
Financing, Investment and Consumption in Denmark and the Euro Area

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INTRODUCTION AND SUMMARY

The interaction between the real and the financial spheres of the economy is essential for understanding a business cycle. This interaction has become increasingly important in step with recent years' rise in households' financial balance sheets and the resulting increased exposure to financial market developments. The build-up of financial balance sheets is to some extent a result of the wide opportunities to finance investment against real and financial assets as collateral.

Since the turn of the year Danmarks Nationalbank and Statistics Denmark have published integrated quarterly data for the financial and non-financial sectoral national accounts. This new analytical framework makes it possible to provide a consistent picture of Danish households' incomes, consumption, wealth, savings, investment and borrowing. It also sheds new light on investment by business enterprises and the underlying internal and external financing. The consistent national accounts thus provide a better basis for analysing and understanding the business cycle.

Since 2007 the ECB has published integrated quarterly national accounts for the entire euro area. Another ambition is to produce similarly uniform accounts for the individual euro area member states. The new consistency in the Danish quarterly sectoral national accounts therefore also improves the basis for international comparison¹.

This article focuses primarily on the past six years, during which the Danish economy has undergone a significant cyclical upturn as well as a sharp setback. The significant development in the financing, investment and consumption of households and non-financial corporations (business enterprises) is described, drawing parallels to the development in the euro area.

¹ The USA is working on similarly consistent national accounts.

Overall, the period has been characterised by persistent net borrowing among Danish households. It increased from 2004-05 and fell again from end-2008. The net borrowing requirement has arisen because real investment (households' expenditure for e.g. home improvements and new-builds) has exceeded savings throughout the period. Similar cyclical fluctuations in the households' financial and real investment are also seen in the euro area, but here savings exceed real investment. Euro area households therefore have a current net lending requirement. The difference in levels between Denmark and the euro area may reflect a number of structural differences in e.g. access to mortgage credit and pension systems. However, this article focuses primarily on relative changes rather than absolute levels.

Danish households have borrowed extensively to fund rising financial investment in e.g. equities and bonds. This has resulted in a significant increase in balance sheets and thus the households' exposure to financial market developments. This is also mirrored in the wide fluctuations in financial net wealth. Developments in wealth have proved to have a close correlation with consumption and real investment.

Like the households, Danish business enterprises have been net borrowers during much of the period. The reason is that real investment in capital equipment and inventory build-up continuously exceeded savings from 2006 until the autumn of 2009. Here, too, there is a correlation with economic trends. Due to declining investment and rising savings at the end of the period, net borrowing by business enterprises has turned into net lending.

Developments in the net financing need and corporate financial investment should be viewed in the context of funding in the financial markets (external financing). During 2009 – concurrently with the decline in the net borrowing requirement – financial investment fell sharply amid deceleration in external financing. In 2009, business enterprises thus repaid short-term loans and reduced growth in long-term loans.

NEW CONSISTENCY IN THE QUARTERLY SECTORAL NATIONAL ACCOUNTS

Since the turn of the year, Danmarks Nationalbank has, together with Statistics Denmark, released quarterly accounts with a single consistent compilation of the net lending/net borrowing of the individual sectors, cf. Box 1.

Net lending/net borrowing is calculated for all sectors of the Danish economy and for the rest of the world versus Denmark. Net lending/net

NET LENDING/NET BORROWING IN THE NATIONAL ACCOUNTS

Box 1

Net lending/net borrowing links the real and financial sides of the national accounts. On the real side, net lending/net borrowing expresses whether there is a surplus after consumption and real investment and thus a net *investment* need in the financial markets, or whether there is a deficit and thus a net *financing* need. On the financial side, Net lending/net borrowing is an expression of the difference between transactions in financial assets and liabilities. If net transactions are positive, capital is invested in the financial markets and vice versa. Net lending/net borrowing calculated from the financial and the real side must therefore necessarily be the same.

HOUSEHOLDS' NET LENDING/NET BORROWING

Table 1

Kr. billion	Q4 2009
Gross disposable income (B.6g)	208.8
Adjustment for the change in net equity of households in pension fund reserves (P.8)	19.7
Gross disposable income, adjusted (B.6g+P.8)	228.5
Individual consumption expenditure (P.31)	213.7
Gross saving (B.8g)	14.9
Capital transfers, net (D.9)	-0.4
Real investment (P.5+K.2)	21.1
Net lending/net borrowing (B.9)	-6.6
Transactions in financial assets	46.3
Transactions in financial liabilities	52.9

Note: Selected transactions from the financial and the real side of the national accounts. The parenthesis after the name of the line indicates the item's ESA 95 national account code, if any.

Source: Statistics Denmark and Danmarks Nationalbank.

The elements of net lending/net borrowing on the real and the financial sides of the national accounts are illustrated in the following, based on the household sector.

During a quarter, households receive income in the form of e.g. wages, (net) interest income and dividends, and they pay taxes. Together, these transactions constitute the households' disposable gross income adjusted for the change in net equity in pension fund reserves. Due to the adjustment, payments to pension funds and interest and dividend from investment of pension fund reserves form part of the adjusted disposable income¹. Thus, the calculations of both the adjusted disposable gross income and the savings and investment ratios are independent of the selected form of investment (via the pension fund or direct investment in equities, bonds, etc.), which facilitates cross-border comparability.

If households' consumption of e.g. food, clothing and durable consumer goods, including cars and white goods is deducted from disposable income, the gross saving is found. Net lending/net borrowing is then found by adding capital transfers and deducting expenses for real investment in e.g. new-builds and home improvements.

On the financial side of the national accounts net lending/net borrowing is the households' net financial transactions on the assets side less net transactions on the liabilities side. Net transactions include purchase and sale of equities and bonds, payments to pension funds, transactions in bank deposits and loans.

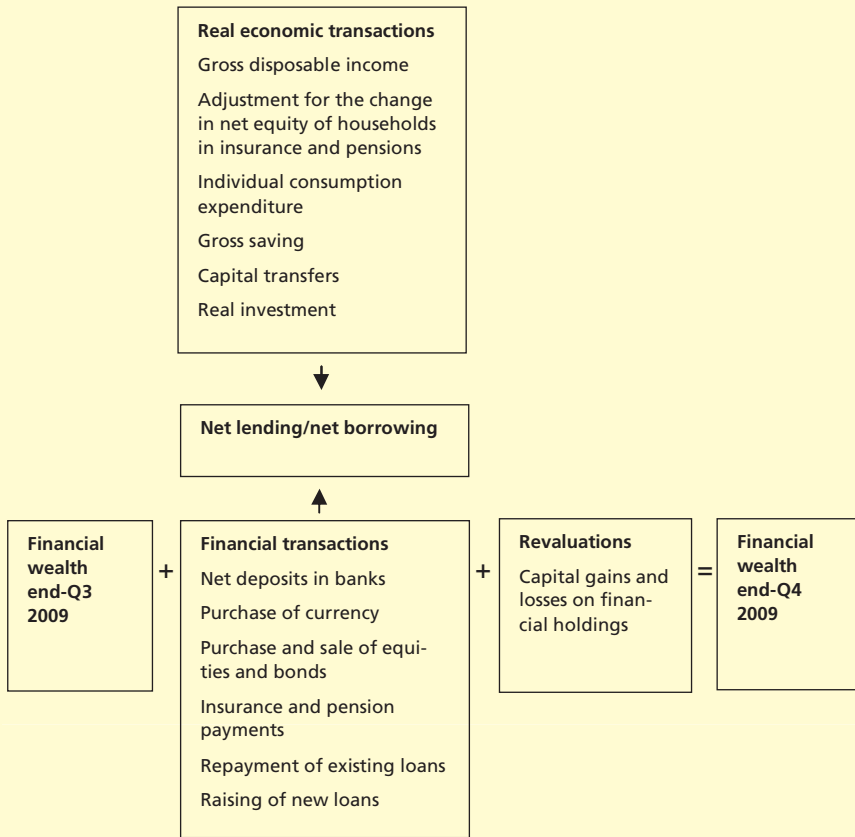
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Box 1

In addition to statements of transactions, financial sector accounts also comprise statements of revaluations and wealth (balance sheets). The net transactions that create the link to the real economy therefore also constitute an element in the explanation of households' financial balance sheets and net wealth². Revaluations, which are capital gains and losses on for instance equities, bonds and pension assets, are not included as current income in national accounts terminology and are therefore not included in the calculation of the real accounts.

COHERENT NATIONAL ACCOUNTS (HOUSEHOLD SECTOR)

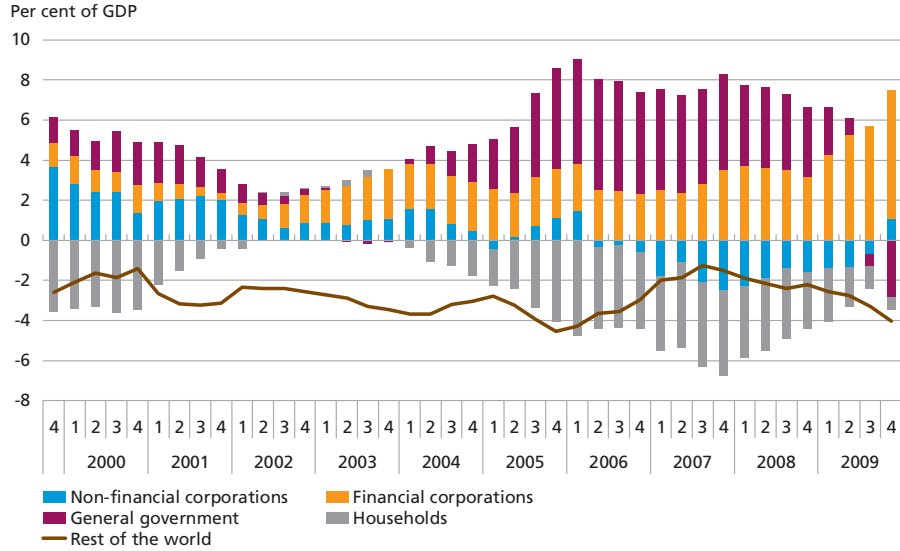
Chart 1



¹ Both reinvested dividend and interest income from investment of pension fund reserves and net payments are included in financial transactions in insurance technical reserves.
² Moreover, there is an account for "other changes in volume", to which changes in household wealth attributable to e.g. loans that are declared worthless or units that change sector are entered.

NET LENDING/NET BORROWING IN THE ECONOMY

Chart 2



Note: Sectoral net lending/net borrowing is calculated as a percentage of GDP. The series are calculated as 4-quarter moving averages.
 Source: Statistics Denmark.

borrowing shows whether each sector has been a net lender or a net borrower in a given period, and hence shows the need for financial investments or injections. It is thus a central key figure in describing economic behaviour, cf. Chart 2¹.

Over the past six years, Denmark has been a net lender to other countries as a consequence of the sustained current-account surplus. This is to some extent reflected in a reduction of Denmark's foreign debt². Net lending in the public sector and the financial enterprises has contributed strongly to this reduction. While the public sector surplus has been clearly procyclical, it is worth noting the financial sector's³ rising net lending, which indicates that the sector's operating profit and income from other interest and dividends have risen. The increase from 2002 until 2007 is mainly a result of the sector's increased activity, while the significant growth in net lending in 2009 was driven by the banks' higher interest margins – due to higher risk premiums – as well as declining dividend payments. Increased provisions for loans and realised losses do not affect

¹ The charts in this article generally show financial or real concepts relative to a relevant income term, such as the gross domestic product (GDP), sectoral gross value added or households' adjusted disposable income. The relative concepts allow for comparison with the euro area and meaningful comparison over time, as e.g. the quarterly accounts are published in current prices only.
² Developments in total foreign debt are also driven by value changes, such as revaluations of equities and bonds.
³ The financial sector includes banks, pension and insurance companies, investment funds and financial holding companies.

net lending/net borrowing directly, but increase the requirement for operating profit, implying that net lending/net borrowing rises¹.

Unlike the public and the financial sectors, households increased their net borrowing during the cyclical upturn in 2003-07², but it has fallen sharply in step with the deceleration in economic activity.

Business enterprises paint a more diverse picture with a general pattern of net lending until end-2005, after which it changes to net borrowing as a consequence of rising investment in capital equipment. However, the sector's financing need is reduced during 2009 and finally ceases.

The next section discusses the households' borrowing in the years ahead of the financial crisis. As regards the corporate sector, focus is on the cyclical pattern in the financing structure and the net lending/net borrowing requirement.

HOUSEHOLDS

After several years of economic growth with financial wealth outgrowing disposable incomes, the households' financial net wealth declined from mid-2007 until early 2009. Subsequently, net wealth measured relative to disposable incomes has again begun to rise, cf. Chart 3.

Generally, developments in financial net wealth have been driven by capital gains and losses on securities and on pension wealth. Therefore, a relatively close correlation is seen between equity prices and the value of households' financial assets³.

Unlike financial assets, households' liabilities change primarily a result of transactions, mainly borrowing. The households have gradually increased their debt and have continued to take out new loans – albeit at a slower pace – after 2007 when the value of their financial assets began to fall.

The build-up of balance sheets on both the assets and liabilities sides has increased households' exposure to financial market developments.

If trends in financial net wealth are compared with the households' propensity to consume and consumer confidence, cf. Charts 4a and 4b, a relatively close correlation is observed during the most recent economic

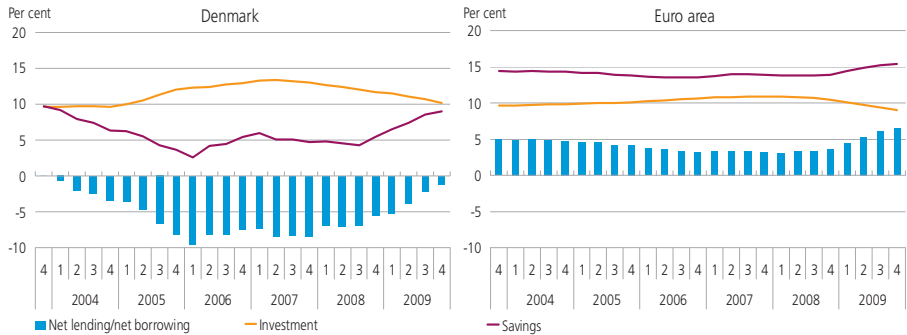
¹ Neither provisions nor realised losses affect net lending/net borrowing. Provisions for loan losses are not registered in the national accounts. When a loss is realised, the financial assets are written down in the account for other volume changes – outside the transaction account.

² In the period 2003-07, there was an economic upturn defined as an increasing output gap. See Pedersen and Sørensen (2009).

³ In addition to financial assets, households' total wealth comprises real assets, including housing wealth. Prices peaked at end-Q3 2006 for owner-occupied flats and in mid-2007 for single-family houses 2007 (source: Statistics Denmark).

HOUSEHOLDS' NET LENDING/NET BORROWING, INVESTMENT AND SAVINGS

Chart 5



Note: Net lending/net borrowing, investment and savings relative to adjusted disposable income, cf. Box 1. The series are calculated as 4-quarter moving averages. Net lending/net borrowing for the euro area is represented by net lending/net borrowing from the real side of the national accounts.

Source: Statistics Denmark, Danmarks Nationalbank, Eurostat and European Central Bank.

sumption. Therefore, they have raised net funding in the financial markets, which results in net borrowing, cf. Chart 5.

From 2003 onwards, a decline and subsequently a turn in households' gross savings interacting with developments in real investment caused a countercyclical development in their net borrowing. Thus, net borrowing was greatest in the period 2006-07 when the value of financial assets also peaked. In connection with the financial crisis, especially the households' increased savings have contributed to reducing net borrowing.

Unlike their Danish counterparts, euro area households are generally net lenders. The difference in levels may reflect a number of structural differences in e.g. access to mortgage credit and pension systems.

However, the dynamics of investment and saving are comparable to developments in Denmark¹. This applies especially to the increased propensity to save in connection with the financial crisis.

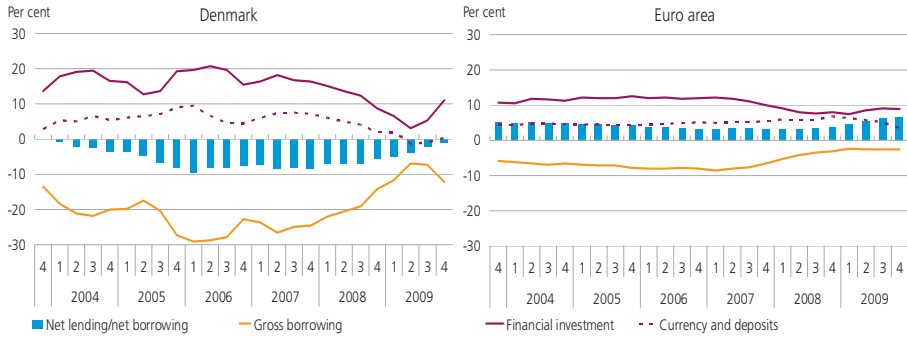
Households have borrowed money for financial investment

Gross borrowing by households contributes to covering both negative net lending/net borrowing and investment in financial assets e.g. equities and bonds. In 2006-07 when gross borrowing peaked, it totalled about 25 per cent of household incomes in each quarter, cf. Chart 6. In the same period, financial investment totalled 15-20 per cent of incomes. The dynamics in households' gross borrowing and financial investment are the same. Following the economic upturn until 2007 and concurrently with the incipient decline in financial wealth, financial in-

¹ The more steady development in the euro area is partly attributable to the difference in business cycles in the 16 euro area member states. Fluctuations in the individual member states may therefore offset each other.

HOUSEHOLDS' NET LENDING/NET BORROWING, FINANCIAL INVESTMENT AND GROSS BORROWING

Chart 6



Note: The series are calculated relative to the adjusted disposable income, cf. Box 1 and are included as 4-quarter moving averages. Net lending/net borrowing for the euro area is represented by net lending/net borrowing from the real side of the national accounts.

Gross borrowing covers the households' total transactions in financial liabilities.

Source: Statistics Denmark, Danmarks Nationalbank, Eurostat and European Central Bank.

vestment and borrowing decelerated. This deceleration was reinforced by the financial turmoil.

During 2009, as turmoil in the financial markets abated, renewed growth could be observed in households' build-up of balance sheets, i.e. in their financial investment and gross borrowing.

The dynamics in the build-up of balance sheets in the euro area are comparable to developments in Denmark – albeit much less pronounced.

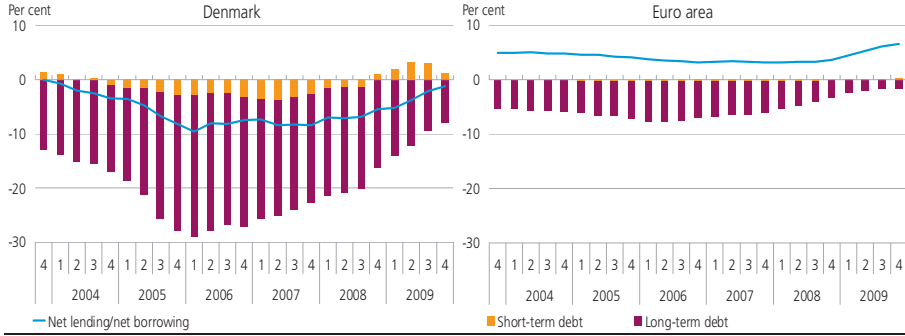
The extent of and growth in loan-financed financial investment in Denmark until 2008 is partly a result of the mortgage-credit system, which for a long period has reduced households' liquidity constraints and therefore increased their scope for consumption and investment. The reason for the subsequent slowdown in borrowing could be that the financial crisis and deteriorating finances in some households have entailed a need for consolidation. The slowdown may thus indicate that declining wealth, more focus on the risk of losses, increasing exposure to the financial markets and uncertain employment prospects have reduced households' risk appetite. Renewed growth in financial investment after the 2nd half of 2009 coincides with an increase in financial wealth and generally rising consumer confidence.

Households have repaid short-term debt during the crisis

Danish households' loans primarily consist of mortgages (long-term debt), cf. Chart 7. During the most recent economic upturn, mortgages rose sharply, but consumer credits and other short-term debt also grew significantly. From mid-2007, net growth in both short- and long-term debt was reduced, and from end-2008, households have actually reduced their aggregate short-term debt.

HOUSEHOLDS' GROSS BORROWING

Chart 7



Note: Gross borrowing is shown with a negative sign, implying that an observation of less than 0 denotes increased borrowing. The series are calculated relative to the adjusted disposable income, cf. Box 1, and are included as 4-quarter moving averages. Net lending/net borrowing for the euro area is represented by net lending/net borrowing from the real side of the national accounts.

Source: Statistics Denmark, Danmarks Nationalbank, Eurostat and European Central Bank.

Developments in short-term debt are not mirrored in the euro area, where households have primarily taken out long-term loans over the past six years. However, the dynamics of long-term debt match developments in Denmark.

In connection with the financial crisis, euro area households have changed the composition of their financial investment. Thus, in a period around the turn of the year 2008/09, they significantly increased bank deposits as a share of total investment, cf. Chart 6.

Households in the euro area seem to have reduced their exposure to financial market developments by seeking more liquid investment opportunities¹. Danish households have more or less done the same by reducing their short-term debt. Both these trends seem to decelerate as the financial turmoil eases.

BUSINESS ENTERPRISES' INVESTMENT AND FINANCING

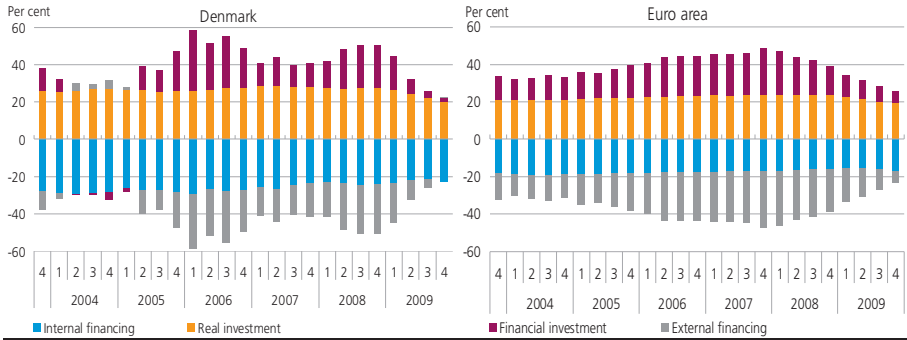
Total investment by business enterprises² is dominated by real investment, meaning investment in capital equipment (gross fixed investment) and inventories, cf. Chart 8. However, financial investment, e.g. direct investment in other companies, portfolio investment and increased bank deposits, has played an important role in some periods. Financial and real investment can be financed either via internal financing (gross savings) or via external financing (borrowing, equity issues, etc.).

Both in Denmark and in the euro area, financial investment and external financing became increasingly significant from mid-2005 to 2008.

¹ See ECB (2009).

² In the following, the term "business enterprises" refers to non-financial corporations.

BUSINESS ENTERPRISES' INVESTMENT AND FINANCING Chart 8



Note: The series are calculated relative to the non-financial corporations' gross value added and are calculated as 4-quarter moving averages.

Source: Statistics Denmark, Danmarks Nationalbank, Eurostat and European Central Bank.

However, developments have been more erratic for Denmark due to a relatively stronger impact from a few major M&A transactions, such as Carlsberg's acquisition of Scottish & Newcastle in 2008. From 2008, financial investment fell markedly. This is reflected in a similar decline in external funding.

While internal financing declined in connection with the outbreak of the financial crisis, the corporate sectors in both Denmark and the euro area have succeeded in adjusting costs to market conditions, so that internal financing has increased again and net borrowing has been reduced.

Real investment grew during the economic upturn

During the 2003-07 economic upturn, the investment ratio (real investment relative to gross value added) rose steadily in both Denmark and the euro area. From end-2008, it fell drastically – especially in Denmark. The investment ratio of Danish business enterprises in 2009 stood at just over 20 per cent, while it was 26-28 per cent in 2003-07. This is in line with the procyclical process generally observed for real investment¹, cf. Chart 9.

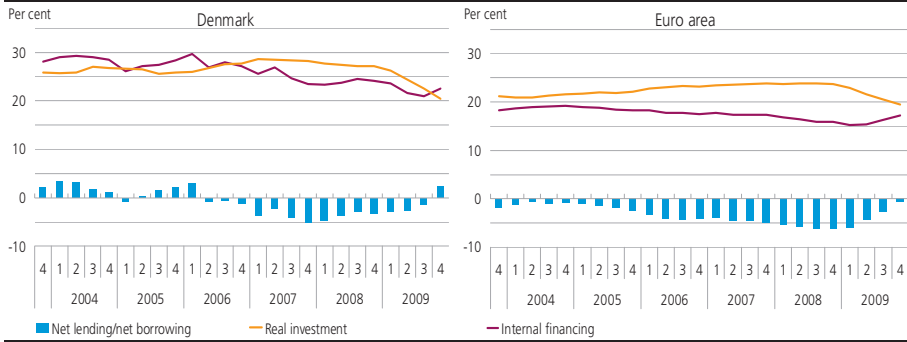
At the early stage of the cyclical upturn, Danish business enterprises largely funded capital equipment and inventories internally, meaning that real investment was typically covered by gross savings. Business enterprises therefore had a net lending requirement. From 2006, the increase in real investment meant that investment exceeded internal financing, and a net borrowing requirement arose². As enterprises adapt

¹ ECB (2008).

² See e.g. Petersen and Risbjerg (2009), which shows that business enterprises primarily use internal funding for maintaining and expanding capital equipment and inventory investment at the beginning of a cyclical upturn, while they to a higher extent take out loans at later stages of the upturn.

BUSINESS ENTERPRISES' REAL INVESTMENT AND INTERNAL FINANCING

Chart 9



Note: The series are calculated relative to the non-financial corporations' gross value added and are calculated as 4-quarter moving averages. Net lending/net borrowing for the euro area is represented by non-financial net lending/net borrowing.

Source: Statistics Denmark, Danmarks Nationalbank, Eurostat and European Central Bank.

to the economic slowdown, both real investment and costs are adjusted to the changed market and funding conditions. Thus, from end-2009 savings again exceed real investment, contributing to turning net borrowing into net lending.

For European business enterprises, real investment exceed internal funding throughout the period. However, net borrowing is reduced in step with economic activity.

Increasing financial balance sheets

Turning to business enterprises' financial investment and external financing, it appears that trends are closely correlated. This applies to both the euro area and Denmark, cf. Chart 8.

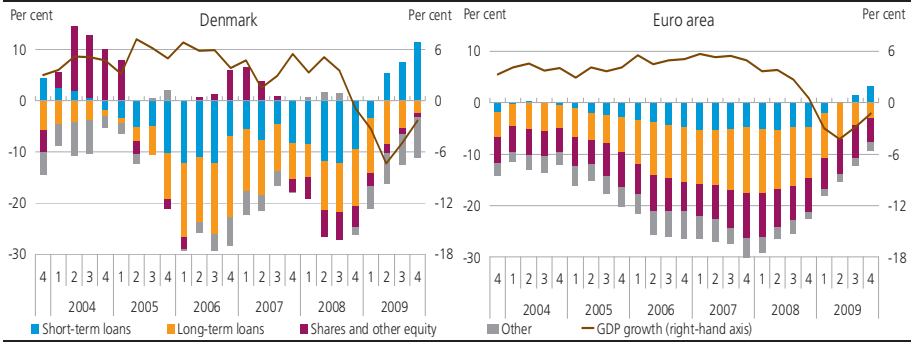
Financial investment, such as purchase of shares and other equity in connection with mergers and acquisitions, tends to increase during an economic upturn. Conversely, business enterprises reduced their financial investment and external financing during 2008. This could reflect more uncertain market conditions and fewer funding options due to the financial and economic crisis.

The slowdown in financial investment in both Denmark and the euro area is much more abrupt than the slowdown in real investment.

On the funding side, business enterprises in Denmark and the euro area have since 2003 used borrowing as their main external source of financing, cf. Chart 10, but in contrast to the euro area, Danish enterprises have made more extensive use of short-term debt, including intra-group loans and overdraft facilities with banks.

Throughout the period euro area enterprises have obtained financing via equity issuance. Conversely, Danish enterprises – taken as one – long disregarded this source of funding, which was not used seriously until

BUSINESS ENTERPRISES' EXTERNAL FINANCING AND GDP GROWTH Chart 10



Note: External financing relative to the non-financial corporations' gross value added, calculated as 4-quarter moving averages. "Other" covers e.g. corporate bonds and trade credits. GDP growth is calculated as year-on-year growth.

Source: Statistics Denmark, Danmarks Nationalbank, Eurostat and European Central Bank.

end-2007. Nevertheless, total stocks of shares and other equity issued by Danish business enterprises accounted for about 60-70 per cent of the balance sheet total in the period 2006-09, while the corresponding figure for the euro area was about 50 per cent.

Equity issuance in Denmark and the euro area continued throughout 2009 when the business enterprises' financing pattern otherwise changed significantly. Thus, the sector has reduced its total borrowing – primarily by reducing short-term debt.

Empirical analyses of financing patterns for business enterprises relative to economic trends show that net borrowing of short-term debt usually rises at the beginning of an economic downturn¹. The pattern is different in the period 2008-09 when the recession was triggered by a financial crisis.

CONCLUSION

Households and business enterprises in Denmark have changed their financial and real behaviour in step with economic developments. Until 2008, both sectors built up their financial balance sheets via increased gross borrowing, which financed both higher financial investment and an increasing net borrowing requirement. During 2008, trends reversed, and borrowing by both households and business enterprises declined.

The integrated national accounts describe both real and financial movements in the economy. Therefore, they can be used for highlighting the behaviour of households and business enterprises throughout the most recent economic cycle. The statistics do not directly say any-

¹ See Petersen and Risbjerg (2009).

thing about causality, but provide a good basis for modelling more theoretically based correlations – for instance between households' financial wealth and their consumption and investment. The possibilities of modelling will improve when transactions dating back to 1998 are incorporated into the quarterly financial accounts in the coming years.

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