domestic bank deposits. But borrowing from abroad is nearly exclusively to the corporate sector, whose bank deposits are only a small portion of total financial assets.

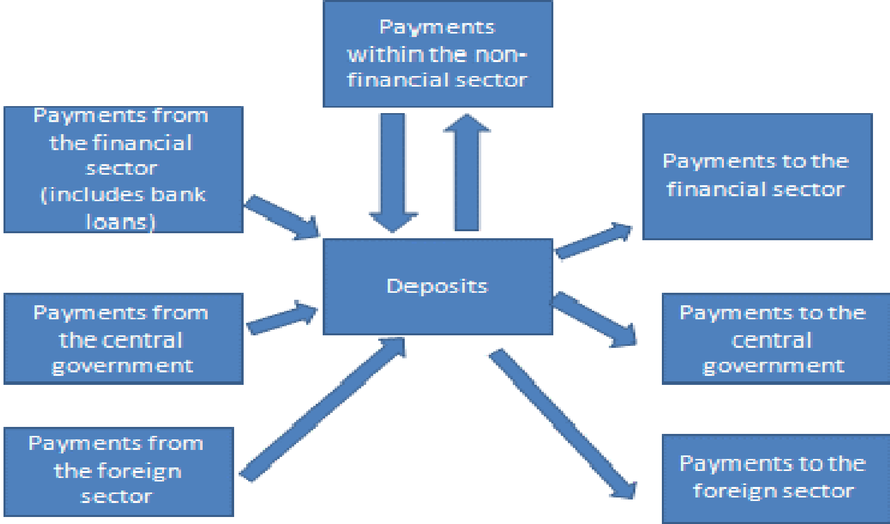

Chart 14: Deposits in the financial flows diagram

Charts 7 and 8 above illustrated the importance of bank loans as a share of total debt of the non-financial sector. Bank loans have become very important for the households sector where they constitute nearly 80 per cent of total debt in 2011. But they are much less important for the corporate sector, where the share is only 18 per cent.

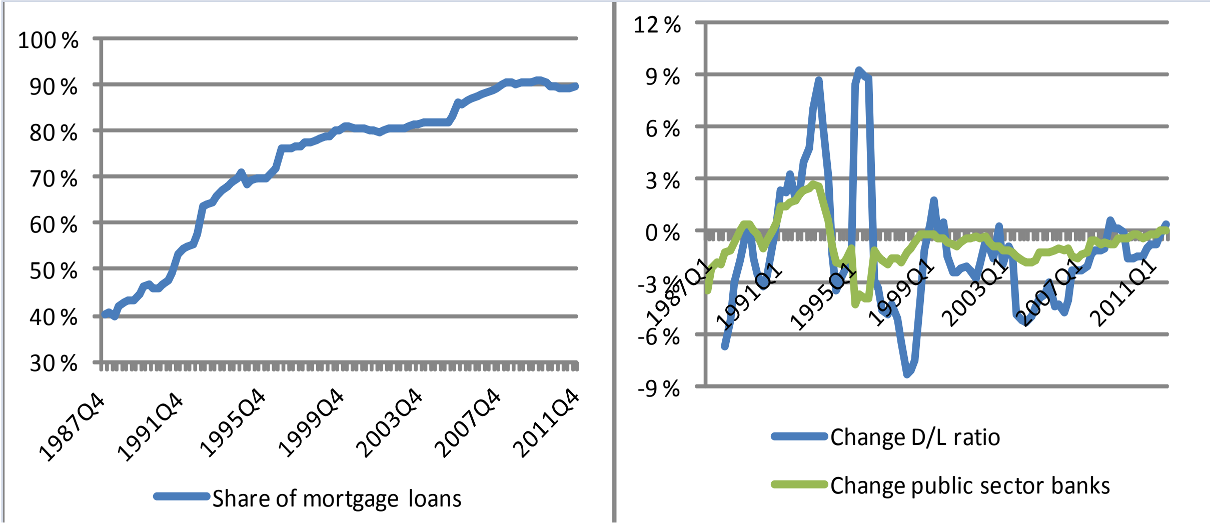

Chart 15: The share of mortgage loans to total private bank loans to the households sector (left hand panel) and changes in the deposit to loan ratio for households plotted against changes in share of loans from public sector banks in households' total liabilities (right hand panel). Source: Statistics Norway.

In parallel with this transfer of credit extension from public sector to private sector banks, the composition of the household loan book with private banks have changed. Chart 15 shows that the share of mortgage loans has increased from 40 per cent of total private bank loans to households in 1987 to 90 per cent in 2011. This naturally reflects the gradual transfer of mortgage loans from government lenders to private banks. In the last few years it also reflects the introduction of new loan products where households can use real estate as collateral for loans intended for other purposes than real estate purchases. There has also been an increasing share of mortgage loans with no repayments for extended periods.

The right hand panel of Chart 15 shows no close co-variation between the share of public sector loans and the deposit-to-loan ratio for households. This may indicate that the shift of mortgage loans from public sector lenders to private banks is not a good explanation for the year-to-year changes in the deposit-to-loan ratio. It may still be important for explaining the long term trend. Notice in particular the temporary upward shift both in the importance of government lending and the deposit-to-loan ratio at private banks in the early 1990s.

5. *Conclusions*

We have been exploring possible explanations for the strong decline in the ratio between bank deposits held by the non-financial sector in Norway, and the bank loans taken by the same sector. We have followed two different but related lines of reasoning. First, we have been looking at the relative return on bank deposits and on the relative costs of bank loans in a portfolio model approach. Second, we have tried to follow financial flows to identify structural changes in the Norwegian markets that could have an effect on the deposit-to-loan ratio.

We did find that real deposit rates have been low during periods with strong decline in the deposit-to-loan ratio, pointing to the attraction of alternative investment opportunities in capital market instruments. This has either been done directly or through the participation in funded pension schemes. During the periods of strong declines in the ratio we also found that the real loan rate has been low. In combination with a significant house price inflation this have made borrowing quite attractive to households.

The return incentives are particularly clear for the households sector. That is also the sector where the deposit-to-loan ratio has been declining since 1995. For the corporate sector the return incentives have been less clear-cut, and the decline in the deposit-to-loan ratio has been modest.

On the structural side, we first find that funded pension schemes have become more important during the past 30 years. This has probably to do not only with return incentives, but also with the growing importance of privately funded pension schemes as a supplement to the public non-funded pension schemes. Public pension schemes have become less satisfactory both because the upper limit on benefits have become binding for more people, and recently also because the level of benefits have been curtailed.

A second structural factor is that a large part of the lending to households has been transferred from public sector agencies to private sector banks during the past 30 years. A similar development has taken place for the corporate sector, but at a much smaller scale. Since public sector lenders mostly did not take deposits, this represents an obvious factor behind the long term trend. In parallel with this development, bank loan markets were deregulated, making deposits less important as a qualifier for bank loans. But these processes have been slow and may not contribute much to explaining the year-to-year changes in the deposit-to-loan ratio.

We also find a counteracting factor in the increased reliance of the corporate sector on foreign borrowing. Such financial inflows should lead to more deposits with Norwegian banks, at least when the borrowers operate on the domestic market. But there are two reasons why this effect may be small: First, much of the foreign borrowing has probably been to the petroleum sector that to a large extent operates outside the Norwegian economy. Second, the corporate sector holds only a small share of its financial assets as bank deposits. They do that mainly for transaction purposes, and their transaction needs will not increase as a consequence of shifting from domestic to foreign borrowing.

We are often told that banks should increase their deposit funding and reduce their reliance on market funding, meaning that they should engineer a rise in the deposit-to-loan ratio. While this is clearly desirable from a financial stability point of view, it is less clear how much the banks can actually do. There is very little they can do with some of the structural changes that have taken place. The strongest return incentive for household behaviour probably stems from house price inflation, that individual banks are not able to control.

The banks can certainly bid higher deposit rates to attract deposits, but the aggregate effect on total deposits in the system may be small. Banks can restrain their sales of new financial products of the kind that have shifted investments out of deposits and into alternative financial instruments, but that must a concerted effort to make much difference at the macro level. What individual banks undoubtedly can do is to restrict lending. That will certainly also reduce deposits, but the link between loans and deposits is likely to be much weaker at the individual bank level than it is in aggregate. And if lending growth is not restricted, one contribution individual banks could make to financial stability would be to make more of their market funding long term.

References:

Beltratti, Andrea and Stulz, René M. (2012), *The credit crisis around the globe: Why did some banks perform better?* Journal of Financial Economics 105, 1-17.

Cohen, Bruce C. and George G. Kaufman (1965), *Factors Determining Bank Deposit Growth by State: An Empirical Analysis.* Journal of Finance, 20 (1), 59-70.

Demirgüc-Kunt, Asli and Harry Huizinga (2010), *Bank activity and funding strategies: The impact on risk and returns*. Journal of Financial Economics 98, 626-650.

Disyatat, Piti (2011), *The bank lending channel revisited*. Journal of money, Credit and Banking 43 (4), 711-734.

Edminister, Robert O. and Henry E. Merriken (1989), *Measuring interest rate sensitivity of consumer depositors*, Journal of Financial Services Research 2, 133-145.

Hammersland, Roger and Cathrine Bolstad Træe (2011), *The financial accelerator and the real economy*. Discussion Paper 668, Statistics Norway.

Norden. Lars and Martin Weber (2010), *Funding modes of German banks: structural changes and their implications.* Journal of Financial Services Research 38, 69-93.