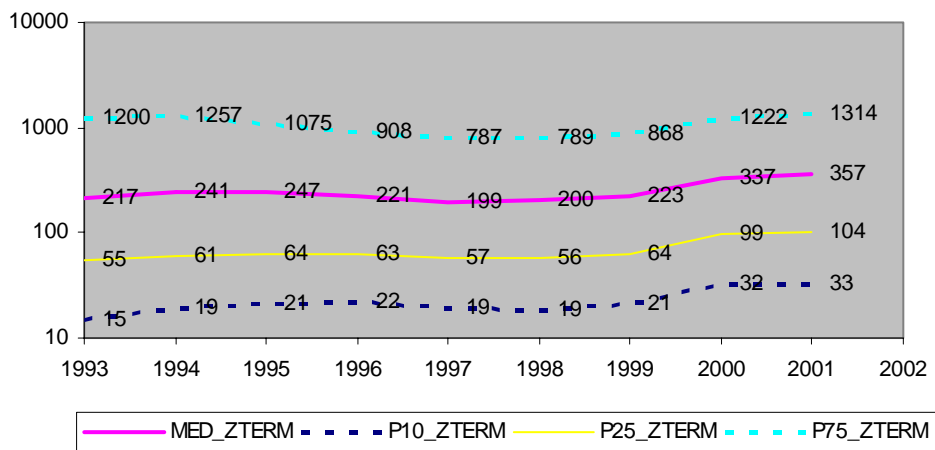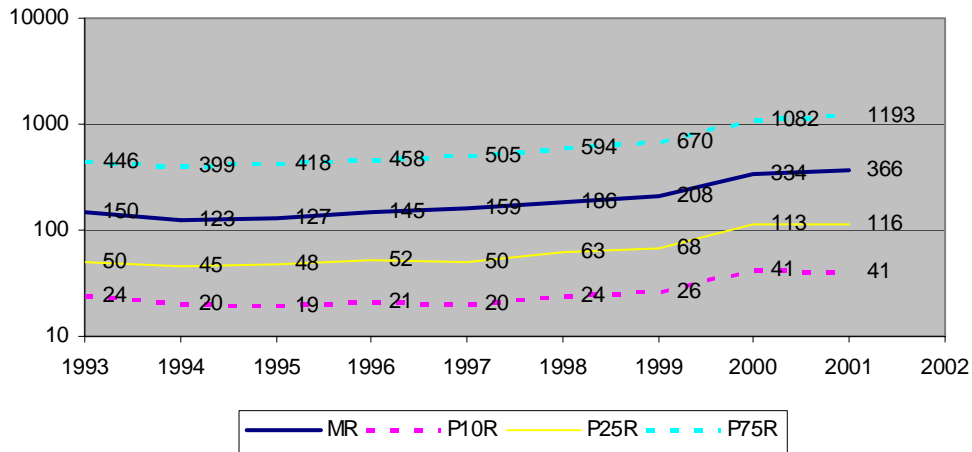

Fig. 15 Current (above) and long-term debt (below) distribution in the period 1993 – 2001 in thousands zloty according to 1993 prices. MR, MED_ZTERM - median, P10R, P10_ZTERM – first decile, P25R, P25_ZTERM – first quartile, P75R, P75_ZTERM – third quartile, for current and long-term debt, respectively. Logarithmic scale.

18

Relatively limited sensitivity to the cost effects of interest rate changes is indicated also by a low financial leverage of Polish companies. Although is was growing continuously since 1995, its level is still significantly lower than in many developed countries (see Fig. 16). The situation can also mean that in Polish companies the credit risk caused by cash flow volatility is lower, that moral hazard is lower as well, and that there is some borrowing capacity "reserve".

The last factor discussed here, which limits the sensitivity of Polish companies to some monetary policy shocks, is a very high share of trade credit. According to modern MTM theories, trade credit, in a broad sense, is one of the "escape routes" for companies when monetary policy tightens[37]. In Poland this mechanism seems even stronger.
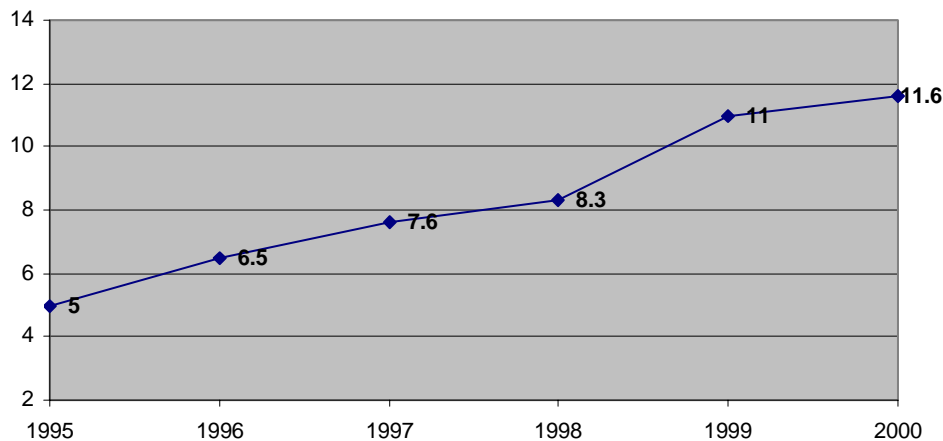

Fig. 16 Financial leverage in the period 1995 – 2000 (in %)

In developed market economies the process is usually limited to more credit being extended to companies with cash shortages by firms with sufficiently large financial resources. Such behaviour is forced by monetary tightening. In transition countries there are two additional possibilities – a default on some, even large payments without risking bankruptcy (which has been mentioned before) and the ability of some companies to adapt[38] and operate despite payment bottlenecks.

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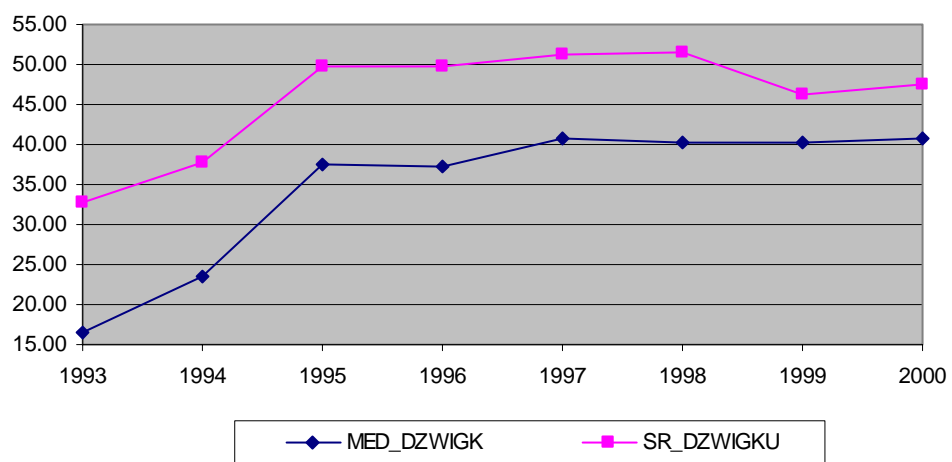
[37] Cf. M.Kohler, E.Britton, T.Yates, Trade credit and the monetary transmission mechanism, Bank of England 2000

Fig. 17 The median (MED_DZWIGK) and mean (SR_DZWIGKU) of the trade credit and non-bank foreign liabilities ratio to total liabilities

 In Poland the share of trade credit and non-bank foreign liabilities in total liabilities in 2000 amounted on average to 46%, which differed significantly from the role played by this type of liabilities in developed countries, in which their share ranges from 10 to 20%.

IV. SELECTED CONDITIONS OF MONETARY POLICY'S IMPACT ON THE COMPANY SECTOR IN THE LIGHT OF QUALITATIVE DATA

The scope of our article forces us to limit[39] our discussion on the results of qualitative MTM research to the issue of financing constraints. The idea poses numerous problems, both theoretical and empirical in nature. First of all, it should be noted that there is no uniform definition of the term "financing constraints" across literature. There are also no uncontested measures of their impact on companies. Moreover, latest research suggests a rejection of the monotonicity hypothesis, which many articles have applied as one of the methods of identifying how constrained a company is[40]. Attempts at linking the level of financing constraints with the dividend payout ratio have also been widely criticized[41]. Modern dividend policy theories indicate that there are many "anomalies" as for their payout, which are not necessarily linked to the impact of financing constraints. It weakens the belief that a low dividend payout ratio is related to financing constraints of a company. The literature gives examples of other "ratios", used as indirect indicators of the financing constraint's impact – the cash and commercial papers to assets ratio[42], the level of financial leverage, or the interest coverage ratio[43], although they generate similar controversy.

In more recent work a firm is classified as financially constrained when "[…] costs or the degree of unavailability of external funding prevents it from investment, which would have been made if there were no such constraints […][44]". Unfortunately, this definition is not operational enough. Therefore K-Z use a mixed method to identify the degree of financing constraint. They utilize both the quantitative and qualitative data[45]. In this paper we also use both the quantitative and qualitative approach to the problem.

Based on the GUS F-02 forms we have conducted a quantitative analysis on the company level. We have considered three variables: the correlation between cash flow and

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[38] Which results also from past experience

[39] A more thorough analysis of the survey conducted by the National Bank of Poland in this area can be found in Ocena kondycji finansowej przedsiębiorstw w 2001 r. ze szczególnym uwzględnieniem zjawisk pieniężno-kredytowych (w świetle badań ankietowych i danych GUS)" ["Assessment of the financial standing of companies in 2001, with particular focus on monetary and credit phenomena (in the light of the GUS surveys and data)], National Bank of Poland, June, 2002. The article is available on the Bank's website as a pdf file at: www.nbp.pl/publikacje/index.html

[40] Traditionally, it has been assumed that the company's investment – cash flow sensitivity is proportional to the company's financing constraints. Thus, "constrained" companies are simply those, which have high sensitivity.

[41] This concept is the starting point for the article by Fazzari, Hubbard and Patersen ("Financing Constraints and Corporate Investment", Brooking Papers on Economic Activity, 1988), which by now has become a classic.

[42] Cf. Ch.Calomiris, Ch.Himmelberg,, P.Wachtel, Commercial Paper, Corporate Finance, and the Business Cycle: a Microeconomic Perspective, Carnegie-Rochester Conference Series on Public Policy 42/1995

[43] Cf. T.Whited, Debt, Liquidity Constraints, and Corporate Investment: Evidence from Panel Data, Journal of Finance, 47/1992

[44] Cf. S.N.Kaplan, L.Zingales, Do financing constraints explain why investment is correlated with cash flow, NBER Working Paper 5267

[45] Kaplan and Zingales used a five-grade classification of firms by the relative degree of constraints. It should be noted that for a firm to be included in the highest category – firms with no financing constraints (NFC), it had to fulfill not only quantitative, but also a qualitative criterion: the annual report of the company had to contain information on lack of financing constraints.

capital, between net cash flow[46] and capital, and between cash and capital. The companies were clustered based on the principle of closest proximity and divided into three groups: very good firms (with no internal financing constraints), good firms, with relatively small financing constraints and "bad" firms, which are significantly constrained. The clusters were classified into the above categories on the basis of the standards of variables, which were developed by Kaplan and Zingales in the work quoted above.

The results of clustering are presented in Fig. 18. The results demonstrate that the share of very good companies decreased slightly since 1998. The reduction was accompanied by only a slight increase in the share of good companies. In contrast, the share of bad companies was growing continuously, although it did not exceed the results obtained by K-Z. Based on the above approach it can be assumed, however, that very good, unconstrained companies in the Polish economy account for about one fifth of the sample. When the results are interpreted it should be borne in mind that the good companies group could be internally diversified. Some firms in the category may be on the "verge" of financing constraints, while others may be almost completely unconstrained.

Similar conclusions can be drawn from the results of the annual surveys conducted by the National Bank of Poland in the period 1995 – 2001. First of all, it should be noted that in 1995-99[47] 9.4% (in 1996) up to 13.4% (in 1999) of the firms surveyed declared that they had sufficient funds to be self-financed and therefore did not resort to bank credits. For 1999 this result is very similar to the one presented in Fig. 18.
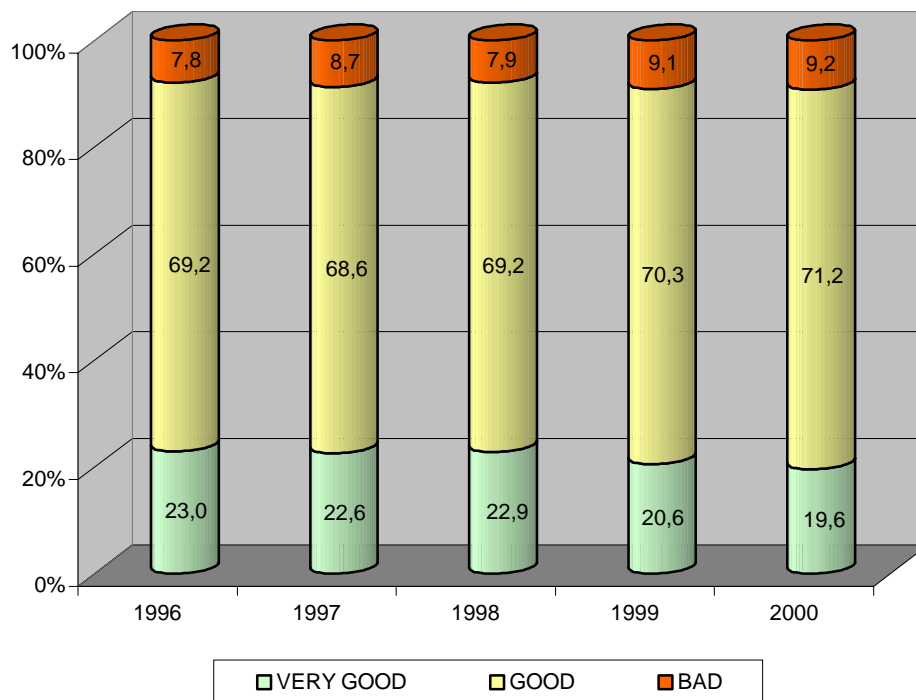

Fig. 18 Share of companies by the degree of financing constraints in the period 1996 – 2000

In the period 1995 – 1999, according to the same research 67.6% to 73.3% of the companies had a stable borrowing capacity (which may correspond to the group of good companies in Fig. 18). At the same time, 7.2% to 11.6% of the firms were denied loans by lending banks. This percentage may correspond to the share of "bad" companies.

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[46] i.e. minus investment. It is worth noting that the set of variables is more limited than the one used by Kaplan and Zingales. It results from the unavailability of certain data for Polish companies.
[47] No comparable data for the period 2000 - 2001

Does not expect decrease of rates — 2.1
Does not plan investment — 30.3
Does not postpone — 33.2
Other undertakings — 0.5
Non-investment credit — 9.7
Investment financed without credit — 3.2
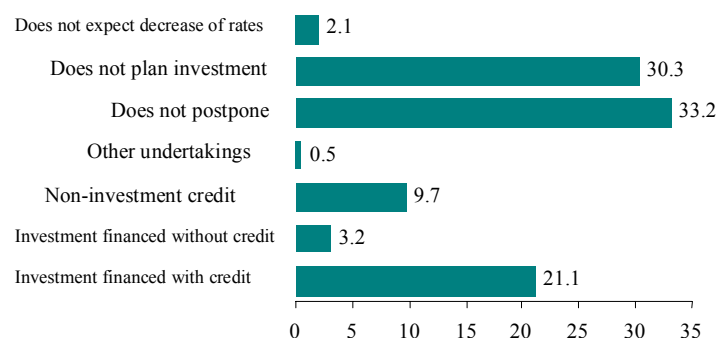Investment financed with credit — 21.1

Fig. 19 Types of activities postponed by companies waiting for a permanent decrease of the price of credit in zloty (horizontal axis: percent of the sample)

One of the indirect measures of financing constraints is, according to the K-Z definition quoted above, the analysis of the effect of "refraining" from certain activities by a company due to the current cost of money and other factors determining the availability of finance. Fig. 19 presents the results of the survey conducted in 2001. As shown below, this type of constraint is exhibited by no more than one third of the companies surveyed. Moreover, only about 21% of the cases would potentially concern credit-financed investment. It is worth bearing in mind that the reason why Polish companies, and in particular their investment exhibit relatively low sensitivity to monetary shocks could be a significant share of self-financing of business activity. Fig. 20 shows that although the role of credit in 2002 has been growing, neither the median nor the mean for long-term credit has exceeded the four-point (=moderate) level. The impact of short-term credit was slightly more marked; the level reached was 5 points, which may correspond to average importance.
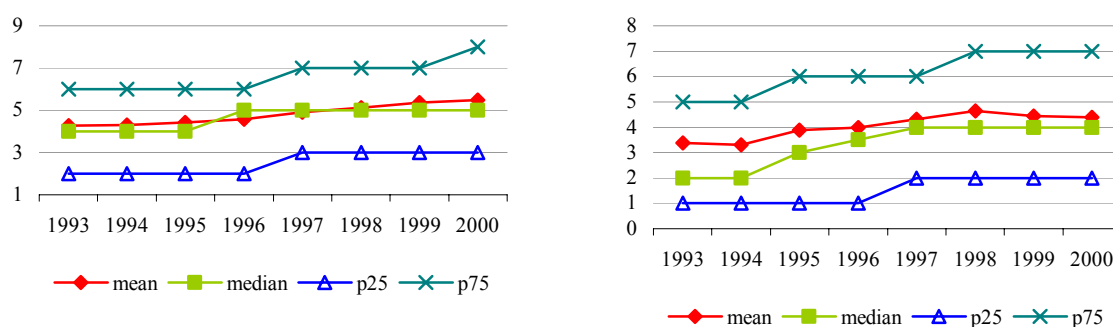

Fig. 20 The importance of short and long-tern loans (left and right, respectively) in financing company operations (1 – limited role, 10 – significant role). P25 and P75 – the first and third quartile of distribution.

Financing constraints often result from the bank practice of rationing credit, which is facilitated by their monopolistic position or/ and no past relationship with the customer. In such circumstances banks can easily decide not to lend to companies if the procedures to check the potential borrower's creditworthiness are costly, long or risky. In the light of the National Bank of Poland survey conducted in 2001, in which the sample covered large Polish enterprises, these factors do not seem to be of decisive importance in the group. The survey has shown that:

- More than half of the companies surveyed use the services of more than one bank (see Fig. 20)
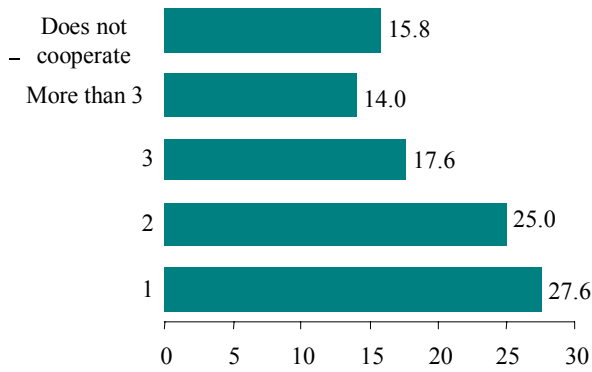
- The average time of relationship with lending banks in the sample was 8 years. 40% of the firms have cooperated with the banks for longer than 10 years (see Fig. 22).

In the light of empirical studies this period of relationship with a bank is seen as relatively long, which, as we know from practice, increases significantly the potential borrowing capacity of companies[48].
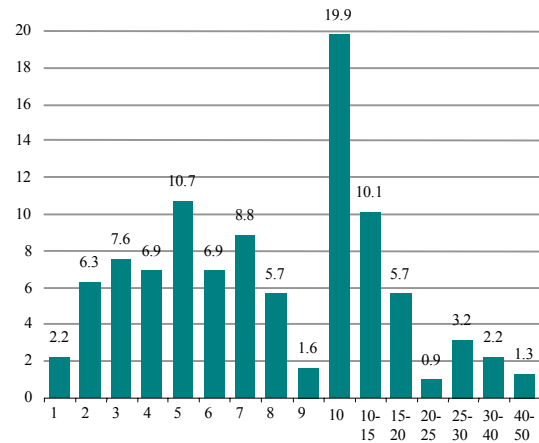
Fig. 21 The number of banks lending to enterprises (horizontal axis: the percentage of the sample)

Fig. 22 The period (in years) of lending relationship (horizontal axis: the relationship period, vertical axis: the percentage of the sample)

Naturally, the above results have to be interpreted with caution. Firstly, they concern a quite peculiar group of large enterprises. Due to the ongoing economic transition, where firms are being created and transformed at a very quick rate, a large proportion of companies do not have a "track record" or a "history", which would be long enough. This is particularly true for smaller firms. Secondly, even if there are more lending banks on the market, it does not mean that the banks do not behave monopolistically in their relationship with the customer. Although the problem requires a more detailed analysis it should be noted that, according to the answers given in the survey, actual competition between banks seems rather limited (see Fig. 23 and Fig. 24.) As for the interests, for example, in the opinion of the surveyed, there were hardly any differences between various banks. Their flexibility in negotiating interests with borrowers was limited as well. Interestingly enough, the same survey indicates clearly that interest is the decisive factor for companies in selecting their lending bank.

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[48] Cf. M.Petrsen, R.Rajan, The Benefits of Firm-Creditor Relationships: Evidence from small business data, University of Chicago, June 1992
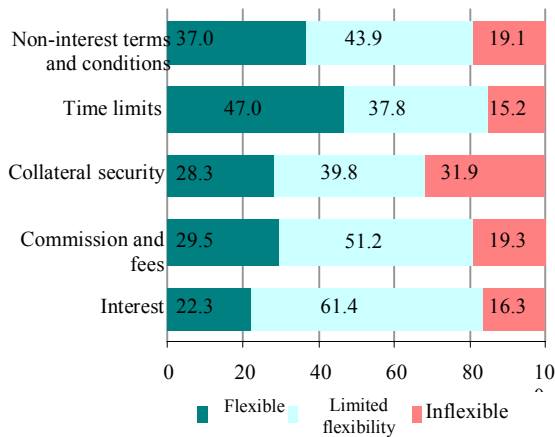
Fig. 23 Flexibility of commercial banks in negotiations with customers. Evaluation of various aspects of loan agreements (horizontal axis: percentage of the sample)
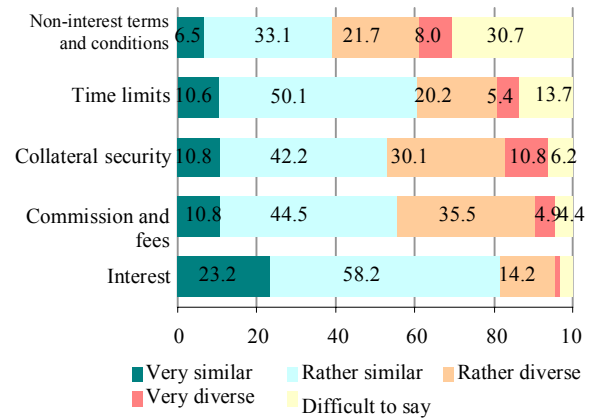
Fig. 24 How diverse are the credits in zloty offered by various banks (horizontal axis: percentage of the sample)

V.   FINAL REMARKS

Since the level of financial leverage in Polish companies is significantly lower than in highly industrialized countries it can be assumed that the impact of the interest rate channel is weaker than in developed economies. However, throughout the past decade the role of these mechanisms could have increased; for example due to the growing role of credit in corporate financing.

In Poland a greater role can be played by the phenomena of credit rationing rather than by the classical interest rate channel. However, for large companies, credit rationing does not seem to result from asymmetric information or limited competitive power of banks. From the perspective of transaction costs and risk it may be cheaper and safer for banks to finance the budget rather than other businesses.

It should be stressed that irrespective of how we evaluate the impact of the domestic macroeconomic policy, including monetary policy, on the situation of companies, the operation of this mechanism in Poland is significantly limited by an important factor, namely external financing, in particular by funds linked with direct foreign investment. Research shows that the effects of this type of financing are particularly strong in the case of developing countries, in which foreign investment flows not only to international companies[49], but also to domestic firms.

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[49] Which are regarded as unconstrained – cf. A.Harrison, I.Love, M.McMillian, Foreign Investment and Financial Constraints, September 2001
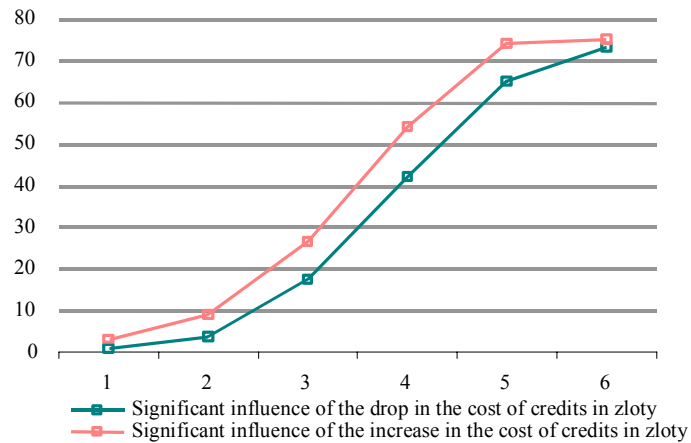
Fig. 25 The effects of changes in the costs of credits denominated in zlotys. Vertical axis – the percentage share of companies, which describe the effect of the change as considerable; horizontal axis – scale of credit cost changes in points

The last issue to be discussed in the paper is the limited impact of the decrease in the central bank interest rates on the financial situation of companies. This can result from a combination of two factors. The first one has been well known for a long time[50]: it is the asymmetric reaction of commercial banks to the changes in the central bank interest rates. Commercial banks are slow in adjusting their interest following the reduction by the central bank. In Poland, due to, among others, difficult economic conditions such reactions of the banks are particularly likely, since it can be expected that the financial situation of companies will deteriorate. This in turn will limit their borrowing capacity and increase the risk of insolvency, which explains why the banks are so reluctant to reduce the interest rates. The other factor is the asymmetry on the part of the companies. The company surveys conducted by the National Bank of Poland (see Fig. 25) indicate that the satisfaction with a certain reduction of interest rates is lower than the dissatisfaction with their analogous increase.

Busko Zdrój, September 2002

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[50] Cf. M.Dueker,D.Thornton, Asymmetry in the Prime Rate and Firms' Preference for Internal Finance, Federal Reserve Bank of St. Louis, Working Paper 1994-017A