Household Balance Sheets and Debt – an International Country Study

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INTRODUCTION AND SUMMARY

What are the determinants of developments in the households' balance sheets for wealth and debt and household savings? What are the macroeconomic consequences of high gross debt for the households? These issues are the subject of an in-depth analysis in Part 2 of this Monetary Review. The most important findings of the analysis are summarised in this article.

As in most advanced economies, the net wealth of Danish households has grown considerably over the last 15 years, and in an international perspective household net wealth is at an average level. However, the development in net wealth masks a steep increase in both gross wealth and gross debt – known as balance-sheet build-up – which is somewhat higher than in other advanced economies.

The household sector should not be viewed in isolation from the rest of the economy due to the cross-sector interaction between savings, wealth and debt. If the public sector accumulates debt, households will, to a certain extent, see this as a sign of higher future taxes and raise their net wealth by increasing their savings. In Denmark, the public sector has positive net wealth, unlike many other countries. Moreover, the Danish economy overall has net external assets. Consequently, in an international perspective Denmark's overall financial balance-sheet position is favourable.

Household net wealth is a result of accumulated savings and value adjustments. In the last decades, value adjustments have been a main driver of increases in the net wealth of Danish households. Thus, in an international context, the savings ratio of Danish households is low. The same applies to the other Nordic countries, although to a lesser extent. An analysis of household saving behaviour shows that the low level of savings in Denmark and the other Nordic countries should be viewed in conjunction with high corporate savings. Other explanatory factors are a larger public sector, a better government budget balance and a higher level of tax deductibility of interest expenses.

Another determinant of household gross debt is the degree of balance-sheet expansion, since the households own real and financial assets concurrently with having gross debt. The highly developed Danish mortgage-credit and pension systems have facilitated a higher level of gross debt. In an international perspective, the Danish institutional framework with a well-developed financial system, notably the mortgage-credit and pension systems, enables households to make relatively sophisticated decisions regarding the accumulation and composition of their assets and liabilities.

An econometric analysis demonstrates that the strong increase in the gross debt of Danish households is, to a large extent, offset by substantial growth in their pension wealth. One of the reasons is that more households save via pension schemes rather than reducing their gross debt. This has resulted in balance-sheet expansion with higher assets and liabilities. Lower real interest rates and unemployment have also contributed to expanding household gross debt as a result of better opportunities to service and obtain higher debt.

On the face of it, high gross debt entails more pronounced household sensitivity to interest-rate changes and shocks to the economy. Our results indicate greater fluctuations in private consumption in countries with a high level of household gross debt. Greater fluctuations in private consumption amplify cyclical fluctuations.

Based on an econometric analysis covering a number of EU member states, we find that there is no statistical relation across countries between the level of gross debt and household arrears. Arrears are at a very low level in Denmark, indicating that the high gross debt is offset by assets to such an extent that the financial sector has not suffered major losses on direct lending to the households.

The low level of losses on lending to the households should be seen in light of the current low level of interest rates. The high interest-rate sensitivity means that households will be more vulnerable to interest-rate increases, especially if such increases occur at a time of high unemployment and weak growth. Consequently, due to the substantial expansion of household balance sheets, it is essential for the robustness of the economy to ensure appropriate framework conditions for low interest rates, particularly robust government finances and a current-account surplus.

A comprehensive analysis of vulnerabilities with a view to assessing financial stability would require detailed data on the distribution of wealth and gross debt across individuals and the exposure of individual financial institutions. Hence, the vulnerability depends on the extent to which gross debt is distributed on those households that have assets. A data set sufficient to compare housing wealth, financial assets and debt as well as pension savings across individuals has not yet been developed. This is a task for future analyses.

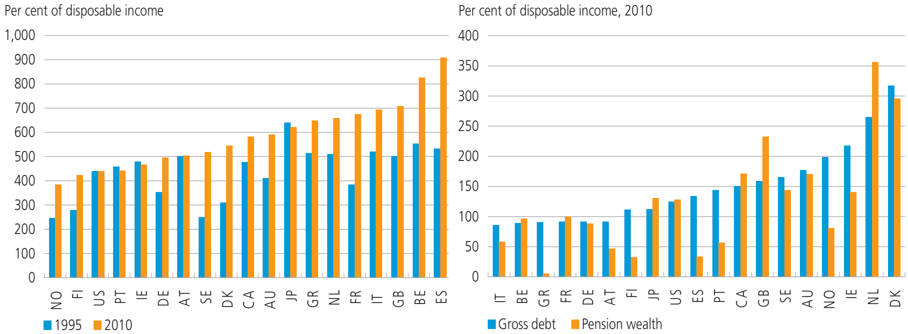
HOUSEHOLD WEALTH AND DEBT

In most OECD countries, households have expanded both their net wealth and their net wealth and debt over the last 15 years, cf. Chart 1. The net wealth of Danish households has thus risen by approximately 250 percentage points of disposable income since 1995, while in Sweden, France and Spain it has increased even more. In a few countries, including the USA, Japan, Portugal and Ireland, it has remained almost unchanged, however.

The development in gross wealth, gross debt and net wealth cannot be viewed in isolation. Household wealth consists primarily of housing wealth, pension wealth and other financial wealth, cf. Chart 2. Long-term loans against the home as collateral account for the greatest share of total gross debt. A comparison of household debt across countries shows a clear correlation in that countries with large gross debt typically also have large assets in the form of pension savings, cf. Chart 1 (right-hand side).

The growth in housing wealth has been a principal factor contributing to the development in net wealth since 1995. At the same time, the

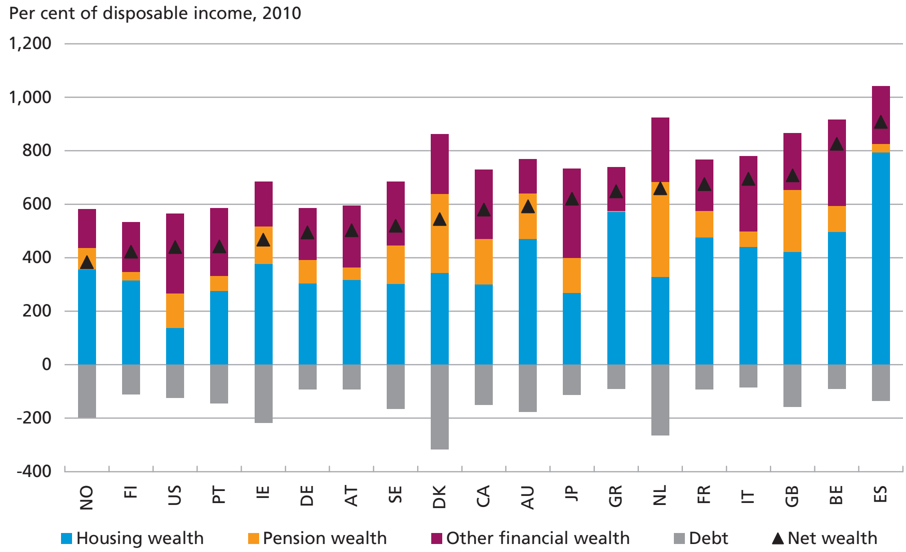
HOUSEHOLD NET WEALTH (LEFT-HAND SIDE), GROSS DEBT AND PENSION WEALTH (RIGHT-HAND SIDE) Chart 1



Note: Data for 2010 are partially estimated. In some countries, tax payments on pension savings pay-out reduce pension wealth after tax. The above data are shown before tax, as the current tax rate will not necessarily apply at the time of pay-out. Moreover, household wealth cannot be isolated from the rest of the economy, including government net wealth. Calculating net wealth after tax reduces the Danish households' net wealth by around 100 per cent of disposable income, resulting in a level that only just exceeds the level in Portugal. Conversely, the public sector's net wealth increases accordingly.

Source: OECD, national central banks and own calculations.

HOUSEHOLD WEALTH AND GROSS DEBT Chart 2



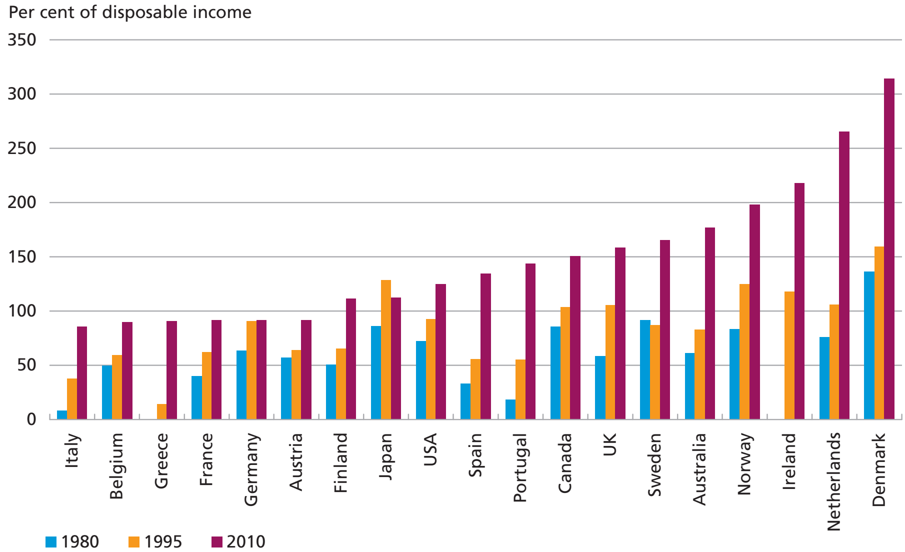
Note: See the note to Chart 1.
Source: OECD, national central banks and own calculations.

households have increased their gross debt in light of reduced costs of having debt and expanded credit facilities. This is partly attributable to falling interest rates and unemployment as well as considerable financial development in many countries. Consequently, housing wealth and gross debt have been pushed upwards by the same underlying factors, which has contributed to balance-sheet expansion (increase in both wealth and debt) for the household sector.

In some countries, including Denmark and the Netherlands, pension savings account for a large part of the wealth. In Denmark, one of the reasons is the widespread use of labour market pensions. Having substantial pension savings reduces the need to be free of debt before retirement. To the extent that households sustain a high level of gross debt for a prolonged period of life, saving under pension schemes instead, the debt ratio will increase for the household sector as a whole. Finally, pension savings are typically tax-advantaged, and interest expenses are tax-deductible. This may provide incentives for some households to borrow to finance their pension savings.

As a consequence, growing housing and pension wealth and financial development have contributed to considerable expansion of household balance sheets. Debt levels have risen strongly over the last 15 years, as gross debt ratios have doubled in many countries. The debt ratio is particularly high in Denmark, the Netherlands and Norway, while Italy, France and Germany are in the low range, cf. Chart 3. A remarkable fea-

HOUSEHOLD GROSS DEBT Chart 3



Note: For Germany 2010: The data refer to 2009. For Norway 1980: The data refer to 1987.
Source: OECD, Cecchetti et al. (2011) and national central banks.

ture is that quite a large number of the countries with high household gross debt also have low government debt, current-account surpluses and net external assets.

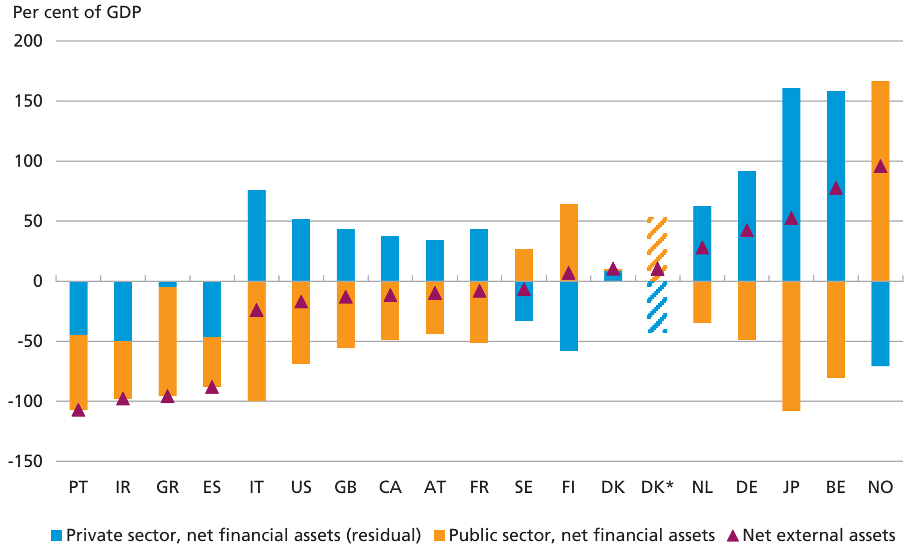
Household net wealth cannot be considered in isolation from the rest of the economy. If the public sector has substantial net debt, households must expect higher taxes and/or poorer public service in the future, while large corporate debt means that households must expect lower dividend payments. Both of these factors point to households building up greater net wealth through savings.

The net wealth for all sectors taken as one makes up a country's net external assets, also called the external debt. A country will accumulate external debt if it has persistent current-account deficits as a result of an overall savings deficit in the economy.

Denmark has gone from having considerable external debt in the 1980s to having net external assets of around 10 per cent of the gross domestic product, GDP, in 2010, cf. Chart 4, reflecting a prolonged period of sustained current-account surpluses.

In most countries, the public sector has net debt, while the private sector has net wealth. The Nordic countries are unique in that their public sectors have net financial wealth. In Denmark, the public sector has moderately positive net financial wealth when including holdings in various funds, among other factors. Allowing for the fact that part of household pension wealth is deferred tax accruing to the public sector on

EXTERNAL DEBT AND NET FINANCIAL ASSETS AT SECTOR LEVEL (2010) Chart 4



Note Due to lack of data, statistics for Italy, France, Germany, Japan and Ireland are from 2009. DK* indicates sector balance sheets for Denmark, adjusted for deferred tax on household pensions.
Source: IMF, Eurostat and OECD.

pension pay-out, however, the Danish public sector's net wealth is considerably higher.

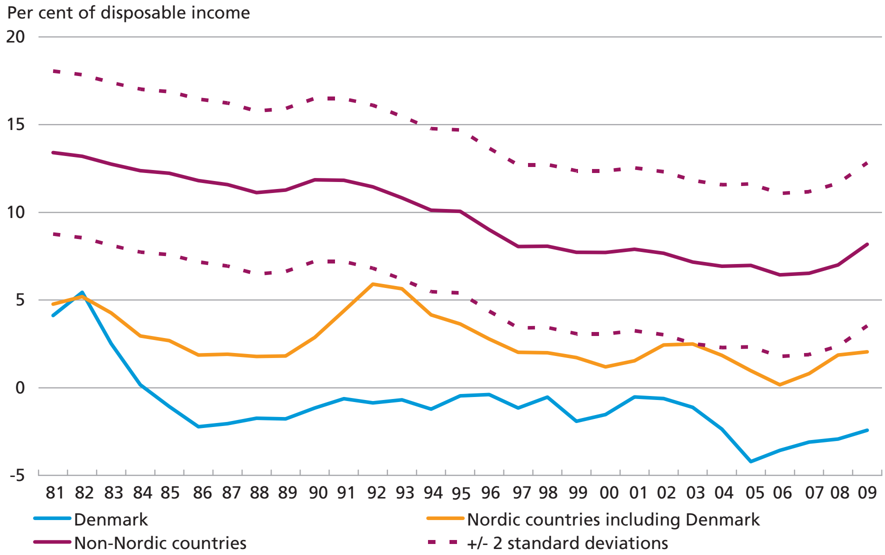
Consequently, the financial position of the Danish economy is relatively favourable overall, with public-sector net assets, a current-account surplus and net external assets.

ANALYSIS OF HOUSEHOLD SAVINGS

Household savings constitute one of the factors influencing the financial balance sheet of the households. In most countries by far, the savings ratio, i.e. household savings relative to disposable income, has either been reduced or has remained unchanged since 1980. In Denmark, it has generally been very low compared with the other OECD countries. The other Nordic countries and the Anglo-Saxon countries are also at the low end of the scale.

On the basis of an econometric analysis we find that in a broad group of OECD countries, the household savings ratio is explained by real interest rates after tax, demographics, corporate savings, the cyclically adjusted government budget balance and the size of the public sector. This is in line with previous studies. The analysis shows that the estimated savings ratio for Denmark is considerably lower than the average estimated savings ratio in the other countries, cf. Chart 5.

ESTIMATED NET SAVINGS RATIOS FOR THE HOUSEHOLD SECTOR Chart 5



Note: Estimation for 17 OECD countries in the period 1980-2008. Statistics for 2009 are based on an out-of-sample forecast.
Source: OECD, Eurostat, IMF and own calculations.

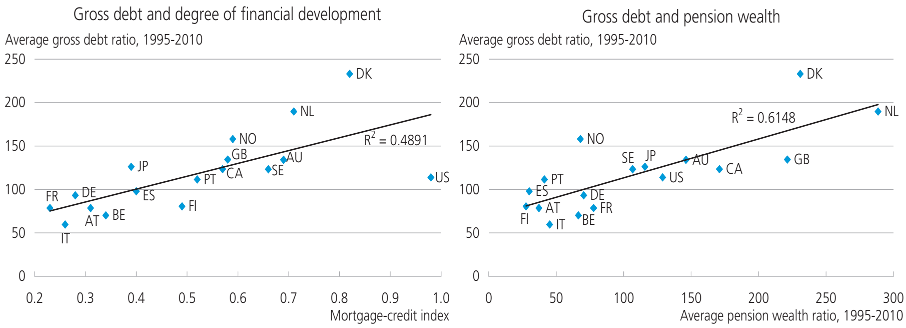
The analysis also shows that structural factors account for a considerable share of the difference in savings levels in Denmark and the other Nordic countries compared to the other advanced economies. In particular, this indicates that the high corporate savings, a larger public sector and a better cyclically adjusted government budget balance are the principal drivers of the reduction of the savings ratio. Moreover, the results indicate that interest deductibility may previously have played a role, especially for Denmark in the 1980s, but that it is not likely to be of key importance in relation to the current difference.

ANALYSIS OF HOUSEHOLD BALANCE SHEETS AND GROSS DEBT

There are two principal reasons for the observed increase in the gross debt ratio of Danish households. Firstly, both the costs of having debt and the credit constraints have probably been reduced as a result of financial innovation and liberalisation. This has contributed to the expansion of balance sheets via increased housing wealth and higher debt ratios. There is thus a clear relation between the gross debt ratio and financial development, cf. Chart 6 (left-hand side).

Secondly, having substantial pension wealth reduces the need to be free from debt before retirement. To the extent that households have gross debt for several years, e.g. when they save via pension schemes

FINANCIAL DEVELOPMENT, PENSION WEALTH AND GROSS DEBT Chart 6



Note: Data for 2010 are partially estimated. Left-hand chart: For a more detailed description of the mortgage-credit index, see Box 4.1 in the article in Part 2 of this Monetary Review. Right-hand chart: Pension wealth is calculated before tax.

Source: OECD, national central banks, IMF (2008) and own calculations.

rather than reducing their housing debt, the gross debt ratio for the household sector overall will rise. Thereby, a clear relation between the size of the pension wealth and the gross debt ratio emerges, cf. Chart 6 (right-hand side).

An econometric analysis partially confirms this conclusion.[1] According to the estimated model, the substantial increase in the gross debt ratio in Denmark is primarily attributable to the growth in pension wealth, which alone can explain around one third of the growth in the gross debt ratio from 1995 to 2010. The estimation shows that when the pension wealth rises by 1 per cent of disposable income, the gross debt will grow by approximately 0.4 per cent of disposable income.

Another contributing factor, although to a lesser extent, has been the reduction of the public sector's net debt, which has been replaced by net wealth. According to the estimation, a reduction of the public sector's net debt by 1 per cent of the households' disposable income will increase the households' gross debt ratio by 0.25 percentage points.

In addition to pension wealth, financial development and public net debt, we include a number of other variables, i.e. real interest rates, inflation and structural unemployment.[2] Together, these factors explain one fourth of the increase in the gross debt ratio since 1995.

1 According to the estimated model, financial development has only had relatively moderate influence on the increase in the debt ratio. The reason is probably that the applied index for the degree of financial development does not fully capture the real development or the cross-country differences (the mortgage-credit index, shown in Chart 6, is available for only one year).

2 Housing wealth has been excluded in the main model since it is found to be driven by the same underlying factors as the debt ratio, e.g. financial development. Including housing wealth would therefore entail underestimation of the estimated effects of the other explanatory variables.

CONSEQUENCES OF HIGH GROSS DEBT

Gross debt and losses in the financial sector

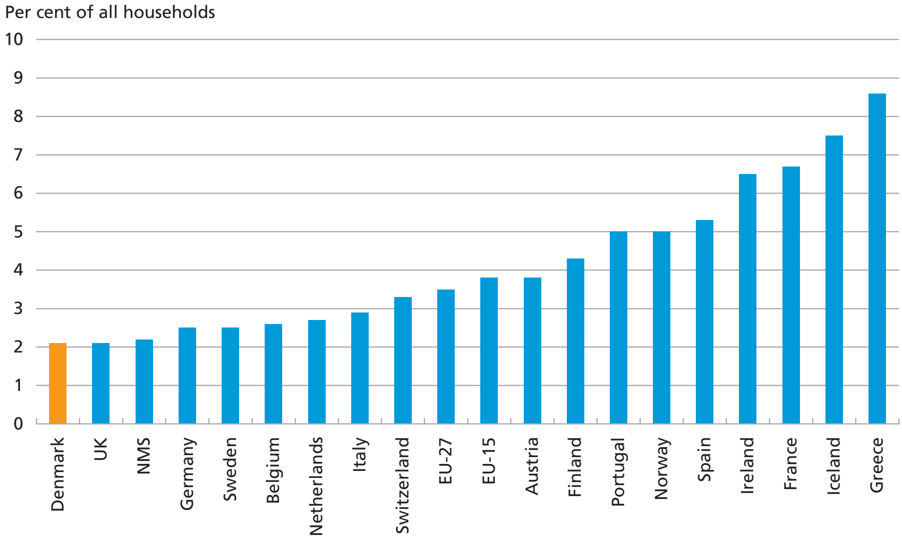
One concern as regards the high level of gross debt in Denmark is that it may lead to the financial sector suffering increased losses on lending to households during an economic slowdown or in the event of rising interest rates. A consequence of the higher gross debt is that is makes the Danish household sector more sensitive to changes in interest rates, particularly if the Danish business cycle is out of sync with that of the euro area, implying rising interest rates concurrently with high and/or increasing unemployment. But over the last 15 years, during which period the gross debt ratio has almost doubled, the financial sector in Denmark has suffered only moderate losses on lending to the household sector compared with the crisis in the early 1990s.

Even after the financial crisis, the losses of banks and mortgage banks on lending to the household sector have been relatively small, reflecting, among other factors, relatively low unemployment, very low interest rates and great household wealth. Households with high debt will typically have high wealth (both housing and pension wealth), since their homes are collateral for a large share of the debt.

Part of the increase in the gross debt ratio in Denmark can be explained by a higher number of households having gross debt for longer periods of time – because they raise deferred-amortisation home loans, among other factors – and by the higher number of households with debt as a result of better access to borrow. This indicates that the peak of the individual household's gross debt ratio over its life cycle has not risen as much as the gross debt ratio for the household sector as a whole.

As a consequence of Danish mortgage credit and insolvency legislation, Danish households will probably go to great lengths to avoid payment problems in relation to their home loans. The Danish mortgage credit system and its performance during the crisis are described in more detail in the article entitled "Danish Mortgage Credit" in this Monetary Review. The percentage of households in arrears with home loans or rent in 2009 is very low in Denmark compared to other European countries, cf. Chart 7. This indicates that the households' total balance sheet and the economic situation have not entailed major losses for the financial sector on lending directly to the households. An econometric analysis in Part 2 of this Monetary Review, based on data for nine countries in the period 1994-2009, confirms this conclusion. However, the low level of losses should be viewed in light of the current low level of interest rates. The high interest-rate sensitivity means that households

ARREARS WITH HOME LOANS OR RENT, 2009 Chart 7



Note: NMS: New member states.
Source: European Union Statistics on Income and Living Conditions.

will be more vulnerable to interest-rate increases, especially if such increases occur at a time of high unemployment and weak growth. A comprehensive analysis of vulnerabilities with a view to assessing financial stability would require detailed data on the distribution of wealth and gross debt on households and the exposure of individual financial institutions.

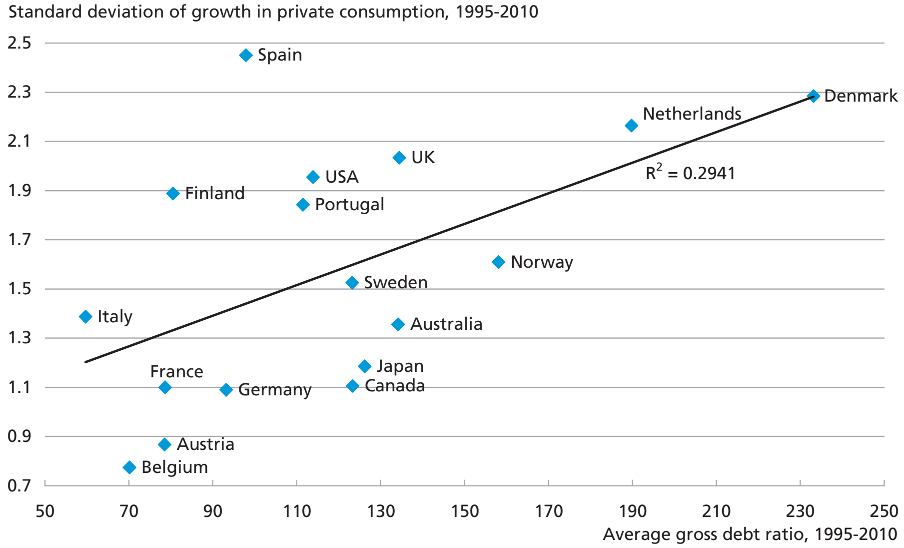
Despite the fact that the high gross debt ratio of the households does not seem to have a direct effect on the losses of the financial sector, there may be indirect effects. The reason is that large debt amplifies fluctuations in private consumption.

This may result in increased losses on lending to firms whose output is aimed at domestic private consumption. It is also possible that the high gross debt ratio has amplified the fall in house prices, thereby increasing the losses on lending to the construction sector.

Cyclical fluctuations and debt

Over the last 30 years, the fluctuations in private consumption have decreased even though the gross debt ratio has increased. This is related to the general tendency for cyclical fluctuations to be more moderate. Nevertheless, the stability of growth in private consumption varies across countries. Denmark is one of the countries with large fluctuations in private consumption, and the fluctuations are largest in countries where the households have high gross debt, cf. Chart 8.

HOUSEHOLD GROSS DEBT AND CONSUMPTION VOLATILITY Chart 8



Note: Data for 2010 are partially estimated. If Spain is excluded, R^2 will increase to 0.45.
Source: OECD, national central banks and own calculations.

An underlying factor is that higher gross debt tends to amplify the effect of shocks to the economy. Interest-rate increases reduce the disposable income of households with gross debt, especially those with substantial short-term debt, thereby reducing consumption. For households with wealth, interest-rate increases can reduce the value of housing. The net effects of interest-rate increases must be expected to be lower disposable income (and reduced wealth in the short term) and thus lower consumption. This effect is reinforced, the greater the gross debt of the individual household and the more households with gross debt.

For households with high gross debt that are temporarily hit by unemployment, consumption smoothing through increased borrowing will not be possible to the same degree as for households with low gross debt. As an alternative, the households may try to sell their assets in order to reduce their gross debt. This may lead to falling house prices, thereby reducing private consumption. An analysis based on 17 countries for the period 1995-2010 confirms that higher debt entails larger fluctuations in the economy, even when structural differences, general cyclical fluctuations and fluctuations in growth in net wealth are taken into account. This indicates that the high level of household gross debt has contributed to a larger decline in private consumption during the financial crisis in Denmark than would have been the case with a lower gross debt ratio.

LITERATURE

Cecchetti, Stephen G., M. S. Mohanty and Fabrizio Zampolli (2011), The real effects of debt, *BIS Working Papers*, No. 352.

IMF (2008), The housing sector and the business cycle, *World Economic Outlook*, April, Chapter 3.