

Reports from the Economic Research Centre

On the Stability of Different Financial Systems

Discussion paper 10/03

By Falko Fecht

In many financial crises banking crises were accompanied by distortions in the national financial markets. The simultaneous occurrence of these two crisis phenomena frequently created a self-enforcing mechanism. Banks with a liquidity shortage were forced to sell assets. These “fire sales” in turn caused a deterioration of financial asset prices which destabilised other banks.

The impact that sales of securities by individual banks have on financial market prices and the banks’ ability to offset price collapses on the financial markets thus appear to be the key determinants of a financial system’s vulnerability to crisis. This suggests that market-oriented financial systems – with highly liquid financial markets – and bank-dominated financial systems – in which German-type universal banks predominate – face different risks from such crises.

To analyse this question within a theoretical framework, this research paper first explains the emergence of different financial systems as a function of the number of households with efficient direct investment opportunities. In an economy in which households face a liquidity risk but where long-term investments generate a higher return, a financial system evolves displaying the salient features of a market-oriented system if the percentage of households with direct investment opportu-

ities which are as efficient as those available to banks is comparatively high. In this financial system the function of banks is confined to providing efficient investment alternatives to households with inferior opportunities for direct investment. Households participate to a large extent in the primary as well as in the secondary financial market, whereas the involvement of banks is fairly minor. The deposit contracts offered by banks in such a financial system do not provide any liquidity insurance to households – the yield structure of the deposit contracts is just as steep as that of direct investment opportunities. In the other case, in which a relatively high percentage of households has inefficient direct investment opportunities, a bank-dominated financial system arises in which bank deposits do represent a liquidity insurance. In this financial system banks are active in both the primary and secondary financial markets, while households only participate in the secondary financial markets and their transactions have only a comparatively small volume.

In the framework of our model a run on a single bank causes contagion of other banks via price distortions in the financial market neither in market-oriented nor in extremely bank-dominated financial systems. In market-oriented financial systems price distortions stemming from fire sales by individual banks are low owing to the deep market liquidity. Moreover, owing to their smaller trading volume in the financial markets banks are barely affected by price fluctuations in these markets. In bank-dominated financial systems, by contrast, banks have a buffer through which they can offset price collapses in the second-

ary markets. In extremely bank-dominated financial systems this buffer is sufficient in relation to the banks' trading volume in the financial market, so that price distortions caused by fire sales of a distressed bank do not lead to the collapse of other banks. It is in only moderately bank-dominated (or hybrid) financial systems, in which the percentage of households with efficient direct investment opportunities is comparatively high but does not lead to the emergence of a market-oriented system, that the collapse of bank due to a sudden drop in asset prices in the financial markets precipitates other banks into crisis.

The model indicates that deeper liquidity of national financial markets does not necessarily imply greater stability of the financial system. Rather, a transition from a bank-dominated financial system towards a market-oriented financial system giving households improved access to direct investments and greater participation in the financial markets may lead to a transitory increase in the fragility of the financial system. Structural changes of this nature therefore require special vigilance on the part of prudential supervisors particularly in a phase of transition from a bank-dominated to a market-oriented financial system.

Money in a New-Keynesian model estimated with German data

Discussion paper 15/03

By Jana Kremer, Giovanni Lombardo and
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This discussion paper analyses the importance of the monetary aggregate M3 for the cyclical development of the west German economy between 1970 and 1989 using an estimated New-Keynesian model. Comparable studies for the United States¹ and the euro area² indicate that money is a less important factor for explaining economic development. According to those studies, the relationship between real and nominal variables can be described exclusively via the short-term nominal interest rate. By contrast, the results of this discussion paper indicate that in western Germany money has played an autonomous role in the monetary transmission process.

In the discussion paper a simple New-Keynesian model is estimated using a maximum likelihood method in which monetary policy is described as following a Taylor rule. A key finding is that a complementary relationship exists between consumption and money balances in households' utility function. Consequently, the model dynamics are influenced, independently of nominal interest rates, also by monetary growth.³ This suggests *inter alia* that the money stock should be incorporated into the Bundesbank's response function, which also emerges in estimating the monetary policy rule within the model. The estimation indicates that an acceleration of monetary growth led to higher

central bank interest rates. In addition, fluctuations in the inflation rate implied relatively strong interest rate responses. The output gap was regarded as less important. A further finding is that monetary policy was characterised by relatively high persistence in respect of the interest rate moves.

The estimated model examines four exogenous shocks: a technology shock, a money demand shock, a preference shock that affects the intertemporal elasticity of substitution in consumption, and a monetary policy shock which captures deviations of monetary policy from the estimated monetary policy rule. The impulse-response functions outlined in the discussion paper show the response of the endogenous variables – output, inflation, short-term nominal interest rates and money stock – to these shocks. The results particularly underscore the significance of the complementarity between consumption and money balances. This complementarity implies that, following a positive money demand shock, households increase their money balances for a time to the detriment of consumption. This can explain a short-run negative correlation between output and the money stock, such as that which prevailed in western Germany in the second half of the period under review. Moreover, money balances enter firms' labour cost via the labour supply, ie the position

¹ P Ireland (2002), *Money's Role in the Monetary Business Cycle*, Boston College.

² J Andrés, J D López-Salido und J Vallés (2001), *Money in an Estimated Business Cycle Model of the Euro Area*, Bank of Spain, *Working Paper 0121*.

³ This result is robust to various modifications of the model assumptions (variations of the Taylor rule and relaxation of the assumption of rational expectations concerning price-setting by firms) and of the data set (use of the GDP deflator instead of the consumer price index).

of the Phillips curve also depends on the money stock. Hence monetary policy influences inflation dynamics both via nominal interest rates and via the money stock.

Finally, the significance of the exogenous shocks for explaining the variance of the endogenous variables is determined using a variance decomposition. It should be borne in mind, however, that the estimation results are usually compatible with different interpretations of the fundamental shocks; the technology shock can be understood, for ex-

ample, in the extended sense as a supply shock. Given this constraint, it emerges that most of the variance in output can be attributed to money demand and technology shocks. Preference and policy shocks, by contrast, are of lesser importance.

The robustness of the results presented in this discussion paper to an extension of the theoretical model is to be examined in future research projects. A key aim in connection with the question under consideration is a more careful modelling of the financial markets.