Danmarks Nationalbank

Monetary Review 4th Quarter

2004

DANMARKS NATIONAL BANK 2004

MONETARY REVIEW 4th QUARTER 2004

The small picture on the front cover is a section of the national coat of arms as redesigned in 2003 as the motif on the reverse of the 20-krone.

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Recent Economic and Monetary Trends

This review covers the period from the beginning of September to the middle of November 2004

INTERNATIONAL FINANCIAL CONDITIONS

Global economic growth in 2004 will almost certainly be the highest for the last many years, and the prospects for further growth are favourable. The upswing was, however, more subdued in the 3rd quarter, especially in the euro area and Japan, whereas US growth picked up slightly. The financial markets were also affected by the movements in oil prices.

International oil trends

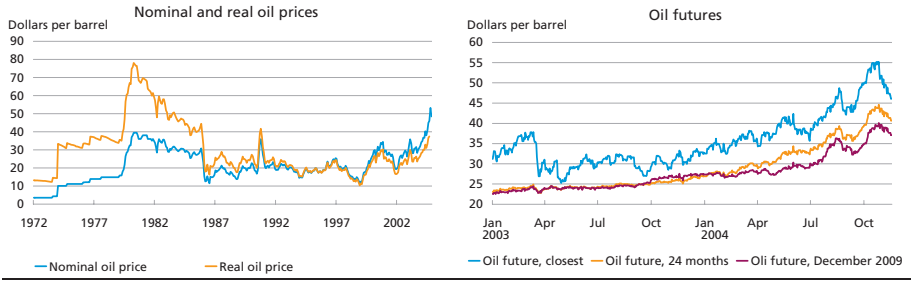
At the end of October the price of West Texas crude oil reached 56 dollars a barrel. The oil price then fell back to 46 dollars in mid-November, which is slightly above the price at the beginning of September.

The demand for oil has increased significantly over the past two years in view of the high global growth. During the year the International Energy Agency has revised its estimate of growth in oil demand in 2004 up to 3.4 per cent. China and other emerging market economies, along with the USA, account for most of the increase in demand.

On the supply side, there have been challenges. The supply of heavy and sour crude oil has increased, while the supply of light and sweet oil that is easier to refine and best for the production of petrol and diesel, has not matched the increase in demand. The surplus capacity in both oil production and refining has diminished, and in the short term the opportunities to expand capacity are limited. Though modest when seen in isolation, certain disturbances on the supply side, including unrest in Nigeria and the hurricanes in the Mexican Gulf, have therefore affected the oil price over the last few months. In step with the reduction of idle capacity, the uncertain situation in the Middle East has probably also had a greater impact on the development in oil prices.

The balance between supply and demand in the coming years also seems to give cause for concern since the price of oil for future delivery has risen, cf. the right-hand side of Chart 1. In mid-November, the price of oil for delivery in December 2009 was 37 dollars per barrel, up from

NOMINAL AND REAL OIL PRICES (WEST TEXAS) AND US OIL FUTURES Chart 1



Note: The real oil price (1995 prices) is deflated by US consumer prices excluding energy. Monthly figures. Latest observation is the average of the 1st two weeks of November.
Source: EcoWin and Bloomberg.

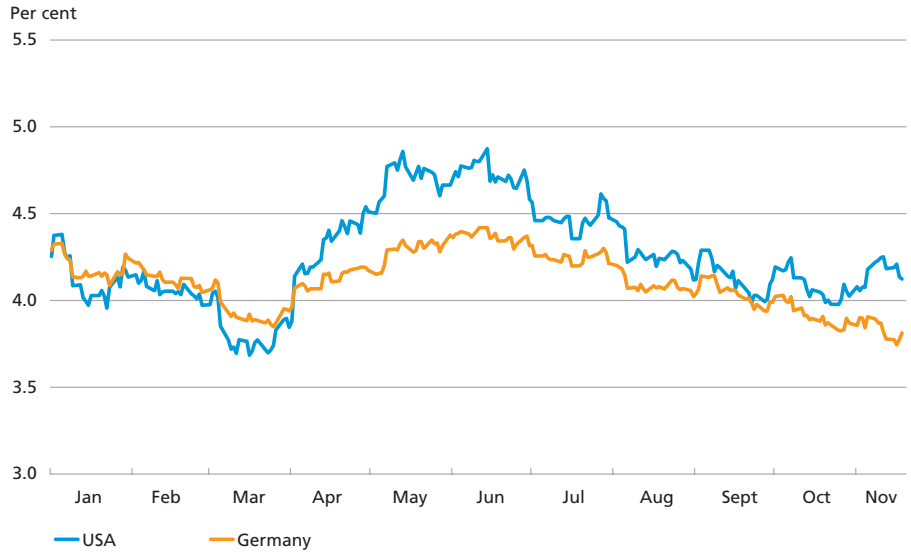
34 dollars at the beginning of September and 27 dollars at the turn of the year.

The current oil price is still considerably higher than one year ago. If the oil price remains at its current level, this will dampen the international economy to a degree. Several factors seem to indicate, however, that the impact on the real economy and inflation will be far less pronounced than in the 1970s and early 1980s. In contrast to those cases, today's oil price increases are to some extent a result of the strong global growth, rather than a reduction of supply. In real terms, the oil price is, moreover, close to the historical average and only approximately half the price of the early 1980s, cf. the left-hand side of Chart 1. At the same time, the percentage increase in the oil price is significantly lower than in the 1970s. The industrialised countries have also reduced their dependence on oil. Oil consumption relative to GDP in Europe and the USA accounts for only around half of the oil consumption in the 1970s. The current situation will provide further incentive for the use and development of alternative sources of energy. Empirical studies also indicate that in recent years oil producers have been quicker to spend oil revenues on e.g. imports of goods and services from the industrialised countries than in the 1970s and early 1980s.[1]

The strong global growth has also pushed up prices for other raw materials. Having fallen in the 2nd quarter, prices for cyclically-sensitive industrial metals continued to rise. In mid-November prices were, on average, approximately 30 per cent above the level at the turn of the year. The price of gold also continued to rise in the period from September to mid-November.

[1] Cf. National Institute Economic Review, July 2004. According to the calculations, it takes four years for a 15-per-cent increase in oil prices to increase oil producers' imports by the same amount. This is twice as fast as before 1985.

10-YEAR YIELDS IN THE USA AND GERMANY IN 2004 Chart 2



Note: Day-to-day observations. Latest observation 18 November 2004.
Source: EcoWin.

Financial markets

In the spring it was widely expected that interest rates would rise. But, contrary to expectations, both the US and German 10-year government bond yields fell in the course of the summer, cf. Chart 2. Disappointing US labour market reports and reduced fears of inflation contributed to the drop in interest rates.

In mid-November, the US 10-year yield was 4.2 per cent and thus at the level from the end of the summer. European yields, on the other hand, fell back further during the autumn. The German 10-year yield was 3.8 per cent in mid-November, in line with the low level seen in the spring. Since the summer, the US/German yield spread has thus widened, reaching 40 basis points in mid-November. Weak economic indicators for the euro area, particularly Germany, contributed to the drop in European yields, while e.g. US labour-market statistics showed strong growth in employment. The most recent economic data releases from the USA have not changed the overall picture of an upswing in the US economy.

While the day-to-day movements in both bond and share markets were affected by oil prices, share prices have risen during the period under review. In broad terms the US and European share markets have been rising since mid-August, and in mid-November both the S&P 500 and the Stoxx 600 indices were above the levels of the summer as well as the turn of the year.

From September the dollar weakened against the euro. In the course of October it moved beyond the range of 1.20-1.25 dollars per euro prevailing since the spring. Focus was directed increasingly at the sustainability of the US current-account deficit. In mid-November the exchange rate was 1.30 dollars per euro. Recently concerns about high volatility and abrupt movements in the foreign-exchange markets have been expressed, particularly in Europe.

THE INTERNATIONAL ECONOMY

USA

The domestically-driven upswing in the US economy continued in the 3rd quarter. GDP rose by 0.9 per cent against the previous quarter and growth thus accelerated slightly from the 2nd quarter. Growth in private consumption increased after dampening in the 2nd quarter. The increase by 1.1 per cent was higher than the expansion of disposable incomes. The savings ratio, which is already significantly lower than in the euro area, cf. Box 1, was reduced further. Strong earnings and favourable financing conditions contributed to higher investment. As imports grew at a faster rate than exports, net exports still contribute negatively to GDP growth.

Business confidence in the manufacturing sector, measured by the ISM[1] index at well above 50, points to continued growth. Both business and consumer confidence indicators have, however, declined in recent months. The strong increase in oil prices has reduced household purchasing power. Employment, on the other hand, has been rising. In the period from August to October alone, almost 0.7 million new jobs were created. The development in private consumption will depend to a large extent on whether recent employment trends are sustained.

In recent years growth has been supported by expansionary fiscal policy that cannot be expected to continue. The budget deficit has deteriorated severely in recent years and is likely to be in the range of 4 to 5 per cent of GDP in 2004. This is hardly sustainable, especially since the pension and healthcare systems will come under pressure from demographic patterns in the coming decades.

Monetary policy has also been expansionary in recent years. According to the Federal Reserve, interest rates are low when compared to the relatively robust growth. The official interest rates are therefore expected to rise at a measured pace to a more neutral level. Therefore, the Federal Reserve raised the official interest rate by 25 basis points in both September and November, taking the rate to 2 per cent.

[1] The ISM index is based on the responses by purchasing managers to a questionnaire on order books, output, employment, delivery times and stocks.

COMPARISON OF SAVINGS RATIOS IN THE USA AND THE EURO AREA Box 1

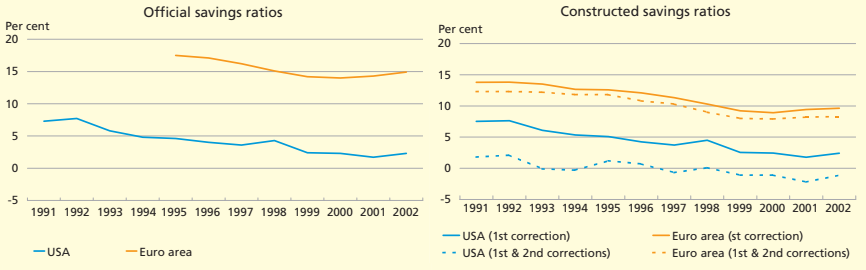
International comparisons of household savings ratios, i.e. household savings relative to disposable incomes, are hampered by differences in definitions (e.g. whether or not depreciation is included) and in institutional and behavioural aspects. In a joint analysis the ECB and the OECD have sought to adjust for the calculation differences.

According to the official data, the US savings ratio was approximately 2 per cent in 2002, compared to 15 per cent in the euro area, cf. the left-hand Chart. Depreciation is deducted from savings and income in the calculation of the US savings ratio, which is not the case for the euro area. If the euro-area savings ratio is adjusted in the same way, the ratio is significantly reduced and the gap to the USA in 2002 narrows from approximately 13 per cent to approximately 7 per cent, cf. the right-hand Chart (1st correction). The correction entails only marginal changes in the development of the ratios over time.

Institutional aspects, such as the proportion of services financed by the public sector, the tax structure and the pension systems vary in the USA and the euro area. US households thus to a large extent pay for their healthcare services out of their disposable income, while healthcare services in Europe are mainly tax-financed. This points towards higher disposable income and thus a lower savings ratio in the USA. If the disposable income is adjusted for differences in payment for services such as health and education, the gap between the ratios is reduced further. On the other hand, the gap widens on adjustment for differences in the distribution between income taxes that reduce disposable income, and other types of taxation (e.g. indirect taxes and duties) that do not affect disposable income. Adjustment for the dissimilarities between pension systems also widens the gap between the savings ratios, given that private pension schemes, which are part of household savings, are far more widespread in the USA than in the euro area.

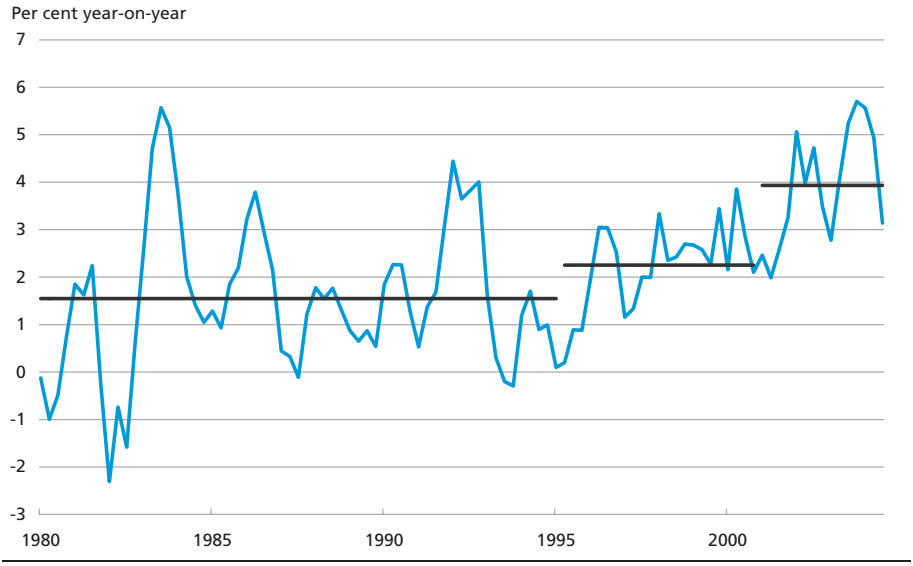
If the aggregate effect of the last three aspects is included in the ratios after the 1st correction, the gap between the euro area and the USA widens in 2002 from approximately 7 per cent to approximately 9 per cent, cf. the right-hand Chart (1st and 2nd corrections). The difference between the USA and euro-area savings ratios is therefore not eliminated and must be explained by other factors, such as household preferences and capital gains tax rules. The corrections thus do not change the overall picture of a low US savings ratio.

SAVINGS RATIOS IN THE USA AND THE EURO AREA



Note: The 1st correction is for depreciation. The 2nd correction is a correction for differences in the payment of services financed by the public sector, different tax structures and the use of private pension schemes.
Source: ECB, 2004. Comparison of household saving ratios, June.

US PRODUCTIVITY Chart 3



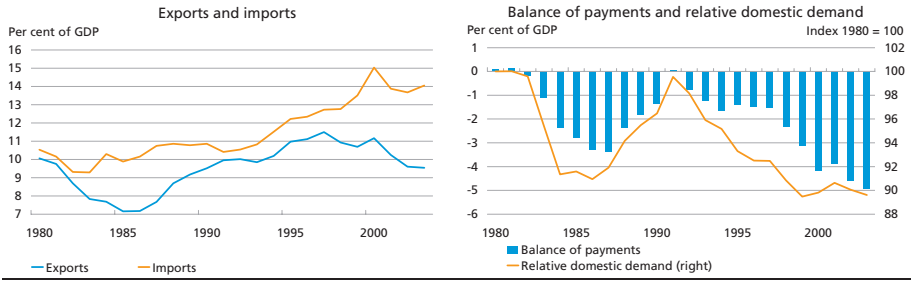
Note: Productivity is the output per hour in the *non-farm business sector*. Horizontal lines show the average productivity in the periods 1980-95, 1996-2000 and 2001-.
Source: EcoWin.

Inflation rose in October and was 3.2 per cent year-on-year, measured in CPI terms. The increase can be attributed mainly to higher oil prices. Other price indices, such as Personal Consumption Expenditure, PCE, which is given much weight by the Federal Reserve in its assessment of price developments, show by and large the same, but are generally somewhat below CPI. In October CPI excluding food and energy rose by 2.0 per cent against the same month of 2003. Core inflation has been rising over the past year, which probably reflects higher economic activity.

Even though the rate of wage increase has picked up slightly in 2004, it continues to be low. Productivity growth has been declining from a high level. In a long-term perspective, the productivity increases thus remain high. While productivity rose by approximately 1.5 per cent p.a. in the period 1980-95, the productivity increases since 2001 have averaged approximately 4 per cent, cf. Chart 3. The high productivity increases and moderate wage increases have contributed to the weak inflationary pressure in recent years.

The balance of payments has deteriorated further in 2004 and the deficit is likely to be between 5 and 6 per cent of GDP. The extent of the deficit is even more remarkable when viewed in relation to exports, that account for a mere 10 per cent of GDP, cf. the left-hand side of Chart 4. The deficit cannot be eliminated solely by a weaker dollar. Over the past decade, US domestic demand growth has significantly exceeded the

THE US BALANCE OF PAYMENTS Chart 4



Note: Exports and imports in the left-hand Chart are in current prices as proportion of nominal GDP. Relative domestic demand is the ratio between the export-weighted domestic demand of the USA's most important trading partners and US domestic demand.
Source: EcoWin, OECD Economic Outlook 75 and own calculations.

growth in domestic demand of its trading partners. This is the key explanation for the increasing deficit, cf. the right-hand side of Chart 4. Similarly, a reduction of the deficit requires a period of higher growth in demand in other countries than in US demand.

Asia

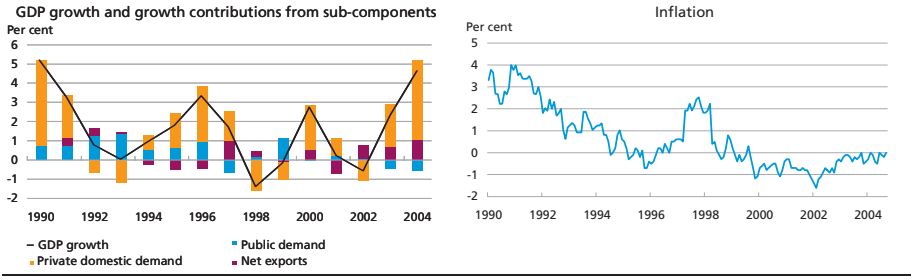
After a prolonged period of weakness the Japanese economy showed strong growth in 2003 and the beginning of 2004. Growth diminished in the 2nd quarter of 2004 and slowed down further in the 3rd quarter, when GDP rose by a mere 0.1 per cent on the previous quarter.

Export growth, one of the key forces driving the upswing, decreased significantly in the 3rd quarter and business investments stopped rising. Private consumption, on the other hand, continued to rise and was 4 per cent higher than in the 3rd quarter of 2003. Employment has increased slightly, while wages continue to fall. While being in line with the expansion of consumer confidence, the increase in consumption thus exceeds the growth in households' disposable income. Consumer and business confidence are both high, indicating ongoing growth.

Public demand for goods and services has decreased, cf. the left-hand side of Chart 5. In this respect among others, the most recent upswing differs from other upswings of the 1990s. In recent quarters, government spending has expanded moderately, while government investments fell by 11 per cent last year and continue their steep decline in 2004. Japan's budgetary problems are far from solved, however, and in 2004 the budget deficit is projected to be around 7 per cent of GDP.

Despite the relatively strong growth over the past two years, prices have not yet started to rise, cf. the right-hand side of Chart 5. In September, the consumer price index was unchanged from the same month one year before.

GDP GROWTH AND INFLATION IN JAPAN Chart 5



Note: 2004 observation in the left-hand Chart pertains only to the 1st three quarters of 2004. Inflation is measured in terms of the year-on-year increase in the consumer price index.
Source: EcoWin.

The rest of Asia has continued to contribute significantly to global growth. Although the Chinese economy has slowed down slightly in recent quarters, it nonetheless expanded by 9.1 per cent year-on-year in the 3rd quarter, down from 9.6 per cent year-on-year in the 2nd quarter. Inflation declined in October, when the consumer price index was up by 4.3 per cent on last year compared to an increase by 5.2 per cent in September. To stop the economy from overheating, monetary policy was tightened several times in 2004. For example, restrictions were applied to bank lending. Towards the end of October, the People's Bank of China raised the official interest rate by 27 basis points to 5.6 per cent.

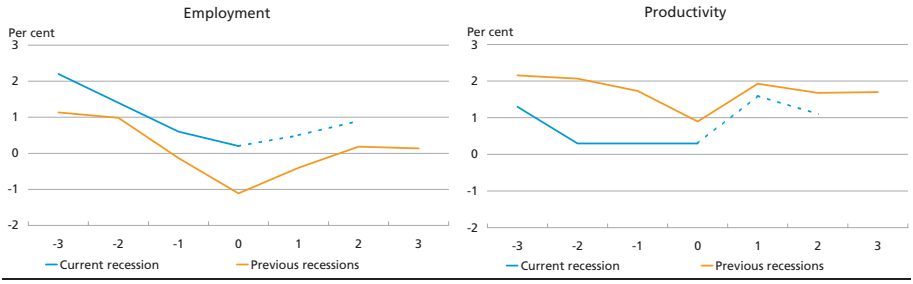
The euro area

Economic growth in the euro area diminished in the 3rd quarter and the flash estimate for GDP growth was 0.3 per cent relative to the previous quarter. Preliminary figures show that growth in both Germany and France was 0.1 per cent, a considerable setback from the 1st half of 2004. With an increase of 0.4 per cent, growth in the Italian economy picked up slightly, however.

The growth in domestic demand was moderate in the first six months of 2004, e.g. because investments were flat. Private consumption growth, on the other hand, increased in the first six months. In the period July-September, retail sales in the euro area remained largely unchanged relative to the 2nd quarter, indicating dampened growth in private consumption in the 3rd quarter. This is underpinned by relatively weak consumer confidence. Foreign trade figures moreover indicate that 3rd-quarter exports did not provide the impetus to growth seen in the 1st half of the year.

The slowdown in 3rd-quarter growth is in line with the declining business confidence over the summer. However, business confidence in both the manufacturing and service sectors indicates further growth.

GROWTH IN EMPLOYMENT AND PRODUCTIVITY IN THE EURO AREA Chart 6



Note: Productivity calculated as output per employee. The cyclical bottom (zero) in the current recession is 2003, while the cyclical bottom (zero) in the previous two recessions is 1981 and 1993. Dotted lines indicate the Commission's estimates for 2004 and 2005.

Source: OECD, Economic Outlook 75, European Commission, Economic Forecasts Autumn 2004 and own calculations.

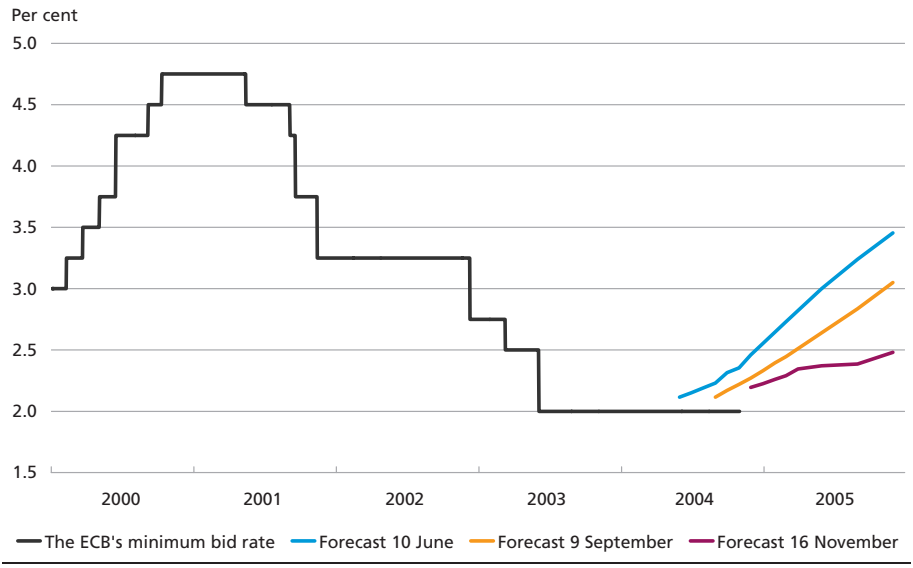
At 8.9 per cent, September's unemployment rate is unchanged from March 2003. It is not unusual that the labour market has not yet turned around. The upswing in employment normally lags several quarters after a turnaround in GDP, especially if the upswing is relatively moderate. During the last recession, employment was high compared to previous recessions and productivity growth measured in terms of output per employee was therefore more subdued, cf. Chart 6. This indicates that business enterprises have retained their employees and that the employment impact of an upswing may prove to be limited. This is underlined by the fact that overall unemployment is only slightly higher than the structural unemployment rate. The relatively small adjustment in the number employed during the last recession coincided with a relatively large reduction in the number of working hours per employee. However, it is difficult to state how far this can be attributed to cyclical adjustments and how far the number of hours reflects reductions in working hours in some euro-area member states and changes in other structural conditions.

Inflation in terms of the EU Harmonised Consumer Price Index, HICP, rose to 2.4 per cent in October and is back to its level from early summer. The increase especially reflects higher oil prices. On the other hand, normalisation of food prices after last year's drought and agreed price reductions in France[1], along with a freeze on price increases for consumer goods in Italy, contributed to a small decline in food prices. Underlying inflationary pressures are subdued. Wage increases remain moderate, which together with the cyclical upswing in productivity contributes to moderate growth in unit wage costs. The dampened

[1] In June, the French government entered into an agreement with the retail sector and its suppliers to lower the prices particularly of food by 2 per cent in September and a further 1 per cent at the beginning of 2005.

OFFICIAL INTEREST RATE AND INTEREST-RATE EXPECTATIONS IN THE EURO AREA

Chart 7



Note: Expectations are based on Euribor futures.
Source: EcoWin and Bloomberg.

wage development indicates that the oil-price increases have not had a knock-on effect on wage formation. Similarly, changes in inflationary expectations are modest.

The ECB has held its official interest rate unchanged since June 2003 when the minimum bid rate was lowered to 2 per cent. Market participants' expectations of interest-rate changes have shifted significantly in recent months, cf. Chart 7. As opposed to June, in mid-November market participants expected interest rates to remain largely unchanged in 2005. This change in expectations probably reflects doubts as to the strength of the upswing.

So far, the upswing has not led to any improvement in government finances in the euro area. According to its autumn forecast, the Commission expects the budget deficit in the euro area to increase from 2.7 per cent of GDP in 2003 to 2.9 per cent in 2004. Germany and France exceeded the EU Treaty's 3-per-cent limit in 2002 and 2003 and together with Greece, cf. below, are expected to exceed the limit once again in 2004.

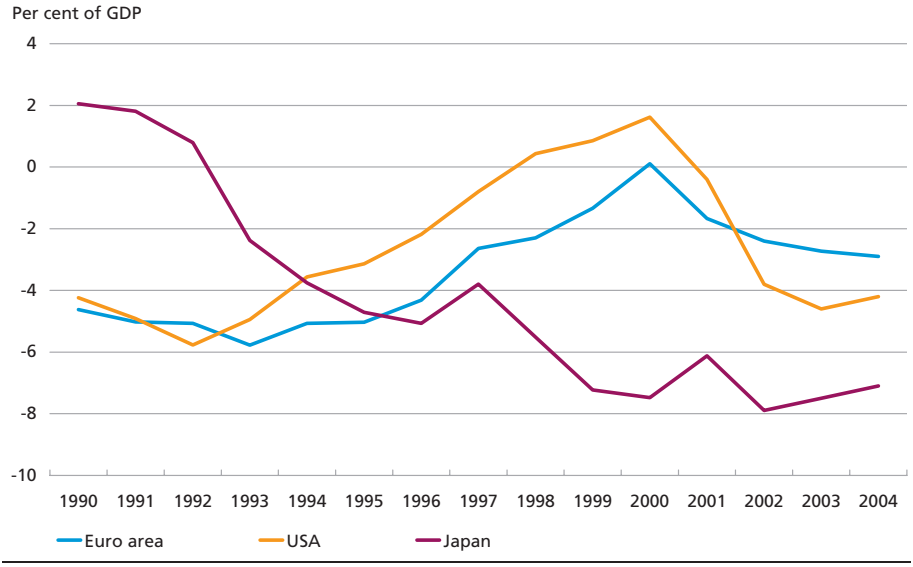
Germany and France have committed to reducing their deficits to below 3 per cent in 2005. Government revenue in Germany is expected to fall in 2004, which may partly be attributable to tax cuts. Therefore, the budget deficit is unlikely to be reduced, despite the focus on tight expenditure control. In contrast to Germany, growth in France was

mainly domestically-driven in the first six months of 2004 and e.g. VAT revenues increased significantly. France is thus in a better position to reduce its deficit in 2004. For 2005, the Commission expects deficits of respectively 3.4 per cent and 3 per cent of GDP in Germany and France. Since the publication of the Commission's forecast, the German government has submitted a proposal for further expenditure cuts in 2005. In addition, revenues are now expected to show a larger increase, e.g. due to one-off income from the acquisition of the pension commitments of Deutsche Post and Deutsche Telekom following the privatisation of these companies.

In September, the Greek budget deficit for the period 2000-03 was revised upwards from 1.6 per cent of GDP on average to 4 per cent. A previous serious underestimation of military expenditure and overestimation of the surplus on social-security schemes and tax revenues, particularly VAT, are the main reasons for the revision. In mid-November, the budget deficit in the period 1997-99 was also revised upwards and the deficit now exceeds 3 per cent for all years. The magnitude of these revisions highlights the importance of reliable central statistics to EU cooperation. The prerequisite is that the national statistics agencies are independent of national governments and give top priority to the reliability of central statistics.

According to its autumn forecast the Commission in 2004 expects a deficit of 5.5 per cent of GDP in Greece. In 2005 the lapse of the

BUDGET BALANCES IN THE EURO AREA, THE USA AND JAPAN Chart 8



Note: 2004 is the Commission's estimate.
Source: OECD, Economic Outlook 75 and European Commission, Economic Forecasts Autumn 2004.

THE EUROPEAN COMMISSION'S PROPOSAL FOR AMENDMENT TO THE STABILITY AND GROWTH PACT[1] Box 2

In September 2004, the European Commission published a communication[2] of deliberations on possible amendments to the Stability and Growth Pact and strengthening of the implementation of the Pact.

The key elements of the Commission's communication are:

- Increased focus on government debt and long-term sustainability in the ongoing surveillance of government finances. The Commission proposes that the prohibition of the Treaty to the effect that the ratio of gross government debt to GDP must not exceed 60 per cent should, as a new aspect, be included as an element of the Pact. Under the Treaty, it is acceptable for member states to breach the 60-per-cent limit only if their pace of debt reduction is satisfactory. The Commission wants this to be specified in the Pact.
- In determining whether a member state complies with the Pact's central objective of government budgets "close to balance or in surplus", additional country-specific circumstances should be included, such as the size of the government debt. Under the Commission's proposal, member states with high government debt must maintain a cyclically-adjusted budget surplus, while member states with a small debt may be allowed a small deficit. The proposal also suggests that inclusion of other factors, such as potential growth, inflation, the impact of structural reforms and the need for government investments, be considered.
- The economic situation and development should be included in the excessive deficit procedure to a greater extent than is currently the case. It is proposed that excessive deficits, i.e. deficits exceeding 3 per cent of GDP, that are due to protracted periods of sluggish, but positive growth, should be characterised as exceptional and thus falling under the exceptional circumstances clause of the procedure. Under the current rules, deficits exceeding 3 per cent are considered exceptional only if an economy has shown clear negative growth. The Commission also proposes that country-specific elements, including the sustainability of government finances, be included in the determination of the adjustment path for the correction of excessive deficits. The time schedule for correction of excessive deficits set out in the current Pact thus should not necessarily be followed.
- Earlier actions to correct inadequate budgetary developments. The Commission highlights the need to achieve government surpluses in periods of high growth.
- Reinforcement of the link between the broad economic policy guidelines and the Pact.

The Commission's deliberations are being discussed in the Economic and Financial Committee and the Ecofin Council. The Commission is expected to submit specific proposals based on these soundings. Material amendments to the Pact will require unanimity among all EU member states. Clarification of amendments to the Pact is not expected until sometime in 2005.

[1] Cf. Thomas Haugaard Jensen and Jens Anton Kjærgaard Larsen, The Stability and Growth Pact – Status in 2004, Danmarks Nationalbank, *Monetary Review*, 2nd Quarter 2004 for more details on the Pact.

[2] Communication from the Commission, "Strengthening economic governance and clarifying the implementation of the Stability and Growth Pact", COM (2004) 581 final, 3 September 2004.

extraordinary expenses related to the Athens Olympic Games are expected to contribute to a reduction of the deficit to 3.6 per cent.

Even though it has deteriorated in recent years, the budget deficit in the euro area is still significantly lower than the deficits of the USA and Japan, which are expected to be respectively 4.2 per cent and 7.1 per cent in 2004, cf. Chart 8. So even though the Stability and Growth Pact has not functioned as desired, e.g. due to the procyclicality of fiscal policy in certain periods, it has still had a disciplinary effect on the fiscal authorities of the EU member states, resulting in a less burdensome fiscal position for the EU member states compared to the USA and Japan.

In September, the Commission submitted its deliberations on possible amendments to the Stability and Growth Pact, including the introduction of new exceptions from the Treaty's provision that government budget deficits may not exceed 3 per cent of GDP, cf. Box 2.

In the view of Danmarks Nationalbank, new exceptions are not required in relation to the 3-per-cent limit stipulated by the Treaty. On the other hand, the procedures should be adjusted to ensure that the principles of the Pact are implemented effectively. Any amendments to the Pact should contribute to strengthening the principle that, under normal circumstances, government budgets should be close to balance or in surplus. This creates a buffer, so that a deterioration in government finances following a slowdown in the economy does not result in a deficit exceeding 3 per cent of GDP.

UK

The UK economy slowed down in the 3rd quarter. After quarter-on-quarter growth of just under 1 per cent for several quarters, GDP increased by only 0.4 per cent in the 3rd quarter, according to preliminary figures. In July-September, the growth in retail sales was lower than in the previous quarters, but indicates that private consumption continued to increase in the 3rd quarter. Industrial output fell in July-September and business confidence weakened over the summer, indicating that growth in investment and exports decreased in the 3rd quarter.

The labour market is tight and the rate of wage increases has picked up slightly. Excluding bonuses, average wage costs rose by 4.2 per cent in September. The rising wage costs have not had an inflationary impact and both inflation and core inflation have been falling since July. Inflation in HICP terms was 1.2 per cent in October, below the government's target of 2 per cent.

Expecting inflationary pressures to build, the Bank of England has raised interest rates by 125 basis points to 4.75 per cent over the past year. The tightening is reflected in housing prices. Following several years of strong growth these prices have remained by and large unchanged since July, cf. Box 3.

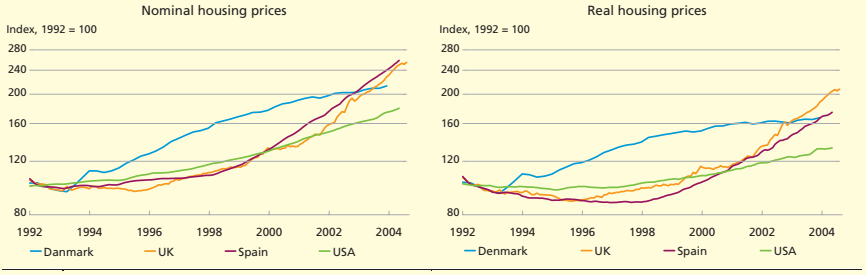
GLOBAL BOOM IN HOUSING PRICES Box 3

Housing prices have been escalating in most industrialised countries in recent years. The increase is especially pronounced in the UK, Spain, Ireland and Australia. Prices have more than doubled since 1997 in the UK and Spain. Housing price increases have been relatively moderate in the USA and are currently around 60 per cent higher than in early 1997, cf. the left-hand Chart. In Denmark, housing prices have risen considerably less during the last 8 years than in the countries experiencing the highest increases. However, the difference narrows if the development in housing prices since the early 1990s is considered instead, as Danish housing prices rose considerably faster in the period up to 1997. The boom in housing prices has, however, passed some countries by. For example, housing prices have remained generally unchanged in Germany. The picture does not change significantly when adjusted for the general price development, cf. the right-hand Chart.

Housing prices are determined by various economic factors. In World Economic Outlook from September 2004, the IMF finds that real disposable income, interest rates, credit growth, share prices and demographic growth may in broad terms explain the increase in housing prices in the industrialised countries in the period 1997-2003, and that the increase in housing prices in this period may be attributed especially to lower short-term interest rates. Interest rates have fallen sharply in recent years, in most countries to the lowest levels for decades. In the four countries experiencing the strongest price growth, housing prices are 10-20 per cent higher than can be accounted for by the above factors.

Housing prices tend to move synchronously in the industrialised countries, the reason being that interest-rate movements are correlated. Moreover, there is a certain degree of correlation between the economic cycles across countries. As already mentioned, the development in Danish housing prices has deviated somewhat from that seen in many other countries, as most of the increase in prices took place before 2000. This is attributable partly to different cyclical courses. Another possible explanation may be institutional aspects of the housing market. For example, adjustable-rate mortgage-credit loans are the dominant type of financing in the countries experiencing the strongest growth in housing prices since 1997.

HOUSING PRICES IN DENMARK, THE UK, SPAIN AND THE USA



Note: Real housing prices are nominal housing prices deflated by the consumer price index.
Source: EcoWin.

In its autumn forecast, the Commission estimates that the budget deficit will be reduced from 3.3 per cent of GDP in 2003 to 2.8 per cent in 2004. In other words, the UK will not exceed the Treaty's 3-per-cent limit in

2004. Since expenses are rising and tax revenues lower than scheduled, the government is, however, facing difficulties in meeting its own fiscal-policy target.[1]

Sweden

The Swedish economy is in an upswing. Exports rose strongly in the first six months, consumer spending showed a firm increase, and investments were rising. The increase in retail sales in the period from July to September indicates that the tendency for higher consumer spending persists, while export order books in the manufacturing sector indicate that exports continue to expand. Business and consumer confidence are comparatively high.

Despite relatively high and balanced growth, the Swedish current-account surplus has been rising in recent years, reaching almost 8 per cent of GDP in the 2nd quarter. The increase may be attributed to the steep rise in net exports in volume terms, while the terms of trade have deteriorated.

The upswing has yet to be clearly reflected in the labour market. Unemployment fell from 5.8 per cent in June to 5.4 per cent in October, but this was to some extent attributable to increased enrolment in labour-market programmes. Moderate wage increases and high productivity growth imply continued low inflationary pressures. Underlying inflation according to UND1X, the index preferred by Sveriges Riksbank, was 1.3 per cent in October. The repo rate (the official interest rate), has been unchanged at 2 per cent since April and is at the same level as the euro-area rate.

Fiscal policy has been eased in 2004 and according to the 2005 budget proposal, fiscal policy will remain expansionary next year. Government expenditure on e.g. the active labour-market policy will be increased and households will be granted tax cuts. According to the Commission's autumn forecast, the cyclically-adjusted budget balance will be reduced from 1.4 per cent of GDP in 2003 to 0.7 per cent in 2004 and then to 0.4 per cent in 2005. This structural deterioration in government finances makes it difficult to meet the government's target of a budget surplus of 2 per cent over the economic cycle.

Norway

Growth in the Norwegian economy has picked up over the past year and GDP in mainland Norway rose by 3.7 per cent in the 2nd quarter of 2004

[1] The government aims for its fiscal policy to comply with the "Golden rule". This means that, on average, over the economic cycle, current revenue must exceed current expenditure, less expenses related to net government investments.

compared with the same quarter one year before. Growth is sustained mainly by domestic demand.

Wage growth is subdued and unemployment is high by Norwegian standards, entailing weak inflationary pressure. Core inflation measured by the consumer price index adjusted for tax changes and excluding energy products (CPI-ATE), was 0.5 per cent in October, and significantly below the monetary-policy target of inflation at 2.5 per cent. The official interest rate has remained unchanged since the spring, after Norges Bank lowered the interest rate from 7 per cent to 1.75 per cent during the period from the end of 2002 until spring 2004.

DEVELOPMENT IN THE DANISH FINANCIAL MARKETS

Throughout the period under review, the Danish krone has been stable and slightly stronger than the ERM II central rate of kr. 7.46038 per euro. In September, the Danish krone weakened marginally, coinciding with capital exports totalling approximately kr. 15 billion that were attributable mainly to the banks. The portfolio investments of other sectors, direct investments and other investments overall resulted in modest net capital imports in September. At the end of October, the foreign-exchange reserve was kr. 221.2 billion. There has been little foreign-exchange intervention since June.

Danmarks Nationalbank has not adjusted its interest rates since June 2003, when the lending rate was lowered to 2.15 per cent. The current-account and discount rates are 2 per cent.

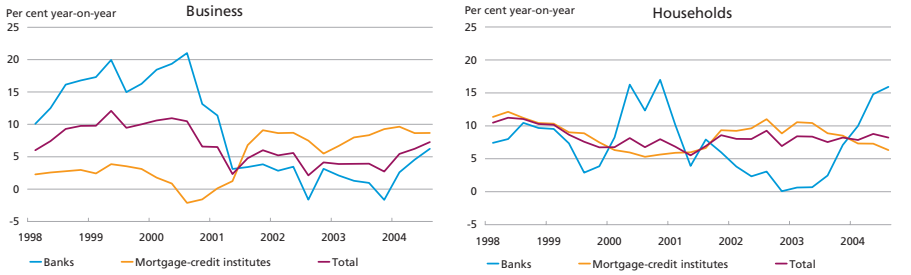
The yield on Danish 10-year government bonds has fallen slightly more than European yields, and the yield spread to Germany, measured in terms of benchmark bonds, has narrowed slightly to approximately 30 basis points in mid-November.[1]

Growth in lending by banks and mortgage-credit institutes gained momentum in the spring and since May has stood at around 8 per cent compared to the same month in 2003. Overall, the development in lending matches the rising domestic demand. Lending to households rose by 8.2 per cent in September relative to the same month in 2003. In recent months, households have continued to increase their borrowing from banks, while the growth in outstanding mortgage-credit loans has declined slightly, cf. the left-hand side of Chart 9. This is attributable especially to the mortgage-credit style loans now offered by banks. In September, business lending was up 7.3 per cent on the same month in

[1] The maturity of the Danish benchmark bond is longer than that of the corresponding German government bond. Adjusted for this, the yield spread is close to 20 basis points.

GROWTH IN LENDING BY BANKS AND MORTGAGE-CREDIT INSTITUTES IN DENMARK

Chart 9



Note: Lending by the banks includes lending by foreign units.
Source: Danmarks Nationalbank.

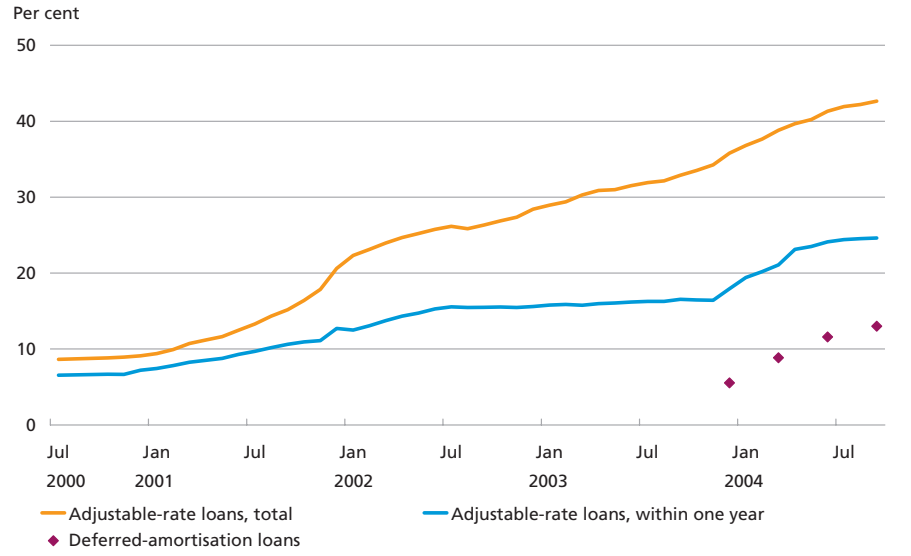
2003, cf. the right-hand side of Chart 9. The general tendency for banks' lending to expand and mortgage-credit institutes' lending to decline in 2004 is also reflected in business lending.

At the end of September 2004 adjustable-rate loans accounted for approximately 43 per cent of total mortgage-credit lending, cf. Chart 10. More than half of these loans were subject to adjustment within 1 year. Deferred-amortisation loans are becoming increasingly popular. For 13 per cent of total mortgage-credit lending no instalments were paid in the 3rd quarter.

The breakdown of lending to households by banks and mortgage-credit institutes on loan types shows that fixed-rate mortgage-credit

ADJUSTABLE-RATE LOANS AND DEFERRED-AMORTISATION LOANS IN PROPORTION TO TOTAL MORTGAGE-CREDIT LENDING IN DENMARK

Chart 10



Source: Danmarks Nationalbank.

HOUSEHOLDS' BORROWING FROM DANISH BANKS AND MORTGAGE-CREDIT INSTITUTES

Table1

End of period	Jan. 2003, kr. billion	Sept. 2004, kr. billion	Jan. 2003, per cent	Sept. 2004, per cent
Fixed-rate mortgage-credit loans[1]	703	612	57	43
Adjustable-rate and deferred-amortisation mortgage-credit loans[1]	294	514	24	36
Bank loans	246	303	20	21
Total borrowing	1242	1429	100	100

Note: Households include sole proprietorships.
Source: Danmarks Nationalbank.
[1] The breakdown between fixed-rate, adjustable-rate and deferred-amortisation loans is partly estimated on the basis of the distribution of the mortgage-credit loans by property category and loan type. Fixed-rate loans include index-linked loans.

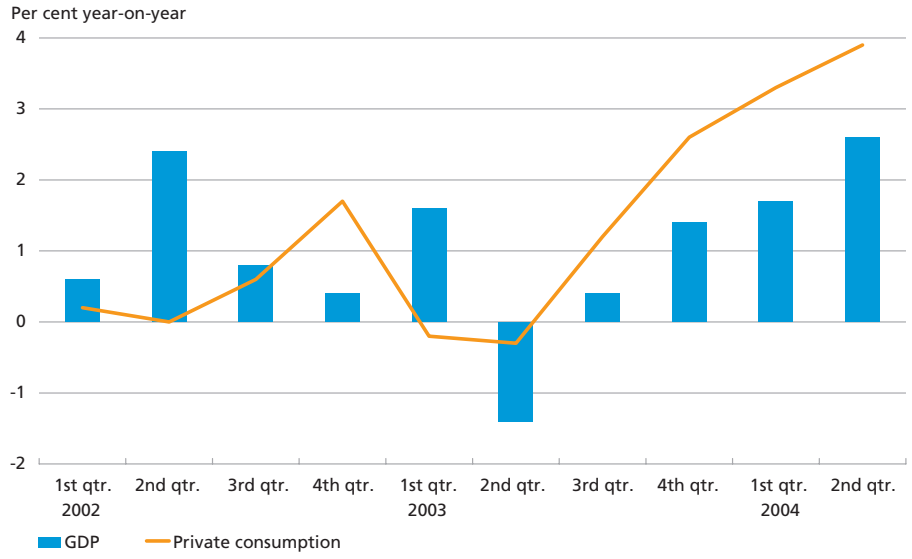
loans accounted for a good 40 per cent of total lending at the end of September, cf. Table 1. Adjustable-rate loans and deferred-amortisation mortgage-credit loans between them accounted for more than one third, while bank loans, for which interest payments mainly match the development in short-term interest rates, accounted for the remainder. Compared to January 2003, the proportion of fixed-rate loans has declined. This may be attributed to the increased popularity of adjustable-rate loans and the introduction of deferred-amortisation loans that are mainly adjustable-rate loans.

THE DANISH ECONOMY

The Danish economy is in an upswing that started in the summer of 2003. It has been clear for some time that the upswing is driven by private consumption, cf. Chart 11. Against the background of the strong global growth, since the turn of the year exports have also contributed to the upswing.

The year-on-year increase in GDP was 2½ per cent in the 2nd quarter, while private consumption was up 4 per cent on the same quarter in 2003. Monthly data indicates that consumption has continued to rise in the 3rd quarter. Retail and car sales were respectively 2 and 5 per cent higher in the 3rd than in the 2nd quarter. The growth in consumption is also confirmed by the consumer-confidence indicator, which in the course of 2004 has moved up to the level seen in the mid-1990s. Household economies are bolstered by the low interest rate and strong housing market. Housing prices have shown increased upward momentum in 2004, while disposable incomes have risen significantly, fuelled by tax cuts, among other factors. The rise in oil prices has not been an impediment to a clear increase in real purchasing power.

GDP AND PRIVATE CONSUMPTION IN DENMARK Chart 11



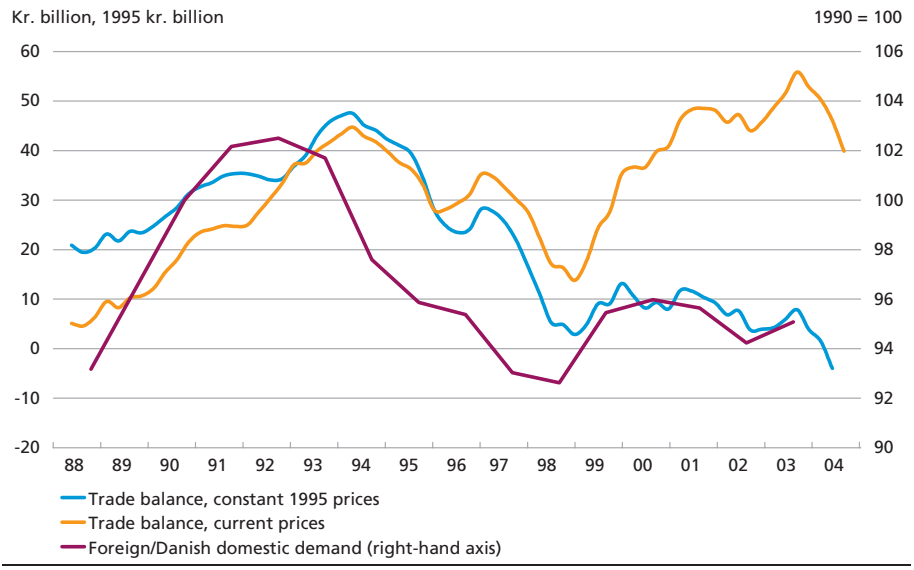
Source: Statistics Denmark.

Business investments in the 2nd quarter rose by 6.9 per cent on the same quarter in 2003. Investment growth is strongest for equipment, particularly machinery and to some extent software, while construction investments develop more slowly. Growth in business lending is increasing and the confidence indicators for the industrial, service and construction sectors point to further investment growth.

Exports of goods and services have grown at a faster rate than previously and the year-on-year increase in the 2nd quarter was 6.6 per cent. This partly reflects a strong increase in exports of services. The value of total goods exports remained largely unchanged from the 2nd to the 3rd quarter, while the value of services exports picked up further from the exceptionally high level in the 2nd quarter. The increase in goods exports in 2004 has involved all goods categories and has been driven e.g. by exports to Sweden, while exports to Germany have been flatter. Imports for both business and consumption purposes have also increased.

The trade balance and the balance of payments both show a significant surplus despite increasing domestic demand. In September, the trade-balance surplus was kr. 4.4 billion. The sound trade balance e.g. reflects a gain on terms of trade for goods, so that the trade balances in constant and current prices have diverged, cf. Chart 12. The trade balance measured in constant 1995 prices has been falling during recent years and is now negative. The current-account surplus for the 12-month

DANISH TRADE BALANCE AND RELATIVE DOMESTIC DEMAND Chart 12



Note: The trade balances in both constant and current prices are four quarters' moving total. Foreign demand is the krone-rate-weighted demand of the Danish trading partners.
Source: Mona's databank, OECD, Economic Outlook 75 and own calculations.

period up to and including September was kr. 40 billion, or slightly lower than for the same period in 2003.

The government and the Danish People's Party have entered into an agreement on the 2005 Finance Act. Measured by "fiscal effect", the agreement implies a neutral immediate fiscal-policy impact on production following the expansion in spring 2004. Therefore a slightly larger surplus on government finances in 2005 than in 2004 is anticipated via the cyclically-dependent elements of revenue and expenditure.

The economic upswing has reversed the decline in employment, which now shows a small increase. During the 1993-94 upswing it also took some time for the increase in activity to lead to significantly higher employment, cf. Chart 13. Or phrased differently: productivity growth is normally especially strong in the early stages of an upswing. Unemployment has been falling since the turn of the year and was 6.3 per cent in September. However, this mainly reflects that more people were in activation schemes in the first six months of the year, cf. Chart 14.

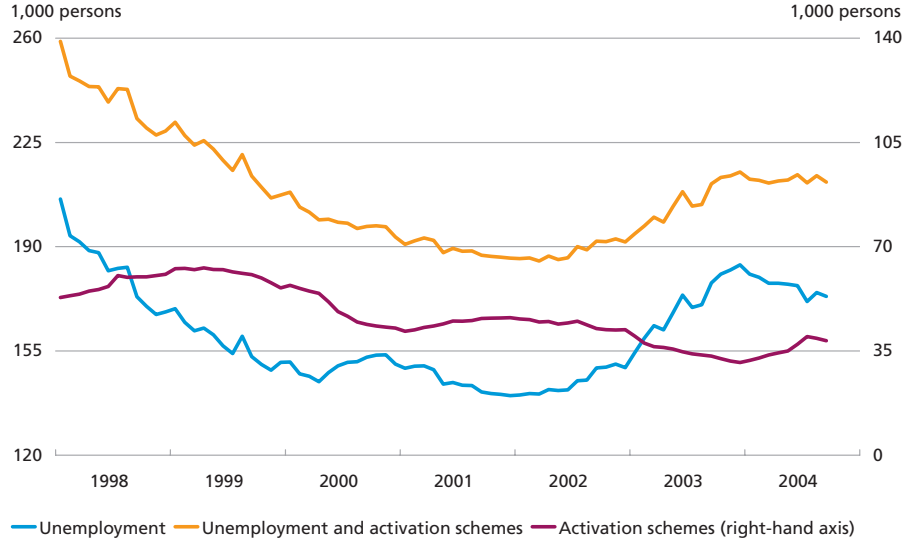
The drop in the rate of wage increase in the private sector throughout 2003 has continued in 2004. In the 3rd quarter, wage costs in the sectors covered by agreements with the Confederation of Danish Employers were 2.9 per cent higher than the previous year. A pause in the increase in pension contributions contributed to the continued slowdown in wage increases.

GDP AND EMPLOYMENT IN DENMARK Chart 13

Note: Zero on the horizontal axis is the 3rd quarter of 1993 and the 2nd quarter of 2003.
Source: Statistics Denmark.

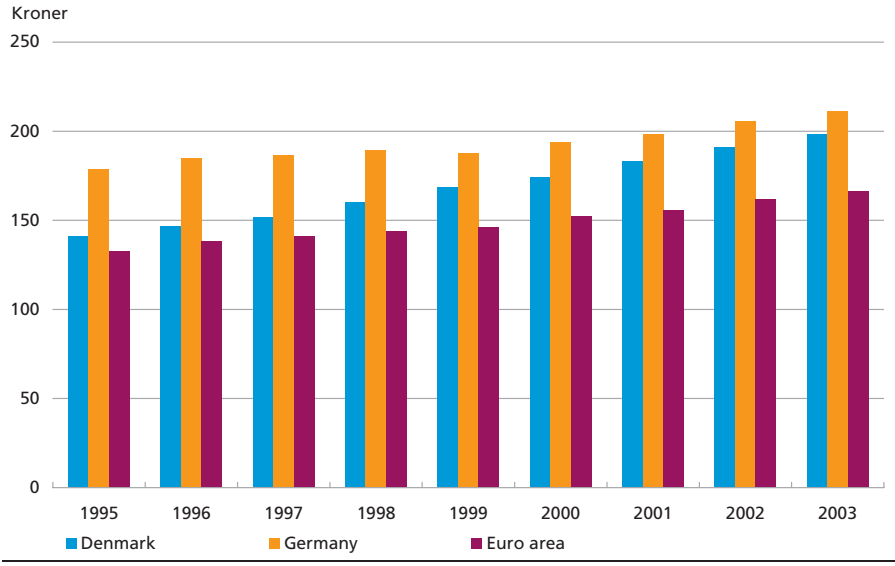
The growth in wage costs has diminished, but is still above the euro-area level, and the same applies to the level of costs. In 1995, Danish hourly labour costs were at the euro-area level, but approximately kr. 40 below

NUMBER OF PERSONS IN ACTIVATION SCHEMES AND UNEMPLOYMENT IN DENMARK Chart 14



Note: Own seasonal adjustment for the number of persons in activation schemes.
Source: Statistics Denmark and the National Labour Market Authority.

LABOUR COSTS PER HOUR IN DENMARK, GERMANY AND THE EURO AREA Chart 15



Note: Costs for the euro area are weighted together using 2002 krone-rate weights.
Source: Internationell utblick Löner och arbetskraftskostnader, Svensk Näringsliv.

the German level, cf. Chart 15. Up until 2004, Danish hourly wage costs increased at a faster rate than in the euro area and are now close to the German level. Unemployment in Denmark has developed more favourably than in Germany and the Danish unemployment rate is also below that of the euro area. The relatively favourable development in Denmark is linked to a stronger productivity increase. Since 1995, productivity in terms of the private sector's output per employee has increased by around 10 per cent more than in the euro area, which is only slightly less than the Danish additional increase in hourly wage costs. The stronger productivity development in Denmark may be the result of better adjustment of labour input, supported by a high investment level in recent years and the outsourcing of jobs with a small added-value element to low-wage countries.

The cyclical development may at some point reduce and eliminate the additional Danish wage increase, but at any event maintaining the high Danish wage level imposes special demands on the skills and adaptability of the labour force if employment in the private sector is to increase.

Price development

Inflation remains subdued. From May to September, inflation measured as the annual rate of increase in the EU Harmonised Consumer Price Index, HICP, was around 1 per cent. In October, inflation rose to 1.6 per

cent. The reduction of tax on soft drinks, spirits and tobacco in October 2003 no longer exerts downward pressure on inflation. Prices moreover increased in response to higher oil prices.

Danish inflation is still below inflation in the euro area, where HICP increased by 2.4 per cent in October compared with the same month in 2003. Core inflation, measured in terms of the increase in HICP excluding energy, food, spirits and tobacco, declined in 2004, and has since April also been below core inflation in the euro area. Domestic market-determined inflation, IMI, which also eliminates e.g. import prices and taxes, was negative in October and thus confirms the overall picture of modest underlying inflationary pressures.

Volatility in the Overnight Money-Market Rate

Allan Bødskov Andersen, Economics

INTRODUCTION AND SUMMARY

This article analyses the day-to-day fluctuations in the Danish overnight money-market rate during the period from 1 January 1999 to 31 May 2004.

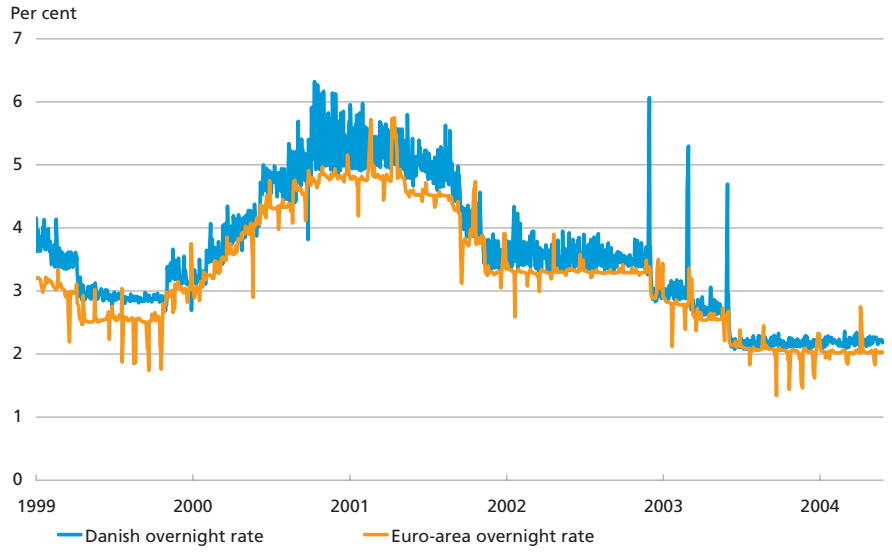
The fluctuations in the Danish overnight rate may seem relatively large compared with the overnight rate in the euro area (Eonia). However, direct comparisons are difficult to make because both Eonia and the Danish overnight rate are affected by various technical factors. In the euro area, the overnight rate is influenced by the ECB's monthly reserve maintenance period,[1] while the corresponding Danish rate is impacted on the days when Danmarks Nationalbank conducts open market operations. Fluctuations in the overnight rates are also due to normal variations in supply and demand in the money market. In other words, there is nothing unnatural about a certain amount of volatility in the overnight rate.

In its weekly open market operations, Danmarks Nationalbank determines the 14-day rate. Under normal market conditions, the current-account rate moreover sets a lower limit for the overnight rate, as current-account deposits with Danmarks Nationalbank are always a risk-free alternative to money-market placements. As explained below, these monetary-policy instruments create volatility in the overnight rate. The analysis shows that this technical variation in the overnight rate explains a significant amount of the overall variation, namely approximately 50 per cent.

Another source of money-market volatility is expectations of changes in the official interest rates. During the period under review, this type of volatility in the Danish overnight rate has been limited to a few, but rather significant fluctuations. These are most obvious in Chart 1 as the

[1] The overnight rate in the euro area and its relation to the ECB's monetary-policy instruments are described in detail in *The Monetary Policy of the ECB*, European Central Bank, 2004, and will not be discussed further in this article.

OVERNIGHT RATES IN DENMARK AND THE EURO AREA Chart 1



Note: Overnight rates for Denmark and the euro area (Eonia) are used.
Source: Danmarks Nationalbank.

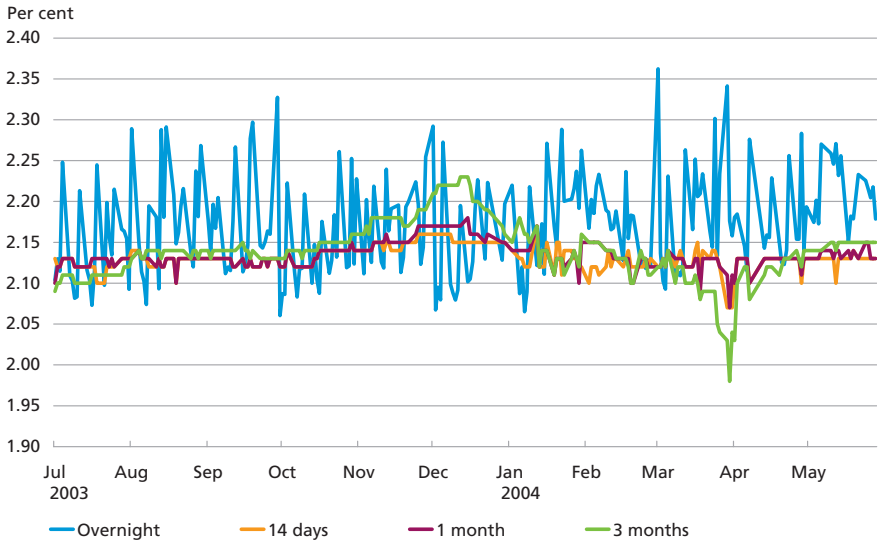
three "peaks" following the interest-rate reductions at the end of 2002 and during the first half of 2003. The background to the fluctuations is relatively straightforward, cf. below. Adjusted for the few episodes with large fluctuations as a consequence of expectations of changes in the official interest rates, almost 80 per cent of the overall variation in the overnight rate can be attributed to technical factors.

As the overnight volatility is thus mainly of a technical nature, it is unproblematic from a monetary-policy viewpoint. The money-market participants understand the workings of the overnight market, and the volatility in the overnight rate does not affect the money-market rates further along the yield curve, cf. Chart 2.

The analysis of the remaining non-technical variation, reflecting general supply and demand effects,[1] shows that volatility trends during the period under review are time-varying and persistent – both of which are classic features of financial time series. Moreover, there is a tendency for some correlation between the overall development in volatility and Danmarks Nationalbank's internal spread, defined as the lending rate less the current-account rate. On the other hand, there seems to be no systematic impact from changes in the official interest rates on the volatility of the overnight money-market rate.

[1] This analysis is conducted within the framework of a generalised, autoregressive conditional heteroskedasticity model (GARCH).

MONEY-MARKET RATES WITH DIFFERENT MATURITIES Chart 2



Note: The Chart shows daily observations for the period July 2003 to May 2004.
Source: Danmarks Nationalbank.

TECHNICAL VOLATILITY IN THE OVERNIGHT RATE

The Danish money market is the market for interbank loan agreements and interest-rate derivatives with a maturity of up to one year.[1]

The overnight rate is the rate that players in the Danish money market pay or receive when they respectively borrow or lend liquidity from one banking day to the next, for instance from today to tomorrow or from Friday to Monday.

Interaction with the monetary-policy instruments

The Danish money market is affected by the monetary-policy instruments used by Danmarks Nationalbank.[2] The development in the overnight rate is closely linked to Danmarks Nationalbank's lending rate and the certificate-of-deposit rate. Danmarks Nationalbank offers sale of certificates of deposit and enters into monetary-policy loan agreements in the course of the regular open market operations on the last banking day of the week, i.e. usually on Fridays, and when warranted by forecasts of central-government receipts and disbursements.[3] Apart from

1 For a description of the Danish money market, see Chapter 2 of *Monetary Policy in Denmark*, Danmarks Nationalbank, 2nd edition 2003.

2 Danmarks Nationalbank's monetary-policy instruments are described in Chapter 1 of *Monetary Policy in Denmark,* 2nd edition 2003.

3 The overall liquidity is affected by Danmarks Nationalbank's foreign-exchange interventions and payments to and from the central government. Danmarks Nationalbank prepares forecasts of the daily liquidity impact of the central government's payments and notifies the money-market participants in advance of when it offers sale or buy-back of certificates of deposit.

these operations, Danmarks Nationalbank conducts operations without prior announcement when required, for instance in connection with unexpected shifts in central-government payments.

Certificates of deposit and monetary-policy loans have a maturity of 14 days. The certificate-of-deposit rate and Danmarks Nationalbank's lending rate are normally identical.

In addition to buying certificates of deposit, the monetary-policy counterparties may also place liquidity as demand deposits in current accounts at Danmarks Nationalbank. The rate of interest on these deposits is lower than the certificate-of-deposit rate. Since June 2003, the current-account rate has been 2 per cent p.a., while the certificate-of-deposit rate has been 2.15 per cent p.a.

The example below illustrates how the monetary-policy instruments affect the overnight money-market rate. The example is based on a typical situation in which Danmarks Nationalbank offers sale of certificates of deposit and monetary-policy loans on a Friday, while the next announced open market operation is on the following Friday.

A monetary-policy counterparty then has the following options for placement of liquidity in the coming seven-day period:[1] placement in the money market at the current overnight rate for each of the seven days, or purchase of certificates of deposit at Danmarks Nationalbank, accruing interest at 2.15 per cent for seven days. The overnight rate is market-determined and will adjust in the following seven days so that the overall return on placement in the overnight market more or less matches the alternative placement in certificates of deposit.[2]

On the face of it the overnight rate in an equilibrium could adjust to approximately 2.15 per cent on Fridays and on each of the following four banking days (Monday-Thursday). However, on the banking days Monday-Thursday, the alternative placement to the overnight rate is not the certificate-of-deposit rate, as no open market operations are conducted on these days, but rather current-account deposits with Danmarks Nationalbank. For these the interest rate, as stated, is lower than the certificate-of-deposit rate, in the example 2 per cent. If the overnight rate was, say, 2.5 per cent on these banking days, the monetary-policy counterparties would seek to achieve this higher return by

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1 The relevant time horizon is seven days, although the duration of certificates of deposit and monetary-policy loans is two weeks – the reason being that the interest rates on certificates of deposit and monetary-policy lending are normally identical. In the absence of expectations of changes in official interest rates, the monetary-policy counterparties will, on days of open market operations, be able to reconsider their net placement of liquidity with Danmarks Nationalbank without taking their previous decision into account.

2 In practice, the two returns will not match completely. As deposits with Danmarks Nationalbank are risk-free, a risk premium will apply to placement in the money market, cf. Box 1, p. 31. This factor is accounted for in the following analysis.

lending in the overnight market, rather than placing liquidity in current accounts. Other things being equal, this will increase the supply of liquidity in the overnight market and drive down the interest rate towards the current-account rate. On banking days without open market operations, the spread between the overnight rate and the current-account rate will reflect the liquidity situation in the money market, together with a risk premium, as current-account deposits are always a risk-free option.[1]

For illustrative purposes, it is assumed that the overnight rate on the banking days Monday-Thursday is 2 per cent. In other words, risk premia are disregarded. In order to comply with the requirement that the overall return on placement in the overnight market over a seven-day period must match 2.15 per cent, the overnight rate on Fridays must adjust to a level higher than 2.15 per cent. This is known as the "Friday effect" on the overnight money-market rate. In the example, we can calculate the "theoretical" overnight rate on Fridays (called r) on the basis of the following condition:[2]

(1) r per cent for three days + 2 per cent for four days = 2.15 per cent for seven days.

Note that "overnight" transactions concluded on a Friday run until the following Monday. Therefore, the overnight rate r on Fridays applies for three days. In the example, the overnight rate on Fridays must be 2.35 per cent to match the return on the alternative placement with Danmarks Nationalbank.

Obviously, the "Friday effect" is seen not only on Fridays, but, in principle, on all days of open market operations. The effect is stronger, the longer the interval until the next announced open market operation, and the shorter the period that the overnight rate applies on days of open market operations.

Chart 3 illustrates the effect for the period from July 2003 until May 2004. As will appear, the overnight rate is, on average, higher on days of open market operations and tends to peak on these days. However, the connection is not clear-cut as rather high overnight rates are sometimes also seen on days without open market operations.

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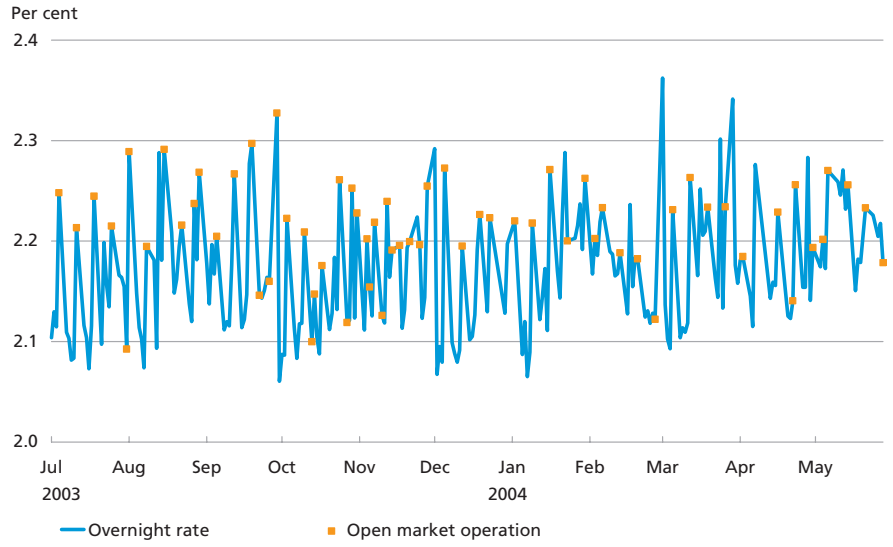
1 A cap applies, however, to the overall current-account deposits of the monetary-policy counterparties. However, the overall current-account limit has been fixed at a level high enough not to be restrictive in the daily settlement of payments. This aspect will therefore not be considered further in this article, but reference is made to the description of the current-account-limit system in Chapter 1 of *Monetary Policy in Denmark*, Danmarks Nationalbank, 2nd edition 2003.

2 The displayed equation is simplified, as compound interest is not included in the seven-day placement in the money market. In practice, the compound interest is, however, very small on account of the short time frame.

THE OVERNIGHT RATE AND OPEN MARKET OPERATIONS Chart 3



Note: Squares denote observations on days of open market operations.
Source: Danmarks Nationalbank.

Analysis of technical volatility

A simple regression analysis is conducted of daily observations of the overnight rate during the period January 1999 to May 2004, a total of 1,353 observations, in order to examine the proportion of the overall variation in the overnight rate that is attributable to the Friday effect.

The focus is on analysing the spread between the overnight rate and the current-account rate, below referred to as the r^{spread}. An artificially high degree of explanation resulting solely from the fact that the overall trend of the level of the overnight rate is determined by the current-account rate is thereby avoided.

It is sought to explain the interest-rate spread by the variable "Feffect", which assumes the value of 0 on days without open market operations. On days of open market operations, the variable assumes a value equal to the theoretical spread, allowing for the Friday effect as illustrated above.[1] This means that the theoretical overnight rate is calculated based on equation (1), subtracting the current-account rate. The calculations take account of the risk premium required by the money-market counterparties for placement in the money market,

[1] The calculation is made on days of announced as well as unannounced open market operations. The return required for the overnight placement is always calculated up to the next announced open market operation.

RISK PREMIA IN THE OVERNIGHT RATE Box 1

Except for a few special cases, the overnight rate is consistently slightly above the theoretical lower limit set by the current-account rate. This is apparent from e.g. Chart 3 where the overnight rate is slightly higher than the current-account rate of 2.00 per cent throughout the period under review. This is because, as opposed to deposits with Danmarks Nationalbank (current-account deposits/certificates of deposit), placement of funds in the overnight money market for several days is not without risk, as the return on the placement is not known for certain in advance. Therefore, market participants require a risk premium as compensation for the risk of placing liquidity in the overnight money market.

Various risk factors exist, such as:

- Random fluctuations in the overall liquidity in the financial sector mean that the return is subject to some uncertainty, given that on days of tighter overall liquidity, the overnight rate will, other things being equal, adjust to a higher level. The overall liquidity in the sector is affected, in particular, by central-government receipts and disbursements. These payments cannot be completely accurately predicted. The overall liquidity in the sector is also affected by Danmarks Nationalbank's foreign-exchange interventions. The size and timing of Danmarks Nationalbank's interventions depend on the actual current conditions in the foreign-exchange market and thus cannot be predicted.
- Uncertainty as to the concentration of the overall liquidity and its distribution among various counterparties. When liquidity is concentrated in a few financial institutions, this may affect the overnight rate.
- Uncertainty as to the timing of unannounced open market operations.
- Uncertainty as to possible changes in official interest rates.

Credit risk, on the other hand, does not seem to play any significant role as, for example, the 14-day money-market rates are usually not above the certificate-of-deposit rate, cf. also Chart 2. By way of comparison, the average overnight rate for the period illustrated in Chart 2 (July 2003 to May 2004) was 2.17 per cent, or slightly above the certificate-of-deposit rate (2.15 per cent) and the current-account deposit rate (2.00 per cent) in the period, as a consequence of the Friday effect and risk premia.

rather than as risk-free deposits with Danmarks Nationalbank.[1] Box 1 describes in more detail what the risk premium may be assumed to cover.

The internal spread, "intspread", is also included as an explanatory variable.[2]

[1] In practice, this is done by assuming that the risk premium is constant and equal to the average difference between the overnight rate and the current-account rate. This risk premium is then added to the return required for placement in the money market. While this approach ensures simple calculations, it obviously gives only a rough description of the risk preferences of the market participants.

[2] The internal spread is included in order to capture the effect of an increasing incentive to purchase certificates of deposit rather than placing funds in current accounts as the internal spread widens. Other things being equal, liquidity in the overnight market will thus decrease as the internal spread widens, which will have an upward impact on the spread between the overnight rate and the current-account rate.

The result of the regression:[1]

$$(2)\quad r_t^{spread} = 0.12 + \underset{(0.024)}{0.63}\,Feffect_t + \underset{(0.034)}{0.29}\,intspread_t + \varepsilon_t \qquad R^2 = 0.54$$

While the variables are highly significant, the Friday effect has by far the strongest explanatory power. If the regression is based solely on this effect, the goodness of fit is 0.51. Thus, the Friday effect alone may explain half of the overall variation in the spread between the overnight rate and the current-account rate.

The coefficient to the Friday effect is 0.63, implying that the overnight rate on average rises by 0.63 percentage point when the theoretical measure from equation (1) points to an increase of 1 percentage point. This reflects that the overnight rate on days of open market operations is not determined solely by the Friday effect.

The effect of expectations of changes in the official interest rates

As Chart 1 shows, there are marked peaks in the overnight rate, corresponding to 2 December 2002, 28 February/3 March 2003 and 2 June 2003. On these days, the money market was influenced by strong expectations that the ECB (and thus Danmarks Nationalbank) would lower interest rates in the period until the next open market operation. Such expectations significantly magnify the Friday effect, as the overnight rate is expected to fall towards the middle of the period when the official interest rates (and thus the current-account rate) are expected to be lowered. Similarly, there is one very low observation of the overnight rate on 28 September 2000. In this case, expectations of an increase in interest rates in the wake of the euro referendum drove down the overnight rate. The reason is that certificates of deposit are not attractive when the current-account rate is expected to rise before the maturity of the certificate. This increases the supply of liquidity in the money market, and pushes down the interest rate.

If dummy variables are used to exclude these few instances of a strong impact from expectations of changes in the official interest rates, the goodness of fit rises to 0.78, while the parameter estimates for the other explanatory variables, cf. equation (1), change only marginally. In other words, very few observations contribute significantly to the overall variation in the overnight rate in the period under review.

[1] Robust standard deviations are denoted in parenthesis.

MARKET-DETERMINED VOLATILITY IN THE OVERNIGHT RATE

The part of the variation in the overnight rate that cannot be explained by technical volatility, i.e. just under 20 per cent, as described above, is analysed within the framework of a GARCH (Generalised AutoRegressive Conditional Heteroskedasticity) model. The precise specification of the model is described in the Appendix.

The premise of the GARCH model is that periods of (conditional) volatility tend to "cluster", so that a period of relatively high volatility is followed by a period of relatively low volatility, and vice versa. This phenomenon is common for financial time series, and GARCH is a way to describe this structure.

The rationale for applying the model to this case can be found in Chart 4, which shows the squared residuals from the regression analysis above. As appears, large residuals tend to be followed by other large residuals, while relatively small residuals, on the other hand, tend to be followed by other minor residuals.

In this case, the model is used to give a picture of the market-determined volatility in the overnight rate. This volatility reflects the supply and demand situation for liquidity in the money market, as well as risk factors as described in Box 1.[1]

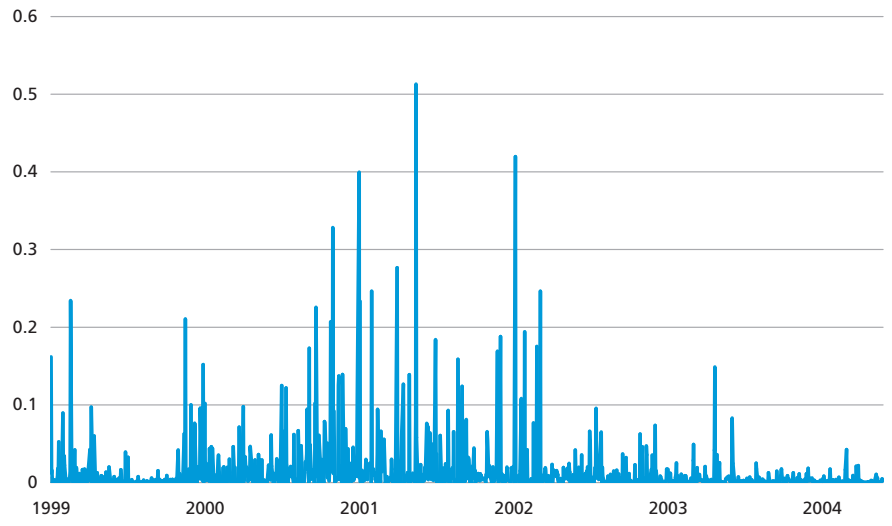
The development of the estimated volatility is shown in Chart 5 in which days of interest-rate increases and reductions during the period are specified separately.

Volatility clearly varies strongly over time and also develops very persistently, cf. the Appendix. Visually assessed, there are no immediate indications that changes in the official interest rates as such have any systematic impact on volatility.

However, the trend of the volatility level seems to depend positively on the internal spread, cf. Chart 6. As already stated, the wider the internal spread, the greater the incentive for the banks to purchase certificates of deposit. Other things being equal, this entails less overall liquidity in the money market. This, in turn, seems to increase the market-determined volatility of the overnight rate. The internal spread is also high when there are signs of unrest in the foreign-exchange market, which may in itself lead to more volatile rates.

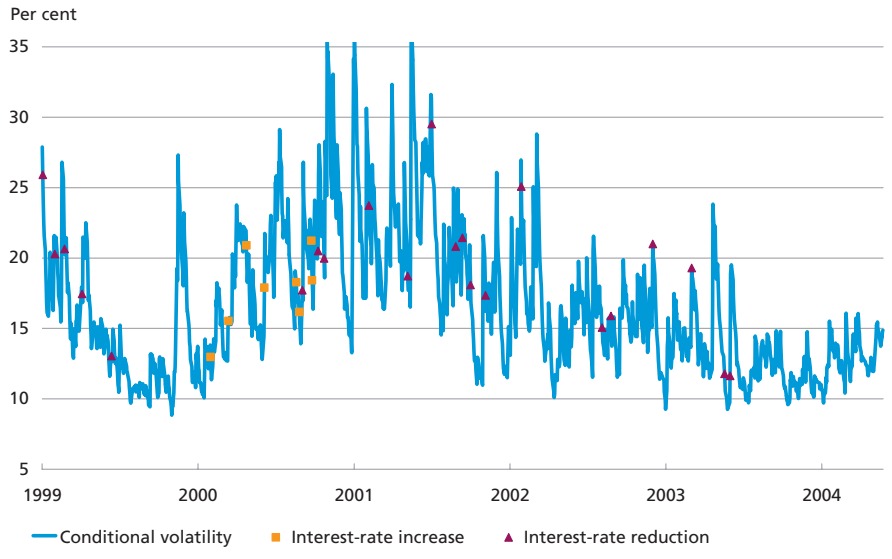
[1] In practice, this is equivalent to the GARCH model being specified for the residuals from the regression analysis of the overnight rate above. Given the parameters of the model, the GARCH model provides an estimate of the current volatility for each observation, based on historical observations. The structure can be compared with an ordinary autoregressive model for the mean in which the current observation may be estimated based on historical observations.

SQUARED RESIDUALS Chart 4



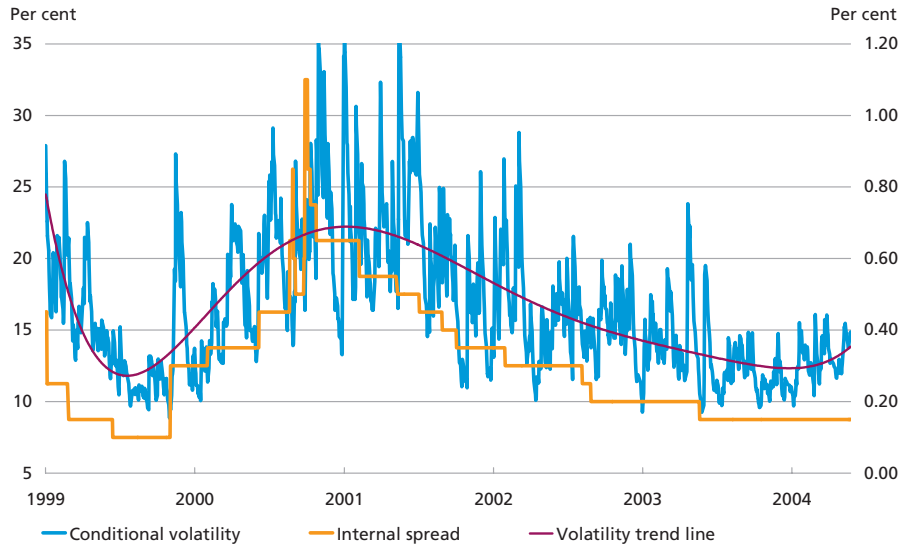
Note: The residuals for the regression model (2) including dummy variables.
Source: Own calculations.

MARKET-DETERMINED VOLATILITY Chart 5



Note: Squares and triangles denote days of interest-rate increases and reductions, respectively.
Source: Own calculations.

MARKET-DETERMINED VOLATILITY AND INTERNAL SPREAD Chart 6



Note: The trend line is a fitted polynomial.
Source: Own calculations.

CONCLUSION

The overnight money-market rate is significantly affected by the interaction with the monetary-policy instruments used by Danmarks Nationalbank. In order to make placement in the overnight market attractive relative to placement with Danmarks Nationalbank, the overnight rate must rise on the days when Danmarks Nationalbank conducts open market operations. The analysis shows that this technical volatility in the overnight rate may explain a large part of the movement. There is no sign of any spill over effects on the interest rates further along the yield curve, making the variation in the overnight rate unproblematic from a monetary-policy viewpoint.

The analysis of the market-determined element of the movements in the overnight rate shows that the volatility is strongly time-dependent and develops sluggishly. Overall, the volatility seems to correlate with the internal spread of Danmarks Nationalbank. This may be due to the fact that with a wider internal spread, there is, other things being equal, more incentive to purchase certificates of deposit – and thus to tie up liquidity for 14 days. This results in less liquidity in the overnight money market, resulting in more volatile interest rates.

APPENDIX: THE GARCH MODEL

The variation of the GARCH technique applied is an asymmetric GARCH(1,1)-in-mean with marginal t-distributed innovations.[1]

The specification used is[2]

$$r_t^{spread} = \phi_0 + \phi_1 Feffect_t + \phi_2 intspread_t + \phi_3 \log(h_t) + u_t$$
$$u_t = \varepsilon_t \sqrt{h_t}, \quad \varepsilon_t \sim t(\nu)$$
$$h_t = \alpha_0 + \alpha_1 (u_{t-1} - \kappa)^2 + \beta_1 h_{t-1}.$$

ϕ_0, ϕ_1 and ϕ_2 correspond to the parameters of the ordinary regression analysis and capture the Friday effect. h_t denotes the conditional variance. Inclusion of $\log(h_t)$ in the mean allows the conditional volatility to affect the overnight rate and is meant to capture any time-varying risk premium.

The parameter κ captures any asymmetry in the GARCH volatility: if κ is, for example, negative, a positive shock to the overnight rate (u positive) will imply a higher conditional volatility relative to a negative shock of the same numerical magnitude.

The model is estimated using maximum likelihood under the restrictions of $\alpha_0>0$, $\alpha_1+\beta_1>0$ and $\alpha_1+\beta_1<1$.[3] The result is shown in Table A1.

THE GARCH MODEL — Table A1

Mean				Variance				
ϕ_0	ϕ_1	ϕ_2	ϕ_3	α_0	α_1	β_1	ν	κ
0.34 (0.038)	0.67 (0.022)	0.096 (0.026)	0.051 (0.012)	0	0.14	0.86 (0.047)	2.34 (0.12)	− 0.11 (0.021)

Note: Robust standard deviations are shown in parenthesis. Restrictions are binding.
Source: Own calculations.

All variables in the model are significant. The explanatory contribution from the internal spread has declined due to the high correlation between the internal spread and the conditional volatility, cf. also Chart 6, so that $\log(h_t)$ assumes some of the explanatory power from the internal spread. For the mean, the parameter for the Friday effect is, reassur-

[1] The t-distribution is used because the current distribution for the interest rate has thicker tails than the normal distribution. The number of degrees of freedom ν for the marginal t-distribution is estimated in line with the other parameters of the model. Where ν is large, e.g. larger than 50 or 100, $t(\nu)$ is close to the normal distribution. For further details, see e.g. James D. Hamilton, *Time Series Analysis*, Princeton University Press, 1994.

[2] Moreover, the dummy variables for the mean value are included as described in the article.

[3] The first two restrictions ensure that the conditional variance is positive. The third restriction ensures stationary volatility and finite unconditional variance of the overnight rate, as any integrated GARCH volatility is difficult to interpret in the current application.

ingly, almost unchanged relative to the simple regression analysis. The parameter for the conditional volatility (ϕ_3) indicates that a higher conditional volatility, on average, leads to a significant widening of the spread between the overnight and the current-account rates. This is in harmony with an interpretation of $\log(h_t)$ as a time-varying risk premium.

As far as the variance is concerned, it should be noted that $\alpha_1+\beta_1$ is very close to 1, as the restriction is binding. This indicates that the conditional volatility moves very persistently. The number of degrees of freedom ν in the t-distribution is estimated at approximately 2.3, describing a distribution with significantly thicker tails than the normal distribution. This is a typical phenomenon for financial time series.

With a starting value of h_0 for the conditional variance and given the model's parameters, h_t is calculated recursively for all time points t from the equation above. As starting value, the unconditional variance for the spread between the overnight and the current-account rates is used. The conditional volatility is then given as the square root of h_t and reproduced in Charts 5 and 6.

The BRIC Countries

Thomas Haugaard Jensen and Jens Anton Kjærgaard Larsen, International Relations

INTRODUCTION

The emerging market economies play an increasingly important role in global economic development and for the global monetary and financial system. The global impact is amplified by greater real-economic and financial fluctuations in the emerging market economies than in more mature market economies. After the crises in Asia and Russia at the end of the 1990s, Brazil and Turkey in 1999-2001 and Argentina since 2001 the focus on the emerging market economies' economic and financial potential has become sharper, with interest directed especially at four of the largest of them, called the BRIC countries: **B**razil, **R**ussia, **I**ndia and **C**hina. Even though to some extent the focus on these particular four economies is arbitrary, in both demographic and economic terms they are among the largest countries in the world. In financial terms, the BRIC countries also dominate the emerging market economies.

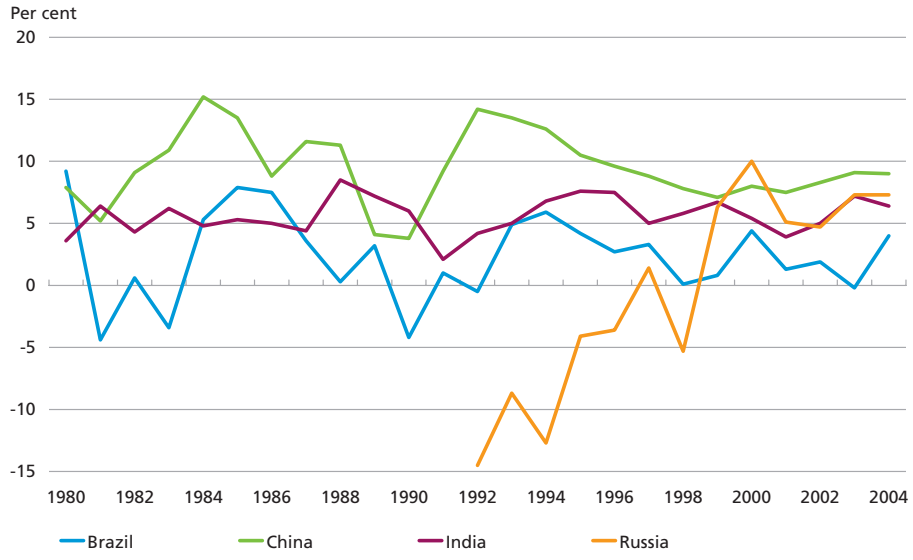
This article briefly presents the historical growth in the BRIC countries and assesses their current role in the global economy. The long-term perspectives for these economies are described in the context of economic theory. Although other large emerging market economies such as Mexico, South Korea, Indonesia, South Africa and Turkey share certain characteristics with the BRIC countries, they are not considered further in this article.

THE DEVELOPMENT OF THE BRIC COUNTRIES AND THEIR IMPACT ON THE GLOBAL ECONOMY

Historical growth

With an average annual growth rate close to 9.8 per cent since 1980 China definitely meets all the criteria for an emerging market economy. It is followed by India and Brazil with average annual growth rates of respectively 5.8 and 2.4 per cent, cf. Chart 1. Since 1998 Russia has also seen high growth, now at the same level as India. For comparison, the average annual growth since 1980 in seven of the large industrialised countries (G7) was 2.7 per cent. In view of the significantly higher growth in China

BRIC COUNTRIES' ECONOMIC GROWTH, 1980-2004 Chart 1



Note: 2004 are IMF estimates.
Source: International Monetary Fund, World Economic Outlook Database, September 2004.

global interest has so far concentrated mainly on China's development, with the other BRIC countries playing a secondary role.

The long period of sustained high growth in China and India indicates that these countries have succeeded in creating the basis for a "tiger leap" in growth that so far has proved sustainable. It is harder to assess the sustainability of Russia's growth in view of the relatively short period since the collapse of the Soviet Union and the ensuing Russian crisis that led to a major devaluation of the rouble. Moreover, to some degree the Russian economy is based on oil and gas production and mineral extraction and is therefore sensitive to price trends for these raw materials. Brazil has enjoyed some periods of high growth, but so far with no signs that these bursts of growth could become permanent. Mineral extraction is also a key element of Brazil's economy.

Economic significance to the global economy

The high growth rates in China and India, and recently also Russia, have increased the BRIC countries' importance to the global economy. Over the last 10 years the BRIC share of the global economy has thus increased by just over 1.5 percentage points. In terms of GDP at market prices, however, the BRIC countries' role in the global economy is still relatively small. Today they account for approximately 8 per cent of the total global economy; while the seven countries in the G7 group account for almost 65 per cent, cf. Table 1. China is now the world's 7th largest

ECONOMY AND INCOME, 2003 Table 1

	GDP (billion dollars)	GDP per cent of global	GDP, PPP (billion dollars)	GDP, PPP per cent of global	GNP per capita (dollars)	GDP per capita, PPP (USA = 100)	Population, 2003 (million)
G7 countries							
USA	10,882	29.9	10,871	21.0	37,610	100	291.0
Japan	4,326	11.9	3,583	6.9	34,510	75	127.2
Germany	2,401	6.6	2,279	4.4	25,250	74	82.6
UK	1,795	4.9	1,607	3.1	28,350	73	59.3
France	1,748	4.8	1,632	3.2	24,770	73	59.7
Italy	1,466	4.0	1,559	3.0	21,560	72	57.6
Canada	834	2.3	964	1.9	23,930	82	31.6
G7 total	23,452	64.5	22,495	43.5	32,623	87	709.1
BRIC countries							
Brazil	492	1.4	1,372	2.7	2,710	21	176.6
Russia	433	1.2	1,319	2.6	2,610	25	143.4
India	599	1.6	3,096	6.0	530	8	1,064.4
China	1,410	3.9	6,436	12.5	1,100	13	1,288.4
BRIC total	2,935	8.1	12,223	23.7	1,489	14	2,672.8
Memo							
Denmark	212	0.6	170	0.3	33,750	85	5.4

Note: All data is in current prices or calculated on the basis of data compiled in current prices.
Source: WDI database, World Bank.

economy, followed by India, Brazil and Russia in 12th, 15th and 16th place, respectively. Of the annual average global GDP growth at market prices of 3.9 per cent since 2000, 0.5 percentage point originates from growth in the BRIC countries.

If purchasing-power-adjusted exchange rates[1] are instead applied to the comparison of GDP, the global weighting of the BRIC countries increases, due to their considerably lower price levels. Compiled in this way, the BRIC countries' share of the global economy is almost 24 per cent, while that of the G7 countries falls to just over 43 per cent. Measured in terms of purchasing-power-adjusted GDP, the USA is still the largest economy, while China moves to the position of the world's 2nd largest economy, followed by Japan and India in respectively 3rd and 4th position. In terms of purchasing-power adjusted GDP, in the period 2000-03 the BRIC countries contributed 1.4 percentage points of the annual global growth of 3.3 per cent.

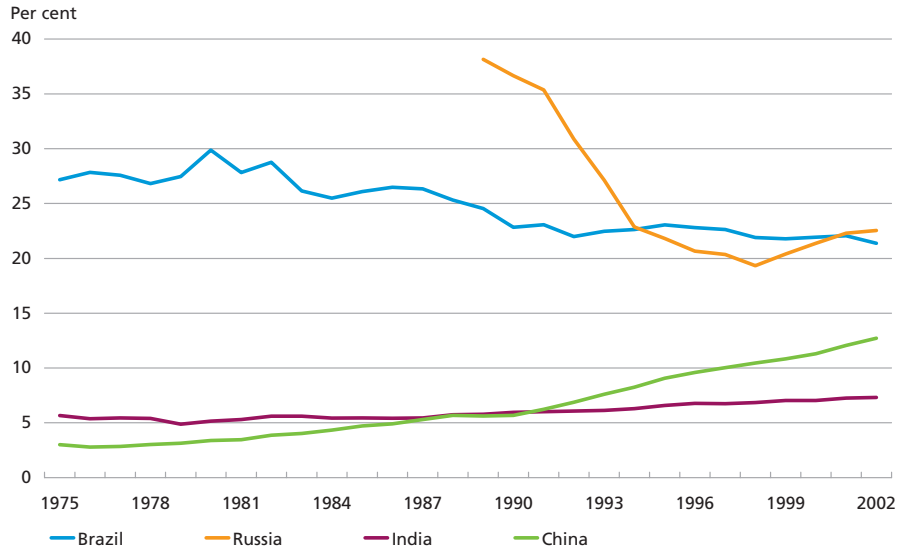
[1] On the purchasing-power adjustment of GDP per capita, exchange rates based on the assumed purchasing-power parity are used to calculate GDP per capita in the same currency. Purchasing-power-adjusted GDP per capita takes into account the variations in countries' price levels and therefore purchasing power at a given income level. Purchasing-power-adjusted GDP per capita is therefore a better comparative measure of prosperity. Under purchasing-power parity the exchange rate indicates the relation between two countries' price indexes and is therefore a measure of purchasing power in the individual country. In countries with low price levels purchasing power will be greater, all other things being equal.

Another characteristic of the BRIC countries' economic development is that generally their economic growth has fluctuated more strongly than has been the case for the developed countries. This tendency magnifies the significance of the BRIC countries to the global economy, since the fluctuations in their growth explain a relatively larger share of the global cyclical fluctuations than their economic weight would indicate.

BRIC countries' convergence

The BRIC countries' growth has led to a considerable absolute increase in prosperity. From 1980 and up to and including 2003 purchasing-power-adjusted GDP per capita (in current prices) has increased twelve fold in China, more than quadrupled in India and slightly more than doubled in Brazil. In Russia, purchasing-power adjusted GDP per capita is approximately ½ times higher than in 1998. In absolute terms, living standards in the BRIC countries are still low. The World Bank describes Brazil, Russia and China as "lower middle income" countries, while India is a "low income" country. Relative to the mature market economies the development in prosperity measured by purchasing-power-adjusted GDP per capita (current prices) has varied considerably among the four BRIC countries. While China and India have managed to relatively augment their prosperity compared to the USA, Brazil has become relatively poorer, cf. Chart 2.

BRIC COUNTRIES' GDP PER CAPITA (PPP) RELATIVE TO THE USA — Chart 2



Source: World Bank, World Development Indicators.

INCOME DISTRIBUTION AND MEASURES OF INEQUALITY Table 2

	Share of total income or consumption			Richest 10 per cent compared to poorest 10 per cent[1]	Share of population[2] under 1 dollar	Share of population[3] under 2 dollars	Gini co-efficent[4]
	10 per cent poorest	20 per cent poorest	10 per cent richest				
Brazil.....	0.7	2.2	48.0	65.8	8.2	22.4	58.5
Russia.....	1.8	4.9	36.0	20.3	6.1	23.8	45.6
India.....	3.5	8.1	33.5	9.5	41.8	88.4	32.5
China	2.4	5.9	30.4	12.7	26.5	71.0	44.7
USA.....	1.8	5.2	30.5	16.6	-	-	40.8
Japan	4.8	10.6	21.7	4.5	-	-	24.9
Germany.....	2.0	5.7	28.0	14.2	-	-	28.3
Memo:							
Denmark.....	2.6	8.3	21.3	8.1	-	-	24.7

Note: As the underlying random samples vary from country to country in terms of method, data collection and time of compilation a direct comparison between countries is not possible.

Source: UNDP Human Development Report 2003 and WDI database, World Bank.

[1] The ratio between income or consumption in the richest group compared to the poorest.

[2] Share of the population subsisting on less than 1 dollar (PPP) per day.

[3] Share of the population subsisting on less than 2 dollars (PPP) per day.

[4] Gini coefficient indicates the share of income to be redistributed in order to create complete equality in income distribution. A gini coefficient of zero entails that all have exactly the same income, while a gini coefficient of 100 means that all income goes to one single person.

China has moved from GDP per capita of 3 per cent of the US level in 1975 to 13 per cent in 2002. For comparison, Brazil has become relatively poorer with a drop in GDP per capita from 27 per cent of the USA's level in 1975 to 22 per cent in 2002. In Brazil's case, this is partly due to lower growth than in the USA and partly to far stronger population growth in Brazil than in the USA. Higher population growth in India has also meant that only a relatively moderate catch-up effect has been achieved from its high economic growth. The opposite is the case for China, whose population count has expanded at a slower rate than the USA's since 1991. According to the US Census Bureau, population growth in all BRIC countries is expected to diminish over time: Brazil's population growth will be lower than the USA's in 2012, with India following suit in 2030. As a result of this demographic trend, future economic growth will to a greater extent lead to increases in prosperity.

Income in especially Brazil and partly also Russia is unevenly distributed, cf. Table 2. The relation and causality between growth and income inequality are not unequivocal, according to the empirical surveys, cf. e.g. Quah (2001). While income inequality has increased in China and India, the incidence of absolute poverty[1] has fallen considerably as a consequence of the sustained high growth, cf. Fischer (2003).

[1] The absolute poverty level is often defined as an income of either 1 or 2 dollars per day.

LENGTH OF THE CATCHING-UP PROCESS IN GDP PER CAPITA Table 3

Surplus growth in relation to the USA	Brazil	Russia	India	China
	Number of years to absolute convergence in GDP (PPP) to the USA			
1 per cent	156	139	253	204
2 per cent	78	69	126	102
3 per cent	52	46	84	68
4 per cent	39	35	63	51
5 per cent	31	28	51	41
6 per cent	26	23	42	34

Source: Own calculations.

FUTURE PROSPECTS FOR THE BRIC COUNTRIES

A continued narrowing of the gap in living standards to the mature market economies will require sustained high growth. The prospects for the BRIC countries' "catching-up" are illustrated in Table 3. In an extremely positive growth scenario where the BRIC countries (except Brazil) maintain the current relatively high surplus growth, 4-6 per cent in 2003, the consequence will be a significant catch-up in purchasing-power-adjusted GDP per capita. For example, from a low starting point China will catch up with the USA in the course of 41 years, given constant 5 per cent surplus growth in China. In a more moderate, but still optimistic, growth scenario with annual surplus growth of 3 per cent, it will take China a couple of generations to reach the US level of prosperity. For Brazil and Russia this will take around 50 years and India more than 80 years. Due to the lower growth forecast for the euro area and the lower starting point, the BRIC countries will catch up even faster with the euro area. In view of its surplus growth of 5 per cent, China, for example, will exceed GDP per capita in the euro area in 34 years' time.

The above time horizons give a rough impression of the consequences of various constant growth scenarios. In practice, economic activity will naturally vary over time both for and among the individual countries. The key issue is the actual growth differential that the BRIC countries can maintain when incomes are rising. This depends on the input of production factors, capital and labour, as well as the development in productivity, which are both closely related to technological progress and education. Box 1 describes the components that underlie growth, especially the concept of total factor productivity, in more detail.

Goldman Sachs (2003) projects the economic course of the BRIC countries to give a rough estimate of these countries' significance to the global economy up to 2050. Focus is thus on the overall economic activity in the various BRIC countries. A relatively simple growth model that is

GROWTH DECOMPOSITION – PRODUCTIVITY CONCEPTS Box 1

The total output in an economy is the result of public and private enterprises' decisions to use a certain amount of capital and labour in the production process. Often this is expressed in simplified form in the following output function of the Cobb-Douglas type:

$$Y_t = A_t K_t^{\alpha} L_t^{1-\alpha}$$

where Y is the total output, A the total factor productivity, and K and L are respectively capital and labour. Labour refers to the employed. The total factor productivity is characterised as increasing the total output for a given input of production factors. The parameter α is an expression of capital's share of the factor income.

On the basis of the above expression economic growth can be expressed as:

$$\hat{Y}_t = \hat{A}_t + \alpha\hat{K}_t + (1-\alpha)\hat{L}_t$$

where ^ expresses the growth in a given variable. Economic growth is thus the result of growth in total factor productivity (technological progress, etc.), factor accumulation and growth in the productivity of capital and labour.

The growth rates in Y, K and L are relatively easy to measure, whereas total factor productivity, A, cannot be observed immediately. Therefore A has often been derived as a residual in the above expression of economic growth – the *Solow residual*. Total factor productivity is thus often expressed as:

$$\hat{A}_t = \hat{Y}_t - \left(\alpha\hat{K}_t + (1-\alpha)\hat{L}_t\right)$$

The total factor productivity is thus an expression of the share of the growth that cannot be explained by the measurable variables. This also entails that changes in total factor productivity can have many explanations, e.g. better production method, know-how, and technological progress.

based on the model in Box 1 is applied to create the projections. The model builds on projections of the input of capital and labour, as well as an assumption regarding catching-up as absolute convergence in total factor productivity between the BRIC countries and the USA, on the basis of the difference in GDP per capita. In view of the BRIC countries' low prosperity they will first and foremost experience a strong increase in total factor productivity. Furthermore, the increased productivity in the BRIC countries leads to substantial appreciation of their local currencies in the range of 130 to 289 per cent up to 2050. The growth rates diminish over time in step with the income increase in the BRIC countries.

Based on these assumptions, economic activity in the BRIC countries measured as GDP in dollar terms changes significantly in the period up to 2050, cf. Table 4. China will thus overtake the USA as the world's largest economy, while India, Brazil and Russia will rank respectively 3rd, 5th and 6th.

The apparently optimistic growth projections in Goldman Sachs (2003) are supported by other studies, such as Rodrik and Subramanian (2004) regarding India, and Heytens and Zebregs (2003) concerning China,

BRIC COUNTRIES' ECONOMIC MAGNITUDE IN RELATION TO G7 Table 4

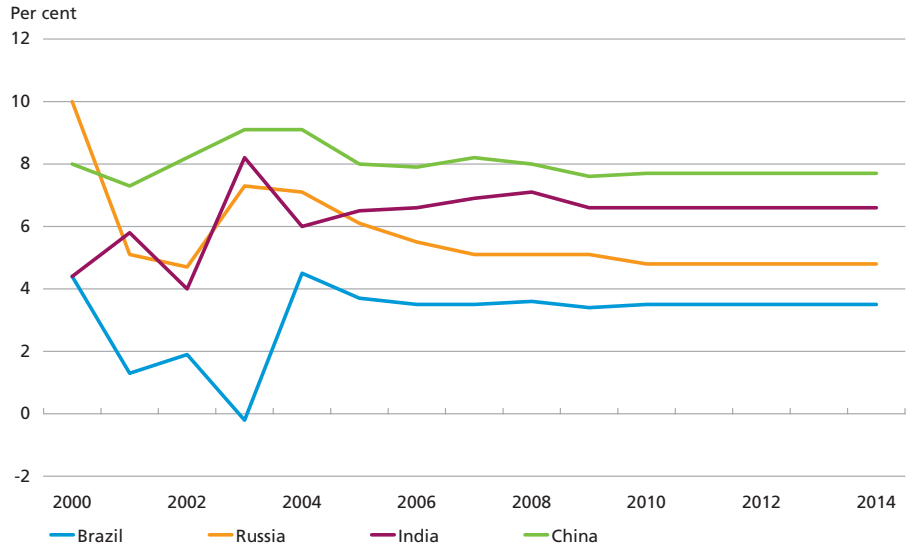
Ranking	2003 Country (GDP in billion dollars, current prices)	2050 (Goldman Sachs) Country (GDP in billion dollars, current prices)
1	USA (10,882)	China (44,453)
2	Japan (4,326)	USA (35,165)
3	Germany (2,401)	India (27,803)
4	UK (1,795)	Japan (6,673)
5	France (1,748)	Brazil (6,074)
6	Italy (1,466)	Russia (5,870)
7	China (1,410)	UK (3,782)
8	Canada (834)	Germany (3,603)
9	India (599)	France (3,148)
10	Brazil (492)	Italy (2,061)
11	Russia (433)	

Note: In Goldman Sachs (2003) the basis for comparison is G6, and therefore Canada is not included in the projections for 2050.
Source: WDI database and Goldman Sachs (2003).

although these studies are based on a far shorter time horizon. The projections are also underpinned by long-term consensus expectations indicating the market participants' estimates of economic growth up to 2014, cf. Chart 3. For China, India and Russia these estimates are more positive than the projections in Goldman Sachs (2003).

If Goldman Sachs' growth projections prove to be sustainable, global growth in the next 10 years may exceed the average global growth rate in the last 20 years, cf. a recent study by Goldman Sachs (2004).

CONSENSUS FORECASTS OF ECONOMIC GROWTH Chart 3



Source: Consensus forecasts.

GROWTH COMPONENTS OF THE SUPPLY SIDE Table 5

Country	Total factor productivity growth (per cent)	Employment growth (per cent)	Growth in capital holdings (per cent)	Labour productivity growth (per cent)[1]
Brazil	0.0	2.6	4.4	0.8
Russia	-0.4	-0.4	2.8	0.0
India	2.1	2.1	6.8	3.9
China	4.4	0.6	11.9	7.2
USA	1.2	1.4	2.7	1.7
Japan	0.5	-0.1	4.9	1.9
Germany	0.4	0.1	3.0	0.9

Note: The following periods define the basis for the calculations: Brazil, 1993-2004; Russia, 1991-2004; India, 1993-2004; China 1982-2004.
Labour productivity is the total output per person employed.
Source: Economist Intelligence Unit.

GROWTH FACTORS

The BRIC countries' opportunities for sustainable surplus growth depend on their ability to achieve growth in the components underlying the long-term economic growth.

Decomposition of the historical growth in the BRIC countries, cf. Table 5, reveals fundamental differences in growth factors among the BRIC countries and in relation to market economies such as the USA, Japan and Germany. Characteristic of the high growth in China is that it stems from strong expansion of capital input, as well as growth in both labour productivity and technological progress in the form of total factor productivity. On the other hand, the contribution from a larger workforce has been smaller. An equivalent pattern is seen for the slightly lower growth in India, where employment has played a greater role, however. In stark contrast, Brazil and Russia have seen low or directly negative productivity growth. In this context it is, as mentioned, hard to assess Russia's growth since the period observed has seen various strong disturbances to the economy. Brazil's growth is primarily based on accelerated accumulation of production factors. All components contribute to growth in the USA, while employment growth has been negligible or declining in Germany and Japan.

Institutional framework

Rodrik (2003) finds many examples of growth accelerations, but only few have proved sustainable. Whether a country can maintain high economic growth depends on many factors, but the sustained build-up and development of an institutional framework over time are considered vital to long-term success in supporting growth and increasing flexibility

to resist shocks to the economy. The required quality of institutions thus changes over time in step with economic development. Institutional development should be interpreted in the broadest terms and e.g. includes ongoing development and reforms of the legal system, liberation of market forces, health and school education programmes, financial institutions and markets, and public administration. Furthermore, for the BRIC countries it is vital to create institutions that can ensure sound macroeconomic policy and reduce vulnerability to various shocks. Unstable economic conditions with high inflation impede growth, savings and investments. Several organisations prepare relative indices of the countries' competitiveness in the broad sense in order to assess their potential for sustainable growth. The BRIC countries are still considered to have a good way to go before the institutional framework is at the level of the mature market economies.

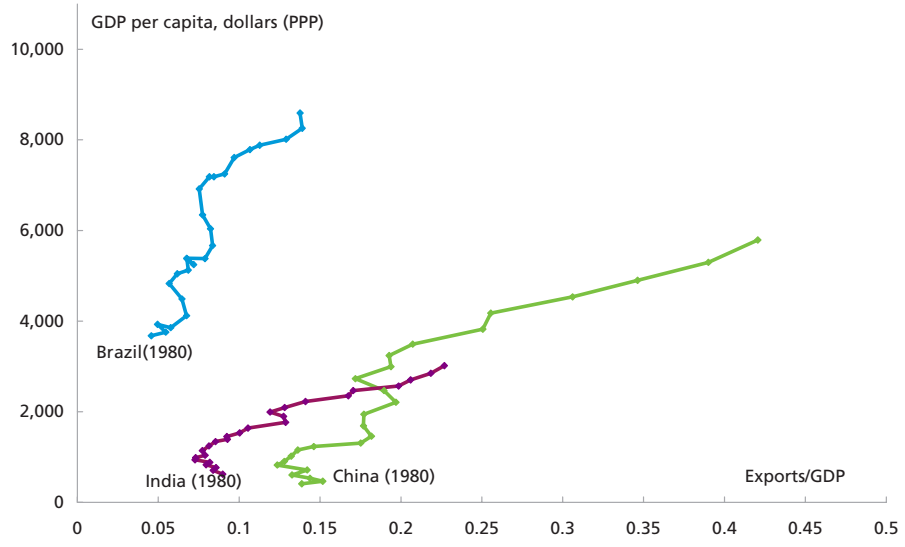
Openness

During the 1990s the Washington Consensus guidelines[1] gained ground as a tool for achieving economic growth. A key element of these guidelines is that economic growth is best achieved through economic liberalisation, including the capital balance, and by allowing the free movement of goods and production factors. Openness contributes especially to generating growth by facilitating greater access to capital and technology – traditionally production factors in scant supply in less developed economies. Moreover, due to the international division of work, increased trade will also help to sustain the growth process in less developed countries that typically have an ample supply of cheap labour. Greater openness also generally increases competition and adds to the pressure for supplementary reforms in other areas.

To a high degree the BRIC countries have achieved greater prosperity in step with the opening up of the countries to the outside world, cf. Chart 4. With the exception of Russia, which is subject to special circumstances, all BRIC countries have followed a similar pattern, where increasing openness, measured by exports as a ratio of GDP, has closely accompanied growing prosperity. Especially China has undergone significant development in terms of both openness and prosperity. In the course of 25 years exports as a ratio of GDP have increased from approximately 14 per cent to 42 per cent, while at the same time GDP per capita has risen by more than 1,300 per cent.

[1] According to the Washington Consensus economic growth is achieved by following a number of guidelines for sound economic policy, such as fiscal discipline, tax reforms, liberalisation of financial markets, liberalisation of inflows of foreign direct investment, trade liberalisation, privatisation, deregulation, secure property rights, etc. Subsequently these guidelines have been extended to include e.g. "prudent" capital account opening, independent central banks and inflation targeting.

GDP PER CAPITA AND OPENNESS IN THE BRIC COUNTRIES, 1980-2005 Chart 4

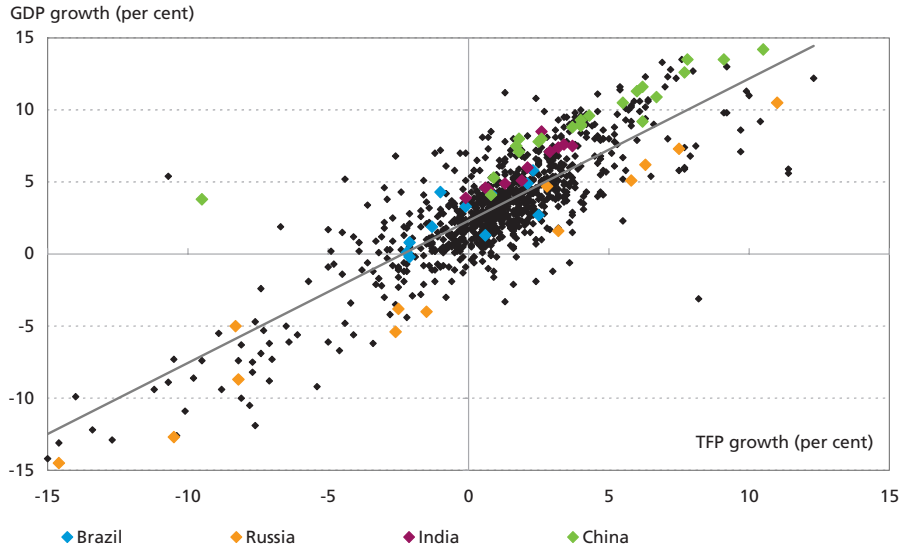


Note: 2004 and 2005 are IMF estimates. Russia is omitted due to data problems.
Source: International Monetary Fund, World Economic Outlook Database, September 2004 and Economist intelligence Unit.

Total factor productivity

There is normally a close correlation between economic growth and growth in total factor productivity, cf. the definition in Box 1 on p. 45. This correlation is confirmed by a cross plot between economic growth

TOTAL FACTOR PRODUCTIVITY AND GROWTH Chart 5



Note: The observations are from a panel of 150 countries in the period 1980-2003.
Source: Economist Intelligence Unit.

and growth in total factor productivity for a large panel of countries in the period 1980-2003, cf. Chart 5. There is a clear correlation between growth in total factor productivity and economic growth, and this also seems to apply to the BRIC countries. If it continues, Russia and Brazil's historical lack of ability to sustain growth in total factor productivity will contribute to curbing the future growth of these economies.

Capital

An increase in the use of either capital or labour generally implies diminishing marginal product, such that relatively more of a production factor would have to be accumulated in order to generate a given growth rate. In the long term, growth based exclusively on factor accumulation can be vulnerable to changes in access to the production factors.

As stated, capital accumulation in especially China and to some extent India has been high. In China, so far the high investment ratio has been superseded by an even higher savings ratio[1], so that for a number of years China has not had to face a current-account deficit. Russia's savings ratio is also high. In Brazil, the savings ratio has been low, on average just below 20 per cent of GDP, which has aggravated external vulnerability.

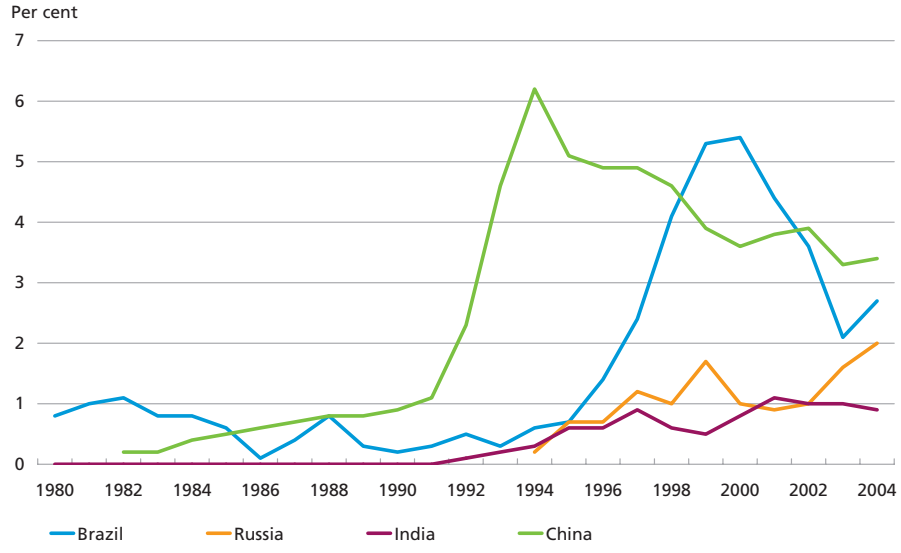
Direct investments by countries with ample capital in countries where capital is in shorter supply facilitates access to newer technology. Since the early 1990s China has thus seen a strong influx of foreign capital as direct investments, cf. Chart 6. Since 1994 this has also applied to Brazil, although in its case this is more related to the privatisation of existing state-owned enterprises. Lately Russia has seen a strong increase in the volume of direct investments, albeit from a rather lower level.

Population growth and education level

In population terms the BRIC countries today account for approximately 42 per cent of the world's population. China and India have the world's two largest populations, while Brazil and Russia rank respectively 5th and 7th. Looking forward, demographic projections from the US Census Bureau indicate that the BRIC countries' total population is expected to increase from approximately 2.7 billion in 2003 to approximately 3.4 billion 2050. In the same period, the BRIC countries' share of the world's total population is expected to drop from the present 42 per cent to 37 per cent. Population growth will be strongest in India, where the popu-

[1] The high savings ratio in China, where income per capita is low, has been a puzzle. Modigliani and Cao (2004) state that the background to the households' high savings ratio lies in strong economic growth, as well as China's population policy. Controlled population growth significantly reduced the share of the population aged under 15 from the mid-1970s to 2000, and also undermined the traditional role of the family to care for its elderly members.

FOREIGN DIRECT INVESTMENTS IN BRIC AS A PERCENTAGE OF GDP Chart 6



Source: Economist Intelligence Unit.

lation count is expected to rise to 1.6 billion, although Brazil and China will also see net population growth to respectively 228 million and 1.4 billion people. In relative terms, however, Brazil and China's shares of the global population will decline. According to the projection, Russia is expected to continue recent years' tendency for negative population growth. In 2050 Russia's population is expected to be only approximately 80 per cent of the current level (approximately 118 million). The spread of HIV/AIDS appears to have a potential high impact on especially Russia's demographic development, cf. Box 2.

Today Brazil, China and especially India have a relatively high proportion of young people compared to Western Europe, while the share of the population that is active in the labour market is approximately the same. On the other hand, the share of elderly people is relatively smaller. In Russia a larger percentage than in Western Europe are active in the labour market. This situation does not change significantly up to 2050, although the demographic distributions in the BRIC countries gradually more and more resemble those of Western Europe. In China and Russia the active share of the population will be rising up to 2010-15, while this will be the case for Brazil and India up to respectively 2015-20 and 2035-40. In Western Europe, the ratio will be falling from 2004.

In terms of education level, Russia is the leading BRIC country. Based on a number of World Bank indicators, the population's education level

HIV/AIDS AND ECONOMIC DEVELOPMENT Box 2

The prevalence of HIV/AIDS will be a growing challenge for the BRIC countries. Although the incidence of the disease as a percentage of the BRIC populations is still modest compared to southern Africa, the absolute figures are high. According to UNAIDS estimates 5.1 million people in India were infected with HIV/AIDS at the end of 2003. This is more than any other country apart from South Africa. In Brazil, Russia and China, respectively 0.7, 0.9 and 0.8 million people were estimated to be infected at the end of 2003. These estimates are, however, subject to considerable uncertainty.

The National Intelligence Council[1] expects that up to 2010 the number of infected people will increase many times over. India is thus expected to have 20-25 million infected people (more than any other country), China 10-15 million and Russia 5-8 million. This will correspond to infection rates of approximately 3-6 per cent in Russia, approximately 2 per cent in India and approximately 1 per cent of the population in China. For Russia the consequences are stated to be an accelerated reduction of the population and approximately 0.5 percentage point lower annual growth from 2010 and 1 percentage point lower annual growth from 2020. For India and China the effect is assessed to be smaller due to the lower infection rate. The Asian Development Bank (2004) calculates growth consequences for Thailand, where the HIV/AIDS infection rate of approximately 1.8 per cent is comparable with India and China in 2010, if the spread of the disease is not checked. It is estimated that annual growth in 1990-2015 will be 0.65 percentage point lower. On an accumulated basis this will mean that GDP per capita will be approximately 15 per cent lower in 2015.

[1] www.cia.gov/nic/special_nextwaveHIV.html

does not seem to differ significantly from the mature market economies, and illiteracy is almost non-existent. Brazil and China rank next and are not very far apart. Around 10 per cent of China's adult population are illiterate, compared to almost 15 per cent in Brazil. The younger generation is generally better educated, even though the proportion of young people in higher education is still well below the level in the mature market economies. India lags behind the other BRIC countries. A good 40 per cent of the adult population are illiterate, while the youth illiteracy ratio is almost 30 per cent.

CONCLUSION

For some years reforms and greater openness have increased the global economic significance of the BRIC countries. These countries still have strong growth potential, especially in view of their large, young populations. The key challenge faced by the BRIC countries will be to maintain robust and sustainable growth in order to reduce the gap in living standards to the mature market economies. However, it is hardly realistic to believe in a smooth extended catching-up process without major fluctuations. In the course of time the BRIC countries will have to face some

major challenges and history tells us that not all countries are equally successful at tackling these challenges.

The challenge they all face includes ensuring sustainability at a high growth rate, reducing the rural/urban income gap and maintaining macroeconomic stability. Reforms of the financial sector in order to better handle rising capital flows and mobilise domestic savings into productive investments will also be important. The BRIC countries share a number of common characteristics, but there are also important differences. Brazil will face the major challenge of opening up its economy and creating a larger domestic savings pool to finance investments. In Russia, the challenge is to reduce the economy's dependence on oil and to fight corruption, while in India the key challenges are greater openness, better education and improved infrastructure. In China, ongoing reforms of state-owned enterprises and banks will take high priority.

REFERENCES

Asian Development Bank, *Asia's Economies and the Challenge of AIDS,* 2004.

Barro, Robert J. and Xavier Sala-i-Martin, Economic Growth, *The MIT Press*, 2001.

Fischer, Stanley, Globalization and Its Challenges, Richard T. Ely Lecture, *AEA Papers and Proceedings*, Vol. 93 No. 2, 2003.

Goldman Sachs, Dreaming With BRICs: The Path to 2050 (by Dominic Wilson and Roopa Purushothaman), *Global Economics Paper,* No. 99, 2003.

Goldman Sachs, The BRICs and Global Markets: Crude, Cars and Capital (by Dominic Wilson, Roopa Purushothaman and Themistoklis Fiotakis), *Global Economics Paper,* No. 118, 2004.

Heytens, Paul and Harm Zebregs, How fast can China Grow? in *China Competing in the Global Economy* (ed. Wanada Tseng and Markus Rodlauer), IMF, 2003.

Modigliani, Franco and Shi Larry Cao, The Chinese Savings Puzzle and the Life-Cycle Hypothesis, *Journal of Economic Literature*, Vol. XLII, March 2004.

Quah, Danny, One third of the world's growth and inequality, LSE Economics Department, April 2002.

Rodrik, Dani and Arvind Subramanian, Why India Can Grow at 7 percent a Year or More: Projections and Reflections, *IMF Working Paper* WP/04/118, 2004.

Rodrik, Dani, Growth Strategies, *Discussion Paper Series,* No. 4100*,* Centre for Economic Policy Research, 2003.

UNAIDS, various statistical publications at www.unaids.org.

UNDP, *Human Development Report 2003,* Millennium Development Goals: A compact among nations to end human poverty, 2003.

World Bank, Global Development Finance – Harnessing Cyclical Gains for Development, 2004.

The EU Constitutional Treaty and EMU

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INTRODUCTION

At the meeting of the European Council on 17-18 June 2004, heads of state or government from the 25 EU member states adopted the Treaty establishing a Constitution for Europe. The treaty was signed by the EU member states and three candidate countries (Bulgaria, Romania and Turkey) on 29 October 2004. The Constitutional Treaty must be ratified in all EU member states before it can enter into force, and in several of the member states ratification will depend on the result of a referendum on the treaty. The Constitutional Treaty is planned to enter into force on 1 November 2006.

So far, all new EU treaties have further developed the Treaty of Rome from 1957 as the basis for EU cooperation. The latest treaty revisions took the form of the Nice Treaty, which entered into force in February 2003. With the Constitutional Treaty, the rules have been rewritten to make them more transparent and accessible. The Constitutional Treaty will thus replace the existing treaties, but there are no plans for major changes to EU cooperation as we know it. In most of the specific areas of cooperation, the rules on which the member states have previously agreed will be carried forward. The Constitutional Treaty does, however, extend the cooperation in a few areas. For instance, the framework has been strengthened to enable the EU to ensure greater efficiency and consistency in its external actions. Moreover, judicial cooperation will be strengthened. Another important objective of the Constitutional Treaty is to ensure the decision-making powers and efficiency of the EU also in an enlarged EU of 25 or more member states.

This article gives an overview of issues in the Constitutional Treaty of significance to economic and monetary cooperation in the EU. The Constitutional Treaty confirms the existing framework for economic and monetary union, EMU, but does, however, provide a few adjustments to the rules. The overall framework of the Constitutional Treaty is presented in the introduction to this article.

KEY ASPECTS OF THE CONSTITUTIONAL TREATY	Chart 1
Part 1	*Fundamental provisions:* - objectives and values - competences - decision-making procedures and institutions
Part 2	*Charter of Fundamental Rights:* - dignity and freedoms - equality and solidarity - citizens' rights and justice
Part 3	*Policies and functioning of the EU:* - justice and home affairs - EU's external actions - economic and monetary policy and EU finances - internal market and other policies
Part 4	*General and final provisions:* - treaty revision procedures - ratification and entry into force

OVERALL FRAMEWORK OF THE CONSTITUTIONAL TREATY

The Constitutional Treaty is overall comprised of four parts, cf. the overview in Chart 1. Part I comprises definitions of the EU, its values, objectives, competences, decision-making procedures and institutions. Part II incorporates the Charter of Fundamental Rights. Part III, the most extensive part of the Treaty, contains detailed descriptions of the policies and functioning of the EU, including economic and monetary cooperation. Part IV contains the general and final provisions, such as procedures for adoption of treaty revisions. In addition, there are a number of related protocols and declarations, including the Protocol on the Statute of the European System of Central Banks and of the European Central Bank.

Decision-making procedures and institutions

The Constitutional Treaty establishes that the institutional framework of the EU comprises the European Parliament, the European Council, the Council of Ministers, the European Commission and the European Court of Justice. These institutions are described in Box 1. The European Central Bank, the ECB, does not form part of the institutional framework of the EU and is therefore mentioned under "other institutions". The Constitutional Treaty leaves the institutional structure largely intact, but, as will appear, brings a number of changes in the functioning of the individual institutions. This is to ensure that the EU institutions are efficient and democratic also in the enlarged EU of 25 or more member states.

THE EU'S INSTITUTIONAL FRAMEWORK ACCORDING TO THE CONSTITUTIONAL TREATY Box 1

The European Parliament is the institution directly representing the citizens of the EU. The number of MEPs cannot exceed 750 (the current maximum number is 732). The smallest member states are allocated at least 6 seats in the European Parliament, while the largest member states are allocated a maximum of 96 seats. The competences of the European Parliament as co-legislator with the Council are enhanced, as the Constitutional Treaty extends the scope of the ordinary legislative procedure.

The European Council is comprised of the heads of state or government of the member states, along with its president and the president of the Commission. It provides the EU with political impetus and its main task is to define the general political directions and priorities. It exercises no legislative functions and its decisions are generally taken by consensus. Under the Constitutional Treaty, a permanent President of the European Council is to be appointed for a term of two and a half years.

The Council of Ministers is comprised of a minister from each member state and it exercises the legislative function in conjunction with the European Parliament. It generally acts by a qualified majority. The Council of Ministers meets in different configurations and under the Constitutional Treaty, only the General Affairs Council and the Foreign Affairs Council – both typically consisting of the ministers for foreign affairs of the member states – are given permanent status. The European Council subsequently draws up a list of the other Council configurations. For example, the Ecofin Council, consisting of the economic and finance ministers of the member states, is expected to be continued. A group presidency model will be established under which three member states will share the presidency for a term of 18 months. Each of the member states will chair the various Council configurations for alternating six-month periods. The system is thus similar to the current system. The Foreign Affairs Council will, however, be chaired by the Union Minister for Foreign Affairs. He or she will be responsible for the Union's common foreign and security policy and otherwise for ensuring the consistency of the EU's external relations.

The European Commission's main tasks are to take initiatives with a view to promoting the general interests of the EU. In principle, legislative acts may be adopted only on the basis of a Commission proposal. In addition to its right of initiative, the Commission also exercises coordinating, executive and management functions. Up until 2014, the Commission will consist of one commissioner from each member state. After 2014, the number of commissioners will be reduced to two-thirds of the number of member states, unless the European Council decides to alter the number. The commissioners will alternate on the basis of a system of equal rotation between the member states.

The European Court of Justice ensures that in the interpretation and application of the Constitutional Treaty, the law is observed. The Court of Justice consists of one judge from each member state.

The Constitutional Treaty seeks to clarify and simplify institutional issues in the EU. This implies e.g. that the number of legal acts has been reduced significantly, leaving only six different types: laws, framework laws, regulations, decisions, recommendations and opinions. Moreover,

the number of areas in which the Council of Ministers takes decisions by qualified majority has been extended under the Constitutional Treaty. In addition, the current co-decision procedure between the Council and the European Parliament will become the ordinary legislative procedure in the EU. Unanimity voting has, however, been retained in a number of areas. While there are still exceptions to the ordinary legislative procedure, there are fewer special legislative procedures than under the current treaty. For example, the consultation procedure is discontinued. Moreover, the Constitutional Treaty opens up the possibility of a transition from unanimity to qualified majority voting or from a special legislative procedure to the ordinary legislative procedure in the areas specified in Part III of the Constitutional Treaty (the general bridging clause). This transition can be made following a unanimous decision by the European Council, having obtained the consent of the European Parliament. If just one national parliament opposes the transition, it will not take place.

A new definition of qualified majority is introduced in the Council. As the new definition is based on the "double-majority" system, the existing voting weights will lapse. A qualified majority requires the votes of at least 55 per cent of the member states, representing at least 65 per cent of the population of the EU. Moreover, a minimum of 15 member states must support a proposal, while a blocking minority requires at least four member states. It is also established that when the Council does not act on a proposal from either the European Commission or the Union Minister for Foreign Affairs, a qualified majority is defined as the votes of at least 72 per cent of the member states, representing at least 65 per cent of the population of the EU. The new definition of qualified majority will take effect on 1 November 2009.

Competences and other selected issues

The Constitutional Treaty sets out more specific provisions on the relationship between the EU and the member states, as well as a clearer description of EU competences. It is specified that the EU has only the competences conferred upon it by the member states. Moreover, the Constitutional Treaty distinguishes between areas in which the EU has exclusive competence; areas in which the EU shares a competence with the member states; and areas in which the EU has only the competence to carry out supporting, coordinating or complementary action. In addition, there is the common foreign and security policy and the coordination of the economic and employment policies. These constitute special categories of competence under which the cooperation maintains its

intergovernmental nature. The use of EU competences is also governed by the principles of subsidiarity and proportionality known from the existing treaty basis. The Constitutional Treaty makes it possible for national parliaments to monitor the subsidiarity principle, and the role of the national parliaments is strengthened in general.

The Constitutional Treaty contains a flexibility clause. This clause authorises the Council, acting unanimously, to adopt a proposal in order to attain one of the objectives set out in the Constitutional Treaty, even though the Constitutional Treaty does not provide for the necessary powers. The flexibility clause has been extended relative to the existing clause, as it applies to all policy areas set out in Part III of the Constitutional Treaty (and not just the Internal Market as is the case with the current article 308). At the same time, parliamentary control is strengthened, as the European Parliament may block use of the flexibility clause. Today, the European Parliament only has to be consulted.

The main principles of the current rules on the establishment of enhanced cooperation will be transferred to the Constitutional Treaty and this possibility will, as a principal rule, apply to all areas of EU cooperation. The aim is to further the objectives of the EU and such cooperation is open to all member states. At the same time, it should be used only as a last resort. In order to establish enhanced cooperation, at least one third of the member states must participate.

For the first time, the Constitutional Treaty establishes a formalised procedure for voluntary withdrawal from the EU.

It should also be noted that the Danish opt-outs will remain in the Constitutional Treaty. However, due to the structure of the Constitutional Treaty, the opt-out on justice and home affairs will be more wide-reaching than is the case today, as for instance police cooperation is also included. A new aspect is that the protocol on Denmark's position also includes a right for Denmark to decide on a general reshaping of the opt-out on justice and home affairs. A referendum would have to be held on a change of this nature and it would make it possible for Denmark to decide, on a case-by-case basis, to participate in the cooperation on justice and home affairs.

ECONOMIC POLICY IN THE EU

The economic policy cooperation in the EU is characterised by a common foreign-exchange and monetary policy for the euro-area member states, while fiscal policy remains a matter for national governments. In order to ensure sound public finances and avoid inappropriate interaction between the common monetary policy and national fiscal policies, the

EXISTING FRAMEWORK FOR THE COOPERATION ON ECONOMIC POLICY IN THE EU — Box 2

The framework for economic-policy cooperation in the EU includes a procedure on coordination of economic policy, the central instrument of which is "the broad guidelines of the economic policies", cf. Article 99 (new Article III-179). The guidelines set out recommendations for the economic policies of the EU in general, along with specific recommendations for the individual member states. While the guidelines are not legally binding, they are politically binding, and the Ecofin Council may make a recommendation to a member state if its economic policy is not consistent with the broad policy guidelines, or risks jeopardising the proper functioning of EMU.

The Treaty also contains a prohibition on monetary financing of public deficits (current Article 101/new Article III-181), as well as a prohibition on one member state being liable for the debt of another member state, the "no bail out clause" (current Article 103/new Article III-183).

The central fiscal-policy provision is set out in the current Article 104 (new Article III-184), including the prohibition of "excessive deficits" and the procedure to be initiated in case of non-compliance. Elsewhere in the Treaty (Protocol No. 20), an excessive deficit is defined as a budget deficit exceeding 3 per cent of GDP or a gross government debt exceeding 60 per cent of GDP. While all EU member states[1] fall within the prohibition, only the euro-area member states may be given notice to take measures to reduce excessive deficits. Sanctions may ultimately be imposed on non-complying euro-area member states. To supplement the treaty provisions on fiscal policy, the EU member states in 1997 adopted the Stability and Growth Pact, comprised of a resolution of the European Council and two Council regulations.[2] The Stability and Growth Pact is designed to promote lasting budgetary discipline and commits all EU member states to seek to attain the goal of a public budget in balance or in surplus in the medium term. The Pact elaborates on the procedure set out in Article 104, providing for a relatively strict time frame for implementing the procedure from the time that it is established that a member state has an excessive deficit until sanctions are imposed.

[1] The UK is exempt from the prohibition, as long as it does not participate in the euro.
Resolution of the European Council: *Official Journal* C 236, 2 August 1997. The two Council regulations: *Official Journal* L 209, 2 August 1997.

Treaty – as well as the Stability and Growth Pact – contains a number of provisions for fiscal policy and other economic policy. While all EU member states are required to comply with these treaty provisions, sanctions may only be imposed on euro-area member states. See Box 2 for further details.

The economic policy framework is maintained in the Constitutional Treaty and several of the articles are thus transferred to the Treaty more or less verbatim. As will appear, a few adjustments have been made, however. Overall, these adjustments reflect that the euro is now a reality and that a number of EU member states seemingly wish to remain outside the euro area for some time to come. However, the adjustments

are not only of a technical nature. For example, the decision-making competence of the euro-area member states has been strengthened slightly, as has the position of the Commission.

The Constitutional Treaty's adjustments of economic-policy cooperation

A new aspect is that the Constitutional Treaty contains a section directed exclusively at the euro-area member states (Articles III-194 to III-196). Here it is stated that it is possible to adopt measures with a view to strengthening the coordination and surveillance of the budgetary discipline of the euro-area member states. It also appears that overall economic-policy guidelines shall be drawn up for the euro area alone.

The Euro Group is an informal group of the economic and finance ministers of the euro-area member states. This group will be incorporated in the Constitutional Treaty. The Euro Group will continue to convene informally, as necessary, to discuss issues related to the euro. It is also established that a permanent president of the Euro Group must be elected for a term of two and a half years (new Article III-195 and Protocol No. 12).

Under the Constitutional Treaty, the decision-making competence of the euro-area member states is strengthened somewhat. This means that decisions regarding potential inconsistencies between the economic policy of a euro-area member state and the overall guidelines must be made by the economic and finance ministers of the euro-area member states alone (new Article III-197 (4)). The same applies to the stability programmes. Pursuant to the excessive deficit procedure, the voting rights of the EU member states outside the euro area will already be suspended on decisions regarding the existence of an excessive deficit, i.e. a public budget deficit exceeding 3 per cent of GDP. Under the current rules, the EU member states outside the euro area now take part in these decisions. When a new country submits an application to accede to the euro area, the Ecofin Council will, in future, make the decision based on the recommendation of a qualified majority of the ministers representing the euro-area member states (new Article III-198).

The Constitutional Treaty slightly strengthens the Commission's position within the context of the excessive deficit procedure and the multilateral surveillance of economic policy. If the Commission finds that an excessive deficit exists or may occur in a member state, it shall address an opinion to the member state concerned and notify the Ecofin Council accordingly (new Article III-184 (5)). Under the current treaty basis (Article 104 (5)), the Commission is required only to address an opinion to the Ecofin Council. In future, the Ecofin Council is to decide whether an excessive deficit exists, acting on a proposal from the Commission.

This decision is currently based on a recommendation. This change strengthens the Commission's position, as the Ecofin Council may only amend a proposal from the Commission (cf. new Article III-395) by acting unanimously, while a recommendation from the Commission can be amended by qualified majority vote. All other decisions regarding the excessive deficit procedure must, as before, be based on recommendations from the Commission. Within the context of multilateral surveillance, the Commission may, in future, address a "direct" warning to the member state concerned (new Article III-179 (4)), if the economic policy of the member state is not consistent with the broad policy guidelines or risks jeopardising the proper functioning of EMU. Under the current rules (Article 99(4)), the Commission can only recommend that the Ecofin Council address a recommendation to the member state concerned.

In the area of economic-policy cooperation, the Constitutional Treaty introduces the ordinary legislative procedure in three new areas, thereby increasing the influence of the European Parliament. These areas are surveillance of compliance with the overall economic-policy guidelines (new Article III-179 (6)); the possibility of amending certain articles of the Statute of the European System of Central Banks (new Article III-187(3)); and the measures necessary for the use of the euro (new Article III-191). The existing treaty basis instead applies inter alia the consultation procedure and the assent of the European Parliament.

A new aspect is that a declaration (No. 17) on the Stability and Growth Pact is annexed to the Constitutional Treaty, meaning that the pact is, for the first time, confirmed by treaty. The declaration confirms the obligations of the member states under the pact and highlights, among other things, that member states are to use periods of economic recovery to consolidate public finances and improve their budgetary positions.

MONETARY COOPERATION IN THE EU

The rules on monetary cooperation in the EU are not amended in substance by the Constitutional Treaty. This entails that the relationship between the ECB and the national central banks will continue as before, while the primary objective of the ECB is still to maintain price stability. See Box 3 for more details. The rules governing monetary cooperation are set out in the treaty and the Statute of the European System of Central Banks and, as a general rule, these provisions have been transferred to the Constitutional Treaty almost verbatim. A few adjustments have been made, however.

THE EXISTING MONETARY COOPERATION IN THE EU Box 3

The euro-area member states have pursued a common monetary and foreign-exchange policy since the euro was introduced on 1 January 1999. The primary objective of this policy is to maintain price stability (current Article 105/new Article III-185). In addition, the monetary policy is to support the general economic policies in the euro area, provided that this does not conflict with the primary objective of price stability. Monetary policy is conducted through the common central banking system, the Eurosystem, consisting of the national central banks of the euro-area member states and the ECB. The European System of Central Banks (ESCB) consists of the ECB and the national central banks of all EU member states. For as long as some EU member states are outside the euro, it is necessary to distinguish between the Eurosystem and the ESCB.

The ECB and the national central banks are independent in the performance of their tasks (current Article 108/new Article III-188). The national central banks form an integrated part of the ESCB's work. They participate in the ECB's decision-making bodies and in the decision-making process. Moreover, decisions are predominantly implemented by the national central banks. The Governing Council is the ECB's supreme decision-making body. The central banks of the EU member states that have not adopted the euro participate only in the cooperation that is conducted through the General Council.

The non-euro-area member states regard their foreign-exchange policies as a matter of common interest (current Article 124/new Article III-200). With the exception of Denmark and the UK, both of which have a treaty-bound derogation, all other EU member states outside the euro area are obliged to introduce the euro in the course of time according to the treaty. To be able to participate in the euro, the member states will have to fulfil the convergence criteria, including the criterion on participation in the EU's exchange rate mechanism, ERM II, without severe tensions for at least two years. Currently, the only ERM II participants are Denmark, Estonia, Lithuania and Slovenia.

Adjustments in the Constitutional Treaty to the monetary cooperation

The "Eurosystem" refers to the ECB and the national central banks of the euro-area member states. The concept has been introduced by the ECB to make it easier to understand the central-bank structure of the euro area, as the existing treaty basis only mentions the ECB and the ESCB. A new aspect is that the Constitutional Treaty now also refers explicitly to the Eurosystem.

The procedure for appointment of members to the ECB's Executive Board is amended by the Constitutional Treaty (Article III-382). Such appointments are no longer subject to common accord of the heads of state or government. Instead, appointments are determined by qualified majority voting, bringing this procedure in line with the appointment procedures for other EU positions.

Transparency in Capital Markets

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INTRODUCTION

In both political and academic circles there is strong focus on transparency in capital markets. Transparency directly impacts price formation and thereby market efficiency. So the transparency debate has many stakeholders, and the various market participants' interests in transparency often diverge. This article describes the key issues to be considered regarding transparency in relation to the actual trading function in capital markets.[1] There is no universal recipe for the "right" transparency. The various markets and market segments require different solutions and both the type and amount of transparency have an impact on the functioning of the markets.

Within the EU, the issue of transparency in the broad sense has played an important role in the work on the Financial Services Action Plan[2]. The type of transparency that relates directly to the trading situation is to be regulated especially by the new directive on markets in financial instruments, called MiFID[3]. The actual content of several of the key directive provisions on transparency will not be clear until the related implementing measures[4] have been adopted at a later date. The design of the overall new EU regulation on transparency will have great impact on the development of the European capital markets.

CONSIDERATIONS IN RELATION TO MARKET TRANSPARENCY

The overall purpose of capital markets is to contribute to the best possible allocation of economic capital. Well-functioning markets for purchase and sale of securities benefit the entire economy, i.e. business

1 Box 1 presents a description of transparency in the broader sense.
2 For further information on the Financial Services Action Plan see Kurek (2004).
3 Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004. By 1 May 2006 at the latest the member states must have implemented the directive provisions and the coming implementing measures in national legislation. The abbreviation MiFID stands for "Markets in Financial Instruments Directive".
4 According to the Lamfalussy process, the European Council and the European Parliament adopt framework legislation with the central principles for the area in question. This has been achieved with MiFID. The more technical elements are subsequently set out in implementing measures. These are adopted in a comitology procedure by the European Commission, assisted by senior representatives of the member states. The Lamfalussy process is described in further detail in Kurek (2004).

TRANSPARENCY IN THE BROADER SENSE Box 1

The term transparency is often used to describe various different concepts. In its broadest sense, transparency comprises all the information that may impact prices and transactions in the capital markets. This may be information concerning:

The issuer (who?)
Relevant information concerning the issuer comprises accounting data and other information relating to credit standing, including rating. It is also e.g. information on the issuer's legal status, sector and organisational structure, including corporate governance, as well as information on future strategies and expectations.

The issue (what?)
Information concerning the issue comprises e.g. the size of the issue, related voting rights and options, interest, maturity, special legal factors and references to governing law and legal venue.

Market (where?)
Details of where a financial product is traded firstly comprise whether it is traded in a regulated market, i.e. stock exchange or authorised marketplace, or in non-regulated markets. Additional to this are rules applying specifically to the market in question that are determined on a discretionary basis by the market. This e.g. concerns rules on participants and on clearing and settlement.

Market set-up (how and when?)
Information on market set-up e.g. comprises a description of issue methods (e.g. auction, tap or syndication), type of trading system (e.g. electronic, floor or telephone-based trading) and order volumes, price quotation agreements and other factors related to the design of the market that affect the price formation mechanism.

Of particular relevance to this article are the type and level of information on prices and volumes available both before and after trades are executed.

enterprises, investors, savings holders, homeowners, taxpayers, consumers, etc. Both investors and borrowers must be able to buy and sell securities at prices that reflect the relation between supply of and demand for capital. This requires well-functioning markets that are subject to competition and effective price formation. Transparency must therefore be assessed on the basis of how it can help to ensure well-functioning capital markets.

Capital is predominantly allocated via the professional markets (the wholesale markets), in which the market players are securities dealers and institutional investors. This is where the substantial funds relating to pension savings, home ownership, business enterprises, etc. are traded. When the terms for transparency are determined, the requirements of the wholesale markets should, therefore, carry most weight.

The retail markets are of less significance to the total allocation of capital, although effective retail markets can be important for individual minor market participants. This e.g. applies to mortgage financing, typically the largest single item of households' budgets. It also applies to minor investors holding funds for placement.

It is important to point out that giving priority to the wholesale markets does not conflict with the need to ensure the best possible transparency in the retail markets. A well-functioning wholesale market is prerequisite to a well-functioning retail market. Moreover, in many cases structural advances in wholesale markets, including for transparency, will facilitate equivalent improvements in the design of retail markets.

TRANSPARENCY ON THE BASIS OF PRE- AND POST-TRADE INFORMATION

A general distinction is drawn between two types of market information: pre-trade and post-trade information.

Pre-trade information

Pre-trade information is market information that is accessible up to and at the time that a trade takes place. This is typically information on prices and order volumes available for sale or purchase in the market. Pre-trade information gives the market participants the opportunity to continuously observe the market's development and execute actual transactions at known prices and volumes. When assessing a market's functioning, it is therefore important to consider the scope and quality of the available pre-trade information. Box 2 illustrates various characteristics of different types of pre-trade information.

EXAMPLES OF VARIOUS CHARACTERISTICS OF PRE-TRADE INFORMATION Box 2

	Quality	Marginal costs of production	Costs of further distribution
Electronic trading with binding price quotation	High	None	Low
Bloomberg, Reuters, etc. (indicative bid/offer)	Medium	None (if bid/offer prices are quoted voluntarily)	Low
Telephone market	Medium/low	High	High

Post-trade information

Post-trade information is market information that is available after the time at which a trade has taken place. This may be information on individual trades, or aggregated information on each dealer's or a market's total activity in a given period. Information on individual trades may include price, volume, time and buyer's and seller's identity.

The EU requires the market participants to report their transactions[1]. A market participant reports transactions to the competent authority in its home country. For example, a trade in Austrian government securities between a British-reporting bank and a German-reporting bank will be reported to the British authorities by one bank and to the German authorities by the other bank, while the Austrian authorities will not receive any reports.

Reporting requirements serve several overall purposes: the need for market supervision, the requirement for market transparency and the market participants' opportunity to check whether settlement takes place at the right prices.

For the *market supervision by the authorities* it is necessary for the relevant authority to have access to information on individual transactions. This is the only way that this authority can conduct ongoing market supervision and investigate cases of e.g. insider trading and price manipulation. For this type of market supervision it is best that transactions are reported as quickly as possible. It is important to distinguish between the need for reporting and the need for disclosure of reporting. Effective market supervision by the authorities does not depend on trades being made public.

The market itself in fact conducts much of the supervision of the market, i.e. by the market participants with a direct interest in compliance with the market rules.

When reports are made public this is in order to increase market *transparency*. By its nature post-trade information will always be recent or older historical data. The longer the reporting and/or disclosure lag, and the stronger the price volatility in the market, the greater the uncertainty as to whether the post-trade information reflects actual trading prices. The need for transparency does not always mean that every trade must be made public. For example, if the market has access to relevant pre-trade information on the current price formation, the disclosure of individual transactions will make no further contribution to the transparency of price formation[2].

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1 Council Directive 93/22/EØF of 10 May 1993 on investment services in the securities field.

2 Neither does the need for transparency in itself necessarily require individual reporting. However, market supervision requires that individual trades are reported in all circumstances.

DIFFERENT PRICES IN RETAIL AND WHOLESALE MARKETS Box 3

Price differences between the wholesale and retail markets may be due to several factors. Firstly, a securities dealer that receives an order from a client will rarely be able to buy exactly the same volume as required by the client in a given paper in the wholesale market, where trade sizes are typically very large compared to the retail market. So the securities dealer must on a temporary basis add the rest of the securities to his own portfolio, which thus changes away from the optimum position. Secondly, price formation in the wholesale and retail markets is typically based on considerably different amounts. For example, in the wholesale market for Danish government securities only bids and offers exceeding kr. 20 million will update the market information on best bid and offer prices, while prices in the retail market are updated on the basis of bids and offers of kr. 1,000 or higher. For this reason alone, the best bid/offer price may differ in the two markets at any given time, even though sustained price spreads for large amounts would lead to arbitrage and thereby elimination of price differences. Thirdly, there can be differences in the operational risks on trading in respectively the retail and wholesale markets. This applies if there are gentlemen's agreements in the wholesale market not to exploit a situation where a counterparty is squeezed in a trade due to system failure, etc., and if retail market clients will normally require the trade to be executed, possibly with compensation, in the event of an error on the part of the securities dealer.

Market participants' need to be able to *check whether settlement has been made at the right prices* has a different nature. Such checks can be made after the close of the trading day and, thus, do not depend on immediate disclosure.

Reporting also serves a statistical purpose as aggregated and structured post-trade information, often covering an entire trading day or an even longer period. Statistics may cover the total trading volume in the market, i.e. all participants' trading volume, which may be classed as high, low, mid, volume, etc. These statistics may be used as the basis for market participants and other analysts' work.

Finally, reporting can be used as an indicator of best execution, i.e. provisions that securities dealers must execute client orders on terms that are the most favourable to the client in the prevailing market conditions, unless better data for this purpose can be achieved by other means. It should be noted, however, that best execution relates to more than prices[1], and that prices in a wholesale market will often not be directly applicable to best execution, cf. Box 3.

[1] In Danish regulation, the rules concerning best execution are formulated as:
"The securities dealer shall, in the execution of orders received and taking into account the circumstances, including time and volume, ensure the best possible price and the best terms in general for the customer ('best execution'). The circumstances of the customer shall determine 'best execution' in each specific situation." (Section 5 of Executive Order on Good Securities Trading Practices, Executive Order No. 72 of 31 January 2003.)
MiFID also clearly states that best execution is concerned with other aspects besides price, cf. Article 21, section 1.

MARKET INFORMATION, TRANSPARENCY AND LIQUIDITY[1]

No clear impact on transparency from market information

A given type of market information may affect transparency in different ways, depending on the market concerned. For example, immediate publication of completed trades will increase transparency in a telephone-based market where updated pre-trade information on best bid and offer prices is not immediately available from one central source. The same may apply to floor-trading markets in which the dealers physically signal bid and offer prices to each other. Ideally, all dealers would have to be in constant contact with each and every one of their colleagues on the "floor" in order to be fully abreast of all pre-trade information. On the other hand, as stated above, disclosure of completed trades will not increase transparency in e.g. an electronic market with access to pre-trade information on current bid and offer prices.

Therefore, in order to change the transparency of a market it is important to consider the actual market in question and the existing opportunities and need for transparency.

Significance of the degree of transparency

Not only the type, but also the degree, of transparency affect the functioning of the capital markets. While transparency is prerequisite to well-functioning price formation it may also be appropriate, depending on the market involved, to limit certain categories of market information, typically the rapid publication of post-trade information on individual trades. In some cases certain types of pre-trade information might also negatively affect liquidity. Box 4 presents examples of how transparency can affect liquidity.

The various markets require and allow different solutions for transparency

Pre-trade information of high quality will optimise market participants' opportunities to execute trades at known prices and volumes. Pre-trade information of high quality will e.g. be available in electronic trading systems that include mandatory price quotation schemes, as is now the case for many of the European government securities markets. Markets in which large, liquid, standardised products are traded, either government securities or major share issues, can support such schemes.

On the other hand, in markets in which smaller, illiquid products are traded, typically minor share issues, it would not be appropriate to estab-

[1] In e.g. Lee (2002), Madhavan (2002) and Holland (2000) there are overviews of the academic literature in this area.

TRADE-OFFS BETWEEN TRANSPARENCY AND LIQUIDITY Box 4

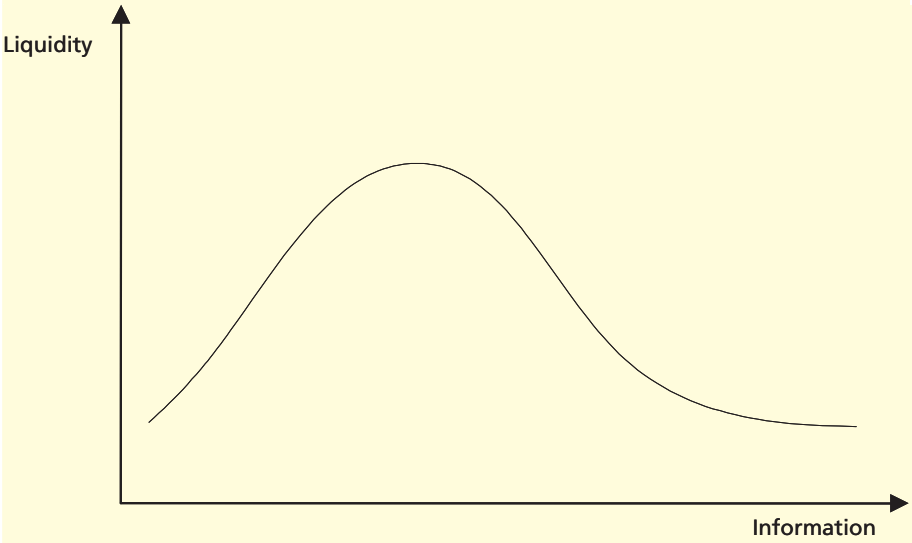
Example 1: Post-trade information

To ensure liquidity in a market, often market makers are used to set ongoing simultaneous bid and offer prices for given amounts. A highly untransparent market that can only be made more transparent by more rapid disclosure of post-trade information is taken as the starting point. In the beginning, there will only be a few trades, as both borrowers and investors will be unlikely to enter into transactions on which they have no information.

As transparency increases, price adjustment will be speeded up, and competition between the market makers will narrow the spread. On the client side, there will therefore be a growing incentive to borrow/place funds in the increasingly more efficient market.

The market makers, on the other hand – all other things being equal – will be less inclined to trade orders from the client side as transparency increases. In view of the narrower spreads and more rapid price adjustment they will be taking on ever greater risks when they have to trade off orders from the client side in the market before the market shifts. In some cases, there may even be a risk that the market can deliberately "squeeze" a market maker if the market knows that he has taken a large client order. These so-called revelation risks will be greater, the larger the orders involved, and the fewer the trades in the paper concerned.

As a consequence, the market makers will either require a higher price, i.e. a higher spread, or will trade off their client orders in other markets that do not require the same level of post-trade information, called "regulation arbitrage". In both cases, price formation will be less efficient in the market considered, and liquidity will decrease.



Example 2: Pre-trade information

The starting point is, as above, a market in which the ongoing provision of liquidity is from brokers or market makers that on an ongoing basis simultaneously quote bid

TRADE-OFFS BETWEEN TRANSPARENCY AND LIQUIDITY – CONTINUED Box 4

and offer prices for given amounts. By quoting combinations of prices and amounts that can actually be traded, the market makers are offering a type of options to the market. The market makers' payment for making options available is reflected in the difference, the spread, between the bid and offer prices that are set.

In an untransparent market, it will be possible for the market makers to maintain a relatively wide spread. So the options given by the market makers to the market may be for relatively large amounts. In other words, the market makers will be able to contribute substantial liquidity. If greater transparency is introduced in this market, e.g. pre-trade information on all market makers' price quoting, initially the price formation will be more efficient because the greater competition among the market makers will narrow the spread, to the benefit of clients. However, the narrower spread also means, all other things being equal, that the market makers will not make the same amount of liquidity available to the market. As in example 1 above, the result can be a less liquid market.

Note: The above is inspired by e.g. Gravelle (2002) and Madhavan, Porter and Weaver (2003).

lish access to ongoing pre-trade information of high quality. For example, in these markets it would typically not be possible to establish a commercial basis for the introduction of electronic trading. Moreover, market makers would require prohibitively high payment for taking on the risks related to an obligation to quote prices on an ongoing basis in an illiquid product.

Between these two extremes there is naturally a large group of products in which it would be possible to establish various types of pre-trade information to a greater or smaller extent. A case in point is Danish mortgage-credit bonds, which comprise numerous different bond series, of which some are among the largest and most liquid in the Danish bond market, while others are traded only rarely. Moreover, some mortgage-credit bonds feature option elements that complicate price setting, while others are more straightforward.

THE APPROACH TO TRANSPARENCY IN THE NEW DIRECTIVE ON MARKETS IN FINANCIAL INSTRUMENTS

Authorities and market operators

Formal rules on transparency are determined at international, e.g. EU, level, by national authorities and within the individual markets' own regulatory framework, e.g. the rules of the Copenhagen Stock Exchange. As different markets require varying solutions for transparency, there should be close interplay between the regulation of the markets and the rest of the market set-up. This is developing constantly as a result of consolidation, introduction of new trading systems, access to

new technology, adjustments to share classes, etc. This requires close interaction between authorities and market operators to determine the right type and degree of transparency for the individual markets and market segments. It is a special challenge for the authorities to continue to ensure a sufficiently flexible regulatory framework that can take account of the varying needs of the markets. This applies especially to the overall joint international regulation of transparency, as in the case of the EU.

Within the EU, the issue of transparency in the broad sense has played a major role in the work on the Financial Services Action Plan. The type of transparency that relates directly to the trading situation is to be regulated especially by the new directive on markets in financial instruments, MiFID[1].

As described above there is no "one size that fits all" for transparency in the capital markets. The type and degree of transparency must be adapted to the individual markets. To a large extent the provisions of MiFID take this into account. However, a lot will depend on the implementing measures, which are currently subject to negotiation, cf. below.

The directive's overall approach to transparency

The directive is solely concerned with transparency of share markets. However, the member states may decide individually to apply the provisions to other financial instruments, including bonds.

According to the directive, the right form and degree of transparency would contribute both to protecting investors and ensuring efficient securities markets. This is the basis for the directive's provisions on the pre- and post-trade transparency to be achieved in the European share markets. The directive sets transparency as a necessary precondition for competition, and thereby the ongoing integration of the share markets in the EU. Investors must at all times be able to compare the prices of the products offered, including prices for the same product traded on different markets.

Finally, the directive perceives transparency as an important element of ensuring best execution. Investors must be able to monitor the conditions in which their trades are executed, including settlement at the right price.

The directive's approach is to ensure the same degree of transparency regardless of whether shares are traded in regulated markets, in Multi-

[1] Cf. especially articles 27-30 and 44-45 of this directive.

lateral Trading Facilities[1] or outside these systems. The directive thus also sets out transparency requirements in connection with investment firms' internalisation, i.e. when investment firms systematically execute client orders by dealing on own account.

The directive's provisions on pre- and post-trade transparency

The directive requires of the individual member states that their respective markets make public pre-trade information comprising current bid and offer prices, as well as the depth of trading interests at those prices. This information must be available to the general public on what is deemed a reasonable commercial basis. On the basis of such factors as market model, order type and order size, cf. below, the individual member states may exempt markets or market segments wholly or partly from the obligation to ensure the disclosure of pre-trade information.

Regarding post-trade information the directive requires of the member states that markets make public the price, volume and time of the transactions executed in respective of the shares admitted to trading. This information must be made public on a reasonable commercial basis and in as close to real time as possible. However, member states may permit deferred publication of transactions, if this can be justified by the scale or nature of the transactions. In particular, deferred publication of post-trade information may be authorised in respect of transactions that are large in scale compared with the normal market size.

Significance of the implementing measures

For pre-trade information implementing measures must be drawn up to specify which bid and offer prices and price quotation are to be made public together with information on the depth of trading interests at these prices. Implementing measures are also to be drawn up for the conditions under which the member states can waive the obligations to provide pre-trade information.

Regarding post-trade information, implementing measures are required concerning the content of the information to be made public and the conditions for when, and in what circumstances, permission can be given to postpone the disclosure of executed trades.

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[1] Multilateral Trading Facilities, or MTF, are trading systems outside regulated markets. An MTF is defined in Article 4 of MiFID as "a multilateral system operated and/or managed by a market operator, which brings together or facilitates the bringing together of multiple third-party buying and selling interests in financial instruments – in the system and in accordance with its non-discretionary rules – in a way that results in a contract…"

Evaluation of the directive's approach to transparency

While the directive in itself allows scope for national authorities, in cooperation with market operators, to determine types and degrees of transparency, adapted to the individual markets, the actual flexibility will depend to a very high degree on the wording and level of detail of the implementing measures. In reality, the overall consequences for market transparency are not known before the implementing measures are available.

Essential to the development of the European capital markets is the required political weighing of the necessary flexibility in determining transparency in individual markets against the need for a uniform basis for the ongoing integration of the European capital markets.

REFERENCES

Executive Order on Good Securities Trading Practices, Executive Order No. 72 of 31 January 2003.

Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004 on markets in financial instruments, amending Council Directives 85/611/EEC and 93/6/EEC and Directive 2000/12/EC of the European Parliament and the Commission repealing Council Directive 93/22/EEC.

Gravelle, Toni, The Microstructure of Multiple-Dealer Equity and Government Securities Markets: How They Differ, *Bank of Canada Working Paper* 2002-9, April 2002. Revised version in *Committee for Global Financial Stability Report No. 11,* (1999).

Holland, Allison, Dealership Markets and Transparency: A Brief Review of the Academic Literature, *10th OECD Workshop on Government Securities Markets and Public Debt Management in Emerging Markets*, May 2000.

Kurek, Dorte: The EU's Financial Services Action Plan, Danmarks Nationalbank, *Monetary Review*, 1st Quarter 2004.

Lee, Ruben, Capital Markets that Benefit Investors. A Survey of the Evidence on Fragmentation, Internalisation and Market Transparency, *Oxford Finance Group,* 30 September 2002.

Madhavan, Ananth, Market Microstructure: A Practitioner's Guide (2002) *Financial Analysts* Journal, (September/October 2002), Vol. 58, No. 5.

Madhavan, Ananth, David Porter and Daniel Weaver (2003), Should Securities Markets be Transparent, *Journal of Financial Economics*, July 26, 2003.

Council Directive 93/22/EEC of 10 May 1993 on investment services in the securities field.

Revision of the Weights for Calculation of Danmarks Nationalbank's Effective Krone-Rate Index

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Introduction

Danmarks Nationalbank publishes the effective krone-rate index of the krone's value against a basket of currencies on an ongoing basis. The index is calculated by weighting together the currencies of a number of Denmark's largest trading partners, using weights based on trade in manufactured goods. Both imports and exports are included in the calculation of the weights, cf. Pedersen (1998) for a more detailed description of the technical aspects of the calculation.

Since 1997, the krone-rate index has been calculated using weights based on trade in manufactured goods in 1995. As from 1 October 2004, a new set of weights is applied based on trade in manufactured goods in 2002 – the most recent OECD figures. The effective krone-rate index is not subject to retrospective revision.

The 1995 set of weights comprises 25 countries, while the new set of weights includes 27 countries. As opposed to the other countries in the index, the two new countries, China and Hong Kong, are not members of the OECD. However, their importance in world trade has increased significantly during the period. In addition to the enlargement of the group of countries, there has been a small change in methodology to bring the method used to calculate the set of weights in line with current international standards. This adjustment is particularly important in relation to the weighting of Germany, cf. Box 1.

The new set of weights

The new set of weights, referred to as 02 weights, is shown in Table 1. The most significant change relative to the 1995 weights is a decline from 27.4 per cent to 21.0 per cent in the weighting of Germany, Denmark's largest trading partner. The main explanation is Germany's declining dominance on Danish exports, although Germany is still Denmark's largest export market by far. The domestic German market has expanded more slowly than those of most of Denmark's other trading partners, while the high weighting in the 1995 set of weights

CHANGE OF METHODOLOGY Box 1

In calculations of the set of weights for the effective krone-rate index, double-weighted export weights are weighted together with bilateral import weights. The double weighting of the export weights reflects that allowance is made for Danish industry's competition with, for example, Swedish industry not only in the Swedish market, but also in other markets to which both Danish and Swedish industry export. Calculation of a set of double-weighted export weights requires knowledge of each country's market share in each of the countries in question, including industry's domestic market share. Sales to the domestic market form the diagonal of a matrix in which the individual cells represent exports from country i to country j, cf. Pedersen (1998) for a more detailed account of the calculations.

There are various approaches to calculating industry's domestic market sales. So far, the diagonal of the trade matrix has been calculated using industry's production value less exports as the basis for the calculation. The problem with this approach is that it is difficult to obtain production value figures for the OECD countries. Therefore, the production value is calculated based on figures for value added, i.e. production value less raw material consumption, which have then been scaled up. The drawback of this approach is that the diagonal for a number of countries is negative. This is, for instance, the case for Belgium and the Netherlands, which, through their ports, have large imports that are subsequently re-exported, i.e. the export and import figures are inflated. This problem has been solved by estimating a domestic market share for the countries in question. Therefore, a very high degree of uncertainty was attached to the weighting of Belgium and the Netherlands.

In the new set of weights, an alternative method has been used to calculate the diagonal, the direct basis being industry's value added. Exports are then subtracted, while imports are added. As discussed in a BIS paper, cf. Turner et al. (1993) pages 116-117, this method, while far from ideal, does prevent negative figures in the diagonal and is currently standard practice in international calculations of effective exchange rates. It is also used by the ECB, among others, cf. Buldorini et al. (2002).

In order to assess the consequences of the change of methodology, a 2002 set of weights has been calculated, using both the old and the new method. As will appear, the differences are limited for most countries. A certain degree of difference applies only to the Netherlands, Belgium and Germany. The new method for calculation of the diagonal in the trade matrix increases the weighting of Belgium and the Netherlands by approximately 0.3 of one percentage point for each country. The German weighting has decreased by 6.4 percentage points from the 95 to the 02 sets of weights. Of this decline, 1.8 percentage points are attributable to the change of methodology. The domestic market share of German industry was very high in previous calculations, but has fallen to a somewhat lower level of just over 40 per cent. This brings Germany in line with other major countries, such as France. As far as the other countries are concerned, the impact of the change of methodology is limited.

reflects the impact of the reunification boom on the German economy. About one-fourth of the decline in the German weighting is attributable to the change of methodology previously mentioned and described in Box 1.

WEIGHTS FOR DANMARKS NATIONALBANK'S EFFECTIVE KRONE RATE Table 1

	Double-weighted export weights	Bilateral import weights	02 weights			
	54.4	45.6	100	95 weights	89 weights	83 weights
Germany (DEM)	16.8	26.1	21.0	27.4	25.6	24.8
UK (GBP)	9.8	11.2	10.4	8.6	9.8	10.6
Sweden (SEK)	5.7	13.0	9.0	9.4	11.7	12.4
USA (USD)	12.6	3.8	8.6	7.5	8.7	9.0
France (FRF)	6.9	5.9	6.4	7.0	6.8	6.5
Netherlands (NLG)	3.8	7.1	5.3	5.5	4.6	5.2
Italy (ITL)	5.1	5.0	5.1	5.4	5.3	4.9
Belgium (BEF)	3.9	4.4	4.1	3.8	3.5	3.2
Japan (JPY)	5.6	1.8	3.9	5.9	6.7	7.8
Norway (NOK)	4.5	2.8	3.7	3.7	3.9	5.3
Finland (FIM)	2.1	3.1	2.5	3.1	3.6	3.0
Spain (ESP)	3.2	1.7	2.5	1.8	1.8	1.2
Switzerland (CHF)	2.1	1.5	1.9	2.4	2.7	2.8
Austria (ATS)	1.8	1.5	1.7	1.6	1.7	1.5
Ireland (IEP)	1.8	1.5	1.7	0.9	0.7	0.6
Portugal (PTE)	0.7	0.8	0.7	0.9	1.0	0.5
Canada (CAD)	1.1	0.2	0.7	0.5	0.7	0.7
Australia (AUD)	0.8	0.1	0.5	0.5	0.5	-
Greece (GRD)	0.4	0.3	0.3	0.3	0.4	-
Iceland (ISK)	0.3	0.1	0.2	0.1	0.2	-
New Zealand (NZD)	0.1	0.1	0.1	0.1	0.1	-
Poland (PLN)	2.0	1.8	1.9	1.5	-	-
South Korea (KRW)	1.9	0.7	1.4	1.4	-	-
Czech Republic (CZK)	1.1	0.6	0.8	0.4	-	-
Hungary (HUF)	1.1	0.4	0.8	0.3	-	-
China (CNY)	3.3	3.9	3.6	-	-	-
Hong Kong (HKD)	1.7	0.6	1.2	-	-	-
Euro area (EUR)	46.5	57.4	51.3	57.7	55.0	-

Note: The overall set of weights, 02 weights, is a weighted average of the double-weighted export weight and the bilateral import weight. Exports are included at a weight of 54.4 per cent, calculated as Danish exports' share of the manufacturing sector's production value. The weighting together of the export and import weights to the overall set of weights is calculated to more decimal places than shown in the Table.

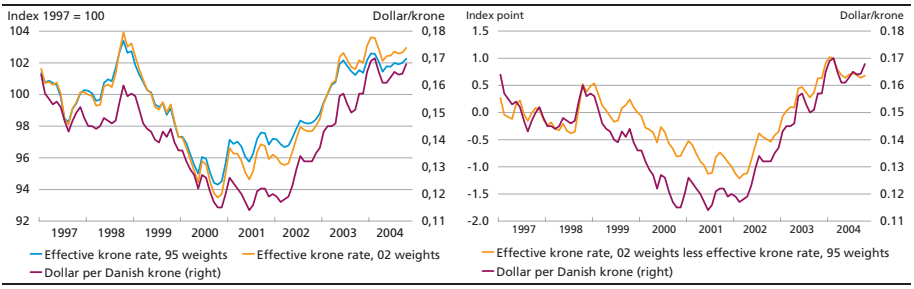
Source: OECD, Statistics Denmark and own calculations.

Sweden has traditionally been Denmark's second-largest trading partner. This position is now held by the UK, while Sweden is relegated to third place. The weighting of the Japanese yen has been decreasing since the 1983 set of weights so that Japan has moved from 6th to 9th position in the new set of weights.

Denmark's foreign trade increasingly targets the high-growth areas of the world market. This is clearly reflected in the new set of weights, in which the weightings of, among others, the three Eastern European countries Poland, the Czech Republic and Hungary have increased significantly. In fact, Hungary's weighting has almost trebled. This obviously also reflects the enhanced integration of the Eastern European

THE EFFECTIVE KRONE RATE CALCULATED USING TWO DIFFERENT SETS OF WEIGHTS

Chart 1



economies into the world economy. The weighting of Ireland, which is a high-growth area, has also increased significantly.

The countries included in the new set of weights cover almost 90 per cent of Denmark's foreign trade, which is unchanged from the 1995 set of weights. As Denmark's foreign trade becomes increasingly diversified across countries, it is necessary to include new countries in order to maintain the index coverage. China and Hong Kong are included in the new set of weights – both of them entering with a significant weighting. China is currently Denmark's 11th largest trading partner. This position is not solely due to large volumes of cut-price imports from China since exports have followed suit.

The total weighting of the euro area has declined significantly. This is offset by an increase in the dollar exposure as a result of a higher weighting of the USA, but also, and equally important, the inclusion of China and Hong Kong, which both pursue a fixed-exchange-rate-policy against the dollar. The weighting of the pound sterling has also increased. All things considered, this may make the effective krone-rate index slightly more volatile in future.

Comparison of sets of weights

Chart 1 shows a calculation of the effective krone rate using the new 2002 set of weights and the 1995 set of weights, respectively. The overall development is the same using either set, but the fluctuations are greater when the 2002 set of weights is used. This can mostly be ascribed to the increase in the dollar exposure, cf. above, while at the same time the dollar has fluctuated significantly against the krone during the period. The US dollar strengthened from 1998 until the end of 2000. From early 2002, it began to weaken strongly. The greater dollar exposure of the 2002 weights means that in the period when the dollar is falling the effective krone rate is lower than the effective krone

BILATERAL AND DOUBLE-WEIGHTED EXPORT WEIGHTS Table 2

	Double-weighted export weight	Bilateral export weight
Germany (DEM)	16.8	20.0
UK (GBP)	9.8	9.0
Sweden (SEK)	5.7	10.9
USA (USD)	12.6	7.3
France (FRF)	6.9	4.8
Netherlands (NLG)	3.8	4.2
Italy (ITL)	5.1	2.3
Belgium (BEF)	3.9	1.8
Japan (JPY)	5.6	2.0
Norway (NOK)	4.5	7.0
Finland (FIM)	2.1	2.5
Spain (ESP)	3.2	3.0
Switzerland (CHF)	2.1	1.5
Austria (ATS)	1.8	1.1
Ireland (IEP)	1.8	2.0
Portugal (PTE)	0.7	0.4
Canada (CAD)	1.1	0.8
Australia (AUD)	0.8	0.8
Greece (GRD)	0.4	0.5
Iceland (ISK)	0.3	0.5
New Zealand (NZD)	0.1	0.1
Poland (PLN)	2.0	1.9
South Korea (KRW)	1.9	0.7
Czech Republic (CZK)	1.1	0.5
Hungary (HUF)	1.1	0.5
China (CNY)	3.3	1.1
Hong Kong (HKD)	1.7	0.6

Source: OECD, Statistics Denmark and own calculations.

rate calculated using the 1995 set of weights, while the opposite is true in the period when the dollar is rising.

More about the export weights

For a number of countries, there is a significant difference between the double-weighted export weight, in which competition in third markets is included, and the bilateral export weight that indicates the share of Danish manufactured exports accounted for by the manufactured exports to the country in question, cf. Table 2. The pattern is that as far as the near markets such as Germany and especially Sweden and Norway, are concerned, the bilateral weighting is greater than the double weighting. This is because the countries in question account for a larger share of Danish manufactured exports than of world exports. Danish industry thus to a great extent competes with these countries on their domestic markets. For more remote countries, such as Japan, the USA, China and Hong Kong, the double-weighted weight is, on the other hand, greater than the bilateral weight. This reflects that the

competition is not only in the domestic markets of these countries, but just as much in third markets. The most significant difference is for China and Hong Kong, where the double-weighted weight is three times greater than the bilateral weight. This demonstrates that these countries are now major players in all markets.

The implicit assumption underlying the calculation of effective rates is that the countries produce comparable products that compete for consumers' favour. To the extent that, for example, China produces and exports cut-price products that Denmark does not produce, the calculations are less meaningful. In other words, it is not unproblematic to increase the number of currencies in the set of weights.

As already mentioned, only trade in manufactured goods (SITC 5-9) is included in the calculation of the set of weights. Manufactured exports account for approximately 70 per cent of total Danish goods exports, including agricultural produce, and approximately 50 per cent of total exports, including services, which in the present statistics cannot be broken down by country. Agricultural produce is excluded from the calculations due to the extensive regulations and price subsidies in this area, which distort both trade and competition.

The euro-area member states as a bloc and calculation of real effective exchange rates

The calculations of effective exchange rates are sensitive to the degree of country aggregation. It matters whether the weighting of the euro area is determined by calculating the weightings of the individual euro-area member states and then aggregating these, or whether the euro area is considered as one bloc from the beginning, thereby netting out the effect of internal trade. In order to assess the significance of this difference, an alternative set of weights has been calculated, with the euro area as one bloc.

In this calculation, the overall weighting of the euro area is 49.1 per cent against 51.3 per cent on aggregation of the individual countries, cf. Table 1. This is offset by an increase in the weightings of the UK, the USA and Japan, in particular.

When considering the euro area as one bloc, information is lost compared to a calculation in which the euro-area member states are treated separately. The weightings of the individual euro-area member states are used in the calculation of real effective exchange rates, cf. Pedersen (1996), in which the weightings are used to calculate an overall expression of foreign price and wage developments. In principle, it would also be appropriate to subdivide a large country such as the USA into its states, but the trade statistics do not allow such sub-division.

WEIGHTS FOR DANMARKS NATIONALBANK'S REAL EFFECTIVE KRONE RATES

Table 3

	02 weights	95 weights	89 weights	83 weights
Germany (DEM)	22.3	27.4	25.6	24.8
UK (GBP)	10.9	8.6	9.8	10.6
Sweden (SEK)	9.4	9.4	11.7	12.4
USA (USD)	9.0	7.5	8.7	9.0
France (FRF)	6.7	7.0	6.8	6.5
Netherlands (NLG)	5.6	5.5	4.6	5.2
Italy (ITL)	5.4	5.4	5.3	4.9
Belgium (BEF)	4.3	3.8	3.5	3.2
Japan (JPY)	4.1	5.9	6.7	7.8
Norway (NOK)	3.9	3.7	3.9	5.3
Finland (FIM)	2.6	3.1	3.6	3.0
Spain (ESP)	2.6	1.8	1.8	1.2
Switzerland (CHF)	2.0	2.4	2.7	2.8
Austria (ATS)	1.8	1.6	1.7	1.5
Ireland (IEP)	1.8	0.9	0.7	0.6
Portugal (PTE)	0.7	0.9	1.0	0.5
Canada (CAD)	0.7	0.5	0.7	0.7
Australia (AUD)	0.5	0.5	0.5	-
Greece (GRD)	0.3	0.3	0.4	-
Iceland (ISK)	0.2	0.1	0.2	-
New Zealand (NZD)	0.1	0.1	0.1	-
Poland (PLN)	2.0	1.5	-	-
South Korea (KRW)	1.5	1.4	-	-
Czech Republic (CZK)	0.8	0.4	-	-
Hungary (HUF)	0.8	0.3	-	-
China (CNY)	-	-	-	-
Hong Kong (HKD)	-	-	-	-
Euro area (EUR)	54.1	57.7	55.0	-

Source: OECD, Statistics Denmark and own calculations.

So far, the same set of weights has been used for calculation of the nominal as well as the real effective exchange rate. However, it has been decided that for the time being China and Hong Kong are not included in the calculation of real effective exchange rates published by Danmarks Nationalbank. The reason is data problems for the two countries, which, as already mentioned, are not members of the OECD. The set of weights that will form the basis for the calculation of real effective exchange rates in the future is presented in Table 3.

Market-share conforming weights

Market shares are often calculated exclusively as import market shares. In calculation of Danish industry's market share in, for example, Sweden, Swedish imports from Denmark are compared with Swedish imports from other countries, while the direct competition with Swedish industry is not included. This is equivalent to setting the diagonal of the trade

matrix at zero and then performing the weight calculations as before. This makes it possible to calculate a new set of weights, known as market-share conforming weights, which may be relevant when interpreting market-share developments. This set of weights is not presented in this article, but information is available from the author on request.

REFERENCES

Buldorini, Luca (2002), Stelios Makrydakis and Christian Thimann, The effective exchange rates of the euro, *ECB Occasional Paper Series*, February.

Pedersen, Erik Haller (1996), Real Effective Exchange Rates, Danmarks Nationalbank, *Monetary Review*, May 1996.

Pedersen, Erik Haller (1998), Revision of the Weights for Calculation of the Nationalbank's Effective Krone Rate Index, Danmarks Nationalbank, *Monetary Review*, 2nd Quarter 1998.

Turner, Phillip (1993) and Jozef Van't dack, Measuring international price and cost competitiveness, *BIS Economic Papers*, no. 39.

Turnover in the Foreign-Exchange and Derivatives Markets in April 2004

Peter Askjær Drejer and Vibeke Buur Hove, Statistics

INTRODUCTION

In April 2004, Danmarks Nationalbank conducted a survey of turnover in the Danish markets for respectively foreign-exchange (spot transactions, outright forwards and FX swaps) and OTC derivatives (foreign-exchange and interest-rate derivatives)[1]. The survey is part of a major international survey that has been conducted every third year since 1989, coordinated by the Bank for International Settlements, BIS[2]. The purpose of the survey is to gather information on global foreign-exchange and derivatives-market activity.

The results of the Danish part of the survey in April 2004 show that the turnover in both the foreign-exchange market and the market for foreign-exchange and interest-rate derivatives has increased considerably from the 2001 survey. The results of the global survey show an equivalent increase in turnover for international foreign-exchange and derivatives markets.

THE FOREIGN-EXCHANGE MARKET

From April 2001 average daily turnover in the Danish market for traditional foreign-exchange instruments (spot transactions, outright forwards and FX swaps) increased by almost 76 per cent to 40.9 billion dollars, cf. Table 1. This is in line with global turnover, which rose by 57 per cent to 1,880 billion dollars per banking day. In 2001, both global and Danish turnover had declined relative to the 1998 survey. Part of this decline was attributed to the introduction of the euro.

Given that the results of the survey are converted to dollar amounts, exchange-rate changes influence the turnover compilation. Allowing for the general weakening of the dollar in the period up to April 2004, the

[1] Seven Danish banks participated in the 2004 BIS Survey. For further information on sources, method and results, see Danmarks Nationalbank, Special Report, *Survey of the Danish foreign-exchange and derivatives market turnover in April 2004*.

[2] The 2004 global survey comprises the largest market players in 52 countries. For further information, see BIS, press release, 2004.

TURNOVER IN THE FOREIGN-EXCHANGE MARKET IN APRIL BY INSTRUMENT TYPE

Table 1

Billion dollars per banking day	1989	1992	1995	1998	2001	2004
Denmark						
Spot trades	6.4	10.5	8.6	6.3	4.3	9.2
Forward trades	1.3	2.0	1.5	1.1	0.7	2.1
FX swaps	5.5	14.4	19.7	19.9	18.3	29.6
Total foreign exchange	13.2	26.9	29.8	27.3	23.3	40.9
Global						
Spot trades	317	394	494	568	387	621
Forward trades	27	58	97	128	131	208
FX swaps	190	324	546	734	656	944
Total foreign exchange[1]	590	820	1,190	1,490	1,200	1,880

[1] "Total foreign exchange" for the global turnover is not equal to the sum of the individual components as the total includes an estimate for incomplete reporting.

increase in turnover in the Danish foreign-exchange market since 2001 is 52 per cent, while the global increase is 32 per cent.

The increasing turnover matches the tendency for smaller spreads[1] on foreign-exchange transactions and a general influx of liquidity to the global market since 2001. In this connection, BIS states that foreign exchange has increasingly become an investment asset in its own right; that asset managers have become more active; and that an increasing number of hedge funds operate in the foreign-exchange markets. In Denmark, electronic broking has become more widespread, cf. Box 1, page 88. According to market participants this may have contributed to the higher activity in the Danish foreign-exchange market[2].

Structure of the foreign-exchange market

The significant turnover in both the Danish and global foreign-exchange markets reflects transactions in different types of instruments, traded with different types of counterparties. Chart 1 shows that transactions between *reporting dealers*[3] account for by far the largest share of the Danish foreign-exchange turnover. Apart from their actual foreign-exchange requirements, banks may wish to trade with other banks if they believe that price quoting may represent an arbitrage opportunity, or if they wish to hedge any open foreign-exchange positions resulting

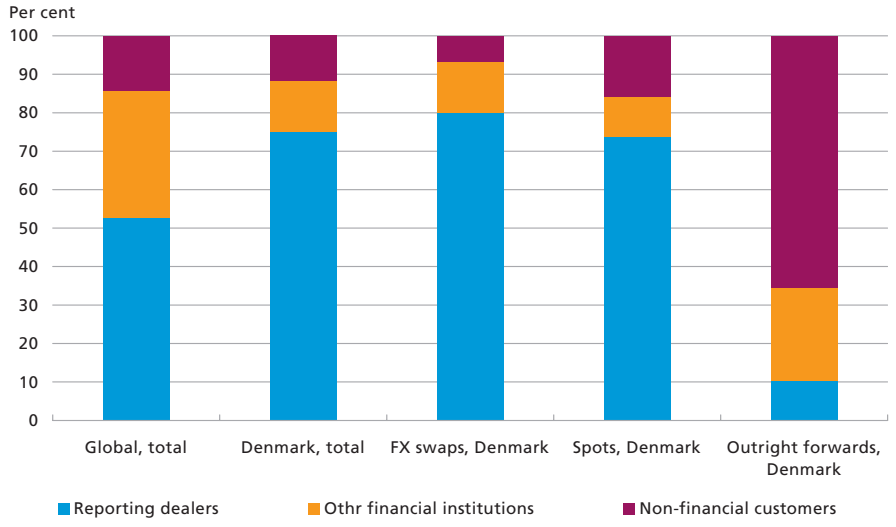
[1] Spreads are the difference between bid and offer rates in the foreign-exchange markets. Smaller spreads mean that foreign-exchange transaction costs have fallen.

[2] New business opportunities emerge from electronic broking, thus creating higher turnover. In 2001, the introduction of electronic broking was mentioned as a factor contributing to the drop in turnover. The reason is that these systems lead to more transparent price formation, so that fewer transactions are required to clear prices.

[3] Reporting institutions include all banks participating in the global survey.

TURNOVER IN THE FOREIGN-EXCHANGE MARKET IN APRIL 2004 BY COUNTERPARTIES

Chart 1



from foreign-exchange transactions with other clients, e.g. business enterprises, pension companies or other banks. The latter creates a chain of foreign-exchange transactions between the banks, thereby raising turnover. The participation of the banks in market-making agreements, involving an obligation to buy and sell foreign exchange, also helps to increase turnover.

Danish interbank transactions mainly involve spots and FX swaps, cf. Chart 1. At 73 per cent, FX swaps account for the lion's share of the Danish foreign-exchange turnover. This instrument is used, among other purposes, for liquidity management by the banks and may be considered a loan in one currency against collateral in another. As FX swaps are traditionally used by Danish banks to manage krone-denominated liquidity, the instrument is often classified as a money-market product. Placements and borrowing using FX swaps often take place on a one-day basis. This is one of the reasons for the considerable volume of trading in this instrument in Denmark[1].

The large share of trading in forward contracts with *non-financial customers* is related mainly to business enterprises' use of forward contracts to hedge future payments to and from Denmark.

Globally, trading with the counterparty category *other financial institutions* accounts for a larger proportion of total turnover than is the case in Denmark, cf. Chart 1. The category e.g. includes pension and

[1] The survey shows that 69 per cent of Danish turnover in FX swaps consisted of contracts with a maturity of less than 7 days.

TECHNOLOGICAL DEVELOPMENT IN TRADING IN OTC INSTRUMENTS Box 1

In recent years, electronic broking has become widespread in interbank OTC trading. Traditionally, banks have conducted their foreign-exchange and derivatives trading through bilateral collection of prices, often via telephone. Use of electronic broking provides for multilateral price quoting, thus enhancing transparency in the market. Electronic broking in the Danish interbank market accounted for 47 per cent of all spot trades in 2004, up from 11 per cent in 2001, and for 58 per cent of forward contracts and FX swaps, against 22 per cent in 2001. Electronic broking is most dominant for currency options, where 76 per cent of the trades are conducted via electronic broking.

The use of CLS (Continuous Linked Settlement)[1] for clearing of foreign-exchange transactions facilitates interbank trading. Since the system was established in September 2002, CLS has reduced the credit risk and thereby the settlement risk on foreign-exchange transactions.

[1] Cf. e.g. Danmarks Nationalbank, *Financial Stability 2003*, page 97.

insurance companies, investment banks and hedge funds that are concentrated in a few countries. This group's global share has increased by 5 percentage points from 2001. According to BIS, this reflects that e.g. asset managers and hedge funds have become more active in the foreign-exchange market. This trend is not in evidence in the Danish foreign-exchange market.

Currency composition of turnover

The currency composition of the Danish and global foreign-exchange markets is generally unchanged from 2001. The dollar was part of most foreign-exchange transactions, reflecting that for transactions between other currencies the dollar still dominates as a vehicle currency. The euro was the second-most-used currency, also in the Danish market, where the proportion of euro-denominated transactions has been increasing, cf. Table 2. At the same time, the proportion of krone-denominated transactions in the Danish foreign-exchange market has declined. This must be attributed to the fact that as a consequence of Denmark's fixed-exchange-rate policy the rate between the krone and the euro has shown very low volatility. So the need to hedge between kroner and euro has continued to decline. At the same time, the euro has been used increasingly to hedge exposures in other currencies relative to kroner.

The global krone market can be defined as all traditional foreign-exchange transactions in which the Danish krone is included. The krone market in Denmark is a segment of this market that solely involves Danish banks[1].

[1] Cf. also Chapter 2.2. of *Monetary Policy in Denmark*, Danmarks Nationalbank, 2nd edition 2003.

TURNOVER IN THE DANISH FOREIGN-EXCHANGE MARKET BY CURRENCY PAIRS

Table 2

Percentage share	2001	2004
Danish kroner v US dollars	26	21
Danish kroner v euro	6	5
Danish kroner v other currencies	2	2
Euro v US dollars	21	24
Euro v other currencies	7	8
US dollars v other currencies	37	39
Other currency pairs	2	1
Turnover in which currency is included		
Danish kroner	34	28
US dollars	84	84
Euro	34	38
Other	48	50

Note: Under "Turnover in which currency is included", foreign-exchange turnover totals 200 per cent as each foreign-exchange transaction is registered for each of the two currencies involved.

The survey of the global foreign-exchange market shows significant krone trading additional to the trading that takes place in Denmark. The average global krone trading volume per banking day rose by almost 13 per cent to 16.4 billion dollars in April 2004[1]. For comparison, turnover in Denmark's krone market increased by 43 per cent to 7.6 billion dollars per banking day. Most (83 per cent) of the global krone turnover was between reporting dealers and other financial institutions.

The relatively higher increase in the krone market in Denmark entails that the krone turnover of Danish banks has risen since 2001 relative to the global krone trading volume, cf. Chart 2.

THE MARKET FOR FOREIGN-EXCHANGE AND INTEREST-RATE DERIVATIVES, OTC

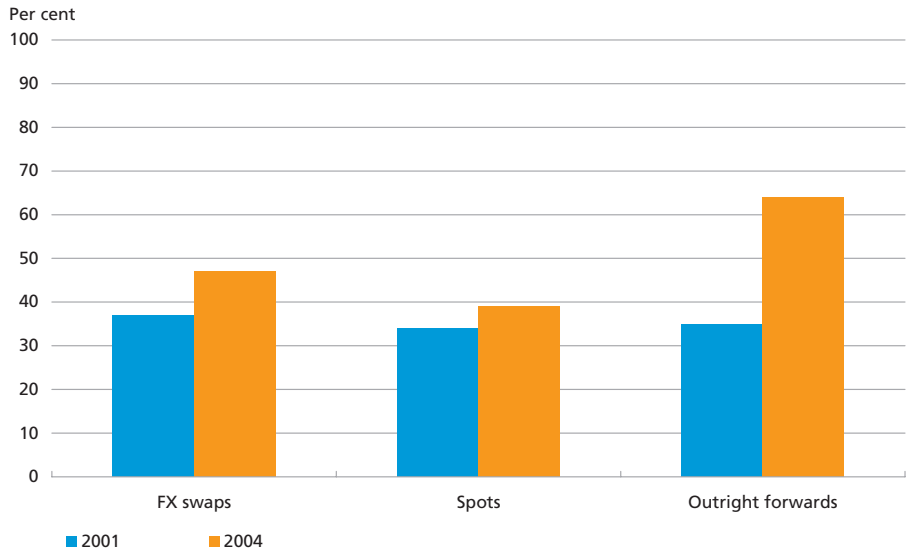
Trading in OTC derivatives[2] in the Danish market has almost doubled since 2001 and now accounts for 12 billion dollars per banking day, cf. Table 3. Global turnover showed a similar increase. Adjusted for the weakening of the dollar in the period between 2001 and 2004, the increase in Danish turnover is 53 per cent, while global turnover increased by 77 per cent.

Mirroring the trend in the foreign-exchange market, the rising turnover in the derivatives market matches the tendency for narrower

[1] BIS publishes, among many others, the figures for the global krone turnover in a new publication *Foreign exchange and derivatives market activity in 2004*, spring 2005.

[2] Over-the-counter, OTC, covers non-exchange-traded derivatives. The survey comprises foreign-exchange derivatives (currency swaps and currency options) as well as interest-rate derivatives (interest-rate swaps, interest-rate options and FRAs).

DANISH BANKS' SHARE OF GLOBAL KRONE TRADING BY INSTRUMENTS Chart 2



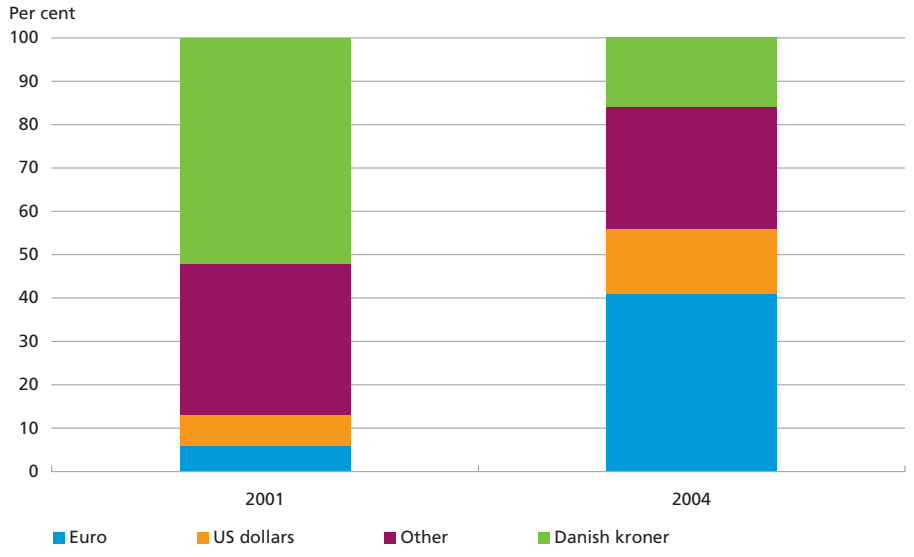
spreads and increased liquidity. BIS states that the increasing number of hedge funds that use derivatives extensively to take positions may be assumed to have contributed to the global increase.

The growth both in Denmark and globally is evenly distributed between foreign-exchange and interest-rate derivatives and is driven especially by trading in options and interest-rate swaps. As in earlier surveys, interest-rate derivatives account for by far the largest share of derivatives trading. Part of the high turnover in April 2004 should be seen in the light of the fact that to some extent interest-rate swaps and

TURNOVER IN THE OTC DERIVATIVES MARKET IN APRIL BY INSTRUMENT TYPE Table 3

	Denmark			Global		
Billion dollars per banking day	1998	2001	2004	1998	2001	2004
Currency swaps	0.1	0.1	0.2	10	7	21
Currency options (OTC)	0.7	0.4	1.0	87	60	117
Total foreign-exchange derivatives	0.7	0.5	1.2	97	67	140
Forward rate agreements (FRAs)	3.4	4.1	2.9	74	129	233
Interest-rate swaps	0.7	1.5	7.2	155	331	621
Interest-rate options (OTC)	0.1	0.2	0.7	36	29	171
Total interest-rate derivatives	4.2	5.8	10.8	265	489	1,025
Total OTC derivatives	4.9	6.3	12.0	375	575	1,165

BREAKDOWN OF INTEREST-RATE DERIVATIVES BY CURRENCY SHARE Chart 3



options are used to implement strategies based on expectations of future interest rates. In April 2004, there was a shift in expectations of the development in US interest rates.

In Denmark, trading in interest-rate swaps increased strongly and in April interest-rate swaps were the most traded product in the Danish OTC derivatives market. In contrast to the other interest-rate derivatives, Danish turnover in FRAs fell. Overall, this development in the Danish market entails that its array of instruments is now closer to that of the global market.

There is a general tendency for a higher proportion of interest-rate contracts against the euro in the Danish derivatives market, cf. Chart 3. The increasingly closer relation between interest rates in Denmark and the euro area since 2001 may have caused market players to use euro contracts to hedge interest-rate risks[1].

Activity with foreign counterparties accounts for 93 per cent of total derivatives turnover, which shows that the derivatives markets, like the foreign-exchange markets, are internationally integrated. This represents a significant increase on 2001 when 79 per cent of the derivatives trading of Danish banks was with foreign counterparties.

Increasing trade in interest-rate swaps

Interest-rate swaps are used extensively to hedge the interest-rate risk on agreements already concluded or to take positions against the devel-

[1] Cf. Kristian Kjeldsen, Mortgage Credit in the USA and Denmark, Danmarks Nationalbank, *Monetary Review,* 2nd Quarter 2004.

opment in interest rates. One-day swaps account for a considerable share of the swap market.

The increase in the use of collateral agreements is probably one of the factors contributing to the greater use of swaps[1]. By providing collateral in other assets, the players avoid having to include risk premiums in their prices, thus making price quoting more efficient and the product more attractive.

In the euro area, the swap rate has gradually become the benchmark for the European yield structure, leading to very active trading in euro-denominated interest-rate swaps that globally account for approximately half of the total turnover in interest-rate swaps. This is reflected in turnover in the Danish market, where trading in euro-denominated interest-rate swaps increased significantly from 19 per cent of the overall turnover in this instrument in 2001 to 53 per cent in 2004.

DEVELOPMENT IN NATIONAL MARKETS

The UK still accounts for by far the largest share of turnover in both the global foreign-exchange market and the market for OTC derivatives, followed by the USA and the euro area, cf. Table 4. Between them, these three areas account for 63 per cent of the turnover in the foreign-exchange market and 89 per cent of the turnover in the derivatives market.

Denmark has increased its share of the global foreign-exchange market, while the Danish share of the global OTC market is unchanged from 2001. The total krone-denominated foreign-exchange market accounted for 0.9 per cent of all transactions in the global foreign-exchange market, while e.g. the market for Swedish kronor accounted for 2.3 per cent. Relative to the sizes of the national foreign-exchange markets (1.7 per cent for Denmark and 1.3 per cent for Sweden), this indicates that foreign-exchange turnover is not linked to respective national currencies. Since the survey is based on where the transaction is conducted, intra-Group transfers of activities between countries may have affected the ranking in Table 4.

[1] According to International Swaps and Derivatives Association, *ISDA Margin Survey 2004*, the global volume of collateral agreements quadrupled from 2001 to 2004.

TURNOVER IN APRIL 2004 ON THE 20 LARGEST MARKETS — Table 4

Foreign-exchange turnover per banking day			OTC derivatives turnover per banking day		
	Billion dollars	Percentage share		Billion dollars	Percentage share
UK	753	31.3	UK	643	42.6
USA	461	19.2	USA	355	23.5
Euro area	299	12.4	Euro area	342	22.7
Of which:			*Of which:*		
Germany	*118*	*4.9*	*France*	*154*	*10.2*
France	*64*	*2.7*	*Germany*	*46*	*3.0*
Netherlands	*49*	*2.0*	*Italy*	*41*	*2.7*
Belgium	*20*	*0.8*	*Belgium*	*32*	*2.1*
Italy	*20*	*0.8*	*Netherlands*	*22*	*1.5*
Luxembourg	*14*	*0.6*	*Austria*	*15*	*1.0*
Japan	199	8.3	*Ireland*	*13*	*0.9*
Singapore	125	5.2	*Spain*	*12*	*0.8*
Hong Kong SAR	102	4.2	*Luxembourg*	*7*	*0.5*
Australia	81	3.4	Japan	39	2.6
Switzerland	79	3.3	Australia	18	1.2
Canada	54	2.2	Switzerland	18	1.2
Denmark	41	1.7	Canada	17	1.2
Sweden	31	1.3	Singapore	17	1.1
Russia	30	1.2	Hong Kong	15	1.0
Korea	20	0.8	Denmark	12	0.8
Mexico	15	0.6	Sweden	8	0.6
Norway	14	0.6	Norway	5	0.3

Source: BIS, press release 2004.

Articles in the Monetary Review 4th Quarter 2002 – 3rd Quarter 2004

New Financial Statistics	1st Quarter 2003
New Terms and Conditions for Accounts	2nd Quarter 2003
Memorandum of Understanding on Financial Crisis Management	3rd Quarter 2003
SCP – Scandinavian Cash Pool	4th Quarter 2003
New Statistics Database at Danmarks Nationalbank's Website	4th Quarter 2003
New Terms and Conditions for Accounts	3rd Quarter 2004
The Basel Committee's Endorsement of New Capital-Adequacy Rules	3rd Quarter 2004

Press releases

ON 7 SEPTEMBER: REVISED VERSION OF DANMARKS NATIONALBANK'S LIST OF DAILY PUBLISHED EXCHANGE RATES

As from 14 September 2004, Danmarks Nationalbank's list of daily published exchange rates will be expanded to include the following currencies:

- Bulgarian lev
- Cyprus pound
- Maltese lira
- Romanian leu
- Slovenian tolar
- Slovakian koruna
- Turkish lira
- South Korean won
- South African rand

Danmarks Nationalbank's complete list of currencies henceforth comprises 29 currencies, including all EU currencies.

ON 17 SEPTEMBER: COIN SET 2004 – A NEW DESIGN AND TWO VERSIONS

The Royal Mint's 2004 Coin Set will be available in a new design and two different versions: an ordinary version and an especially fine version, both including a medal. The medal, depicting the Battle of Køge Bay, is a copy of the largest Danish medal ever minted by the Royal Mint.

The 2004 Coin Set includes the Royal Mint's medal in Nordic gold, the seven ordinary coins in circulation and the 20-krone commemorative coin issued to celebrate the wedding of Denmark's Crown Prince Frederik and Crown Princess Mary. The coins of the Coin Set have a more distinct embossment than the ordinary coins in circulation. They are presented in special packaging, and as from this year in a new design. The 2004 Coin Set is minted in a maximum edition of 35,000.

The especially fine (proof) version of the 2004 Coin Set includes the Royal Mint's medal in silver and the seven coins in circulation in proof quality. The coins are presented in a specially made box. The proof version is minted in a maximum edition of 3,000.

The coin sets do not include the year's thematic coins with towers as the common theme. Instead, a full set of thematic coins will be issued once the tower series is complete.

The coin sets will be available from banks and coin dealers as from 25 October 2004. Some banks and coin dealers already take orders now. The recommended retail price is DKK 200 for the ordinary version and DKK 875 for the proof version.

Any remaining coin sets will be sold from 25 October 2004 from Danmarks Nationalbank, Cashier Services, Havnegade 5, DK-1093 Copenhagen K, opening hour's: Monday-Friday 10.00 a.m. to 1.00 p.m.

For further information about the 2004 Coin Set, please go to Danmarks Nationalbank's website at www.nationalbanken.dk and select Notes and coins/Coin set. Pictures can be downloaded from Press room/Photogallery/Coins.

ON 28 SEPTEMBER: RISING TURNOVER IN THE DANISH FOREIGN-EXCHANGE AND DERIVATIVES MARKET

According to a survey conducted by Danmarks Nationalbank, turnover in the Danish foreign-exchange market increased by 76 per cent from April 2001 to April 2004, equivalent to USD 41 billion per banking day. Derivatives turnover (foreign-exchange and interest-rate derivatives) has risen by 90 per cent since 2001, equivalent to USD 12 billion per banking day. Allowing for the weakening of the dollar since 2001, turnover has risen by 52 per cent in the foreign-exchange market and by 53 per cent in the derivatives market.

The survey forms part of a triennial international survey of foreign-exchange and derivatives market activity conducted under the auspices of the Bank for International Settlements (BIS). The Danish figures are collected from seven banks that account for more than 95 per cent of the turnover covered by the survey.

Regarding the *foreign-exchange market*, the rise in turnover is a departure from the declining trend shown by previous surveys. Turnover in FX swaps, which is traditionally used as a money-market product, increased particularly.

The increased turnover in the *derivatives market* confirms the trend shown by previous surveys. The increase is related especially to the greater use of euro-denominated contracts.

For further information please go to Danmarks Nationalbank's website on www.nationalbanken.dk and select Statistics, Download Statistics – Publications.

The results of the global survey can be found at:
www.bis.org/publ/rpfx04.htm

Tables

SYMBOLS AND SOURCES

0 Magnitude nil or less than one half of unit employed.

… Data not available or of negligible interest.

Some of the most recent statistics may be provisional. Due to rounding-off there may be small differences between the sum of the individual figures and the totals stated.

Date of going to press: 16 December 2004.

The Tables section of this publication is thus based on more recent information than the equivalent section of the Danish edition.

Danmarks Nationalbank is the source for Tables 1-12, 14-16 and 21-22, while the Copenhagen Stock Exchange is the source for series of bond yields and the share-price index in Table 1. Statistics Denmark is the source for Tables 13 and 17-20. The calculations in Tables 18 and 22 have been made by Danmarks Nationalbank on the basis of data from Statistics Denmark and OECD.

INTEREST RATES AND SHARE-PRICE INDEX — Table 1

Effective end-of-year/ from	The Nationalbank's interest rates: Discount rate	The Nationalbank's interest rates: Lending and certificates of deposit	The ECB's minimum bid rate	End of period	Inter-bank interest rate, 3-months uncollateralized	Bond yields: 10-year central-government bond	Bond yields: 30-year mortgage-credit bond	The Copenhagen Stock Exchange share-price index KFX
	Per cent per annum				Per cent per annum			3.7.89 =100
1999	3.00	3.30	3.00	1999	3.57	5.64	7.45	255.69
2000	4.75	5.40	4.75	2000	5.33	5.20	7.30	313.90
2001	3.25	3.60	3.25	2001	3.54	5.15	6.55	272.45
2002	2.75	2.95	2.75	2002	3.00	4.45	5.47	199.49
2003	2.00	2.15	2.00	2003	2.16	4.46	5.45	244.35
2002 6 Dec	2.75	2.95	2.75	May 04	2.15	4.47	5.47	253.14
2003 7 Mar	2.50	2.70	2.50	Jun 04	2.17	4.51	5.49	267.43
23 May	2.50	2.65	2.50	Jul 04	2.16	4.61	5.41	266.31
6 Jun	2.00	2.15	2.00	Aug 04	2.14	4.41	5.28	267.18
	|	|	|	Sep 04	2.17	4.32	5.24	281.86
				Oct 04	2.15	4.18	5.21	272.18
2004 16 Dec	2.00	2.15	2.00	Nov 04	2.16	4.02	5.14	282.88

SELECTED ITEMS FROM THE NATIONALBANK'S BALANCE SHEET — Table 2

End of period	The foreign-exchange reserve (net)	Notes and coin in circulation	The central government's account with the Nationalbank	The banks' and the mortgage-credit institutes' net position with the Nationalbank			
				Certificates of deposit	Deposits (current account)	Loans	Total net position
	Kr. billion						
1999	165.3	46.4	39.7	99.9	6.5	33.1	73.3
2000	117.5	44.8	37.7	51.9	8.1	25.3	34.6
2001	148.4	47.3	43.5	113.6	3.7	63.4	53.9
2002	193.2	47.7	50.3	160.7	10.1	81.2	89.6
2003	224.2	49.7	44.0	157.3	12.9	48.0	122.2
Jun 04	227.6	49.5	105.6	140.5	12.4	92.3	60.6
Jul 04	228.0	50.0	98.4	141.1	6.1	79.2	68.0
Aug 04	228.5	49.8	109.3	136.9	14.2	93.5	57.7
Sep 04	225.0	49.7	120.2	137.1	11.0	105.1	43.1
Oct 04	221.2	49.7	118.0	119.4	11.8	91.4	39.8
Nov 04	217.6	50.4	75.9	128.2	13.2	63.5	77.8

FACTORS AFFECTING THE BANKS' AND THE MORTGAGE-CREDIT INSTITUTES' NET POSITION WITH THE NATIONALBANK

Table 3

	Central-government finance			Net purchase of foreign exchange by the National-bank	The National-bank's net bond purchases	Other factors	The banks' and the mortgage-credit institutes' net position with the Nationalbank	
	Domestic gross financing require-ment	Sales of domestic central-govern-ment securities	Liquidity effect				Change in net position	End of period
	Kr. billion							
1999	67.9	68.8	-0.9	62.7	1.9	-7.9	55.7	73.3
2000	62.3	65.7	-3.4	-37.7	2.1	0.4	-38.7	34.6
2001	81.2	87.7	-6.5	28.4	1.0	-3.6	19.3	53.9
2002	115.5	121.9	-6.4	45.4	-0.9	-2.4	35.7	89.6
2003	99.7	94.1	5.6	31.0	-1.0	-3.1	32.5	122.2
Jun 04	2.0	13.5	-11.5	4.1	0.1	0.2	-7.2	60.6
Jul 04	19.5	12.4	7.1	0.4	0.3	-0.5	7.4	68.0
Aug 04	-14.7	-3.8	-10.9	0.5	0.2	-0.2	-10.3	57.7
Sep 04	-0.5	13.9	-14.4	0.0	-0.5	0.3	-14.6	43.1
Oct 04	11.4	13.0	-1.6	0.0	-0.5	-1.1	-3.2	39.8
Nov 04	35.0	-2.9	37.9	0.6	0.6	-1.1	38.0	77.8

SELECTED ITEMS FROM THE CONSOLIDATED BALANCE SHEET OF THE MFI SECTOR

Table 4

End of period	Total balance	Assets: Domestic lending: Public sector	Assets: Domestic lending: Private sector	Assets: Domestic securities: Bonds, etc.	Assets: Domestic securities: Shares, etc.	Liabilities: Domestic deposits	Liabilities: Bonds, etc. issued	Foreign assets, net [1]
	Kr. billion							
1999	2,612.8	59.5	1,516.6	125.8	45.7	648.4	1,018.0	163.7
2000	2,806.8	68.1	1,690.6	114.2	43.1	649.2	1,019.2	46.3
2001	2,932.1	75.0	1,850.9	133.1	37.0	686.3	1,048.7	-57.0
2002	3,201.5	79.9	1,944.6	142.8	36.5	723.3	1,125.9	-63.9
2003	3,359.0	89.6	2,062.0	123.3	43.3	754.7	1,157.9	-70.7
May 04	3,458.3	90.6	2,157.1	128.7	44.5	890.3	1,158.6	-73.3
Jun 04	3,522.2	93.2	2,179.1	134.5	45.8	874.5	1,190.1	-40.0
Jul 04	3,476.1	94.4	2,168.0	124.8	45.7	906.4	1,158.4	-55.0
Aug 04	3,535.4	91.5	2,181.3	125.7	45.5	912.3	1,166.8	-57.7
Sep 04	3,604.8	92.5	2,202.6	133.6	45.8	901.4	1,183.1	-46.0
Oct 04	3,656.1	93.4	2,210.6	131.4	45.9	923.5	1,175.8	-69.8
	Change compared with previous year, per cent							
2000	...	14.5	11.5	-9.2	-5.7	0.1	0.1	...
2001	...	10.2	9.5	16.6	-14.0	5.7	2.9	...
2002	...	6.6	5.1	7.3	-1.4	5.4	7.4	...
2003	...	12.1	6.0	-13.7	18.6	4.3	2.8	...
May 04	...	4.1	8.5	-18.0	14.9	7.8	2.9	...
Jun 04	...	6.8	7.9	-16.8	15.4	8.9	3.1	...
Jul 04	...	5.5	7.9	-22.0	15.2	11.0	3.3	...
Aug 04	...	6.7	8.3	-20.1	11.7	11.6	4.6	...
Sep 04	...	6.6	8.0	-15.2	11.4	12.5	2.2	...
Oct 04	...	6.4	8.7	-13.4	8.7	12.1	6.1	...

Note: The MFI sector includes Danish monetary financial institutions, i.e. banks and mortgage-credit institutes, other credit institutions, money-market funds and Danmarks Nationalbank.

[1] The net foreign assets of the MFI sector has been compiled as the difference between all assets and liabilities vis-a-vis non-residents.

MONEY STOCK — Table 5

End of period	Bank-notes and coin in circula-tion	Deposits on demand	M1	Time deposits with original maturity =<2 years	Deposits at notice with original maturity =< 3 months	M2	Repur-chase agree-ments	Bonds, etc. issued with orginal maturity =< 2 years	M3
	Kr. billion								
1999	36.1	341.8	378.0	111.0	12.9	501.9	4.3	17.0	523.2
2000	37.4	349.2	386.6	101.7	6.9	495.2	3.3	8.6	507.1
2001	39.2	375.6	414.9	102.7	9.9	527.4	4.0	15.0	546.4
2002	39.0	392.1	431.0	105.0	15.8	551.8	7.1	45.8	604.7
2003	41.0	428.2	469.2	112.2	19.2	600.5	2.7	77.3	680.6
May 04	41.7	471.8	513.5	144.6	20.1	678.1	9.1	117.0	804.3
Jun 04	41.7	458.7	500.3	133.2	19.9	653.5	10.1	102.0	765.6
Jul 04	42.3	476.7	519.0	154.7	19.9	693.6	8.9	103.6	806.1
Aug 04	41.7	477.3	518.9	151.4	19.6	689.9	7.2	99.7	796.9
Sep 04	41.9	464.6	506.4	144.1	19.8	670.4	6.3	97.4	774.1
Oct 04	42.3	486.5	528.9	143.6	20.4	692.8	4.7	88.7	786.3
	Change compared with previous year, per cent								
2000	...	...	2.3	...	...	-1.3	...	...	-3.1
2001	...	...	7.3	...	...	6.5	...	...	7.7
2002	...	...	3.9	...	...	4.6	...	...	10.7
2003	...	...	8.8	...	...	8.8	...	...	12.5
May 04	...	...	7.9	...	...	9.0	...	...	14.3
Jun 04	...	...	7.7	...	...	9.1	...	...	12.9
Jul 04	...	...	8.3	...	...	10.3	...	...	14.1
Aug 04	...	...	9.5	...	...	11.1	...	...	14.3
Sep 04	...	...	9.8	...	...	10.7	...	...	14.3
Oct 04	...	...	10.1	...	...	9.5	...	...	9.4

SELECTED ITEMS FROM THE BALANCE SHEET OF THE BANKS — Table 6

End of period	Total balance	Assets: Lending to MFIs	Assets: Domestic lending: Total	Assets: Domestic lending: of which: Households, etc.	Assets: Domestic lending: of which: Non-financial companies	Assets: Holdings of securities	Liabilities: Loans from MFIs	Liabilities: Deposits
	Kr. billion							
1999	1,458.6	388.4	399.8	203.4	117.2	427.8	465.8	678.0
2000	1,685.8	427.8	526.2	239.0	186.4	456.1	579.9	684.3
2001	1,798.8	353.0	588.0	253.3	228.8	579.3	627.5	718.0
2002	2,040.1	419.8	599.2	253.5	231.3	620.9	685.6	764.7
2003	2,204.4	468.7	663.0	271.6	285.7	764.4	823.8	795.2
May 04	2,223.4	447.6	706.7	279.9	304.5	792.7	775.8	877.4
Jun 04	2,281.9	494.7	720.4	292.3	303.0	800.7	837.0	866.9
Jul 04	2,210.6	439.2	706.0	291.1	291.7	801.9	760.8	890.8
Aug 04	2,266.8	466.5	708.8	292.2	295.1	809.9	804.1	887.4
Sep 04	2,359.8	502.1	723.7	302.8	302.0	830.9	880.1	874.7
Oct 04	2,372.1	510.5	725.9	305.1	302.0	795.5	850.1	903.5
	Change compared with previous year, per cent							
2000	...	10.1	31.6	17.5	59.0	6.6	24.5	0.9
2001	...	-17.5	11.7	6.0	22.8	27.0	8.2	4.9
2002	...	18.9	1.9	0.1	1.1	7.2	9.3	6.5
2003	...	10.7	2.5	7.1	3.1	21.8	18.8	4.0
May 04	...	-4.8	10.5	14.0	7.7	3.6	-0.2	4.9
Jun 04	...	-1.2	8.6	14.8	4.0	2.6	-5.4	9.6
Jul 04	...	-5.4	9.5	15.9	4.6	0.1	-7.4	8.5
Aug 04	...	6.1	11.2	16.5	6.0	2.3	0.8	9.0
Sep 04	...	19.6	10.2	15.9	6.8	11.6	16.6	10.0
Oct 04	...	25.9	12.5	18.1	10.6	2.2	14.4	12.3

Note: Excluding Danish banks' units abroad. As from 2003 the lending is affected by an addition to the group of banks. The calculation of the rate of increase has been amended accordingly.

SELECTED ITEMS FROM THE BALANCE SHEET OF THE MORTGAGE-CREDIT INSTITUTES

Table 7

End of period	Total balance	Assets: Lending to MFIs	Assets: Domestic lending: Total	Assets: Domestic lending: of which: Households, etc.	Assets: Domestic lending: of which: Non-financial companies	Assets: Holdings of securities	Liabilities: Loans from MFIs	Liabilities: Bonds, etc. issued
	Kr. billion							
1999	1,222.9	48.6	1,050.9	785.8	222.9	117.9	22.1	1,116.2
2000	1,341.1	53.7	1,095.9	830.2	225.6	163.7	36.2	1,212.9
2001	1,579.5	88.3	1,191.8	907.6	246.8	280.7	55.3	1,421.3
2002	1,721.8	77.3	1,285.1	988.0	259.2	338.5	58.9	1,584.2
2003	1,863.8	100.9	1,394.6	1,072.1	284.4	342.6	32.6	1,729.0
May 04	1,673.0	62.9	1,443.3	1,106.8	297.8	135.0	30.5	1,556.5
Jun 04	1,728.2	87.7	1,455.1	1,115.7	298.9	160.0	26.9	1,590.3
Jul 04	1,652.9	44.5	1,458.5	1,119.0	300.4	121.8	18.1	1,538.3
Aug 04	1,674.6	40.3	1,466.2	1,125.1	301.6	135.2	20.3	1,564.5
Sep 04	1,721.9	79.8	1,472.1	1,125.7	305.7	141.4	27.8	1,588.9
Oct 04	1,721.1	56.7	1,478.8	1,130.8	308.0	152.6	37.5	1,590.5
	Change compared with previous year, per cent							
2000	...	10.5	4.2	5.7	1.2	38.8	63.8	8.7
2001	...	64.6	8.8	9.3	9.4	71.5	52.6	17.2
2002	...	-12.5	7.8	8.9	5.0	20.6	6.7	11.5
2003	...	30.6	8.5	8.5	9.7	1.2	-44.8	9.1
May 04	...	2.8	7.4	7.0	9.4	4.6	46.4	4.6
Jun 04	...	-35.0	7.6	7.3	8.9	29.2	0.0	3.8
Jul 04	...	-31.0	7.2	6.9	9.0	-1.0	15.6	3.6
Aug 04	...	-35.2	7.1	6.7	8.3	-8.1	-12.2	4.3
Sep 04	...	-16.8	7.0	6.3	9.1	-4.3	66.9	3.6
Oct 04	...	23.7	7.0	6.4	9.4	23.2	157.7	8.4

LENDING TO RESIDENTS BY THE BANKS AND THE MORTGAGE-CREDIT INSTITUTES Table 8

End of period	Total lending			The banks' lending			The mortgage-credit institutes' lending		
	Total	Households, etc.	Business	Total	Households, etc.	Business	Total	Households, etc.	Business
	Kr. billion								
1999	1,573.9	990.1	526.5	523.0	204.3	291.4	1,050.9	785.8	235.1
2000	1,688.3	1,069.2	561.0	592.4	239.0	329.7	1,095.9	830.2	231.4
2001	1,814.4	1,161.0	594.7	622.6	253.3	342.3	1,191.8	907.6	252.4
2002	1,917.0	1,241.6	619.2	631.8	253.5	353.0	1,285.1	988.0	266.2
2003	2,087.7	1,343.7	683.1	693.2	271.6	392.3	1,394.6	1,072.1	290.9
May 04	2,180.9	1,386.7	735.0	737.6	279.9	431.1	1,443.3	1,106.8	303.9
Jun 04	2,206.4	1,408.1	733.9	751.4	292.3	428.9	1,455.1	1,115.7	304.9
Jul 04	2,195.0	1,410.1	721.4	736.5	291.1	414.9	1,458.5	1,119.0	306.5
Aug 04	2,205.4	1,417.4	727.1	739.3	292.2	419.3	1,466.2	1,125.1	307.7
Sep 04	2,226.3	1,428.6	734.7	754.2	302.8	422.9	1,472.1	1,125.7	311.8
Oct 04	2,235.3	1,435.9	736.1	756.4	305.1	422.0	1,478.8	1,130.8	314.1
	Change compared with previous year, per cent								
1999	7.6	6.7	10.0	10.0	3.9	16.3	6.4	7.5	3.1
2000	7.3	8.0	6.6	13.3	17.0	13.1	4.3	5.6	-1.6
2001	7.5	8.6	6.0	5.1	6.0	3.8	8.8	9.3	9.1
2002	5.7	6.9	4.1	1.5	0.1	3.1	7.8	8.9	5.5
2003	6.1	8.2	2.7	1.5	7.1	-1.7	8.5	8.5	9.3
May 04	8.2	8.3	9.0	9.9	14.0	9.0	7.4	7.0	9.1
Jun 04	7.8	8.8	6.2	8.1	14.8	4.6	7.6	7.3	8.7
Jul 04	7.8	8.6	6.9	9.1	15.9	5.6	7.2	6.9	8.8
Aug 04	8.3	8.6	7.8	10.7	16.5	7.6	7.1	6.7	8.0
Sep 04	7.9	8.2	7.3	9.8	15.9	6.2	7.0	6.3	8.7
Oct 04	8.7	8.7	8.7	12.0	18.1	8.5	7.0	6.4	9.0

Note: Including lending in Danish banks' units abroad. As from 2003 the banks' lending is affected by an addition to the group of banks. The calculation of the rate of increase has been amended accordingly.

THE MORTGAGE-CREDIT INSTITUTES' LENDING BROKEN DOWN BY TYPE Table 9

End of period	Index-linked lending	Fixed-rate lending	Adjustable-rate lending		Total	of which:	
			Total	of which =<1 year		Lending in foreign currency	Instalment-free lending [1]
	Kr. billion						
1999	113.7	877.5	59.7	43.5	1,050.9	9.6	...
2000	113.1	882.4	99.8	79.0	1,095.4	15.5	...
2001	109.6	836.5	245.7	151.5	1,191.8	54.5	...
2002	103.6	816.0	365.0	200.4	1,284.6	82.5	...
2003	99.5	795.0	499.0	250.0	1,393.5	85.7	44.4
May 04	100.4	761.2	580.5	339.2	1,442.1	86.0	...
Jun 04	98.0	753.9	601.3	351.1	1,453.2	86.8	120.4
Jul 04	97.9	747.7	611.7	356.1	1,457.3	87.0	...
Aug 04	97.9	748.5	618.8	359.6	1,465.2	87.2	...
Sep 04	97.9	745.2	627.8	362.5	1,470.9	87.6	138.7
Oct 04	97.9	744.0	635.9	363.4	1,477.8	87.6	...

Note: The Table includes the mortgage-credit lending to residents only, whereas Tables 7 and 8 include the institutes' total lending to residents.

[1] The mortgage-credit institutes' instalment-free lending to owner-occupied dwellings.

THE BANKS' EFFECTIVE INTEREST RATES Table 10

	Lending				Deposits			
	All sectors	Households, etc.	Non-financial companies	Financial companies	All sectors	Households, etc.	Non-financial companies	Financial companies
	Per cent, per annum							
Q1 03	5.8	8.2	5.8	3.4	2.2	1.7	2.4	2.7
Q2 03	5.8	8.1	5.6	3.2	2.0	1.6	2.1	2.5
Q3 03	5.4	7.6	5.2	2.8	1.5	1.1	1.7	2.1
Q4 03	5.4	7.5	5.0	2.9	1.5	1.1	1.7	2.1
Q1 04	5.3	7.3	4.9	2.9	1.6	1.1	1.7	2.1
Q2 04	5.2	7.2	4.8	2.9	1.6	1.1	1.7	2.1
Q3 04	5.2	7.1	4.8	2.8	1.5	1.2	1.7	2.0
May 04	5.2	7.2	4.8	2.9	1.6	1.1	1.7	2.1
Jun 04	5.2	7.2	4.8	2.9	1.5	1.1	1.7	2.1
Jul 04	5.2	7.1	4.8	2.9	1.5	1.2	1.7	2.1
Aug 04	5.2	7.0	4.8	2.9	1.5	1.2	1.7	2.0
Sep 04	5.2	7.1	4.9	2.8	1.6	1.2	1.7	2.1
Oct 04	5.1	7.0	4.8	2.8	1.6	1.2	1.7	2.0

SELECTED ITEMS FROM THE BALANCE SHEET OF THE INVESTMENT ASSOCIATIONS

Table 11

End of period	Total balance	Assets: Holdings of securities: Bonds, etc.	Assets: Holdings of securities: Shares, etc.	Liabilities: Certificates issued by investment associations by owner: Households, etc.	Liabilities: Certificates issued by investment associations by owner: Insurance companies and pension funds	Liabilities: Certificates issued by investment associations by owner: Other residents	Liabilities: Certificates issued by investment associations by owner: Abroad
	Kr. billion						
1999	203.6	84.8	112.3	121.4	43.3	29.0	9.6
2000	258.1	100.5	147.3	140.8	56.8	49.0	10.4
2001	282.8	135.4	137.1	143.4	62.2	66.9	9.6
2002	288.9	180.8	89.5	153.6	68.9	52.7	8.9
2003	367.1	237.2	108.7	188.2	103.2	60.4	12.3
Q3 03	341.3	221.3	98.4	179.8	88.8	58.8	10.8
Q4 03	367.1	237.2	108.7	188.2	103.2	60.4	12.3
Q1 04	481.3	282.9	135.3	199.5	120.7	145.0	12.9
Q2 04	478.5	277.5	138.8	199.6	120.8	143.4	12.8
Q3 04	497.4	292.1	139.4	205.6	125.6	150.2	13.5
	Quarterly transactions, kr. billion						
Q3 03	...	7.2	3.6	5.1	3.8	-0.7	-0.3
Q4 03	...	18.9	4.1	5.4	10.8	-0.7	1.0
Q1 04	...	40.0	17.1	7.5	12.6	80.0	0.6
Q2 04	...	1.2	5.1	5.1	2.8	0.0	0.1
Q3 04	...	10.0	1.9	4.0	2.5	3.9	0.3

SECURITIES ISSUED BY RESIDENTS BY OWNER'S HOME COUNTRY Table 12

End of period	Bonds, etc.						Shares	
	Total		of which: Central-government securities		of which: Mortgage-credit bonds			
	Denmark	Abroad	Denmark	Abroad	Denmark	Abroad	Denmark	Abroad
	Market value, kr. billion							
1999	1,535.1	388.3	441.6	249.1	977.2	134.1	569.7	211.3
2000	1,659.5	336.8	455.1	214.6	1,090.3	118.2	634.0	255.2
2001	1,787.7	414.6	443.7	217.1	1,231.8	194.5	480.5	231.1
2002	1,999.8	414.7	479.8	222.9	1,411.6	189.6	384.3	162.3
2003	2,124.2	419.6	488.2	210.0	1,523.9	207.9	488.1	208.6
Jun 04	1,980.8	462.8	491.6	251.4	1,376.7	209.0	542.7	228.5
Jul 04	1,945.0	455.6	499.8	254.3	1,334.7	198.9	539.3	227.9
Aug 04	1,971.0	460.0	493.1	262.3	1,366.3	195.3	537.9	231.1
Sep 04	2,002.2	463.6	502.8	264.3	1,387.3	196.9	568.5	239.6
Oct 04	2,032.5	437.2	520.5	254.4	1,398.6	180.3	551.8	233.2
Nov 04	2,019.7	448.5	483.5	257.8	1,422.1	188.2	580.3	245.3

HOUSEHOLDS' FINANCIAL ASSETS AND LIABILITIES — Table 13

End of period	Assets					Liabilities		
	Currency and bank deposits, etc.	Bonds, etc.	Shares and certificates issued by investment associations, etc.	Life-insurance and pension-scheme savings, etc.	Total	Loans, etc.	Net financial assets	Total
	Kr. billion							
1999	509	219	260	811	1,798	1,153	646	1,798
2000	528	214	307	865	1,913	1,226	687	1,913
2001	551	199	286	890	1,927	1,316	611	1,927
2002	579	191	285	931	1,986	1,401	585	1,986
2003	619	182	360	1,001	2,163	1,508	655	2,163
Q2 03	609	173	321	974	2,077	1,414	662	2,077
Q3 03	605	167	342	981	2,097	1,440	657	2,097
Q4 03	619	182	360	1,001	2,163	1,508	655	2,163
Q1 04	618	178	381	1,040	2,217	1,495	721	2,216
Q2 04	658	167	384	1,043	2,252	1,554	698	2,252

COMPANIES' FINANCIAL ASSETS AND LIABILITIES — Table 14

End of period	Assets				Liabilities				
					Debt				
	Currency, bank deposits, and granted credits, etc.	Bonds, etc.	Shares and certificates issued by investment associations, etc.	Total	Loans, etc.	Bonds, etc. issued	Shares, etc. issued	Net financial assets	Total
	Kr. billion								
1999	437	145	488	1,069	889	62	954	-837	1,069
2000	468	152	662	1,282	1,032	79	1,122	-951	1,282
2001	516	139	703	1,358	1,141	95	1,032	-910	1,359
2002	528	139	628	1,295	1,111	114	909	-838	1,296
2003	623	139	627	1,390	1,128	122	1,079	-939	1,390
Q2 03	531	137	633	1,299	1,130	119	997	-946	1,300
Q3 03	549	132	645	1,326	1,111	128	1,076	-989	1,326
Q4 03	623	139	627	1,390	1,128	122	1,079	-939	1,390
Q1 04	597	142	654	1,394	1,127	134	1,120	-986	1,394
Q2 04	602	141	650	1,394	1,157	129	1,126	-1,018	1,394

Note: Companies are defined as non-financial companies.

CURRENT ACCOUNT OF THE BALANCE OF PAYMENTS (NET REVENUES) Table 15

	Goods (fob)	Services	Goods and services	Wages and property income	Current transfers	Total current account
	Kr. billion					
1999	46.7	11.1	57.8	-17.4	-19.3	21.2
2000	54.1	22.1	76.2	-32.8	-24.8	18.6
2001	61.7	25.0	86.7	-25.0	-21.6	40.1
2002	60.7	17.6	78.3	-24.6	-23.3	30.3
2003	63.9	22.2	86.1	-17.1	-23.1	45.9
Nov 02 – Oct 03	67.5	22.1	89.6	-20.6	-24.9	44.0
Nov 03 – Oct 04	54.0	22.2	76.1	-13.4	-25.0	37.7
May 04	3.8	2.6	6.4	1.1	-2.3	5.2
Jun 04	6.1	2.7	8.8	1.1	-3.3	6.5
Jul 04	3.0	1.9	4.8	0.3	-2.4	2.7
Aug 04	3.6	1.7	5.4	-1.0	-2.1	2.3
Sep 04	5.1	1.2	6.3	-0.8	-2.8	2.8
Oct 04	5.3	1.1	6.4	-1.6	-2.2	2.7

PRINCIPAL ITEMS OF THE BALANCE OF PAYMENTS
(NET PAYMENTS FROM ABROAD) Table 16

	Current account	Capital import: Direct investments: Danish abroad	Capital import: Direct investments: Foreign in Denmark	Capital import: Portfolio investments	Capital import: Other capital import	Errors and omissions, etc.	Increase in the foreign-exchange reserve
	Kr. billion						
1999	21.2	-118.6	116.9	-21.9	85.1	-18.4	64.2
2000	18.6	-202.7	266.8	-145.9	64.3	-44.1	-43.0
2001	40.1	-107.9	92.5	-34.9	7.8	29.8	27.5
2002	30.3	-44.9	52.3	1.0	21.3	-14.6	45.4
2003	45.9	-7.4	17.1	-106.3	70.1	11.4	30.8
Nov 02 – Oct 03	44.0	-24.2	22.3	-62.9	42.8	11.6	33.6
Nov 03 – Oct 04	37.7	68.2	-68.6	-126.7	29.6	52.5	-7.3
May 04	5.2	-5.8	-0.2	8.1	-8.3	3.9	2.8
Jun 04	6.5	64.1	-71.1	17.3	-18.9	3.8	1.7
Jul 04	2.7	3.7	-2.5	-19.9	13.3	3.2	0.4
Aug 04	2.3	-0.8	-2.2	-21.1	22.3	0.0	0.5
Sep 04	2.8	1.3	1.7	-15.9	0.2	6.4	-3.5
Oct 04	2.7	-4.1	8.0	-27.2	8.5	8.3	-3.8

PORTFOLIO INVESTMENTS OF THE BALANCE OF PAYMENTS
(NET PAYMENTS FROM ABROAD) Table 17

	Danish securities: Krone-denominated bonds, etc.	Danish securities: Foreign currency denominated bonds, etc.	Danish securities: Shares	Foreign securities: Bonds, etc.	Foreign securities: Shares	Total
	Kr. billion					
1999	15.3	30.6	0.1	-24.4	-43.5	-21.9
2000	-21.3	47.7	19.2	-78.7	-112.8	-145.9
2001	-17.7	97.7	7.0	-86.2	-35.8	-34.9
2002	8.5	24.0	4.7	-34.8	-1.4	1.0
2003	-30.7	58.7	9.1	-121.5	-21.9	-106.3
May 04	2.0	2.0	-1.9	6.8	-0.7	8.1
Jun 04	16.5	3.5	12.6	-10.9	-4.5	17.3
Jul 04	-7.4	-2.4	0.6	-10.1	-0.6	-19.9
Aug 04	-7.8	-3.2	-0.5	-8.7	-0.9	-21.1
Sep 04	5.3	-4.2	0.7	-16.7	-0.9	-15.9
Oct 04	-15.4	-15.2	0.8	4.5	-1.8	-27.2

Note: A negative sign (-) indicates residents' net purchase of foreign securities, or non-residents' net sale of Danish securities.

DENMARK'S INTERNATIONAL INVESTMENT POSITION — Table 18

End of period	Direct investments: Danish abroad	Direct investments: Foreign in Denmark	Portfolio investments: Shares, etc.	Portfolio investments: Bonds, etc.	Other investment	The foreign-exchange reserve	Total
	Kr. billion						
Assets							
1999	358	22	387	151	603	225	1,747
2000	557	29	454	229	667	121	2,056
2001	574	32	351	470	765	229	2,422
2002	584	30	254	359	758	197	2,180
2003	579	32	310	446	747	228	2,342
Q2 03	591	31	250	424	890	240	2,427
Q3 03	589	31	279	409	838	234	2,381
Q4 03	579	32	310	446	747	228	2,342
Q1 04	573	32	348	465	782	219	2,419
Q2 04	574	32	351	470	765	229	2,422
Liabilities							
1999	19	333	160	611	718	58	1,899
2000	26	564	218	646	816	3	2,274
2001	42	540	208	847	950	1	2,587
2002	34	553	146	759	913	4	2,408
2003	42	555	186	770	967	3	2,523
Q2 03	38	565	160	819	1,070	3	2,655
Q3 03	40	567	176	823	1,007	3	2,616
Q4 03	42	555	186	770	967	3	2,523
Q1 04	42	550	202	828	967	1	2,590
Q2 04	42	540	208	847	950	1	2,587
Net assets							
1999	338	-311	227	-459	-115	167	-152
2000	531	-535	236	-418	-150	117	-218
2001	532	-509	144	-377	-185	228	-166
2002	550	-523	107	-400	-155	193	-227
2003	537	-524	124	-323	-220	224	-181
Q2 03	554	-534	91	-395	-180	237	-227
Q3 03	550	-536	103	-413	-169	231	-234
Q4 03	537	-524	124	-323	-220	224	-181
Q1 04	532	-519	146	-363	-184	218	-170
Q2 04	532	-509	144	-377	-185	228	-166

Note: As a key principle, the market value has been used for the compilation.

GDP BY TYPE OF EXPENDITURE — Table 19

	GDP	Final domestic demand					Exports of goods and services	Imports of goods and services
		Private consumption	General-government consumption	Gross fixed capital formation	Change in inventories	Total		
	Kr. billion							
1999	1,207.7	599.5	312.1	240.9	-2.6	1,149.9	459.6	401.8
2000	1,279.0	610.5	323.4	258.1	10.9	1,202.8	563.4	487.2
2001	1,325.5	624.5	343.3	271.0	1.3	1,240.0	591.5	506.0
2002	1,360.7	641.9	358.5	282.7	0.7	1,283.8	602.7	525.8
2003	1,398.3	659.3	371.8	279.6	-3.7	1,307.0	605.0	513.6
Q3 03	346.6	161.3	93.3	67.8	-2.1	320.2	152.3	126.0
Q4 03	367.0	174.0	95.8	78.2	-3.5	344.6	156.4	133.9
Q1 04	349.7	167.9	92.6	66.4	2.9	329.9	150.1	130.3
Q2 04	363.1	170.7	95.9	72.8	0.1	339.4	162.3	138.7
Q3 04	359.4	169.3	95.7	73.0	2.7	340.7	163.3	144.6
	Real growth compared with previous year, per cent							
1999	2.6	0.7	2.0	1.5	...	0.1	12.3	5.5
2000	2.8	-0.7	0.9	6.9	...	2.4	13.5	13.5
2001	1.6	-0.2	2.7	4.9	...	1.0	4.4	3.5
2002	1.0	0.6	2.1	4.5	...	1.9	4.8	7.3
2003	0.5	0.8	1.0	0.1	...	0.3	0.0	-0.6
Q3 03	0.4	1.2	0.3	1.5	...	-0.1	-1.2	-2.5
Q4 03	1.4	2.6	0.6	6.2	...	2.5	-0.9	1.3
Q1 04	1.7	3.3	0.0	2.5	...	2.3	0.4	1.5
Q2 04	2.6	3.9	0.1	6.9	...	3.6	6.6	9.2
Q3 04	1.9	3.7	-0.5	6.6	...	5.2	4.7	12.4
	Real growth compared with previous quarter (seasonally adjusted), per cent							
Q3 03	0.7	0.8	-0.1	4.4	...	1.0	-0.1	0.6
Q4 03	0.4	2.0	0.2	4.5	...	2.1	-0.1	2.4
Q1 04	1.1	0.3	-0.2	-3.4	...	0.7	1.2	0.3
Q2 04	0.4	0.7	0.2	2.0	...	-0.1	5.4	5.8
Q3 04	0.0	1.0	-0.6	3.6	...	2.6	-1.7	3.4

DEVELOPMENT IN CONSUMER PRICES AND NET RETAIL PRICES Table 20

	Consumer-price index		Index of net retail prices	Energy	Imports	Domestic prices				
						Total	Food stuffs	Rent	Public services	IMI
			Weights							
	HICP	CPI	1.000	0.080	0.157	0.764	0.128	0.232	0.034	0.370
	Year-on-year growth, per cent									
1999	2.1	2.5	2.1	2.1	-0.3	2.5	0.6	2.7	3.5	2.9
2000	2.7	2.9	3.1	19.5	4.3	1.7	2.4	3.1	3.7	0.1
2001	2.3	2.4	2.4	-0.9	2.4	2.7	3.4	3.0	3.3	2.1
2002	2.4	2.4	2.5	0.9	0.4	3.0	2.0	2.9	4.5	3.2
2003	2.0	2.1	2.3	1.8	0.4	2.6	1.8	2.7	7.9	2.2
Q1 02	2.5	2.5	2.7	-0.7	0.1	3.4	3.4	3.1	3.9	3.6
Q2 02	2.1	2.3	2.3	-0.3	0.5	2.8	1.6	3.1	4.5	2.9
Q3 02	2.4	2.3	2.5	-0.2	0.5	3.0	1.4	2.8	4.2	3.6
Q4 02	2.7	2.6	2.6	5.1	0.8	2.7	1.5	2.6	5.1	2.9
Q1 03	2.8	2.8	2.8	10.9	1.3	2.4	1.6	2.7	8.1	1.8
Q2 03	2.2	2.3	2.4	-0.4	0.8	2.9	1.7	2.7	8.6	2.7
Q3 03	1.6	1.8	2.0	-0.8	0.0	2.5	1.8	2.7	8.3	1.9
Q4 03	1.3	1.5	1.9	-2.3	-0.6	2.7	2.2	2.7	6.8	2.3
Q1 04	0.7	0.9	1.2	-5.8	-0.3	2.1	0.2	2.4	4.5	2.2
Q2 04	0.8	1.1	1.4	5.2	0.0	1.4	-0.3	2.2	4.0	1.0
Q3 04	1.0	1.2	1.5	9.3	1.2	0.9	-0.8	2.2	3.9	0.3

Note: Weighting basis of December 2002.
The index of net retail prices is the consumer price index adjusted for indirect taxes, duties and subsidies for general price reductions.
"IMI" is a measure of domestic market-determined inflation. "IMI" is normally larger than the increase in the index of net retail prices due to an overweight of services, for which the price development is typically stronger than for other commodities.
HICP is the Harmonised Index of Consumer Prices.

SELECTED MONTHLY ECONOMIC INDICATORS — Table 21

	Unemployment	Quantity index		Forced sales of real property	New passenger car registrations	Consumer confidence indicator	Composite cyclical indicator for		
		Manufacturing industry [1]	Retail trade				Manufacturing industry	Building and construction	Service
	Per cent of labour force	2000=100	2000=100	Number		Balance per cent			
1999	5.7	94.2	99.1	2,397	144,259	-2	-11	-8	-2
2000	5.4	100.0	100.0	2,584	113,634	2	5	-1	2
2001	5.2	101.9	100.6	2,682	96,114	0	-3	-11	5
2002	5.2	102.9	103.6	3,041	111,598	1	-4	-14	5
2003	6.2	102.5	107.8	3,039	96,501	1	-6	-18	-2
				Seasonally adjusted					
Jun 04	6.4	101.7	112.6	215	10,055	7	5	-6	15
Jul 04	6.2	101.8	113.0	207	9,767	8	6	-6	12
Aug 04	6.3	100.5	113.9	206	10,318	9	4	-4	16
Sep 04	6.2	101.9	112.8	218	10,627	7	1	-2	17
Oct 04	6.3	98.6	116.3	195	11,205	7	0	-2	19
Nov 04	...	...	...	215	11,347	8	-2	1	18

[1] Excluding shipbuilding.

SELECTED QUARTERLY ECONOMIC INDICATORS — Table 22

	Employment		Hourly earnings			Property prices (purchase sum, one-family dwellings)
	Total	Private	All sectors in Denmark, total	Manufacturing industry in Denmark	Manufacturing industry abroad	As a percentage of property value 1995
	1,000 persons		1996=100			
1999	2,721	1,901	114.6	114.3	110.1	143.7
2000	2,736	1,917	118.7	118.3	113.9	153.0
2001	2,746	1,922	123.7	123.4	117.3	162.0
2002	2,741	1,907	128.5	128.4	120.7	168.0
2003	2,720	1,885	133.3	133.7	124.3	173.3
			Seasonally adjusted			
Q3 03	2,717	1,884	134.3	134.5	124.6	175.2
Q4 03	2,715	1,878	135.1	135.8	125.6	175.2
Q1 04	2,719	1,879	136.0	136.7	126.5	179.1
Q2 04	2,726	1,883	136.4	137.8	127.4	185.7
Q3 04	2,732	1,896	138.2	...	...	...
			Change compared with previous year, per cent			
1999	2.1	2.6	4.2	4.1	2.9	6.7
2000	0.6	0.9	3.6	3.5	3.5	6.4
2001	0.4	0.3	4.2	4.3	3.0	5.9
2002	-0.2	-0.8	3.9	4.0	2.9	3.7
2003	-0.7	-1.2	3.7	4.2	3.0	3.1
Q3 03	-0.9	-1.4	3.7	4.3	2.8	3.4
Q4 03	-0.6	-1.2	3.5	4.0	2.7	3.4
Q1 04	-0.3	-0.7	3.3	3.5	2.7	5.6
Q2 04	0.2	-0.1	3.1	3.9	2.8	7.3
Q3 04	0.6	0.6	2.9	...	...	...

EXCHANGE RATES — Table 23

	EUR	GBP	SEK	NOK	USD	JPY	CHF
	Kroner per 100 units						
	Average						
1999	743.56	1,129.49	84.46	89.47	698.34	6.1755	464.63
2000	745.37	1,223.33	88.26	91.89	809.03	7.5081	478.68
2001	745.21	1,197.74	80.58	92.60	831.88	6.8522	493.47
2002	743.04	1,182.10	81.12	99.03	788.12	6.2969	506.47
2003	743.07	1,074.99	81.45	93.03	658.99	5.6840	488.88
Jun 04	743.42	1,119.18	81.31	89.73	612.49	5.5964	489.36
Jul 04	743.55	1,116.87	80.85	87.73	606.26	5.5457	486.93
Aug 04	743.65	1,110.96	80.96	89.26	610.81	5.5280	483.29
Sep 04	743.81	1,091.77	81.81	88.97	608.82	5.5307	482.03
Oct 04	743.79	1,075.73	82.08	90.32	595.65	5.4703	482.17
Nov 04	743.13	1,063.74	82.59	91.28	572.11	5.4609	488.39

EFFECTIVE KRONE RATE — Table 24

Average	Nominal effective krone rate	Consumer-price indices: Denmark	Consumer-price indices: Abroad	Real effective krone rate based on consumer prices	Real effective krone rate based on hourly earnings	Consumer-price index in the euro area
	1980=100					1996=100
1999	99.6	213.0	203.7	104.3	102.8	103.8
2000	95.6	219.3	208.3	100.6	98.6	106.0
2001	96.9	224.4	213.5	101.8	101.2	108.5
2002	97.7	229.9	217.1	103.5	103.3	110.9
2003	101.2	234.7	220.9	107.5	108.2	113.2
Jun 04	101.8	237.9	224.6	107.8	109.2	115.9
Jul 04	102.0	237.0	224.6	107.7	...	115.7
Aug 04	101.9	236.6	224.9	107.2	...	115.9
Sep 04	102.0	238.1	225.4	107.8	...	116.1
Oct 04	102.3	238.8	225.9	108.1	...	116.5
Nov 04	102.8	238.1	...	...	...	...
	Change compared with previous year, per cent					
1999	-1.7	2.5	1.2	-0.3	-0.4	1.1
2000	-4.1	2.9	2.3	-3.5	-4.0	2.1
2001	1.3	2.4	2.5	1.2	2.6	2.3
2002	0.9	2.4	1.7	1.6	2.0	2.2
2003	3.6	2.1	1.7	3.9	4.8	2.1
Jun 04	-0.4	1.1	1.9	-1.1	1.1	2.4
Jul 04	0.2	1.3	1.9	-0.4	...	2.3
Aug 04	0.4	1.2	1.9	-0.3	...	2.3
Sep 04	0.7	1.1	1.8	0.0	...	2.1
Oct 04	0.7	1.7	2.0	0.3	...	2.4
Nov 04	1.4	1.3	...	...	...	...

Note: The effective krone rate index is a geometric weighting of the development in the Danish krone rate against currencies of Denmark's 25 most important trading partners. The weights are based on trade in manufactured goods in 1995. An increase in the index reflects a nominal or a real appreciation of the krone.

Danmarks Nationalbank's Statistical Publications

PERIODICAL PUBLICATIONS (ELECTRONIC PUBLICATIONS)

Upon compilation of financial statistics, Danmarks Nationalbank releases these to the public in electronic publications. The publication of new statistics on a specific topic comprises 3 elements:

- **E-mail** with a brief summary, including selected key figures and links to the below-mentioned publications on the Nationalbank's website.
- **"Nyt" (News)** with text and charts to illustrate key development trends, as well as a 1-2 page tables section. The contents of the "Nyt" publications will also include in-depth commentary in order to give users greater scope to interpret and apply the statistics.
- **Tabeltillæg (Tables Supplement)** containing tables with detailed specifications and descriptions of the sources and methodologies applied in the compilation of the statistics.

The text of all tables and charts as well as the descriptions of the sources and methodologies are translated into English.

STATISTICS DATABASE

A statistics database supplements the above statistical publications, and comprises all time series included in the financial statistics. When a topic is published the corresponding time series are updated, and they include data as far back in time as possible.

SPECIAL REPORTS

In Special Reports are published statistics of a thematic character that are not prepared on a regular basis.

RELEASE CALENDAR

A release calendar for the statistical publications, covering the current month and the following quarter, is shown on the website.