Who-to-whom information in German financial accounts – compilation, challenges and its usefulness for monetary policy

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Abstract

The recent financial crisis has shown that information on the financial interconnectedness of institutional sectors (households, corporations etc.) can be very important for both crisis prevention and resolution. Information of this kind can be used to examine, *inter alia*, how sudden losses of financial assets in one sector are transmitted to other sectors, as well as the associated impact on the demand for goods. The paper gives an overview of key aspects of the compilation of who-to-whom information in the German financial accounts, which has recently been introduced for deposits, loans, debt securities, shares and mutual funds shares. While the availability of adequate primary sources and their informational content has improved in recent years, challenges still remain. The paper also shows that detailed information on debtor/creditor relationships is particularly useful for the purposes of monetary policy analysis, since it contributes, *inter alia*, to the understanding of sectoral financing patterns.

Keywords: Financial accounts; monetary policy; who-to-whom information; financial networks.

1. Introduction

The recent financial crisis has shown that the financial situation of an economy's institutional sectors (governments, households, corporations) has a significant impact on their economic behaviour. For instance, a high debt level might impose constraints on the (future) spending behaviour of a sector, thereby affecting aggregate demand and, hence, economic growth. By contrast, less-indebted sectors are unlikely to face similar constraints. However, the crisis has also revealed that it is not only the level of assets and debt, but also the financial interconnectedness between sectors, that significantly contributes to sectors' economic behaviour. If the assets of sectors with sound balance sheets mainly consist of claims on the indebted sector, less indebted sectors may also be constrained. Once debt becomes exceedingly high, doubts concerning repayment might arise, thereby impairing the reliability of the assets. In such an environment, the (supposedly) healthy sectors might also need to change their spending behaviour, even if they are not indebted at all.

Detailed information on the financial interconnectedness of institutional sectors and, hence, on the creditor/debtor relationships can therefore be very important for both the prevention and resolution of a financial crisis. It can be used to examine, *inter alia*, how sudden losses of financial assets in one sector are transmitted to other sectors, how this in turn affects the financial soundness of these other sectors, their demand for goods and eventually (future) economic growth. Information of this kind can therefore contribute to the analysis of the financial sphere of an economy and its effects on the real economy, thereby improving economic policy.

Against this background, Germany's financial accounts have recently been significantly extended to include detailed information on creditor/debtor relationships. The data now cover all major financial instruments as well as all major institutional sectors, including the rest of the world, and comply with the standards of the new European System of Accounts 2010 (ESA 2010).

This paper briefly describes the compilation of who-to-whom information and presents selected results.[1] Section 2 gives an overview of the main aspects of the compilation and major challenges related to it. Section 3 presents selected results and outlines their use for monetary policy purposes.

2. Who-to-whom data in German financial accounts: compilation and challenges

Financial accounts are part of the national accounts, reflecting the activities in the financial sphere of an economy from a macroeconomic perspective. They typically comply with the requirements of the System of National Accounts (SNA), which is the international methodological standard for national accounts. This standard specifies the definition of financial transactions, provides rules for the composition of institutional sectors and contains requirements for the valuation of financial instruments. It also requires financial accounts to be maintained in accordance with the principle of double entry bookkeeping, which means that every liability has to be mirrored by a financial asset.

In Europe, the adoption in autumn 2014 of the European System of Accounts 2010 (ESA 2010), the European version of the SNA 2008, primarily entailed an expansion of reporting on sectors and instruments in the financial accounts. This expansion also required comprehensive information to be gathered on debtor/creditor relationships. That is, the data previously reported on a sector's claims and liabilities now also include information on the sectors for which these claims and liabilities exist. In Germany, these intersectoral links are now being recorded for all domestic sectors and the following financial instruments: deposits, loans, debt securities, listed shares, and investment fund shares. Domestic sectors' links with the rest of the world are also taken into account.

Figure 1 shows selected relationships in a stylised manner. For instance, non-financial corporations (NFCs) are granted loans by monetary financial institutions (MFIs) and insurance corporations and pension funds (ICPFs), which also provide loans to the household sector. At the same time, households hold securities issued by NFCs, thereby providing funds directly to the NFC sector. These securities are also bought by ICPFs. In addition, ICPFs hold securitised claims against MFIs. In addition to these intersectoral relationships, detailed debtor/creditor relationships also include intrasectoral connectedness, as reflected by the loans granted by NFCs to other NFCs. As a result, institutional sectors can potentially be intensively interconnected.

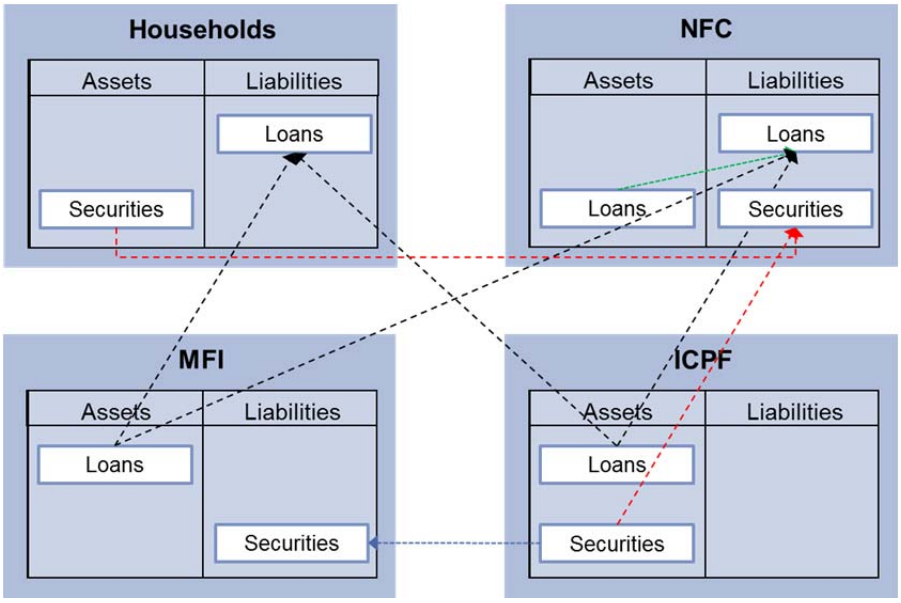
The consistent recording of these relationships in the financial accounts entails strict requirements for both the primary statistics and the compilation of secondary data. This is particularly true since debtor/creditor relationships not only need to be reported for transactions (e.g. the extent to which MFIs buy bonds issued by NFCs within a particular quarter), but also for stocks (e.g. the amount of NFC, government or ICPF bonds held by MFIs at the end of a particular quarter). Furthermore, changes in the price of a financial asset (e.g. debt securities) within the period under review also need to be reflected consistently in the financial accounts. As a consequence, it is essential that primary statistics contain all the necessary information in an appropriate form. Ideally, these primary statistics should comply with ESA 2010, be available in a timely manner and be consistent among themselves. While this is fortunately the case for many primary sources in Germany, some of them do not (yet) fulfil the requirements.

In order to satisfy the requirements mentioned above, the compilation of the financial accounts in Germany is predominately carried out from the perspective of the financial instrument. This means that data on a given financial instrument (e.g. loans) are compiled using primary sources that contain the necessary information for all sectors of interest, rather than on the basis of sector-oriented sources with information on all (or most) financial instruments. If no single primary source covering all necessary information is available, appropriate complementary statistics are needed in order to fill the

[1] This paper largely draws on the discussion in Deutsche Bundesbank (2014).

gaps. This kind of compilation ensures complete consistency and comparability of all information related to the respective financial instrument – among all sectors, both for assets and liabilities as well as for transactions and stocks (and valuation changes). It therefore significantly facilitates the compilation of debtor/creditor relationships. However, it also sets high standards for the selection of primary sources.

Figure 1: Stylised presentation of selected debtor/creditor relationships
(Arrows point to the respective sector on which a given sector has a claim)



For instance, in Germany the compilation of deposits in the financial accounts is largely based on the statistics of MFI balance sheet items (BSI statistics). This source provides comprehensive information on all kinds of deposits, records the corresponding counterparties (i.e. which sector owns the bank deposit), covers all sectors and by now also complies with ESA 2010. The same is true for bank loans. Since loans from other sectors (e.g. from insurance companies or the government) are not covered by BSI statistics, additional sources are taken into account (e.g. financial statements of non-financial corporations). In this way, the comparability of all sources is ensured.

As regards securities (debt securities, shares and mutual funds shares), the situation is somewhat different. While information on the holdings of almost all securities and by all institutional sectors is in principle provided by the so-called securities holdings statistics, only domestically-held securities are reported therein. Securities held abroad are not included, either for domestic or foreign sectors. Additional information comes from the balance of payments and the international investment position, as well as from the statistics on foreign direct investments. Therefore, the liability side of securities is mainly captured by the securities issues statistics, which provides data on all securities issued in Germany. However, there are differences among all of these sources as regards their structure and the way data are collected. Hence, the details and the scope of available information differ. While, for instance, securities holdings statistics provide a detailed sector breakdown that perfectly corresponds to the needs of financial accounts, the balance of payments is less detailed. Estimation techniques as well as complementary statistics are used to overcome these and other shortfalls.

Another challenge in compiling detailed debtor/creditor relationships concerns the availability of consistent data on flows, stocks and other changes (valuation effects etc.). While for some financial

instruments the relevant primary statistics provide almost full original information, for others this is not the case. For instance, there are no primary statistics with data on the net acquisition of securities for all institutional sectors – either for debt securities or for shares or mutual funds shares. While partial information is available from selected sources for some sectors, for other sectors no original data exist. This implies that this information needs to be derived from other sources. As regards the net acquisition of securities, this is captured using stock data from the securities holdings statistics. When deriving flow data from stocks for the asset side, it must, among other things, be ensured that these derived flows correspond to the original flow data of the liability side. Otherwise, consistent debtor/creditor information cannot be compiled. In this regard, an adequate separation of valuation changes and other changes in volume (e.g. changes in the classification of financial instruments that occur during the period under review) is crucial.

Other challenges are related to the retroactive implementation of the debtor/creditor relationships, particularly for earlier years with less detailed primary sources (e.g. due to less frequent periodicity), or the use of primary sources which did not fulfil the requirements of ESA 2010. In order to cope with all of these issues, close cooperation has taken place between the various statistical areas of the Deutsche Bundesbank, thereby ensuring a consistent and comparable recording of debtor/creditor relationships in the financial accounts.

3. Selected results and usefulness for monetary policy

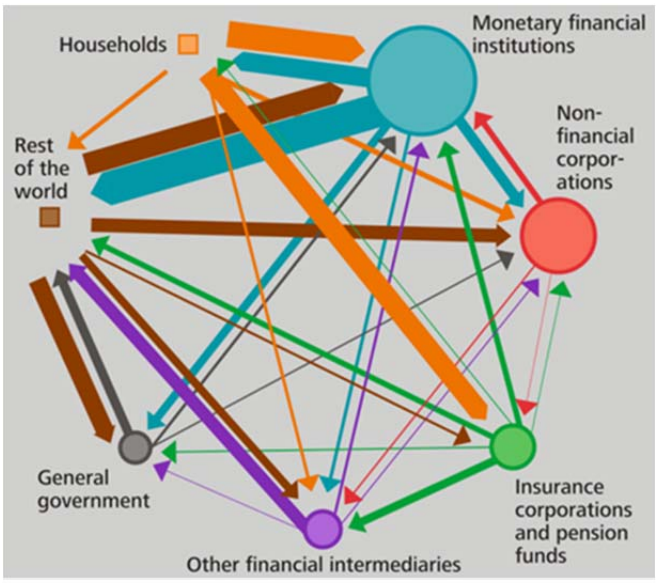
Figure 2 shows the financial links between institutional sectors in Germany for all available financial instruments. Obviously, sectors are closely linked to one another via numerous financial relationships, both inside and outside of Germany. However, the intensity of these relationships varies greatly. Households are, for instance, very closely linked to banks and insurance corporations as a large part of their financial assets is made up of bank deposits and claims on insurance reserves. Nonfinancial corporations are also linked to banks and insurance corporations via their liabilities, although they have financial relationships with all other sectors as well. These include investment funds, which provide them with resources through the purchase of debt securities and shares, captive financial institutions, which manage the intra-group allocation of resources, or the rest of the world, which holds a large part of the shares issued by firms and thus acts as an important equity capital provider. The rest of the world also plays an important role in general government financing, with around three quarters of German public sector debt securities being held in foreign safe custody accounts. The majority of sovereign bonds that remain within Germany are held by MFIs, with all other sectors having only minor claims on general government.

This detailed information on the relationships between debtors and creditors provides a rich basis for the analysis of interactions between institutional sectors, particularly if exogenous shocks occur. For instance, network models can be used to examine how sudden asset losses in one sector are transmitted to other sectors and to analyze how these losses affect consumption and investment and, hence, aggregate demand, economic growth and inflation (cf. e.g. Gray, D. and Malone, S., 2008). Without detailed information on debtor/creditor relationships, analyses of the financial interconnectedness of institutional sectors have to largely rely on estimations. Hence, the uncertainty regarding both the results and policy implications is rather high. Castren, O. and Kavonius, I. (2009) discuss this issue in more detail.

Furthermore, it is possible to disentangle the various transmission channels through which exogenous shocks spread through the network and to quantify their relevance. For instance, if asset losses transmitted via the financial links between sectors end up on banks' balance sheets, this can negatively affect banks' credit supply, which might have an (additional) impact on aggregate demand. If such a tightening in banks' credit supply occurs, other financial sub-sectors (like insurance companies or other financial intermediaries) might step in and provide more funds to the non-financial sectors. This

in turn would imply changes in the relationships between sectors, which can likewise be tracked using detailed information on debtor/creditor relationships. Apart from the analyses of the transmission of shocks through the network, it is also possible to examine how shocks which affect all sectors simultaneously – such as interest rate changes – impact on the interaction between the sectors and the respective financial positions.

Figure 2: Financial Links between sectors in Germany
(As a percentage of GDP, as at end-2013)



Arrow point to the respective sector on which a given sector has a claim. All financial instruments for which comprehensive debtor/-creditor relationships exist are considered. The thickness of the arrow symbolises the total volume of a sector's claims on another sector. The size of the circle represents the financial links within a sector (in the financial accounts, these intra-sectoral links are not recorded for the rest of the world and the households). For the sake of clarity, only links with a volume of more than 1% of GDP are shown.

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Overall, incorporating detailed information on debtor/creditor relationships in the financial accounts further improves the usefulness of this dataset for the purposes of monetary policy. This helps to provide a better understanding of the financing patterns of households, non-financial corporations and other sectors of the economy. Therefore, it allows for a more profound assessment of the implications of possible supply constraints in the financial sector and permits a more comprehensive analysis of the effects of interest rate changes on the economy. As regards the unconventional measures recently adopted by the Eurosystem, the data is particularly useful for the evaluation of the effects of the so-called Expanded Asset Purchase Programme (EAPP), commonly referred to as quantitative easing (QE), as it shows precisely which sector holds the debt securities of the respective central government.

References

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