Financial Wealth Distribution in Revised Financial Accounts

Václav Rybáček[1] | *Czech Statistical Office, Prague, Czech Republic*

Abstract

Financial statistics undergo dynamic evolution as apparent consequence of their rising importance. Structure of assets, source of financing, price changes or net financial position, all these indicators can detect oncoming financial instability. Financial statistics as a logical extension of the national accounts provide such information. The aim of the following text is to present financial statistics, relation between particular accounts, the impact of extraordinary revision carried out in 2011, and also to analyse current wealth distribution as described by financial statistics.

Keywords

Financial statistics, revision, financial wealth, financing of activities

JEL code

C10, C82, E01

INTRODUCTION

Current economic crisis brought very important messages to both economic policy and statistics. First, to make picture of an economy more complete it is necessary to take into account wider range of indicators, not only GDP. Second, to assess financial stability or systemic risk appropriately, additional data should be collected and compiled, mainly information on sector breakdown of financial assets and liabilities (Cerutti, Claessens, McGuire, 2012). As a result, one of the main challenges for statisticians in the future is to improve quality and to extend financial statistics, due to their rising importance for management at the macroeconomic level.

Financial accounts (or statistics) are an inherent part and logical extension of non-financial accounts in national accounts. In other words, financial accounts represent "financial sphere" of this statistical system. Use of financial data can be very helpful for decision making, because it provides a *"snapshot of the economy...to make good forecasts of the effects of alternative policies in the short run*" (Arrow, 1957). Main contributions of this data sets lie especially in growth sustainability or financial stability assessment and as a base for economic policy decisions. But first it is important to understand the nature of these data sets; modest ambition of following text is to increase the awareness of strengths and weakness of financial statistics. Attention is paid only to stocks; the reason is that all methodological changes are first incorporated in the quantification of stocks with consequent impact on the flows (on quantification of transaction see: Plasil, Kalous, 2008).

[1] Czech Statistical Office, Na padesátém 81, 100 82 Prague, Czech Republic, e-mail: rybacek@czso.cz; University of Economics, Prague, nám. W. Churchilla 4, 130 67 Prague 3, Czech Republic, e-mail: rybacekv@vse.cz.

Before proceeding, a short comment should be made on the institutional background underlying compilation of financial statistics in the Czech Republic. CNB (Czech National Bank) is responsible for the accounts on quarterly basis (except government sector); on annual basis the compilation is falling to the CZSO (Czech Statistical Office). Because both institutions follow the same methodology (ESA 95), great attention is paid to harmonisation of these accounts. In fact, as far as methodology and data sources are concerned, these are shared by both institutions to a very high degree. But despite very close cooperation between CNB and CZSO, few differences still remain.

1 STRUCTURE OF THE ACCOUNTS

Financial accounts are natural part of national accounts forming financial sphere of the accounts. The financial sphere is formed by several accounts containing transactions with financial assets and liabilities, other changes in volume and prices, and stocks of these financial instruments. Sum of transactions, other changes in volume and prices determine the changes in stock, as expressed by stock-flow equation (Monetary and Financial Statistics Manual, 2006):

opening stock + financial transactions + revaluation + other changes in volume = closing stock.

Financial account, as a transaction account, contains two types of transactions. First, there are financial transactions having natural counterparty in the non-financial accounts, e.g. purchase of car is represented by transaction with goods (car) and by transfer of money (transaction with financial instrument). The second type of transaction can be called "pure" financial transaction containing especially changes in portfolio or liabilities without any counterparty in non-financial accounts. As an example, purchase of shares (with simultaneous decrease in account balance) can be mentioned.

Transactions directly influence amounts of stocks, but there are also other factors affecting value of assets and liabilities at the end of a year. First of all, stocks are valued at domestic currency and mostly at market prices (except deposits and loans). Thus, changes in market prices, interest rates or exchange rates can affect the value of financial wealth with possible impact on behaviour of economic units (wealth effect or balance sheet effect should be mentioned here; see Rybáček, 2009). Such price changes are concentrated on revaluation account together with non-financial assets price movements, no matter if these gains or losses are realized or unrealized; these gains and losses are called nominal holding gains and losses; as indicated by the position in the accounts, revaluation is not taken as a result of production process or distribution of income generated by productive activities.

Last type of changes in stock is called "other changes in volume" that are recorded in the separate account. As other changes in volume we can consider loan remission, writing off, differences between closing and opening balance surveyed by statistical questionnaires, reclassifications, allocation of SDR, etc. To some extent, amount of other changes also reflects the quality of statistics.

Financial instruments are classified according to their nature and liquidity. There are seven groups of instruments in the accounts:

- *Monetary gold and SDR (AF.1)* – this item is formed by gold used for monetary purposes (part of foreign exchange reserves) and fictive monetary unit issued by the IMF called special drawing rights (SDR); this item is valued at market prices,
- *Cash and deposits (AF.2)* – there are three sub-items – cash (domestic or foreign) circulating in the economy and issued by domestic central bank, then demand deposits and time deposits; these are the most liquid instruments in the portfolio of institutional units and these are valued at nominal values in CZK (impact of exchange rate is reflected),
- *Securities other than shares (AF.3)* – short-term and long-term debt securities (tradable) and derivatives are here included; all these instruments should be shown at market prices, but there is serious problem with primary accounting data usually not containing market prices of bonds; accounting practices also make problems to statistical treatment of financial derivatives,

- *Loans (AF.4)* – in this items non-tradable loans with maturity up to one year (AF.41) and with longer maturity (AF.42) are included; loans are priced at nominal values in CZK (impact of exchange rate changes are included),
- *Shares (AF.5)* – this item contains residual claims on the assets of the units issuing shares (stock companies, cooperatives, limited companies, shares funds, international institutions, etc.); there are different approaches to the evaluation of shares; quoted shares (AF.511) are recorded at market prices, prices of unquoted shares (AF.512) are based on a model simulating market conditions, other shares (AF.513) are valued at both market prices and nominal values; mutual shares funds (AF.52) are valued at market prices,
- *Insurance technical reserves (AF.6)* – funds (liabilities of insurance companies and pension funds) formed for risk management purposes within life and non-life insurance policy; technical reserves are priced at nominal values,
- *Other receivable / payable (AF.7)* – this item includes supply-buyer relationships and transaction (stock) when there is a timing difference between transactions in goods and service, distributive or financial transaction, and the corresponding payments; also this item is valued at nominal prices.

Financial accounts are constructed for all sectors of the economy, i.e. for non-financial corporations (S.11), financial corporations (S.12), government sector (S.13), households (S.14), non-profit institutions serving households (S.15) and the rest of the world (S.2). All items are balanced across these sectors; thus the result is sectoral structure of the financial accounts allowing for many analytical outputs.

2 EXTRAORDINARY REVISION

Revision undertaken in 2011 took the form of an extraordinary revision. Main reason for the revision was a new branch structure of the economy (NACE revision); with the branch-revision were associated also methodological changes which affected both non-financial and financial accounts. Thus, this revision offered a very exceptional opportunity to project methodological changes to all years and to make time series methodologically consistent as much as possible.

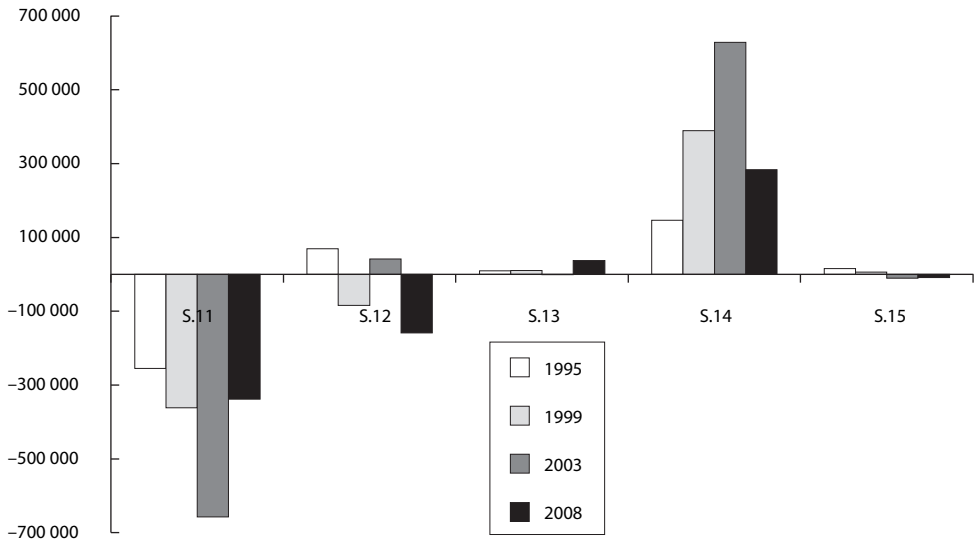
From financial statistics point of view, there were many objectives of revision. Below are mentioned the most important ones:

- *to make time series consistent* – financial accounts have been compiled from 2004, methodological changes were incorporated continuously. The revision was a very welcomed opportunity to make all data consistent;
- *to harmonize financial statistics as much as possible* – this point is closely connected with the previous one. At the end of a year, quarterly financial accounts of the CNB and annual financial accounts of the CZSO describe the same phenomenon – financial wealth and related flows. So, both institutions got very near to the aim to harmonize both statistics, the need of this cooperation is further emphasized by the sole position of the CNB as supervisor and regulator of financial sector. Many changes were already implemented in compilation of data from 2004 onwards, application of amended approaches to whole time series was an important part of the revision;
- *to incorporate the very new quantifications* – the matters in question are for example shares of households in cooperatives or so-called fictive units formed by non-residents for the purpose of house or land purchases in the domestic economy;
- *to incorporate completely new data sources* – these were used mainly for more proper allocation of instruments to counter-parties.

Due to revision, national wealth has not only been changed, but also redistributed among sectors. Figure 1 displays changes in financial wealth redistribution in selected years between sectors of domestic economy. Financial wealth is here defined as a difference between financial assets and liabilities

(B.90f). It is evident that most significant changes are obvious for non-financial corporations and households. Common reason for such changes is the new way of evaluation of shares in housing cooperatives.

Figure 1 Redistribution of net financial wealth (B.90f), in CZK million



Source: Czech Statistical Office

This adjustment was made because of a clear link between changes in dwelling prices and wealth of households as owners of these dwellings. In case of cooperatives, the impact of dwelling prices movements on the wealth is "intermediated" by the value of households´ *shares in cooperatives*. The heart of the revision was the adjustment of shares´ value to real market prices of dwellings. This resulted in the rise of shares value "issued" by non-financial corporations (with consequent decline in net financial wealth) and corresponding rise in the value of assets held by households. Table 1 shows the impact of this adjustment on the value of shares.[2]

Table 1 Rise in shares due to revaluation of shares in cooperatives, in CZK billion

1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
263	281	301	324	342	342	343	355	356	358	243	236	223	243	243	231

Source: Czech Statistical Office

Another reason for large change in liabilities of non-financial corporations (S.11) is specification of *non-financial assets owned by non-residents*. In line with the methodology, purchase of a dwelling or a land made by non-residents is connected with establishment of "notional unit" classified as a resident (non-financial corporation). On one hand, this unit is the only owner of non-financial asset, on the other hand, this unit is fully owned by non-resident. This adjustment resulted in rise of non-financial corporations´ liabilities with corresponding rise in the amount of assets (domestic liabilities) held by non-residents.

[2] Currently, sector classification of housing cooperatives is discussed at the international level.

Thus, the amount of non-financial assets owned by non-residents via notional units made the position of the Czech Republic worse, as far as net worth is concerned. Impact of this adjustment is shown in Table 2.

Table 2 Rise in shares due to revaluation of shares in cooperatives, in CZK billion

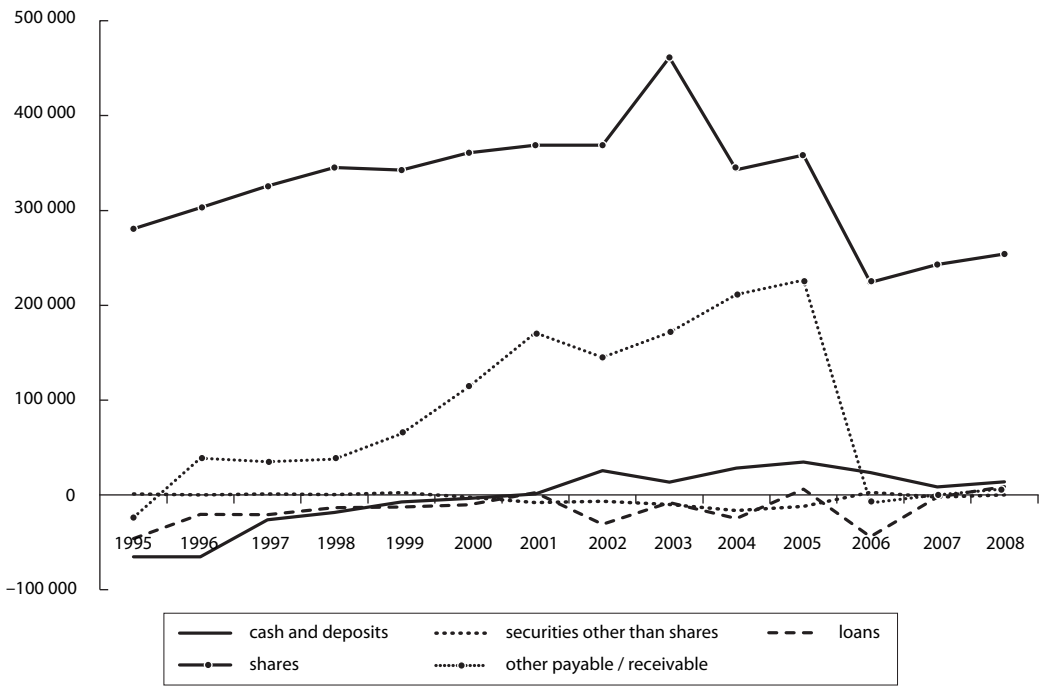
2003	2004	2005	2006	2007	2008	2009
25	26	27	30	38	46	51

Source: Czech Statistical Office

Big task in financial statistics is the amount of other payable or receivable (AF.7). In 2006, a new approach to quantification was implemented in case of households; now, this approach is applied to all years from 1993. In principle, estimation of *other payable or receivable of households* lies in combination of direct data sources and approximate threshold for share of AF.7 in total assets and liabilities of households. This threshold is based on the average from other countries at the similar economic level. Final amount should not deviate significantly from this "nominal anchor".

Because households comprises most important economic sector, we should go into more detail. Figure 2 displays changes in the financial wealth by instruments separately. As it is evident, that most important factors standing behind rise in households´ wealth are adjustment of shares (AF.5) and other payable and receivable (AF.7). Especially better reflection of rise in dwelling prices and bringing of other payable and receivable closer to reality were the main factors driving this important change.

Figure 2 Changes in financial wealth of households, in CZK million



Source: Czech Statistical Office

Also other methodological adjustments should be mentioned, especially *evaluation of gold and SDR*. Started in 2004, gold and SDR were valued at market prices in line with the balance of payment statistics; before 2004 these instruments were priced at historical prices according to accounting practises of the central bank. Market prices are now applied to the whole time series. Another change was *recording of repo operations*. In line with the methodology, if financial institutions are involved in this type of transaction, repurchase agreement is classified as other deposits (AF.29); in other cases, repurchase agreements are recorded as loans (AF.41). Data were applied to this rule.

Dynamic development of financial instruments put also a pressure on the statisticians to get new data sources. On the base of new data, *time series of derivatives*, one of the most troublesome instruments, was extended to 1995. Especially derivatives are financial instruments massively representing problems of national accounts with the primary data from business accounting. In the Czech accounting system these instruments are not considered to be financial asset or liability, but other payable or receivable. So, identification of derivatives in the business accounting for the national accounts purposes is very difficult.

Overall, the revision has considerably affected the net financial wealth mainly of non-financial corporations and households especially due to changes in shares estimation. Following table provides the overview of changes in assets, liabilities and net financial wealth of domestic sectors that are the results of the revision. Sharp breaks in some cases are caused mainly by elimination of methodological inconsistencies.

Table 3 Changes in assets, liabilities and net financial wealth, in CZK million

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Assets										
S.11	344 509	411 820	446 385	345 614	780 783	776 007	699 152	6 159	102 584	–162 965
S.12	–158 244	–256 434	–522 926	71 795	55 938	–11 103	–61 976	–89 653	–192 634	–69 217
S.13	10 000	9 189	1 361	882	–118	34 634	40 399	42 279	22 493	23 656
S.14	266 397	276 383	269 451	268 997	333 430	209 190	230 331	241 828	251 609	272 472
S.15	–336	–9 229	–5 694	–10 975	–17 635	–15 610	–13 229	–14 320	–19 326	–28 756
Liabiliaties										
S.11	706 109	943 003	897 141	942 031	1 438 231	1 043 026	1 058 487	189 739	345 997	174 730
S.12	–74 063	–287 593	–403 314	–73 377	14 687	182 109	184 050	–9 587	–89 166	89 853
S.13	–413	–1 467	200	–65	–30	–3	20	0	–40 320	–13 525
S.14	–122 908	–181 888	–266 099	–232 933	–294 995	–332 270	–383 055	43 708	4 768	–11 014
S.15	–6 428	–7 367	–5 714	–3 092	–7 365	–8 228	–3 709	–2 514	–10 584	–20 202
Change in net financial wealth										
S.11	–361 600	–531 183	–450 756	–596 417	–657 448	–267 019	–359 335	–183 580	–243 413	–337 695
S.12	–84 181	31 159	–119 612	145 172	41 251	–193 212	–246 026	–80 066	–103 468	–159 070
S.13	10 413	10 656	1 161	947	–88	34 637	40 379	42 279	62 813	37 181
S.14	389 305	458 271	535 550	501 930	628 425	541 460	613 386	198 120	246 841	283 486
S.15	6 092	–1 862	20	–7 883	–10 270	–7 382	–9 520	–11 806	–8 742	–8 554

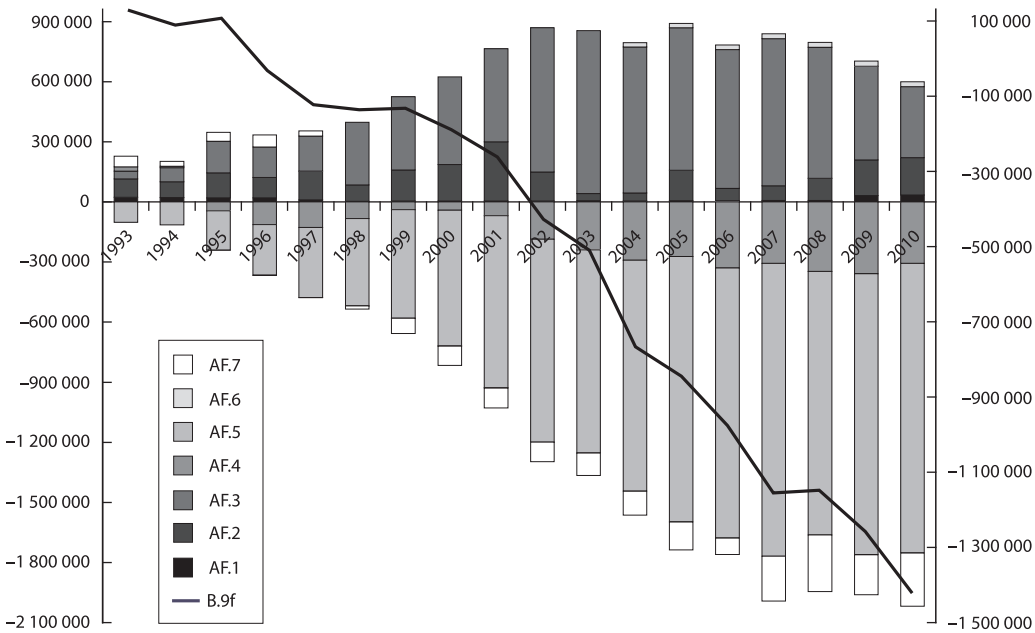
Source: Czech Statistical Office, own calculation

The important task is the relation between the national accounts and other external statistics. Aim of the revision was to bring the financial accounts and the balance of payments statistics closer to each other. This also caused changes in total position of the Czech economy in relation to the Rest of the

World. To be concrete, Figure 3 displays the revised relation as described by the item "net worth" of the economy (B.90f). Logic of this aggregate is the same like net international investment position in the balance of payment statistics.

In general, changing net financial position corresponds to profound changes in the Czech economy during the transition period.

Figure 3 Relation of the economy to the Rest of the World, in CZK million, B.9f (right axis), financial instruments (left axis)



Source: Czech Statistical Office

Changes during transitional period of the economy are most clearly reflected in the item AF.5 (shares and other equities), massive inflow of foreign capital brought significant changes in distribution of property rights. These investments in share capital and reinvested earnings stand behind deeply negative balance of the economy to the Rest of the World. This situation can indicate further consequences as a possibly outflow of money (dividends) paid out of current profit or accumulated profits (so-called super-dividends) abroad. Side-effect of capital inflow is also raising indebtedness (AF.4) due to loans provided within corporate groups. Even if there are many risks connected with high share of foreign owners, this cannot be perceived as negative on its own, but should be assessed on the basis of wider range of indicators or considerations. Massive inflow of foreign capital also caused a sharp increase of productivity, domestic real wages and consequently in the living standard.

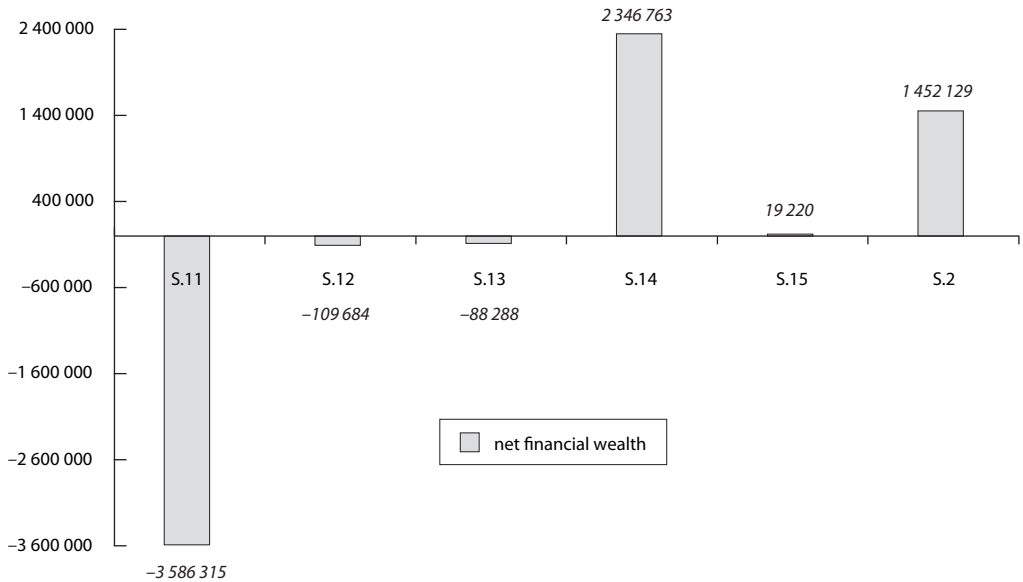
3 WEALTH DISTRIBUTIONS BETWEEN SECTORS

Estimations and quantifications mentioned above give us picture on financial position, financial wealth and its distribution in the society. This picture is very important for further considerations; creation and distribution of wealth is one of the main tasks of political economy. As was already mentioned, the distribution of wealth may result from financial flows connected with productive activity and re-

distribution of incomes, or other flows like changes in nominal or relative prices and other changes in volume. Now, we can proceed to analysis of financial wealth distribution, as displayed in the national accounts.

Figure 4 shows net financial position or net financial wealth in the economy expressed as a difference between financial assets and liabilities.

Figure 4 Distribution of net financial wealth between sectors, 2010[3]



Source: Czech Statistical Office

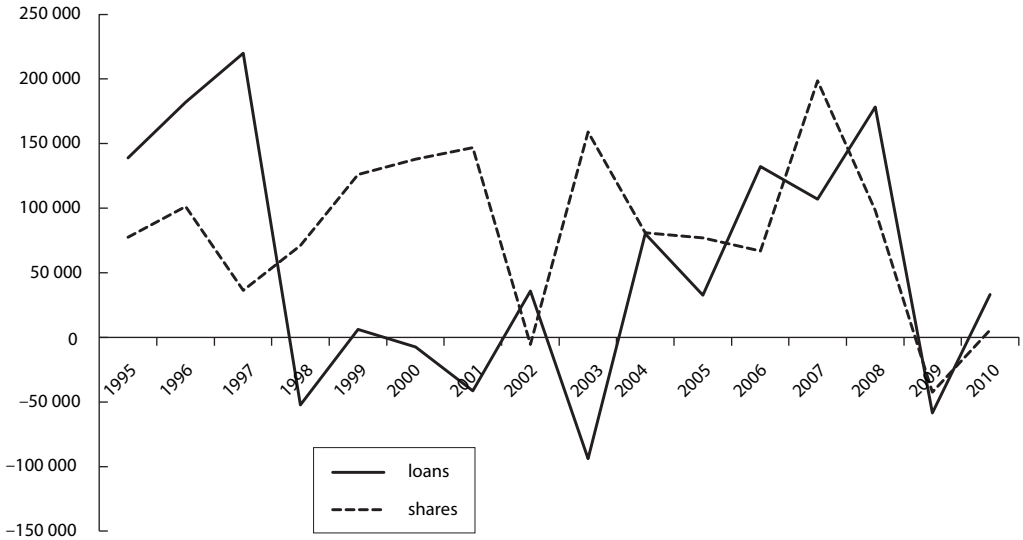
We shortly describe the situation of each economic sector. Deeply negative value of net financial wealth of non-financial corporations (S.11) is assigned mainly to the fact that these units transform financial liabilities (sources) particularly to non-financial assets.[4] It is thus more important to pay attention to the structure of liabilities, i.e. how activities of non-financial corporations are financed. Almost 50% of total liabilities are formed by shares (AF.5) which can be approximately compared to "own resources" in business accounting. The share of loans is only 17% and issuance of debt securities even smaller (4%). Large part of liabilities (29%) is represented by other payable, i.e. trade credits and other liabilities like outstanding wages or taxes.

But it would be rather misleading to claim that non-financial corporations raise funds mainly via issuance of shares. The amount of shares is very strongly affected by revaluation depending on economic results, so it is reasonable to compare transaction with shares and loans, i.e. how non-financial corporations raise funds.

[3] It is worth mentioning that total domestic net wealth is not equal to net financial wealth of the rest of the world (with opposite-sign). The reason is recording of monetary gold and SDR only on the asset side (of domestic financial institutions), i.e. with no counter-party. In other words, there is only owner of the financial assets, no debtor. Recording of monetary gold and SDR is exceptional in this respect.

[4] Two third of total assets are classified as non-financial assets.

Figure 5 Transactions with loans and shares, liabilities, in CZK million, non-financial corporations



Source: Czech Statistical Office

As is evident from Figure 5, there are no significant differences between transactions with loans and shares in last few years. So, the extent of loans and shares used for acquiring of financial resources is comparable. But, this analysis is just historical description; more general findings should be based on further connections like interest rate changes or financial market conditions.

The other part of "corporations sector" are the financial institutions. In fact, financial position of the *financial institutions sector (S12)* is almost balanced; concretely, total position is only slightly negative. More than 90% of total is formed by three dominant items:

- *securities other than shares* – financial institutions are predominant owners of domestic and foreign governments´ debts (especially long-term bonds),
- *loans* – S12 is the sector where money is issued via emissions activities of commercial banks,
- *shares* – mainly shares in the international monetary and non-monetary institutions like IMF, BIS, ECB, etc. held by the CNB, and shares in possession of investment funds.

From the liability side, structure is strongly affected by the nature of financial intermediation as a activity based on accepting deposits from units with free financial resources and providing these resources to the unit with lack of its own funds in comparison to its financial needs. Thus, amount of liabilities is strongly concentrated in the form of cash and deposits (AF.2) accounting for 64% of total liabilities. About 9% of liabilities are in the form of insurance technical reserves, which is specific instrument "issued" by insurance companies and pension funds. Shares amount only to 13% which fact creates a very different situation from that of non-financial corporations. Loans and debt securities amount to 12%. From this short analysis it is also evident that maturities of assets and liabilities are highly different; on average, liability should be repaid sooner than asset is due.

Net financial position of *government institution (S.13)* is similar to that of financial institutions. Assets are concentrated in the form of cash and deposits (AF.2 – 24% of total financial assets), shares (AF.5 – 52%) and other receivable (AF.7 – 18%). In case of shares, this situation is given by number of public units established by governmental units but classified outside the government sector (CEZ, Czech rail-

ways, Czech post, EGAP, CMZRB, etc.). Structure of liabilities is also quite simple. Three quarters of all liabilities are in the form of bonds (AF.3). Bonds emission is the dominant way how net borrowing of government is financed. Loans (AF.4) have only secondary importance, about 11% of liabilities. The rest is attributed to the other payable (AF.7), i.e. about 14%.

Now we approach the most important sector in the economy, *households*. Households sector is very often the object of an empirical examination (see for example Hendershott, Lemmon, 1975; Smidková, Allen, 1998; Ramb, Scharnagl, 2011). First, we look at the liability side. There are only two ways in the national accounts, how activities of households can be financed – via loans (AF.4) or other payable (AF.7). In the Czech Republic, households loans[5] amount to 90% of total liabilities. It is worth to mention that for further investigation of indebtedness sustainability it is important to have the information on the currency structure, maturity, counter-party, etc. This information is not directly provided by the national accounts, but particularly by the statistical system of the central bank.

Diversification of household´s assets is considerably wider than in case of liabilities. Households´ financial assets are mostly held in form of cash and deposits (AF.2, about 56%). Shares are the second-most-important form of assets (AF.5, 27%), especially shares in cooperatives, in companies quoted on the market, but also shares in mutual funds, limited companies or companies not quoted on the market. Share of bonds (AF.3) is almost negligible (1%), even if this situation can change in future due to policy of the Ministry of finance. Altogether, insurance technical reserves (AF.6) comprise large part of total assets (14%), but compared to most developed European countries (about 35%), this share is quite low.

In total, portfolio of Czech households is more strongly concentrated in comparison to households in the Western Europe. Significant difference can be identified in case of bonds; Czech households keep only 1% of total financial assets in form of bonds, but 6% is invested by households in other European countries. As a consequence of these structural differences, share of cash and deposits (AF.2) on total financial assets is much lower in the Western Europe (30%) than in the Czech Republic. This situation can be connected especially with habits spread in the society, risk-aversion and carefulness of general public.

Situation of *non-profit institutions serving households (S.15)* is very similar to previous case. Substantial difference on the assets side can be seen in case of insurance technical reserves (AF.6), the share is considerably lower (1%) in comparison to households. This is related mainly to the participation of households in pension programmes of pension funds. On the liability side, the situation is almost identical as in the case of households, as far as way of financing and shares on total liabilities are concerned.

CONCLUSION

Financial statistics representing "financial sphere" of the national accounts is going through very dynamic development as a reflection of economic-policy needs. Frame of financial accounts was presented, as well as current situation in the Czech national accounts and its institutional background. We discussed the content and results of the national accounts revision carried out in 2008.

Main conceptual adjustments incorporated during the revision were presented, as well as results of the revision. The revision led to quite significant movements in the wealth distributions, mainly due to more accurate linkage of households to non-financial corporations via shares. As a result, net financial wealth concentration in households´ sector was amplified. Also the structure of assets and liabilities of particular sectors was analysed, i.e. how activities of the sectors are financed and in which assets the units invest.

In is worth to add, that next revision is planned for 2014 and this revision will reflect new manual of the national accounts – ESA 2010 – that will enter into force in the coming months. Main changes in the financial accounts will take the form of financial items renumbering and recording of some types of guaranties as a financial asset (or liability).

[5] No matter of the purpose of the loan, i.e. consumption, dwelling, etc.

References

ALLEN, C., SMIDKOVA, K. A Model of the Demand of Czech Households for Financial Assets During Coupon Privatisation. *Eastern European Economics*, Vol. 36, No. 1, pp. 82–95.

ARROW, K. J. Statistics and Economic Policy. *Econometrica*, Vol. 25, No. 4, October 1947, pp. 523–531.

CERRUTI, E., CLAESSENS, S., McGUIRE, P. Systemic Risks in Global Banking: What Can Available Data Tell US and What More Data Are Needed? *BIS Working Papers*, No. 376, 2012.

CZSO. *Evropský systém účtů ESA 1995* (European System of Accounts ESA 1995). Prague: Czech Statistical Office, 2000.

HENDERSCHOTT, P. H., LEMMON, R.C. The Financial Behaviour of Households: Some Empirical Estimates. *Journal of Finance*, September 1975, pp. 733–759.

IMF. *Monetary and Financial Statistics: Compilation Guide.* IMF, 2006.

PLAŠIL, M., KALOUS, M. *Rozvoj statistiky transakcí ve čtvrtletních finančních účtech* (The Development of the Statistics of Transactions in the Quarterly Financial Accounts). *Statistika*, No. 3, 2008, pp. 205–215.

RAMB, F., SCHARNAGL, M. *Households´ Portfolio Structure in Germany – Analysis of Financial Accounts Data 1959–2009.* ECB, working paper series No. 1355, June 2011.

RYBÁČEK, V. Theory and Practice of Holding Gains and Losses: Is the Importance of Revaluation Reflected in the National Accounts? *Statistika*, No. 6, 2010, pp. 506–516.