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31 July 2006

Online at <https://mpa.ub.uni-muenchen.de/692/>

MPRA Paper No. 692, posted 07 Nov 2006 UTC

The Distribution and Dispersion of Debt Burden Ratios Among Households in Poland and its Implications for Financial Stability

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16 August 2006

Abstract

Debt burden ratio as measured on the aggregate level does not give an adequate assessment of the ability of the household sector to repay its debt. The low level of financial deepening in Poland is primarily reflected in a low percentage of households that have been granted a loan. Therefore, the average debt burden for households, which have any debt outstanding could be much higher than the one measured on the aggregate level. If the debt is concentrated among groups of households with lower incomes, it can threaten the financial stability in case of FX or interest rate shocks.

Using the data from Polish Households Budget Survey we first define three different measures of debt burden and calculate its dispersion in time and distribution among income groups. We find that (1) the total debt service burden and loan service burden ratios are on lower levels than in other European countries and recently have not risen substantially, (2) the mortgage debt service burden ratio has been rapidly increasing in the last four years especially in lower income groups of households reaching in 2004 the 3/4 of the level noted in EU-15.

In comparison with EU it seems that the level of indebtedness of households in Poland is on a secure level. However, we notice that the secure level of debt burden ratio is on a lower level in emerging market countries than in wealthier countries because of the higher share of basic living costs in total consumption expenditure. Therefore, the increasing levels of mortgage debt service ratios in lower-income groups could pose a potential threat to the financial stability in case of FX or interest rate shock.

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1 Introduction

Recent acceleration of credit growth in Poland has raised the question whether the loan growth rate in Poland was excessive or not. The main source of growth in the lending of banks in Poland are loans to households. Most of recent international surveys of this phenomenon conclude with excluding Poland from the group of countries with excessive credit growth (Boissay, Calvo-Gonzalez and Koźluk, 2005; Kiss, Nagy and Vonnak, 2006). However, the results on most of these surveys are based on the analysis of the growth of total credit. In this context, it is worth comparing the situation in Poland to that of some other EU countries. During periods of rapid growth in lending in Portugal, Ireland and Greece, the loan-to-GDP ratio doubled in around eight years.¹ This had no adverse effects such as any significant macroeconomic imbalance or a sizeable increase in inflation. In order for the loan-to-GDP ratio in Poland to double within eight years (i.e. from 26.5% in December 2005 to 53% in December 2013), the overall loan portfolio would have to grow by 16.8% each year in nominal terms (assuming GDP growth in line with the projection – at 4.5%, and inflation in line with the MPC target – at 2.5%). In 2005, the overall loan amount grew by 13.1%. Although this growth rate is higher than the average lending growth in 2003–2005 (7.7%), it remains lower than the growth dynamics observed in the aforementioned countries. Assessment of the impact of such lending growth rate on financial system stability depends on both macroeconomic and institutional conditions in which the growth takes place and distribution of the debt among different income groups of households.

2 Debt burden on the aggregate level

The analysis of aggregate data yields a very optimistic picture of household loan burden (see Figure 1). Currently, total household debt does not exceed 2.5 times monthly gross disposable income of households. However, existing data indicate that this debt is very concentrated – only an estimated 30% of households have debts currently,² while only 3% of households have housing loans outstanding. The share of housing loans in the overall loans to households portfolio in June 2006 came to 40.6%.

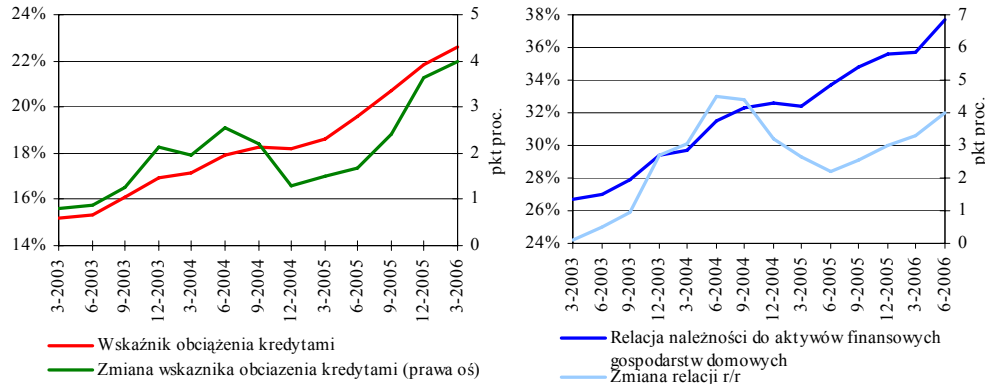
Due to the improvement of the sentiment of households and banks, loans grew more rapidly than household disposable income. As a result, the household loan burden increased; its growth rate rose in the second half of 2005. In spite of this, the burden ratio remains low compared to other EU countries, which is the result of the relatively low level of indebtedness in Poland.

Whilst coming to such conclusion, differences in the circumstances in which the lending growth took place in the economies under review should be borne in mind. Institutional conditions underlying the growth in lending have an im-

¹In those countries, the rapid growth in loans was also, to some degree, linked to financial market deregulation (Brzoza-Brzezina, 2005).

²Debt includes liabilities to banks and other entities.

Figure 1: Borrowing burden in household sector



Note: Borrowing burden ratio (left panel) = loans to households (residents)/annual gross disposable income.

Source: GUS, NBP.

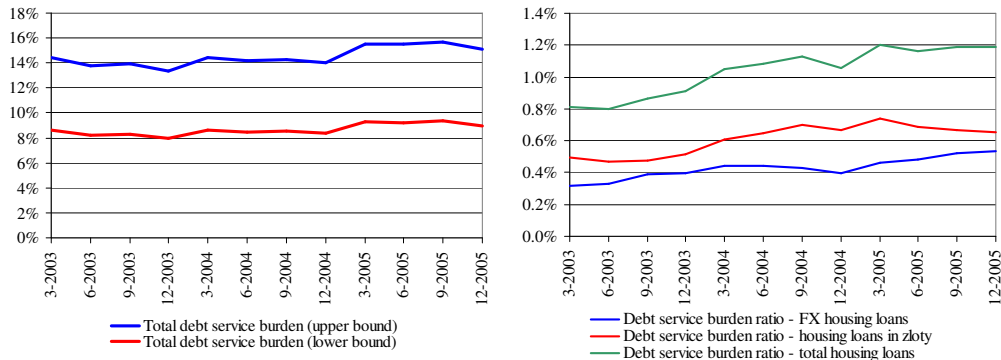
pact on the emergence of additional sources of risk or on risk reduction. In Portugal, Ireland, and Greece, high growth of lending took place in the circumstances of, among other things, progressing liberalization of services markets (Brzoza-Brzezina, 2005). Experience to date shows that a rapid increase in loans occurring simultaneously with financial market liberalization processes may constitute a significant factor in the emergence of financial crises. It results from the fact that financial institutions offer new financial products whose risk structure has not been fully diagnosed. Deregulation processes in Poland, however, were completed several years ago, thus they do not constitute a risk factor. On the other hand, additional risk sources may be indicated. They result from smaller than in EU15 countries experience of some borrowers in drawing financial commitments. So it means that a risk arises of some households making excessively optimistic assessment of their loan repayment capacity, which may lead to immoderate growth in demand for loans.

On the basis of the presented comparative analysis of loan growth rate in Poland a conclusion may be drawn that the observed lending growth rate does not pose an imminent threat to banking system stability. Nevertheless, this process needs to be closely monitored.

The relatively rapid growth of housing loans was not accompanied by significant changes in debt service ratios. In 2005, the overall housing loan service burden grew by only 0.13 percentage points (i.e. 13.3%) to 1.19%. The zloty housing loan service burden decreased, so the upward movement in the ratio was the result of the relatively rapid rise in the foreign currency housing loan service burden, which went up by 0.14 percentage points, i.e. 35.4%, to 0.53%.

The levels of household debt service burden and interest burden ratios in

Figure 2: Overall debt service burden (left panel) and housing loan service burden (right panel) in the household sector



Note: The debt service burden is the ratio of total principal and interest installments paid by households to disposable income. Due to lack of data on maturity of consumer loans, the average maturity of one year (upper limit) or two years (lower limit) has been assumed.

Source: NBP calculations.

Poland are low compared to the euro area, which may suggest a relatively large reserve in the households' ability to repay their liabilities. It should be remembered, though, that those ratios have been calculated for aggregate data and include all households, and not only those that have bank debts. In view of the low utilization of bank loans,³ the actual loan service burden of borrower households is higher.

The difference between the burden calculated based on aggregate data and individual data may be considerable. For example, the household mortgage debt service ratios in the euro area estimated by the ECB using macroeconomic data (national accounts data including all households) are equal to only one quarter of the ratios yielded by microeconomic data (European Community Household Panel data) (Monthly Bulletin, 2005). Due to the fact that around 20% of euro area households have contracted mortgage loans, while in Poland the proportion is much lower, it should be expected that the difference between burden measures calculated in those manners will be even larger here. In the next chapter we present a preliminary analysis of household liability servicing burden using individual data.

Currently, the household debt service burden may increase significantly, since at the beginning, housing loans were extended to households with higher average incomes. With time, lending maturities were extended and other loan terms

³According to a survey by Pracownia Badań Społecznych (PBS), a market research company, around 10% of households had bank debts in 2004: 3% of respondents reported mortgage loan outstandings and 7% - consumer loans (Raport z badania..., 2005).

and conditions were eased. Currently, it is possible that loans are granted to households that have smaller safety income buffers against a rise in loan interest rates or a depreciation of the zloty against the euro and the Swiss franc.

3 Debt burden analysis on the micro-level

3.1 Methodology of households budget surveys

The household budgets survey conducted yearly by the Central Statistical Office (Główny Urząd Statystyczny – GUS) mainly focuses on household income and expenditure. The results of the survey are based on a questionnaire filled in by household members participating in the survey.

Household income and expenditure grouping is made in accordance with the system of national accounts. One of expenditure groups that has been surveyed is expenditure relative to loan repayment embracing the repayment of both interest and principal. GUS conducts household budget survey using the total monthly rotation method which means that every month a different household group participates in the survey. Households to be surveyed are selected according to a two-stage stratification method of drawing a sample. The strata reflect territorial division of the country into voivodships and, within the voivodships, the division according to the size of the place of residence.

In the first stage of drawing the sample, area survey points (asp) are selected which embrace statistical regions according to the recent Census of Population and Households (regions with too few housing units are combined with neighboring regions). The asp selected in this way (first stage sampling frame) are stratified according to voivodships and strata are then identified in each voivodship according to the size of the place of residence. Next, a number of asp is drawn in each strata separately to obtain the number of asp derived from one stratum proportional to the number of housing units therein. As a result, the probability of selecting any of the housing units is approximately the same.

In the second drawing stage housing units are drawn separately for each asp drawn in the first stage drawing and the sequential method is used. In the housing units selected in this way all households occupying the unit are surveyed (two or more households may occupy the same housing unit if they do not combine their income and have separate budgets).

If a household has not responded to the survey, a different household is selected in its place from the reserve list drawn earlier.

A factor negatively influencing the quality of household budget survey results is the high percentage of households that have been drawn for the survey but have not responded to it. This percentage shows a rising trend. In 1997, it stood at 34.3% (Metodyka..., 1999), in 2000, it rose to 49.2% (Budżety..., 2001), and in 2004 - to 53.9%. A particularly high rate of refusals is observed in pensioners' households and households of working people. As the distribution of households that do not participate in the survey may be different to that of households replacing them a weight is determined for each household and

is used to calculate average values of income, revenue, expenditure and other features of households. Since 2004, the weights are determined on the basis of the relationship between the structure of households according to the number of persons and place of residence pursuant to the recent Census of Population and Households (Budżety..., 2004)⁴.

When calculating the average income, expenses and other parameters, households weights are accounted for which they take into consideration the incomplete representativeness of the sample. Owing to the above the values of distribution parameters estimated according to statistical methods are more closely related to the real parameters.

The survey method is described in detail in a GUS publication (Metodyka..., 1999) including minor changes related to the way of determining weights, identifying strata and period for which samples are drawn. The same methodology has been used until now.

3.2 Methodology of estimating debt burden indicators on the basis of households budget surveys data

For the purpose of the analysis of the distribution of household debt service burden, two ratios have been defined: the debt service ratio and the bank loan service ratio. The debt service ratio is the proportion of payments arising from all four debt servicing categories in total household available income. On the other hand, the bank loan service ratio is defined as the proportion of payments arising from building society loans and other bank loans in total household available income. The ratios were only calculated for those households that indicated a non-zero amount related to debt payments in any category during a given month (each household reported its expenditure for one month of the year when the survey was conducted). The subsample of households which inhabit flats or houses with mortgages have also been distinguished within the sample of households taken into account for calculation of the loan service ratio. For this subgroup, the dispersion and distribution of the loan service ratio have been calculated separately, which should provide some data on the mortgage burden on households.⁵

Weights correcting the incomplete representativeness of the sample that are described in the previous chapter have been used for the calculation of average values and order statistics. For example, a corresponding formula to calculate the average loan service ratio is as follows:

⁴Until 2003, weights were calculated on the basis of the number of persons and socio-economic group of households derived from so called initial interview conducted with each of the selected households prior to commencing the expenditure survey.

⁵The manner in which this household subgroup has been distinguished does not guarantee that the loan burden is the result of a mortgage loan only, since the household may be repaying e.g. a consumer loan that is not secured by mortgage at the same time. From the point of view of banking sector stability, however, it is important to determine the actual household burden and not only the burden arising from the repayment of mortgage loans.

$$DBR_i(SE, Y) = \frac{\sum_{i=1}^N SE(i) \frac{w(i)}{Y(i)}}{\sum_{i=1}^N w(i)} \quad (1)$$

where:

DBR - average loan servicing burden of households

N - number of households

$w(i)$ - weight of i -th household, correcting the incomplete representativeness of the sample

$SE(i)$ - expenses of i -th household on debt service in the survey period

$Y(k)$ - disposable income of i -household in the survey period

Average values and order statistics have been determined in a similar way for the bank loan service burden ratio, defined as the relation of household expenses on bank loan repayment to disposable income of households in the survey period.

An analysis was also made of the distribution of values of the above mentioned ratios broken by households affluence level measured by the level of income equivalent for one household member according to OECD equivalence scale - i.e. the first adult household member is assigned a value of 1, each additional person aged 14 years and more is assigned 0.7 and the value of 0.5 is assigned to each child below the age of 14 years. To assess the dispersion of the above mentioned ratios median values of debt burden ratios were analyzed in quartile groups identified on the basis of the size of equivalent income per household member.

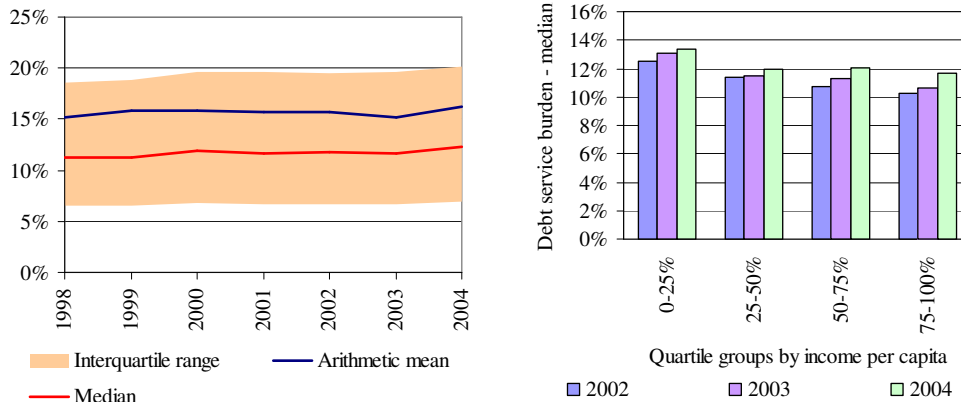
3.3 Distribution and dispersion of debt service burden

The debt and debt service burden ratios calculated using aggregate data for the entire household sector do not yield the complete picture of the risk to financial system stability. Data concerning the burden of households in individual income brackets are also important, since a greater burden on those household groups whose financial condition is less favourable may translate to a higher probability of default if lending rates rise or the zloty depreciates.

Results of GUS yearly surveys entitled "Household Budget Surveys" (pol. *Budżety gospodarstw domowych*) give some insight into debt burden distribution. Apart from a significant amount of data on consumption expenditure, households participating in the survey also declare the amounts of debt servicing payments, broken down into four categories: building society loans, other bank loans, loans from other financial institutions, and loans from private persons. Survey data indicate that the proportion of households that indicated any debt servicing costs during the survey month amounted to 30.4% in 2004 and was by one percentage point lower than in 1998. On the other hand, the proportion of households indicating bank loan payments increased (from 18.8% in 1998 to 22.1% in 2004) during this period.

The analysis of debt service burden ratio dispersion shows that a higher number of households exhibited relatively high debt service burden ratios. This is evidenced by the fact that the mean exceeds the median, which represents

Figure 3: Household debt service burden – dispersion (left panel) and distribution in terms of equivalent income per person (right panel)



Source: NBP calculations based on GUS data.

the typical burden ratio level (see Figure 3, left panel). During the seven-year period covered by the survey, household debt burden did not increase considerably – the mean and the median rose by just one percentage point. The absence of significant increases in the debt service burden ratio despite the rapidly rising household debt during the period under examination was the result of an improvement in the households’ financial standing as well as a drop in interest rates, which reduced interest payments.

From the viewpoint of financial system stability, the distribution of debt service burden among households depending on per capita income is highly significant. Household budget surveys indicate that households in the lowest income bracket (the first quartile group in terms of equivalent income per household member according to the OECD equivalence scale) exhibit the highest debt service burden. The household burden ratio did not vary significantly among the remaining income groups in 2004 (see Figure 3, right panel).

The largest part of household debt payments is related to bank loans, therefore the loan service burden is only slightly lower than the debt service burden. The loan service burden ratio remained stable between 1998 and 2003, but grew in 2004 (see Figure 4, left panel). These changes may be explained by the higher rate of growth in loans to households in 2004, in comparison to the preceding years. It appears that in 2004, the impact of this factor prevailed other factors, which reduced the rate of growth of ratio in previous years, i.e. the decrease in interest rates and the increase in household income. Despite the fact that no 2005 data are available yet, it may be confidently expected that in 2005 the loan service burden increased, since the banks’ lending accelerated during this period. It should, however, be taken into account that household debt grew largely due to housing loans. Since such loans are usually extended for longer periods and at lower interest rates than consumer loans, their impact on the

increase in loan service burden is smaller than in the case of other loans (lower average principal installments and average interest payments).

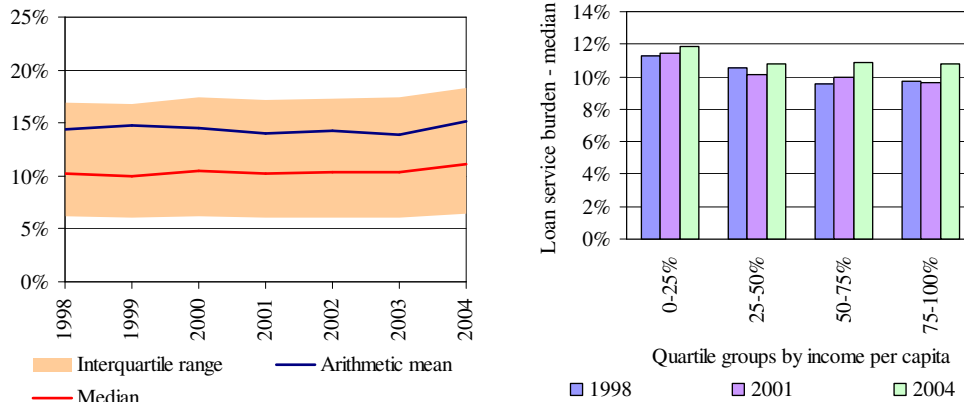
The distribution of the loan service burden as a proportion of household income is similar to that of the debt burden ratio (see Figure 4, right panel). Lowest-income households (in the first quartile group) exhibit the highest burden ratios, but differences compared to other income brackets are not very significant. There is also a weak trend towards an increase in the loan service burden in higher-income groups (third and fourth quartile groups). Higher loan service ratios for households in lower income brackets are typical of EU-15 countries. In Poland, a significant increase in burden may be particularly important for financial system stability, since potential defaults on credit liabilities may occur for lower burden ratios due to the fact that the proportion of basic living costs in total consumption expenditure is higher for Polish households than for EU-15 ones. According to the latest Eurostat data from household budget survey (Household Budget Survey, 1999) the proportion of basic living costs in total consumption expenditure for UE-15 MS totaled 44.7% while in Poland it stood at 55.9%⁶ By basic living costs we mean expenditure on the basics of consumption goods and services, i.e. food and non-alcoholic beverages, use-of-house related costs, water, electricity, gas, other fuels and health (some of the expenditure of other expense groups, such as transport, personal hygiene or education are also of fixed character). In practice such expenses cannot be significantly reduced when a household's income falls. The average share of the above mentioned basic living costs in disposable income of the group of Polish households that are repaying bank loans amounted to 45.3% in 2004. If expenses on loan repayment, which is also of fixed character are added, the proportion of basic living costs in income increases to 60.1%.

The average proportion of basic living costs in the total consumption expenditure of Polish households, which is 11 percentage points higher than in the EU, results in a significantly lower than in EU-15 safe-level threshold of debt burden on their household budgets related to loan debt service burden.

The higher debt service ratio in the lowest quartile group in proportion to income per person in the household is particularly dangerous, especially as it is accompanied by a very high proportion of basic living costs to the disposable income. In the first quartile group this proportion is 69.6%, and when fixed expenditure on loan servicing is added it totals 88.9% (see Figure 6). A fall in income by more than 11.1% will therefore lead to the fact that the households' income will not be sufficient to cover the most basic fixed consumption expenditure or repay bank loans. Therefore, households from the lowest quartile group have a very low level of "safety income buffer" (also called "margin"), i.e. the percentage of disposable income that is left after deducting of debt payments and basic living costs. Owing to the low value, the buffer may easily be disturbed if unfavorable developments in the external environment arise, e.g. a fall in household's income resulting from the rise in unemployment or an in-

⁶According to data from 2004, in Poland the proportion went down only slightly (to 55.7%) despite a significant GDP growth per capita

Figure 4: Household loan service burden – dispersion (left panel) and distribution in terms of equivalent income per person (right panel)



Source: NBP calculations based on GUS data.

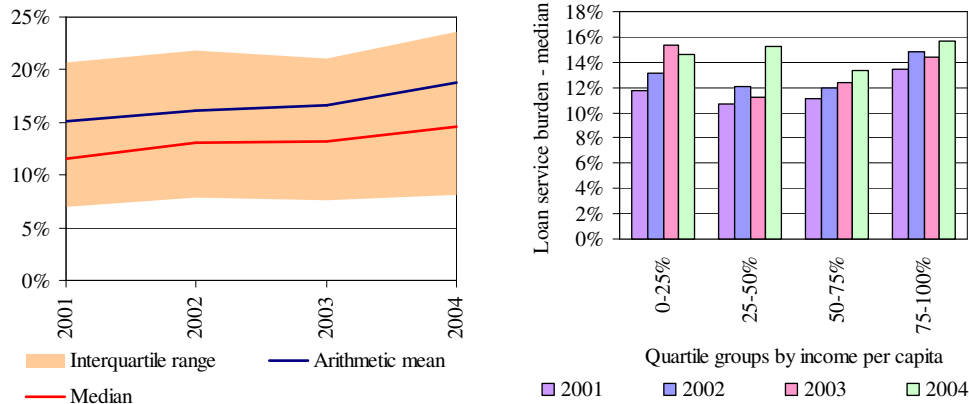
crease in debt service burden resulting from interest rate growth and/or zloty depreciation which affects loans denominated in foreign currencies.

For households inhabiting flats or houses with mortgages, the loan burden ratio has grown more rapidly. The Central Statistical Office survey only makes it possible to examine this household subsample separately from 2001 onwards. Despite the fact that the analysis covered a shorter period, the household loan burden in this subsample has risen significantly – the mean ratio has increased by 3.7 percentage points, and the median has grown by 3 percentage points. Mean and median increases were chiefly the result of the rising number of households with relatively higher burden ratios, which is evidenced by an increase in the upper quartile by 2.9 percentage points and the widening of the interquartile range.

The distribution of loan service burden as a proportion of household income in this subsample is more dispersed than for debt and loan burden ratios both over time⁷ and between quartiles. The loan service burden for households that are repaying housing loans has increased significantly in all income quartile groups, but between 2001 and 2004 this ratio grew the most in the first two quartile groups. This appears to be a sign that the banking sector has matured and has extended services to new customer segments. Initially, housing loans were extended primarily to households with higher average incomes. As interest rates decreased and the banks' lending policies were eased, mainly as a result of extended loan terms and a reduction in loan margins, loans have also become available to households with lower average incomes. Therefore further movements of the loan burden ratio for quartile groups with lower income per capita should be observed, especially that the easing of credit standards as well

⁷The higher variance is partly attributable to smaller subsample size.

Figure 5: Household loan service burden for households living in flats or houses with mortgages – dispersion (left panel) and distribution in terms of equivalent income per person (right panel)



Source: NBP calculations based on GUS data.

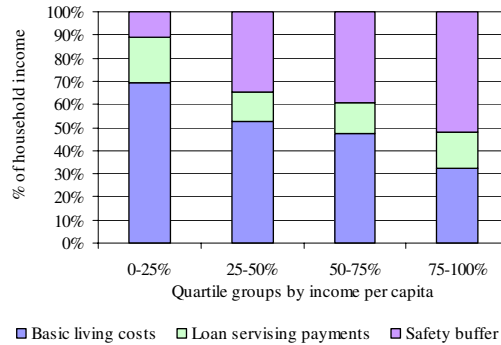
as loan terms and conditions in the housing loan segment was primarily caused by increased competition among banks (Senior Loan Officer Opinion Survey, 2006).

The loan service ratio for households inhabiting flats or houses with mortgages may be compared to the mortgage debt servicing-to-income ratio calculated by the ECB on the basis of the European Community Household Panel survey conducted in EU-15 countries (Monthly Bulletin, 2005). For EU-15 countries, where the median for the years 1996–2001 was around 20%, this ratio is higher than in Poland where the median grew from 11.6% in 2001 to 14.5% in 2004⁸, despite the fact that the ratio calculated by the ECB only takes into account the burden arising from housing loan repayments. Therefore, compared to EU-15 countries, the potential exists in Poland for the further growth of housing loan burden. In Poland as in EU-15 countries (Monthly Bulletin, 2005), the distribution of the mortgage debt servicing ratio among individual income groups indicates that in lower income brackets, the housing loan servicing burden is higher than the average.

As we mentioned before, the proportion of fixed consumption expenditure in Polish household budgets is higher than in more affluent EU-15 countries. This proportion is particularly high among poorest households (the first quartile group in terms of income per household member). Therefore it seems, that in Poland the level of housing loan burden that is safe for banks is lower than in other EU-15 countries, particularly with regard to households with lower av-

⁸The service ratios for Poland is estimated on the basis of available income, which is about 4% higher than disposable income used in EU statistics. Because of that the difference between Polish and EU15 debt service ratios counted using the same methodology would be somewhat smaller, but only by about 0.5%, so this do not change our conclusions.

Figure 6: Safety income buffer for loan repayments among different income groups



Source: NBP calculations based on GUS data.

verage incomes.

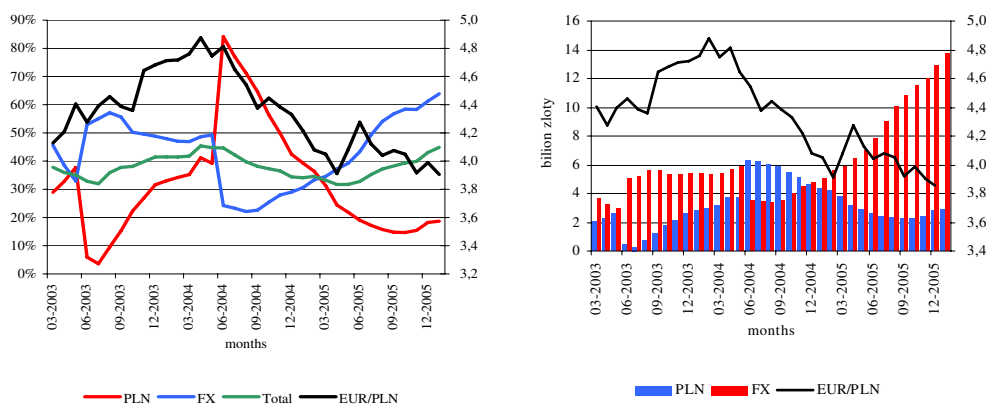
4 Current threats for financial system stability stemming from housing loan market developments

The levels of loan burden both on the aggregate and microeconomic level are lower in Poland than in EU-15 countries and we believe they are safe. It should be noted, however, that there are certain tendencies that in the near future may be a source of risk to the financial system stability. At present, the fastest growing debt service ratio is the housing loan service burden. In 2003, housing loans increased at an average annual rate of 42.3%, and in 2004 r. - 37.8%. In 2005 average annual rate was slightly lower and amounted to 27.0% but in 2006 the growth in housing loans accelerated to reach 43.9% at the end of May. The majority of new loans – 70% - 90% – are loans denominated in foreign currencies, usually in Swiss francs. The share of loans denominated in foreign currencies in housing loan portfolio of households grew from 58.5% in December 2002 to 66.3%. In Poland housing loans are usually extended at a floating interest rate.⁹

Foreign exchange and interest rate risk resulting from exposures is transferred onto the households. It does not mean, however, that banks do not incur some risk - the risk is transferred onto the banking sector indirectly through the credit risk of the bank's clients. The zloty exchange rate movements, the

⁹Fixed interest rate is generally used for a short promotional period - up to two years from the date of loan contract.

Figure 7: Growth in household zloty and foreign currency housing loans for households vs. FX rate – growth rate (left panel) and increase in PLN billion (right panel)



Source: NBP data.

fluctuations of the foreign and Polish interest rate may therefore significantly influence households' capacity to meet liabilities in due time. The scale of threats is shown in table 1 which presents by what percent the principal and interest installment of a loan denominated in foreign currency will grow following the interest rate shock combined with exchange rate shock.¹⁰

Table 1. Simulation of the rise in principal and interest installment of a loan following interest rate shock at different foreign exchange rate

+150 bp							
Zloty depreciation	Time to maturity						Exchange rate (CHF/PLN)
	5	10	15	20	25	30	
0%	3,8%	7,3%	10,8%	14,1%	17,2%	20,2%	2,58
10%	12,2%	16,1%	19,8%	23,4%	26,8%	30,0%	2,84
20%	20,7%	24,9%	28,9%	32,7%	36,3%	39,8%	3,10
30%	29,2%	33,6%	37,9%	42,0%	45,9%	49,6%	3,35
34%	33,4%	38,0%	42,4%	46,7%	50,7%	54,5%	3,46

+200 bp							
Zloty depreciation	Time to maturity						Exchange rate (CHF/PLN)
	5	10	15	20	25	30	
0%	5,0%	9,8%	14,5%	19,0%	23,3%	27,3%	2,58
10%	13,6%	18,8%	23,9%	28,7%	33,3%	37,7%	2,84
20%	22,2%	27,8%	33,2%	38,4%	43,4%	48,1%	3,10
30%	30,7%	36,7%	42,6%	48,1%	53,5%	58,5%	3,35
34%	35,0%	41,2%	47,2%	53,0%	58,5%	63,7%	3,46

Note:: The rise by 150 percentage points has been assumed (upper panel) or by 200 percentage points (bottom panel) and equal principal and interest installments
Source: Own calculations.

¹⁰Depreciation scale may seem too big but there have been periods in Poland when the zloty depreciation was even bigger. For example, between April 2002 and April 2004 the zloty exchange rate vis-a-vis the euro increased by 34%.

The developments in the housing loan market may therefore influence the stability of the financial system through a few mechanisms. First, accelerated credit growth may carry the risk of future deterioration in loan portfolio quality which will adversely affect banks' results. In the literature on the subject a few reasons for such a relationship are traditionally indicated (Clair, 1992): (1) a bank pursuing to enhance credit action may ease credit criteria and standards; (2) even if criteria remain unchanged, new clients have on the average a worse credit capacity as a result of entering new, more uncertain markets; (3) the bank may allocate insufficient resources to monitor loan repayment that would be adequate to the enhanced lending, which entails lowered loan quality; (4) if the bank's capital is depreciated significantly, shareholders pursuing revenue growth may be more willing to take higher risks as they have little to lose (moral hazard).

The results of the recent survey show that in fact, banks used to ease criteria and terms and conditions of loan extension even in periods of increased demand (Senior Loan Officer Opinion Survey, 2006).

In addition to the traditional threats to the stability connected with a faster credit growth there are other, Poland-specific threats at the moment. The simulation of the rise in principal and interest installment presented above shows that interest rate risk for long maturities is of vital importance and combined with foreign exchange risk leads to the fact that housing loan installments may increase significantly in a relatively short time.

In Poland the fact that banks have been extending housing loans for a relatively short time also seems important. We believe that despite the import of know-how the absence of knowledge about this product, in particular its life cycle in Poland, may have a considerable importance for banks when evaluating the risk of this product.

The property prices that have been increasing fast in big towns of Poland recently should make us aware of the possible speculation bubble. The risk may be imminent as Poland does not have good data bases which would enable to monitor the evolution of property prices.

None of the above mentioned risks is important enough to pose a threat to the financial system stability in the near future (Financial Stability Report, 2005) and the fast growth in housing loans results, to a large extent, from the improvement in households' situation (Senior Loan Officer Opinion Survey, 2006) and a better access to loans in Poland (Pruski and Żochowski, 2006). Nevertheless, we believe that the debt service ratio level, at which one of the risks may prove crucial for the financial system stability, is lower than in EU-15 as the proportion of fixed expenditure in the budgets of Polish households is higher. The safety income buffer where the debt may freely rise as a result of different shocks without a risk to stopping debt repayment is therefore lower in UE -15 countries. With a higher proportion of loans denominated in foreign currencies extended at floating interest rates and with larger movements of the exchange rate, it means that the risk to the financial stability system may be more important than in EU-15 countries despite a definitely smaller volume of

housing loans in relation to GDP in Poland. It is also important because in recent years housing loan-repayment burden has been growing fastest in the first two equivalent income per capita household groups.

To avoid the possibly negative implications of foreign exchange risk exposure of mortgage loans of lower-average-income households, in March 2006, the Commission for Banking Supervision (CBS) adopted *Recommendation S* concerning good practice with regard to mortgage-secured credit exposures and obligated banks to comply with the recommendation beginning 1 July 2006. One of CBS recommendations is that banks, when granting loans denominated in foreign currencies, should analyse the client's credit worthiness making an assumption that the interest rate for a loan denominated in foreign currencies is equal to at least the interest rate for a loan denominated in zloty and the principal of the loan is bigger by 20%. This is in fact a security measure for a depreciation of the zloty by 20% and a rise in interest rate of Swiss francs by 250 percentage points.¹¹ The bottom panel of table 1 shows by how much the credit worthiness of a household should be higher to enable it to draw a loan denominated in foreign currencies in the same amount as a zloty loan. *Recommendation S* will most certainly limit access to loans for lower-income households. In the future, the housing loan repayment burden in lower-income quartile groups should not grow so fast, which will reduce the risk to the financial system stability.

¹¹This is approximately the difference in interest on zloty and Swiss franc loan.

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