

# Quarterly Financial Accounts Statistics in the Czech Republic

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## 1. Introduction

In the 1990s, the economic transformation in the Czech Republic and the ensuing demand for new statistical data resulted in the introduction of a number of new statistics. This was the case not only of the Czech Statistical Office, which has prime responsibility for the compilation of statistical data on economic, social and demographic developments, but of the Czech National Bank as well.

In the early stages of economic transformation, the Czech National Bank focused mainly on the compilation of monetary statistics and balance of payments statistics which were important for the development and implementation of monetary policy in that period. Thus, in the 1990s, quarterly financial accounts statistics (hereinafter “QFAS”) were not given systematic attention<sup>1</sup>; only some segments of these statistics were used for analytical purposes without monitoring their mutual consistency. A real impetus for a more systematic approach was not provided until the Czech Republic’s entry into the EU in 2004.

The aim of this article is to present the Czech National Bank’s experience with compiling QFAS since 2004, to carry out the first preliminary overall assessment of that experience and to make an international comparison. Therefore, the first part provides a description of the historical origins of QFAS in the Czech Republic, while the second part is devoted to methodological issues. The third part provides a description of data sources and the compilation process. The final, fourth part deals with the statistics themselves, their international comparison and informative value during the current financial and economic crisis.

## 2. The origins of quarterly financial accounts statistics in the Czech Republic

The first attempts to establish QFAS in the Czech Republic date back to the mid 1990s, as part of the efforts to compile the “flow of funds” statistics. However, these were only partial and temporary initiatives. The CNB started to compile QFAS systematically in 2004, as a result of the CNB’s new statistical obligations arising from the Czech Republic’s entry into the EU. These obligations included, for example, the CNB’s obligation to regularly, on a quarterly basis, report QFAS to the ECB, including time series data from 2004. Even though the fulfilment of this obligation is not relevant until the date of the Czech Republic’s joining the euro area, this obligation cannot be fulfilled without systematic preparation, considering the scope and complexity of these statistics. This period also saw a gradually increasing demand for QFAS, both from analysts in the area of financial stability and, to some degree, in the area of monetary analyses. In the autumn of 2004, the CNB made organizational arrangements for systematic compilation of these statistics to address these new requirements and to meet its obligation to the ECB.

As evident from the following chapters of this article, QFAS are comprehensive statistics that cover all economic sectors and financial instruments. They are based on a number of other statistics and their compilation also involves estimates and calculations of missing data. Therefore, the establishment of QFAS was not, and could not be, a sudden act, but rather a gradual process.

The Czech National Bank was considering two main approaches to the compilation of these statistics: either to devote some time only to the preparation of source data, or to try compiling QFAS immediately on the basis of the existing data sources (using calculations and estimates of missing data). The CNB opted for the second approach and the first working compilation of QFAS was made for the 2<sup>nd</sup> quarter of 2004. On the basis of this compilation and the subsequent compilation for the 4<sup>th</sup>

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<sup>1</sup> This article focuses mainly on quarterly financial accounts statistics. Thus, we do not deal with the historical origins or structure of annual financial accounts statistics which are compiled by the Czech Statistical Office.

quarter 2004, missing data sources and the main links to other statistics of the CNB and to data sources and statistics of the CZSO were identified.

In early 2005, a joint task force was formed by the CNB and the CZSO to deal with financial accounts statistics. The two parties confirmed that the CNB would have the main responsibility for the compilation of QFAS and declared a plan for assuming the responsibility for annual financial accounts. In 2009, the question of annual financial accounts was again reviewed together with the CZSO and it was concluded that the CNB will be compiling the first preliminary set of annual financial accounts within the period of T+4 months. The CZSO will retain the responsibility for the final set of annual financial accounts, because of the links to the final set of national accounts.

Since the 1<sup>st</sup> quarter of 2005, quarterly compilations of QFAS were already made on a regular basis and, in 2006, they resulted in internal and, in 2007, in external publication of stock data with accompanying commentary. In addition, in 2008, the first data on transactions the publication of which is expected in 2010 were published internally within the CNB. Now in 2009, QFAS are at a stage when work is being done on the reconstruction of time series, including the harmonization of methodology and data sources with the annual financial accounts of the CZSO. In 2010, the public is expected to receive complete time series from 2004 both for stock and transaction data, which will complete the basic process of the QFAS formation.

The reasons why the Czech Republic was one of the last EU member states to start compiling QFAS were the country's monetary policy regime and analysts' requirements. During the period of monetary targeting, i.e. until the end of 1997, attention was focused mainly on the data on monetary statistics and balance of payments statistics. Following the CNB's move to inflation targeting from the beginning of 1998, there was a relatively significant shift in analysts' demand for statistics from monetary statistics to statistics on consumer and production prices, interest rates, wages, labour market and indicators of demand and supply in the economy.

### **3. Methodological framework**

At the CNB, QFAS are understood as a quarterly compilation of (i) the balance of financial assets and liabilities, (ii) the financial transactions account, (iii) the revaluation account and (iv) the other changes in assets account, both for individual institutional sectors and the economy as a whole and its international context. Although the CNB currently compiles all of these accounts only as unconsolidated, some of them are also compiled as consolidated as part of the subsequent compilation of indicators for analytical purposes.

The basic methodological framework of the CNB's quarterly financial accounts statistics is defined by the Council Regulation (EC) No 2223 of 25 June 1996 on the European system of national and regional accounts in the Community, as amended (hereinafter "ESA95"). This methodological framework is further specified in separate methodological documents of the ECB and EUROSTAT. The relevant international statistical standards are then made more concrete by the CNB's internal methodology procedures, which aim to apply these standards to the fullest extent possible. However, they are not identical with these standards for a number of reasons. The most important reasons are the following:

- ESA95 does not always provide a sufficiently detailed solution of some problems,
- in some cases, ESA95 offers several solutions,
- in a number of cases, ESA95 does not correspond with the current accounting practices in the Czech Republic and the reported data must be then adjusted to comply with the ESA95 requirements and this cannot be always completely achieved,
- it is also necessary to use data sources that are not primarily designed for statistical purposes and that have a different structure or methodical definition of data (reports for the purposes of the supervision of the financial market, administrative data sources, etc.),
- statistical data sources do not always correspond with the requirements of financial accounts statistics according to ESA95 (partly different definition of indicators, their different classification, etc.), whether because they were originally created for different statistical purposes, or whether because they are based on an older methodical definition which is useful to be kept for the maintenance of time series and for similar reasons,

- it is necessary to maintain consistency with other statistical systems which in some cases use somewhat modified methodological procedures (balance of payments statistics, etc.),
- in some cases, there are not enough data to ensure full compliance with the ESA95 requirements,
- it is necessary to take into consideration the current practices of compiling annual national financial accounts, which are based on the same methodological framework, but which reflect different data sources and different historical developments,
- in some cases, it is also necessary to respect other national specifics (different legislation, specific user needs, etc.).

We can say that the methodological procedures being used are the result of all these influences. Below we will present several remarks on the methodological procedures in the application of ESA95 to QFAS in the real environment of the CNB.

### **Monetary gold and Special Drawing Rights**

In spite of the fact that ESA95 clearly defines that securities, deposits and loans denominated in gold are not included in currency gold, but in the relevant instruments (ESA95, Art. 5.32), even these instruments were originally recognized as currency gold according to the prevailing accounting practices in the Czech Republic. On the initiative of those who compile FAS, the method of recognizing these instruments has now changed and they are now recognized separately, thereby complying with ESA95.

In the past, it was not possible to distinguish Special Drawing Rights from other receivables of the CNB from the IMF in the publicly released accounting statements and, therefore, these items were reported together in annual FA. As part of developing the QFAS methodology, the CNB was able to separate these other receivables from the IMF (IMF reserve position, PRGF receivables, etc.) and thus allow for the full compliance of the QFAS methodology and, consequently, of the annual FA with ESA95.

### **Currency**

There are no significant issues with regard to the interpretation of the ESA95 methodology. The main problem is a lack of primary data sources, which have to be combined with estimates.

On the liabilities side, we have accurate numbers for sector S.121. As for the non-resident sector, we have some numbers from counterparties (foreign currency holdings for S.121 and S.122), while the rest is estimated on the basis of an assumption that the amount of assets and liabilities for S.2 is more or less stable throughout the year, i.e. the amount of foreign exchange currency held by non-residents is essentially determined by the amount of Czech crowns converted into foreign currencies.

The data on currency holdings on the assets side are (i) taken directly from quarterly statements for sectors S.121, S.122, S.123, S.125 and S.13, including subsectors, (ii) extrapolated from annual data for S.124 and S.15, (iii) for sector S.2, calculated by multiplying the total amount of assets of S.2 by a coefficient reflecting the seasonality of the share of expenses and revenues in the travel industry in the quarter concerned, with the counterpart being the liabilities of S.121, (iv) the remainder being the sum of currency on the assets side aggregately for S.11 and S.14, from which the currency for S.11 is subtracted on the basis of an extrapolation of annual data, with the remainder of the total balance being the currency held by households.

### **Deposits**

According to the current legislation in force in the Czech Republic, only banks and credit unions may accept deposits as their liabilities. Therefore, no liabilities with other domestic sectors are regarded as deposits, even though they may be entitled as such in primary accounting statements, e.g. guarantee deposits with insurance corporations, etc. Such "deposits" are classified as loans in QFAS. For the same reason, shares in money market funds are not regarded as deposits, even though they are so close substitutes for deposits that money market funds are regarded as a part of monetary financial institutions (ESA95, Art. 2.51, (b)).

It is a known fact that in practice it is sometimes difficult to distinguish between deposits and loans as different financial instruments. ESA95 determines that the criterion for making the distinction between deposits and loans is the initiative for the transaction: in cases where the initiative is taken by a lender, the transaction is to be classified as a deposit, while in cases where the initiative is taken by a borrower, the transaction is to be classified as a loan (ESA95, Art. 5.74). However, this criterion cannot be always sufficiently applied. Moreover, in non-statistical reports, e.g. in reports for the supervision of the financial market, no distinction is usually and knowingly made between the two instruments and are consolidated under a single functional item. When dealing with this problem, the CNB decided to make use of national legislation. If the transaction takes place on the basis of a deposit account contract, it will be regarded as a deposit, while if it takes place on the basis of a current account contract, it will be regarded either as a deposit or a loan, depending on which side of the account and with regard to whom the funds are transferred. If the transaction takes place on the basis of a different contract and involves non-marketable receivables, it will be regarded as a loan. This rule has one exception: by convention, short-term loans provided to resident and non-resident MFIs are (usually) classified into one of the deposit subcategories and, consequently, MFIs do not have short-term loan liabilities (ESA95, Art. 5.75). Thus, short-term deposits as the liabilities of MFIs need not arise only on the basis of a deposit account contract or a current account contract, but also on the basis of other facts, e.g. repo operations or transactions involving non-marketable securities. To simplify such "otherwise arising" deposits, we classify all into the subcategory "other deposits".

Another methodological issue is to draw the exact line between transferrable and other deposits. Things are even more complicated by the fact that even the ECB currently does not make a distinction between transferrable and other deposits in its MFI statistics. At the CNB, transferrable deposits are deemed to include current account deposits and essentially all other than time deposits with MFIs. Nevertheless, is still being debated, whether the "non-time" character of the deposits can be regarded as a sufficient criterion, especially in some cases.

### **Securities other than shares**

One of the key issues that we had to resolve in this category of financial instruments in order to ensure the compliance of our methodology with ESA95 was to distinguish between marketable and non-marketable (debt) securities. It is essential to define an appropriate criterion to draw a line between this category of instruments and loans or, as the case may be, deposits.

With regard to the heterogeneity of the data base and the absence of a complete central register of all securities, whether those issued in the Czech Republic or foreign securities held by residents, the CNB adopted a working principle that the basic information about the value of securities that are not marketable (hereinafter "NMSs") is contained in issuers' liabilities, although we only have the real data for MFIs. Short-term NMSs as liabilities of MFIs are classified under deposits and long-term NMSs under loans. We take a similar approach to the assets of MFIs, through which we obtain data on other sectors – counterparties. If these counterparties are different sectors than MFIs, all the NMSs held by MFIs are classified as loans. If the counterparties of the assets of MFIs for NMSs are again MFIs and there are differences between assets and liabilities, preference will be given to the data on liabilities. In all other cases where we do not have data on NMSs data from MFIs' reports, including counterparties, we assume that NMSs, if any, are of negligible value.

### **Loans**

Besides the above-mentioned problems with drawing a line between loans and deposits on one part and loans and securities on the other part, the key methodological issues were, among other, a complete transition to the gross value of loans for all sectors, inclusion of the financial leasing data, ensuring the consistency of the loan data under QFAS with the similar data under balance of payments statistics and dealing with a lack of data sources on loans between non-financial sectors (except for the government sector), i.e. mainly on inter-corporate loans and on corporate loans to households, but also sector S.15.

The main data sources on loans, i.e. the MFI statistics and the government financial statistics, provide information on the gross value of loans, as required by ESA95. A similar situation is with the data on financial leasing services provided by sector S.123. Other data sources on loans in the Czech Republic, if any, mostly contain information about net loans only. This leads to difficulties when comparing data from different information sources and their balancing, as well as methodological

issues when estimating missing data (the necessity to estimate full data on gross loans on the basis of partial data on net loans).

Methodologically, there is no doubt that financial leasing belongs to the category of loans under ESA95. The problem is that information on the value of financial leasing operations in the Czech Republic became available only a short time ago. The CNB started to gradually collect this information in 2004; before that year there had been only sample estimates, which had not been of sufficient use. Therefore, the methodologies of QFAS and those of annual FAS, which have longer tradition in the Czech Republic, are different in this field. Considerable methodological difficulties are also caused by the fact that financial leasing is not regarded as a loan according to the current accounting practices in the Czech Republic. Thus, although the data on financial leasing are included in the data on loans in QFAS, the correctness of this method of inclusion is yet to be completely verified.

In QFAS, corporate loans to corporations, corporate loans to households and loans to sector S.15 are estimated on the basis of annual national accounts. Similarly, loans with regard to non-residents are estimated on the basis of the aggregate functional item "other investments" from the balance of payments statistics.

## **Shares**

In terms of methodology, some of the key issues were the definition of quoted shares (especially defining what can be regarded as an organized market in the Czech Republic and how often shares must be traded to be deemed as quoted shares) and issues related to the revaluation of unquoted shares. The method of dealing with these issues is in more detail described below in the section "Data sources and the compilation process". Here we would like – on the basis of an example of selecting a method of revaluation of unquoted shares in the Czech Republic – to point at the fact that the degree of application of the ESA95 methodological requirements is determined by the degree of development of real economic relations and the availability of data sources in the country concerned.

The CNB has decided to value unquoted shares on the basis of the book value of equity, a method which only partly complies with the ESA95 requirements (see Art. 7.54 and 7.55). Most of all, this method does not take into consideration the prices of quoted shares in the respective industry, the presumed lower liquidity of unquoted shares in comparison with quoted shares and the real differences in the amount of equity of unquoted and quoted corporations. The choice of the method was motivated mainly by the limited size and segmentation of industries in the Czech Republic (some industries in the Czech Republic have only a very small number of quoted corporations or even no such corporation at all) and by the insufficiently homogeneous inter-connection between the markets in the Czech Republic and the markets of our partners in the EU (the price of quoted corporations on the markets of other EU countries is usually different than in the Czech Republic). This does not objectively allow for having a sufficient amount of the necessary data from the home economy and it also prevents the use of data available in centralized databases of the ECB and EUROSTAT. Thus, other valuation methods are currently not sufficiently reliable or they are not available at all to the CNB.

## **Insurance technical reserves**

According to our experience, one of the main methodological issues are undoubtedly the question whether to report gross or net value of technical reserves, the issue of recognizing reinsurance in financial accounts and the method of identifying counterparties for technical reserves. Another issue is the historically established user preferences in this field.

Although the question whether to use gross or net value of technical reserves (i.e. including or excluding the share of reinsurers) is not explicitly determined by ESA95, we prefer using the gross value method. However, because of a certain degree of ESA95's vagueness with regard to this issue and a lack of data, the value of these reserves in the Czech Republic's annual financial accounts had been traditionally posted on the net basis. Therefore, the first step in the application of the ESA95 methodology to QFAS by the CNB was a shift to using the gross basis. This shift obviously triggered the question of how to deal with reinsurance in QFAS, as ESA95 leaves this question open. Considering the fact that reinsurance in the Czech Republic had been so far predominantly organized through foreign reinsurance corporations and the balance of payments statistics show technical

reserves under the financial account's item "other assets/liabilities, it was decided to report reinsurance also under item AF.7: "other accounts receivable/payable". With the emergence of national reinsurance services and following discussions on these issues at the ECB, the CNB finally decided to move reinsurance to item AF.62 "prepaid premiums and reserves against outstanding claims".

Furthermore, the CNB and the CZSO are currently using a different method of identifying counterparties for items AF.62. Whereas the CZSO has been traditionally using an indirect method of counterparty identification on the basis of an analogy with the distribution of gross premium paid according to individual sectors, the CNB, from the very beginning of the QFAS compilation, introduced a method of direct assignment of technical reserves to individual sectors, using insurers' statutory obligation to create technical reserves for individual insurance contracts.

### **Other accounts receivable/payable**

When compiling QFAS, we do not have any major problems with the general methodological definition of the item "other accounts receivable/payable" in ESA95. The main problem is with data, so in a majority of cases this is a residual item determined on the basis of an estimate (for sectors with full data sources such as S.121, S.122 and S.125, these numbers are more accurately documented). In this context, we can say that in the case of these relatively accurate numbers we follow the accounting practices prevailing in the Czech Republic, according to which interest and incidental expenses of other instruments, such as deposits, securities and loans are included in the item "other accounts receivable/payable", which is a method permitted by ESA95, though not a preferred one.

## **4. Data sources and the compilation process**

### **4.1. Data sources**

Like in other countries, QFAS in the Czech Republic are compiled from several data sources, including a number of incomplete, often specialized statistics. There are significant differences between these statistics not only in terms of coverage of the economy (sector data, data covering all sectors, data focused on a particular instrument), but also in terms of their reliability (full surveys, sample surveys, etc.). Thus, QFAS in the Czech Republic are compiled by combining several sources of information, with an indispensable role played by calculations and econometric estimates. A major side benefit of financial accounts is their ability to identify inconsistencies between individual statistics during the compilation process. These inconsistencies result from different methodologies, as well as errors and inaccuracies in the estimates.

An important aspect of the QFAS compilation process in the Czech Republic is that QFAS are compiled exclusively on the basis of elementary counterparties, i.e. information on relationships between individual sectors at the level of individual financial instruments. The only exception to this rule is the instrument "other accounts receivable/payable". In a number of cases, the information on elementary counterparties is available directly from the relevant data sources, while in other cases this information is estimated by means of econometric methods. This approach also involves the use of annual financial accounts.

The practical application of the principle of elementary counterparties has required a thorough analysis of all possible financial relationships between sectors. These relationships are currently classified under the following five groups:

- relevant relationships where adequate data sources are available;
- relationships that are not possible given the economic and legal environment of the Czech Republic (for example, it is not possible to consider loans by households to the central bank);
- relationships that are theoretically possible, but are ad hoc considered as negligible or as having no major significance (e.g. bonds issued by households);
- relevant relationships where no data sources are available, but where they can be estimated in a relatively reliable manner from other information (e.g. from annual financial accounts for the sector of non-profit institutions serving households);
- relevant relationships where some volume can be expected, but where no data sources

are available and may not be estimated with sufficient accuracy (currently e.g. corporate or household deposits abroad). In the current practice, these data are replaced with zero, while the CNB is trying to continue to work on these methodological issues according to its ability. Obtaining these data usually involves further financial expenses or requires finding a suitable method of estimation from other existing information (e.g. in the case of corporate deposits abroad, we are testing the estimation based on the information on the interest income from such deposits).

The above-mentioned principle of elementary counterparties necessitates the definition of priorities when using individual data sources. A single data source is selected for each elementary counterparty and used for both parties of the financial relationship (i.e. both on the asset side and on the liability side). Thus, the practice involves mainly the balancing of methods and data sources, rather than the data themselves. This substantially simplifies the compilation process for the relevant quarter and there are no longer any serious problems that might be triggered by discrepancies between data.

The main statistics used in the compilation of quarterly financial accounts in the Czech Republic are monetary and banking statistics, the balance of payments statistics and international investment position, financial accounts of the government, statistics on insurance corporations and pension funds and share statistics. These five sources account for roughly 90% of all information on the basis of which quarterly financial accounts are compiled in the Czech Republic.

Monetary and banking statistics give a complete overview of subsectors S.121 (central bank) and S.122 (monetary financial institutions), including a full breakdown of these sectors' assets and liabilities by counterparty. At the same time, these statistics give almost a full overview of the AF.2 items, i.e. both currency and transferable or other deposits. With regard to their level of detail, these statistics are one of the few to allow for a very accurate calculation of transactions for the above-mentioned sectors or instruments. The balance of payments statistics and international investment position constitute an important part of the statistics used as sources for the purposes of compiling quarterly financial accounts; however, unlike other data sources used, these statistics are converted into the ESA95 structure through a conversion bridge for the already aggregated data.

A special position in the QFAS compilation process is occupied by financial accounts of the government sector, which are compiled by the CZSO. What makes them special is the fact that both quarterly and annual financial accounts are compiled on the basis of an exhaustive survey of the sector concerned, i.e. the respondents include all economic entities classified under sector S.13. However, the data obtained from accounting or statistical reports do not contain any data on counterparties. Those are obtained from other, supplementary sources such as banking statistics, balance of payments, data from the Securities Centre and other detailed data provided by the Ministry of Finance. However, when compiling financial accounts of the government sector, the CZSO already cooperates with the CNB in a number of areas and takes balances for some instruments from the CNB, including the breakdown by counterparty. This practice allows for further improvement of the mutual consistence between QFAS and the government's financial statistics.

The statistics on insurance corporations and pension funds are the only data source that was introduced and formerly used exclusively for the purposes of QFAS. Starting from the 1<sup>st</sup> quarter of 2009, the data collection process has been expanded to include data on counterparties.

Share statistics are compiled on the basis of a data extract created directly for the purposes of QFAS that uses data both from the databases of commercial providers (MAGNUS database, statements of the Securities Centre) and from publicly available sources (Prague Stock Exchange, RM-System, or other sources such as the Companies Register, annual or other reports of issuers). Each instrument is compiled separately and its valuation depends on the availability of data sources (quoted shares are valued at market prices, unquoted shares are valued at own funds at book value, other shares are valued at nominal prices).

Besides the above-mentioned data sources, an important role in the financial accounts compilation is also played by the available data on a significant part of the subsector S.123 (other financial intermediaries), especially the data on collective investment funds and financial assets intermediaries. These statistics allow for compiling relatively reliable financial accounts for the subsector S.123, including selected counterparties. During the compilation process, the CNB also uses the statistics of

the investment funds association, which form the basis for compiling item AF.52, as well as statistics based on obligatory securities records (ISIN).

For some financial relationships, the CNB uses estimates. Most often, these are breakdowns of annual national accounts, where data sources on an annual basis provide better coverage of the relevant sector or instrument. This is especially the case of data for sectors S.15, S.124 and for some instruments concerning non-financial corporations and households.

The nature of the available data sources determines that QFAS are compiled on the basis of statistics on stocks (i.e. balances). Subject to the exceptions mentioned above, transactions are derived indirectly, i.e. on the basis of differences in stocks, taking into account the information on changes in the prices of financial assets and liabilities (both on foreign-exchange and non-foreign-exchange basis). Other changes in the value of assets are usually disregarded, if there is no concrete information about events that triggered them.

#### 4.2. The compilation process

During the compilation process, individual instruments or sectors are compiled, verified and balanced on the basis of the data available. At the same time, the data from the already compiled instruments or sectors are used for the application of the principle of elementary counterparties as initial information for compiling balances of other sectors.

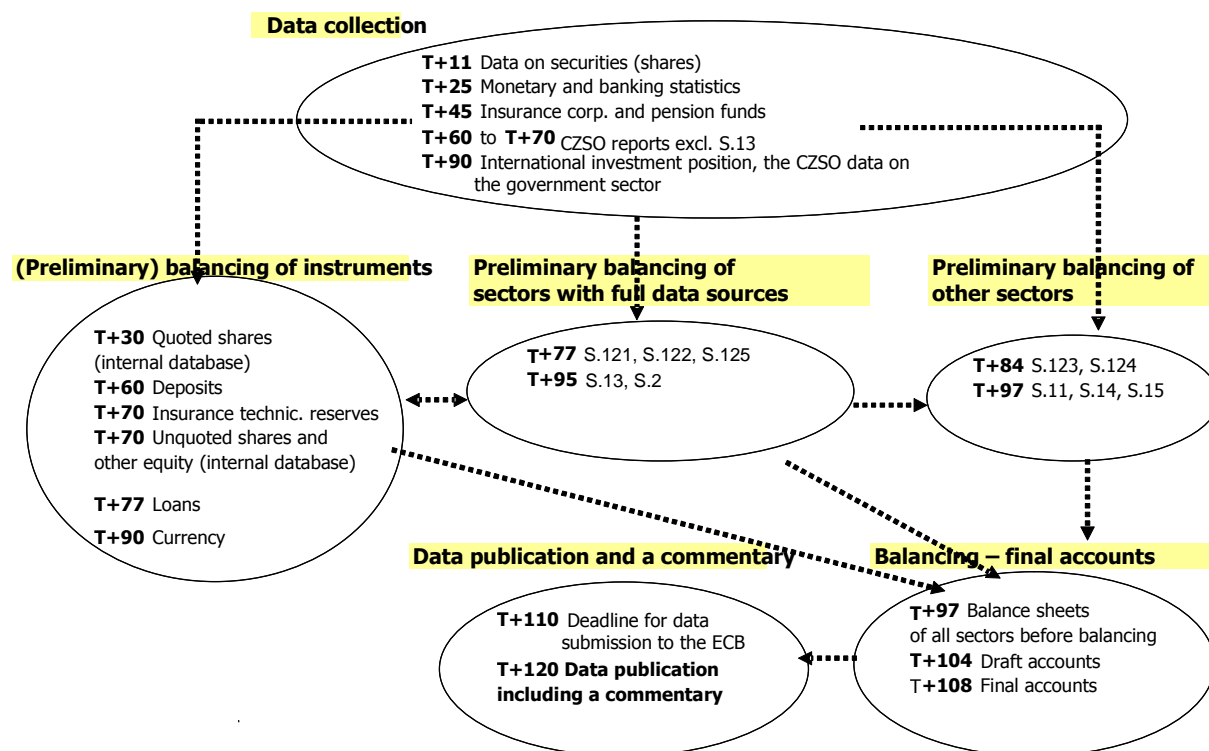
The first step in compiling the total balance sheet is compiling the balance sheets of AF. 1 (monetary gold), AF. 2 (currency and deposits), AF. 51 (quoted shares, unquoted shares and other equity on the basis of a securities database) and sector S. 125, including items AF.6. At the same time, the balance sheets of sectors S. 121 and S. 122, including counterparties, are being implemented. The data for these sectors are regarded as reliable and their counterparties as very important in terms of compiling the balance sheets of other sectors. The second step involves compilation of the balance sheets of sectors with a relatively low weight (S.124, S.15). The third step involves implementation of the balance sheets of the non-resident sector (S.2), which is created on the basis of a conversion bridge from the data on international investment position (with full breakdown into counterparties), and financial accounts of the government sector. While the total value of instruments for the government sector corresponds to the source document from the CZSO, the breakdown of these values into counterparties is, in some cases, adjusted with regard to other data sources. The final step involves compiling the balance sheets of non-financial sectors (S.11 and S.14) and the balance sheet of subsector S.123, where the share of estimates used for compiling the total balance sheets is significantly higher. At the same time, items are being balanced. On the basis of draft balance sheets of individual sectors, the total final balance sheet is compiled and possible remaining discrepancies in the balance sheets of individual financial instruments or in elementary counterparties are identified, including the identification of their possible economic cause and proposing possible solution.

The balance sheet of AF.7 is compiled separately and the compilation does not involve the system of counterparties. Also, for some sectors the division between items AF.71 and AF.79 is based on an estimate only. The main reason for this approach is a lack of source data. This problem concerns, for example, banking statistics. The discrepancies between accounts receivable and payable are resolved to the debit of sector S.11, mainly on the receivable side. However, this situation is not regarded as a viable long-term solution and will be dealt with in the near future to ensure thorough harmonization of annual and quarterly statistics, especially for sectors S.2 and S.12.

The compilation of statistics on stocks (final balance sheets) is followed by the compilation of statistics on transactions. In a number of cases, transactions are calculated on the basis of primary data. This especially concerns statistics on deposits, currency, debt securities, quoted and unquoted shares and, since 2009, also statistics on insurance corporations and pension funds. Other available statistics include statistics on transactions of the government sector, which are compiled by the CZSO. For the purposes of quarterly financial accounts in the Czech Republic, transaction data on the non-resident sector are obtained through a conversion bridge from the balance of payments. Other transactions are currently defined by the CNB as stock differences.



The entire QFAS compilation process is summarized in the scheme below:



The concept of quarterly financial accounts statistics as statistics compiled on the basis of other partial statistics also involves certain specifics for individual sectors, particularly in relation to other statistical information. Therefore, special attention must be given mainly to the non-resident sector (S.2), where it is necessary to provide both methodological and factual explanation for possible differences from the data on the balance of payments and international investment position.

A specific aspect of the household sector (S.14) and, particularly, the sector of non-financial corporations (S.11) is a higher use of estimates during the balance sheet compilation process. In the current practice, especially the corporate sector is used in dealing with possible discrepancies between the amount of financial assets and liabilities for the economy as a whole (eliminating discrepancies between the data on individual sectors). However, these adjustments in the final stage of the entire balance sheet process are carefully considered in terms of their economic legitimacy.

The compilation of accounts in the Czech Republic is still influenced by the not-yet-completed process of methodological determination of individual data sources, their consistency and comparison of quality. These facts, among other, result in efforts to deal with the remaining methodological issues together with the CZSO as the author of annual statistics. The main effort in this area is, to the maximum extent possible, to align the data compilation procedures, the use of data sources and the methods of dealing with possible discrepancies between individual data sources.

## 5. Key indicators of quarterly financial accounts statistics

Financial accounts statistics, as a comprehensive picture of financial relationships in the economy, can be very useful for analyses concerning financial risks and financial stability or for analyses dealing with the relationship between financial variables and traditional real macroeconomic variables. The current global economic conditions, with the turmoil in the financial markets affecting the real economy, are associated with higher demand for these data, especially on a quarterly basis.

Although in the case of the Czech Republic the process of compiling financial accounts statistics is not yet fully completed, a part of the data – data on stocks – is now already publicly available. The

published financial balance sheets may serve as an important additional source of economic information not only for the monetary policy decision-making process, but the data may be also interesting for other users such as financial institutions, non-financial corporations and others. As mentioned above, the transaction financial account is currently compiled in a test mode and is available only to internal analysts of the Czech National Bank. Its official publication will further enhance the use of these statistics for analytical purposes.

Considering the history of compiling QFAS at the CNB and the existence of very short time series, the use of data for internal analyses is still at the beginning. First, it was necessary, through presentations, to inform the analyst community about the newly emerging statistics and to identify possible user requirements that may be covered by these statistics. The discussions have resulted in a set of indicators responding to the current user needs.

As of today, the complete set of indicators is comprised of approximately thirty tables which give a picture of each analyzed aspect of individual sectors or financial instruments. Probably the greatest contribution is made by indicators for non-financial corporations and households, because they may not be easily obtained from other statistics. Without requiring strict accuracy of their definition, we may divide these indicators into several groups: indicators concerning financial stability (indicators of liquidity, indebtedness and solvency), indicators of financial structure and indicators of financial placement or financing.

However, the primary goal of this chapter is not to provide a detailed analysis of the above-mentioned indicators or to draw conclusions on potential risks signalled by these indicators. Instead, besides a short summary of the developments in 2008, we will concentrate on another key aspect of using derived indicators – international comparisons. With regard to the fact that QFAS are commonly compiled in a majority of EU countries, this gives an opportunity to analyze data on other than strictly national basis. An international comparison brings interesting information on possible national specifics (e.g. the level of financial intermediation), but also on statistical problems with the reporting of some items. At present, such a comparison may also provide insight into the impact of the financial crisis on the financial accounts statistics in different countries. As the necessary data are currently available also for the Czech Republic, we will try to make the first short – and rather illustrative – comparison of these indicators, which may give an impetus to further research.

Due to the limited scope of this article, when comparing the data for the Czech Republic we will focus only on some other countries (Slovakia, Hungary, the euro area) and several basic indicators. This selection is determined mainly by the easy availability of the necessary data in all of these countries (to allow calculation of an indicator for all countries, it was in some cases necessary to simplify the indicator's definition, even at the expense of its economic accuracy). The countries have been selected on the basis of historic and economic criteria. There are several legitimate reasons for including the countries of the Central European region into this comparison: Slovakia has been selected as the historically closest country with the (*a priori* assumed) same financial culture and similar financial infrastructure, while Hungary is probably the country that is the most seriously affected by the financial crisis in the region. Logically, a comparison with the euro area provides an overview of the similarities and differences between the financial systems in the old and selected new member states.

The data used in the construction of the indicators were obtained from the relevant national central banks and statistical offices and the ECB. The data were downloaded from the web sites of these institutions; any errors in the calculation or interpretation of the indicators should be blamed on the authors of this article. Some data were referred to as preliminary in the sources and it is therefore possible that after a review the values of some indicators may change. We also cannot rule out any future methodological measures that may have impact on the time series of these indicators (for example, in the Czech Republic there may be a review of the value of other liabilities in the household sector).

Elementary indicators that may be derived from quarterly financial accounts statistics include the structure of financial assets in the economy by sectors and instruments (see Tab.1 and Tab.2). The financial structure developments provide important extra information for the purposes of assessing the current economic developments and may be interesting e.g. for analyzing the correlation between financial structure and economic growth. Today, there is already an extensive theoretical and empirical literature providing answers to the three related questions (see Goldsmith /1969/): (i) how financial

structure changes as economies grow (ii) what is the impact of financial development on economic growth (iii) how financial structure influences the pace of economic growth.

Tab. 1: A comparison of the structure of financial assets by instrument

	CZ				SVK				HU				EU			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
AF.1	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.3
AF.2	22.8	23.5	23.1	22.6	24.2	25.0	25.6	27.4	15.1	14.9	15.4	16.3	19.1	19.3	20.0	20.3
AF.3	13.1	13.1	13.2	14.4	16.1	15.6	15.2	15.9	16.7	17.2	16.5	17.3	15.3	15.5	15.8	16.6
AF.4	16.9	17.1	17.7	18.0	19.0	19.1	19.8	20.2	26.7	26.6	27.5	29.4	21.5	21.9	22.2	22.8
AF.5	25.8	25.2	24.7	23.7	23.7	22.4	21.8	22.3	28.2	27.6	27.2	24.9	30.0	29.1	27.6	25.4
AF.6	2.5	2.5	2.6	2.6	2.9	2.6	2.7	2.7	2.9	3.0	3.0	2.7	6.3	6.3	6.3	6.4
AF.7	18.9	18.6	18.6	18.7	13.8	14.9	14.6	11.2	10.2	10.6	10.5	9.5	7.7	7.7	7.8	8.2

Tab. 2: A comparison of the structure of financial assets by institutional sector

	CZ				SVK				HU				EU			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
S.11	26.1	25.6	25.5	25.3	22.9	22.8	22.4	20.9	21.6	21.7	21.6	20.7	16.7	16.5	16.4	16.0
S.121+S.122	24.5	24.7	25.1	25.5	27.9	27.7	28.1	29.3	22.2	22.3	22.6	24.3	25.6	25.9	26.4	27.0
S.123+S.124	3.4	3.2	3.4	3.3	3.0	2.9	2.9	2.8	3.4	3.4	3.4	3.3	11.5	11.4	11.2	10.8
S.125	2.9	2.9	3.0	3.0	3.2	3.0	3.0	3.1	3.1	3.2	3.2	2.8	6.9	6.9	6.8	6.9
S.13	9.5	9.8	9.3	8.7	5.9	6.4	6.8	6.6	3.7	3.5	3.6	4.2	3.3	3.4	3.3	3.6
S.14+S.15	15.6	15.7	15.8	16.0	13.4	13.8	13.6	13.5	15.9	16.2	15.9	15.3	19.3	19.2	18.8	18.8
S.2	18.1	18.0	18.1	18.2	23.7	23.3	23.2	23.7	30.0	29.6	29.7	29.5	16.7	16.7	17.1	16.9

Regardless of the starting position, we can say that the main changes in financial structure have followed a similar trend across all these economies. This may signal the increasing interconnection between the economies, which were, to a significant extent, influenced in 2008 by the same global factors. With regard to instruments, the value of shareholdings was decreasing as a result of the difficult situation in the capital markets, while the relative weight of loans and more liquid instruments such as currency and deposits (with a small exception of the Czech Republic, where the overall decline of the instrument in the second half of the year was especially driven by a slump in other deposits, which was not fully offset by a shift to transferable deposits). As for the sector structure, it is possible to register the increasing weight of the financial institutions sector and its subsector "monetary financial institutions", as well as the gradual decline of the weight of non-financial corporations.

Conversely, in terms of levels, there are many differences in financial structure between the countries, reflecting different historical developments of their economies. To a large extent, these developments have been determined by different economic conditions and, to some degree, investment habits. In this context, it is not surprising that the smallest financial structure differences – which are essentially negligible – exist between the Czech Republic and Slovakia. This conclusion also applies to other indicators mentioned below. The relatively significant weight of the instrument "other accounts receivable" in the Czech Republic is caused by insufficient data sources and statistical difficulties in determining their proper value.

In the context of potential financial risks, Hungary has an unusually high (and the most rapidly increasing) ratio of loans to the total financial assets compared to other countries, which is a reason for concern. Moreover, the Hungarian economy has an unusually high share of non-residents in financial assets. On the other hand, the approximately two-fold higher percentage of insurance technical reserves in the euro area's economy compared to Central European countries and the more than two-fold higher share of the insurance corporations and pension funds subsector in financial assets indicate different habits when placing financial investments. The differences in financial investment habits and in the level of financial mediation are further underscored by a dramatic difference in the weight of the other financial intermediaries subsector, whose importance remains to be very low in Central European economies.

After a brief comparison of financial structure, we would like to turn our attention to the sectors of non-financial corporations and households and to main indicators of indebtedness and liquidity. As mentioned above, the definition of these indicators may not be fully consistent with recognized definitions. However, a certain degree of simplification was necessary due to different data availability in individual countries and the euro area. Therefore, liquid assets are understood to be (approximately)

the currency and deposits instrument, while short-term liabilities mean short-term loans received and short-term bonds outstanding. The gross domestic product figure is annualized through the aggregation of seasonally non-adjusted data for the last four quarters.

Tab. 3: Financial indicators for the non-financial corporations sector

	CZ				SVK				HU				EU			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Loans received/Total liabilities	19.7	20.3	21.0	21.3	26.9	28.4	29.4	30.1	31.1	30.9	31.9	33.1	32.4	33.5	34.5	37.1
Loans received/GDP	41.6	42.5	43.5	43.5	43.1	44.6	45.4	45.3	76.4	73.8	77.6	81.2	85.3	86.7	87.4	88.8
Total liabilities/GDP	211.2	209.5	206.9	204.3	160.4	156.9	154.7	150.5	246.1	239.0	243.5	245.1	263.3	258.3	253.4	239.4
Liquid assets/Financial assets	13.7	13.6	13.4	14.9	19.7	18.7	19.1	20.3	13.2	12.7	13.4	12.2	11.7	11.9	12.3	13.0
Liquid assets/Short-term liabilities	127.7	120.0	112.3	130.4	115.1	111.6	111.2	110.8	62.4	57.9	61.0	55.9	64.0	62.3	63.1	63.1

As shown in Tab. 3, the non-financial corporations sector registered an increase of indebtedness through loans: in all of the compared economies, the amount of loans received was growing both as a percentage of total assets of the sector and as a percentage of GDP. On the contrary, with the exception of Hungary, where the percentage more or less stagnated, the sector's total liabilities as a percentage of GDP were decreasing. In terms of the level of indebtedness, there is a significant difference between the Czech Republic and Slovakia on the one part and Hungary and the euro area on the other part. In the first-mentioned countries, the debt-to-GDP ratio is nearly two times lower, thus still providing some room for a relatively safe increase. Another interesting point (again with the exception of Hungary) is that during the year non-financial corporations were transferring a part of their financial resources into liquid assets, whose share in total financial assets increased by approximately one percentage point. The levels of short-term indebtedness and liquid assets also have impact on the liquidity indicator (measured as a ratio of liquid assets to short-term liabilities), the value of which is much more favourable in the Czech Republic and Slovakia (even exceeding 100%) than in the other two economies. However, the value of this indicator may be to some degree influenced by tradition, as non-financial corporations in the above-mentioned economies almost do not use short-term bonds to obtain funds and, in general, they tend to rely on long-term debt.

The evidence from the non-financial corporations sector may be also applied to the household sector, where the situation is essentially similar (see Tab. 4). The household loans/GDP ratio and, with a few exceptions, in some quarters also the household loans/total liabilities ratio were gradually increasing (at least in 2008). The low ratio of loans received to households' liabilities in the Czech Republic is again caused mainly by the overvalued amount of other household liabilities. This amount, which is quarterly derived from annual accounts compiled by the CZSO, will be in the near future significantly lowered following discussions with the CZSO.

Tab. 4: Financial indicators for the household sector

	CZ				SVK				HU				EU			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Loans received/Total liabilities	60.7	61.8	62.5	63.2	87.6	85.5	85.6	88.4	92.1	91.7	92.5	92.8	88.9	89.3	89.4	89.5
Loans received/GDP	24.7	25.7	26.5	27.4	18.8	19.6	20.2	20.9	31.2	30.2	32.2	36.1	60.5	60.6	60.7	61.0
Total liabilities/GDP	40.7	41.6	42.3	43.3	21.5	22.9	23.7	23.6	33.9	32.9	34.8	38.9	68.1	67.9	67.9	68.2
Liquid assets/Financial assets	56.3	56.4	57.3	58.3	61.1	59.1	60.7	66.2	34.4	34.3	34.4	37.0	33.1	34.1	35.0	37.3
Liquid assets/Loans	180.2	175.9	174.0	173.7	177.6	170.3	164.7	170.7	105.8	107.5	102.0	99.1	105.6	106.4	106.2	109.2

The loans received/GDP ratio, which is two to three times higher in the euro area than in Central European countries, indicates a significant difference in the total household debt. Again, we can say with a certain degree of cautiousness that there is some room for further debt expansion in Central European countries. However, even at relatively low debt levels, the currency structure of loans and the currently high currency risk may cause problems with the repayment of loans – an example is Hungary, which saw a substantial increase of foreign-currency loans because of a big difference in interest rates. To make a conclusion on whether the level of indebtedness in the euro area may be already problematic, while in the Czech Republic and Slovakia it is still not, it would be interesting (if not necessary) to know the debt levels for different social groups in the population.

The high ratio of liquid assets to total financial assets of households in the Czech Republic and Slovakia compared to the euro area and Hungary again indicates a different approach to the allocation of financial investments. At the aggregate level, Czech and Slovak households still prefer investing

their free funds into low-yield, but safe financial instruments – with only a little tendency to diversify their investment portfolios. This fact is also reflected in a very comfortable (but perhaps not entirely efficient) coverage of the sector's loans by own deposits and currency. This ratio stood more or less above the 100% mark also in the euro area and Hungary, though at significantly lower levels. However, while the euro area registered a slight improvement in this indicator over the year, Hungary saw the gradual deterioration of the indicator, which, in the fourth quarter of 2008, for the first time fell slightly below 100%.

## **6. Conclusion – future plans**

Quarterly financial accounts are a new area of the CNB's statistics which brings new information on the financial situation and relationships existing within the Czech economy, including the relationship to other countries. The importance of these statistics is gradually increasing, especially as regards information on the financial situation in the sectors of households and non-financial corporations. In the previous five years, the Czech National Bank created a basic framework for the compilation of QFAS, which will be completed in 2010 by publishing both stock and flow data, including counterparties and historical time series from 2004. In this context, we can talk about the completion of the first important phase in the compilation of QFAS. This phase was concerned mainly with the data compilation process itself.

In late 2010, the CNB will enter a new phase of the financial accounts statistics compilation, which should be characterized mainly by higher quality of source data in terms of their mutual consistency, both within the CNB and between the CNB and the CZSO. This especially involves the growing harmonization of source data and methodology of quarterly and annual financial accounts and ensuring the overall consistency between financial and non-financial accounts. In this context, the CNB and the CZSO in 2009 entered into a strategic agreement that reconfirms the CNB's responsibility for the QFAS compilation and newly introduces the CNB's responsibility for the compilation of the first preliminary set of annual financial accounts on the basis of quarterly data.

With regard to the gradually increasing analytical use of financial accounts statistics both within the CNB and by domestic and international analytical departments, the CNB – in a move similar to that of the ECB – plans to shorten the data publication deadline from T+110 days to T+80 days. This process will be accompanied by automation of the entire compilation process with the aim to provide more space for increasing the quality of data and for their interpretation.