Why does bank credit not drive money in Germany (any more)?☆

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ABSTRACT

Since the turn of the millennium a gap between credit growth and GDP growth has emerged in Germany. The gap widens with surpluses of the German trade balance to other euro area countries and becomes negative, when surpluses of the trade balance contract. This phenomenon is accompanied by a new pattern of money growth, which is not driven by domestic credit of banks any more but by their net foreign assets. German nonfinancial corporations have rising equity ratios and provide other sectors with funds on a net basis. Moreover, their deposits with German banks have grown at a much stronger pace than their loans. We suspect that German membership in the European monetary union is an important explanation of the changing behavior in the real and financial sector and show the substitution between export cash-flows and domestic credit theoretically in a two-country model of post-Keynesian type, in which the two countries use a common currency.

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1. Introduction

The recent financial crisis and the subsequent Great Recession resurrected public and professional interest in fundamental questions on the money system. Over the Great Moderation period these concerns took a back seat to a view of monetary policy conducted exclusively by changing interest rates. In academic circles, money and credit aggregates moved away from mainstream economics. Taylor-like rules became the standard approach to model central bank behavior in the 1990s (see, for example, Svensson, 1997), while money and credit aggregates disappeared from the bulk of monetary policy models (see, for example, Woodford, 2003). Focusing on money and credit aggregates challenged central banks as standard money demand models had difficulties in explaining monetary dynamics on the basis of developments in the traditional determinants, such as output, prices and interest rates. However, a central bank cannot ignore the information from monetary developments in its assessment and policy considerations, though the relevant debate is rather how they should do so.

Besides the dominant neo-classical and New Keynesian mainstream, the post-Keynesian research paradigm allows for a comprehensive modeling of monetary variables in the stock-flow consistent framework. Godley and Lavoie (2007) provide a compendium to these modeling techniques. Beyond the post-Keynesian school of thought, Werner

(1997, 2005) was also a distinctive exception in the pre-crisis period. As already claimed by Schumpeter (1917(1956)), Werner repeatedly stresses the fundamental importance of the credit creation process and its institutional setup for sustainable growth and financial stability. The financial crisis led to a critical assessment of the current monetary order, which includes a revival of the Chicago Plan (see Benes and Kumhof, 2012) and 100 percent reserves as proposed by Fisher (1936). Others try to formulate alternative approaches for considering the modern money system without disregarding its operational characteristics, see for example Roche (2011).

The focus of our analysis is less radical. The starting puzzle is the fact that German credit does not drive German money and that there is a gap between German credit growth and GDP growth. German enterprises were traditionally known for their strong bank dependence and low equity ratios and not surprisingly, bank credit to the nonfinancial corporate sector was the main driving force of German money growth. Since the turn of the millennium this equity ratios started growing steadily and deposits of nonfinancial corporations increased strongly in relation to bank credit. Current account surpluses, in particular, trade account surpluses, increased, while growth of net foreign assets at German banks increased at an even stronger pace. A major destination of both, the real sector and the financial flows, was other countries in the European monetary union (EMU). German enterprises provided other sectors with funds on a net basis as their surplus funds in the non-financial corporation sector increased, i.e. the increase of gross investment fell short of the sum of retained earnings and depreciation.[1]

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[1] The main recipients of these funds were German enterprises foreign affiliates, which covered part of their funding needs using the equity capital provided by their parent companies, see Bundesbank (2012).

Internal financing dominated, while a changing structure of external financing contributed to waning traditional bank credit only to a minor extent.[2]

The driving forces of German money changed. It is not driven by domestic bank credit any more, but by foreign credit. Accordingly, net foreign assets are now the main counterpart of the German contribution to euro area money.

In our work we attempt an inspection of driving factors for German low credit growth in an alternative monetary framework. Despite the importance of export orientation there may be another important reason: German membership in the European monetary union by itself. A unique combination of export competitiveness and a membership in a large monetary union form the frame (common currency, no exchange rates) where domestic credit is partly substituted by current account surpluses. Hence, in some sense we confirm the conclusions of Koo (2008), who suspects that Germany used its high export performance to escape a balance sheet recession in the beginning of the millennium. In addition, we point out how operational characteristics of a monetary union can change the credit creation dynamics in the corresponding countries. The rest of the paper is organized as follows: Section 2 establishes the "Puzzle" of German credit growth by identifying a credit gap, which "lacks" respectively the observed GDP expansion rate. Section 3 attempts to explain the gap by relating it to German trade surpluses with the Eurozone countries. In Section 4 we explain how the "closing" of the German credit gap is linked to the growth of net foreign assets in the German banking sector. Section 5 outlines the substitution mechanics between export cash-flows and domestic credit theoretically in a simple two-country model of post-Keynesian type. The final section concludes.

2. The puzzle of German credit growth

It is hardly possible to find any stable correlations between credit aggregates and aggregated measures of economic activity like GDP in Germany. To illustrate these empirical findings in more detail we compute the results of Granger causality test as well as simple correlations between the growth rates of nominal German GDP and nominal bank credit volume to non-bank firms, see upper plot of Fig. 1. The statistics are calculated for different sub-samples of the last three decades, the results are displayed in Table 1. In the decade before the German reunification credit growth Granger causes GDP growth and the correlation between them is positive. In the first decade after the reunification there is no significant link between credit and GDP growth in terms of Granger causality. During the last decade the direction of Granger causality changes and the correlation becomes negative.

However, a stable positive relationship between credit and output is crucial for estimating any credit demand or supply equation. Now our intention is to decompose the German credit growth and to extract a component, which is highly correlated with the production dynamics. Finally we demonstrate that the proposed decomposition works well before the reunification and in the first decade after it but fails in the last one.

For this purpose we adopt the framework proposed by Werner (1997) and explained in more detail in Werner (2005), called the quantity theorem of disaggregated credit. He analyzes the well-known quantity theory of money, arguing that an increase of output, expressed in terms of number and value of transactions in an economy in a given period (Q), can only be achieved by the corresponding expansion of money stock in circulation (M),

$$MV = PQ, \tag{1}$$

where V is the velocity of money and P the price level. However, the traditional quantity theory performed poorly with respect to velocity in the past. Economic theory postulates a constant velocity, but empirically the velocity of money not even always had a stable trend.

Werner (1997, 2005) claims that the quantity equation empirically is not an equation since money is also used in transactions, which are not adequately measured by GDP, for example, most financial transactions. For this reason, if the number of non-GDP transactions increases, for example due to a financial market boom, the estimated money velocity has to decrease, otherwise the equation is not balanced. In order to balance the equation we should use a money measure that is only used for GDP transactions, however no such measure exists because it is hardly possible to differentiate between deposits for GDP and deposits for non-GDP purposes. Hence, Werner proposes to consider credit aggregates since banks expand the size of both sides of their balance sheets by granting loans and creating deposits simultaneously. Only bank loans or other forms of bank investments are considered, because investments by non-bank institutions do not constitute creation of new means of payments but only a redistribution of available means of payments in the economy. Typically banks are required to report information about borrowers if they lend. This information could be used to discriminate between credit aggregates for different purposes, thus enabling us to approximate credit for GDP and non-GDP uses.

First, Werner (1997) formulates the quantity equation in terms of all economic transactions

$$CV = PQ, \tag{2}$$

where C, V, P and Q denote credit, money velocity, price level and the total number of transactions respectively. Second, GDP-based and non-GDP-based transactions are separated, so that Q is replaced by real GDP Y. However, credit, money velocity and price level are replaced as well, linking new measures to the GDP

$$C^Y V^Y = P^Y Y, \tag{3}$$

with C^Y, V^Y and P^Y denoting credit for GDP-based transactions, money velocity in the real economy and finally the GDP deflator. Assuming a constant money velocity and considering growth rates instead of levels the equation can be simplified considerably as follows

$$\Delta c_t^Y = \Delta y_t^N, \tag{4}$$

where y_t^N and c_t^Y are nominal GDP and credit for GDP transactions in logs respectively. Since nominal GDP series are available for most countries, the main task reduces to finding appropriate measures of credit aggregate for productive purposes.

Now we apply the framework of the quantity theorem of disaggregated credit to study credit growth in Germany. First, we choose bank credit granted to non-bank firms as a proxy of a credit aggregate for productive purposes. Since housing credit and mortgages of private households are often used for non-GDP-based transactions like buying land or already existing real estate, we do not include them in our productive credit measure. Furthermore, we exclude consumption credit, which usually plays a minor role in Germany. The results nevertheless turn out to be robust also after including consumption credit.

Growth rates of nominal GDP and bank credit for non-financial firms are plotted in the upper subplot of Fig. 1. We see that even though the one-to-one relationship between credit and production growth seems to be fulfilled, this is a very rough approximation, since there are rather large and persistent deviations from the postulated equations. In particular, there are two subsequent periods, where we observe a significant gap between credit and GDP growth: (a) the decade after the German reunification as well as (b) the subsequent decade which is mainly characterized by the existence and functioning of the European Monetary Union.

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[2] While the share of market-based external financing has remained virtually unchanged, credit to the corporate sector has gained importance during the periods of economic weakness in the years 2001–03 and 2008–09, see Bundesbank (2012).