In this Quarterly Bulletin:

• Structure of the financial supervision
• Understanding exchange rates
• Smooth euro changeover, higher prices?
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Recent developments
Being an open economy, the Netherlands has been relatively hard-hit by the concurrent downturn in the whole of the world economy. Meanwhile, the preceding prolonged cyclical boom is leaving its marks on domestic wage and price developments. Especially those sectors in the Netherlands which largely produce for export markets have been confronted, on the one hand, by high wage cost increases induced by labour market tightness and by declining demand on the other, as a result of the global cyclical slowdown. For consumers, however, higher inflation was amply made up for by the sizeable rise in income as a result of tax reviews and wage developments, amid a favourable climate for job-seekers.

The dual impact of a fast deteriorating business cycle and as yet low unemployment poses a real danger that wages will be very slow in responding to the change in circumstances. A similarly long brake path in the early nineties led to a rise in unemployment by 2 percentage points.

The external picture

Global cyclical prospects have, over the past few months, presented a varying picture. The slowdown in economic growth, begun in 2000 for domestic sectors, continued in 2001, both in the United States and in Europe. The striking synchronicity in the downturns, especially visible in domestic demand, is largely attributable to two globally felt shocks. First, there is the pass-through effect of the earlier, very steep rise in oil prices which, in euro terms, quadrupled between March 1999 and September 2000. Secondly, the realisation took hold in 2000 that expectations about the contribution ICT investments could make to corporate profitability had been exaggerated. Thus, while investments fell across the board, the downturn was most marked in the ICT sector. Share prices, too, were sharply adjusted. The slowdown seems to have been exacerbated by the blow dealt to confidence by the 11 September 2001 terrorist attacks in the US. Currently, however, nearly all confidence indicators for both the US and the euro area seem to be picking up again (Chart 1). The industrial purchasing managers’ index (PMI) has risen to above pre-September 11 levels. Hard evidence of incipient recovery, however, has been tentative. The US economy, having shrunk in the third quarter of 2001, grew again in the fourth quarter, by 0.4%. The robustness of this renewed growth is doubtful, however, since it has been driven to a disproportionate degree by a budgetary spending impulse and private purchases of durable consumer goods, while investments and net exports continued to fall sharply. The strong growth of consumption in the fourth quarter was largely driven by a steep rise in car sales. This rise may, be attributable to temporary price breaks and deferred payment schemes for consumers introduced by the car industry and may therefore be short-lived.

Noticeable, however, is the continued favourable development of US productivity. Normally, a cyclical downturn is accompanied by a decline both in the number of hours worked and in the growth of labour productivity. However, while productivity in the US grew less rapidly in recent months, it still turned out considerable, at 1.9% for 2001. During the fourth quarter of 2001, market sector productivity even grew by 5.1% (annualised), amid modest growth of total market sector production. Low growth was thus accompanied by robust redundancy figures, boosting unemployment from 4.8% in the third quarter to 5.6% in the fourth quarter and January 2002. A possible caveat may be that unemployment may itself trigger a downward impetus: usually, rising unemployment quickly translates into a downward pressure on consumer spending.

The cyclical downturn in the euro area has been relatively mild (Table 1), not only in comparison to the US, but also compared to the preceding three declines in the countries of the euro area since 1970. Economic growth fell from its 3.9% annual high in the second quarter of 2000 to 1.4% in the third quarter of 2001. Germany has been particularly hard-hit. German growth declined to 0.4% in the third quarter. Both the speed and the robustness of the cyclical recovery envi-
sioned by the confidence indicators should, at least for the moment, be characterised as uncertain. Recovering expenditures are unlikely to be accompanied by an early recovery of investments. This is indicated by the recent sharp decline in capacity utilisation, which means that even if demand picks up, companies will not need substantial capacity expansion for some time.

Price and wage developments in the Netherlands

In keeping with the international cyclical slowdown, industry sales prices fell in absolute terms during the latter months of last year, although the low point now seems to be behind us. Sales prices abroad declined especially sharply, falling by 6% over the final quarter of 2001 compared to end-2000, whereas domestic price developments, at –2%, presented a more moderate picture. The decline in industry sales prices coincided with steeply rising unit wage costs: During the third quarter of 2001, this figure rose by as much as 6.8%, the highest growth rate since mid-1992 (Chart 2). This quarter saw the two determinants of unit wage cost move in tandem: On the one hand, the wage and salary bill rose sharply as a result of a considerable rise in collectively agreed market sector wages, by about 4.2%, despite a robust tax relief under the reviewed tax system; on the other hand, productivity growth dipped below zero. Both developments may be partly caused by labour hoarding – companies holding on to staff who, given the cyclical downturn, are technically redundant (see further down in this article). For the retained but (temporarily) redundant staff keep the wage and salary bill high en depresses production per employee. This is worrying, especially in view of the deterioration of competitiveness vis-à-vis the other euro area countries (Chart 3). The fact that total

### Table 1 GDP volume
Per cent changes on previous corresponding period

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Source: Eurostat.
Season and labour days adjusted.

† Season adjusted.

### Chart 2 Development of producer prices’ and unit wage costs
Per cent changes on previous corresponding period

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Monetary and economic developments
The competitiveness of Dutch goods and services has remained stable over the past few years due to the depreciation of the euro against our non-euro area competitors.

Industry price development has contrasted sharply with the development in consumer prices. In 2001, Dutch consumer price inflation was high, on account of causes including one-off factors (Table 2). The increase of the high VAT rate and the introduction of the third tier of the environmental eco-tax contributed 0.9 percentage point to inflation. In 2001, the harmonised price index (HICP), the relevant index for monetary policy in the euro area, was up 5.1% from 2000, giving our country the highest inflation in the euro area. Over the first two months of 2002, immediately after the cash euro was introduced, inflation fell slightly to 4.9% in January and 4.5% in February. As the government measures mentioned above phased out, however, a HICP inflation decrease of about one percentage point might have been expected. The lower-than-expected decline is explained in part by price rises in a number of sectors, including fruit and vegetables, clothing and footwear, fuel and the catering industry. These price rises partly reflect cost developments. Fruit and vegetables prices, for instance, rose on account of disappointing harvests in southern Europe, while fuel prices are closely linked to developments in the global oil market. Another fac-

![Chart 3 Dutch price competitiveness](image)

Explanatory note: Based on manufacturing unit wage costs, weighted with competitor weights. Downward/upward changes indicate improvement/deterioration of price competitiveness.

Source: ECB.

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Table 2 Inflation rate (HICP)

Per cent changes on previous corresponding period

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Source: Eurostat.

1 Including Greece from 2001.
2 Preliminary figure.
3 Flash estimate Eurostat.
tor restricting the decline in inflation are the price rises in connection with the introduction of the euro, caused by conversion-related costs and price rounding. An article on the subject appears elsewhere in this Quarterly Bulletin. Like the HICP, CPI inflation, too, showed only a minor decline in January. Derived CPI inflation, used as the basis for annual adjustments in government service pricing and as a reference figure in wage negotiations, has been on the rise again for the past few months, reaching 3.7% in February (Chart 4). High inflation rates in the Netherlands should be viewed against the prolonged period of strong growth which lasted until recently and is largely the result of cyclical pressures. The recent economic slowdown, accompanied by a decline in producer prices, may ease the pressure on prices in the coming period, but this process may be hindered or slowed down should wage developments require a lengthy brake path.

GDP and expenditures

The prolonged boom period which began in 1996 has clearly ended, as may be seen from the continued weakening of Dutch economic growth since early 2001 (Chart 5). In the fourth quarter of 2001, growth declined to 0.4%, the lowest figure since the first quarter of 1993. This means that by the end of the year, growth had come to a full stop. The breakdown of GDP growth by expenditure sector shows that growth in 2001 was supported in large measure by government expenditures, which contributed a robust 0.9 percentage point to annual GDP growth for 2001. Thus, government spending was the major single growth factor during 2001, a role played in previous years by private consumption. The latter figure, however, showed an unexpected decline: it had been expected to be given a stimulus by the effects of the tax review1. On balance, micro level easing of the fiscal burden ran to EUR 3.5 billion in 2001, EUR 2.9 billion of which was accounted for by the tax review. The hesitance in consumer spending may be explained in various ways. First, private spending was encouraged in the years preceding 2001 by strong capital growth. The rise in housing prices during the second half of the 1990s was used in part for consumer spending as funds could be made available by renegotiation of mortgage contracts. More recently, however, housing

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1 Low-wage employees’ families.
prices have levelled off somewhat, taking away the boosting effect on expenditures. Secondly, indications are that until early 2000, equity price rises also encouraged consumer spending. The impact of developments on the stock markets on private incomes has grown in recent years as private equity holdings increased. For some years, therefore, a clear relationship has emerged between private savings and equity price levels (Chart 6). A third explanation for (temporary) low consumption growth is the change in the trade-off between saving and spending under the new tax regime. The increase of the high VAT rate, on the one hand, and the abolition of the tax-deductibility of the interest on private borrowings, on the other, have tended to make consumption more expensive.

Net exports in 2001 contributed little to economic growth. During the final months, both exports and imports showed a sharp decline. Yet net exports remained positive as the value decline of imports was stronger than that of exports. The sharp decline in imports is owing in part to decreasing investments, which carry a relatively high import ratio. In the fourth quarter of 2001, corporate investments were 2.0% below those in the same quarter of the previous year, although it should be reminded that investment levels were relatively high in 2000, owing to the prolonged cyclical boom period. The decline in corporate investment should be seen in the light of deteriorating margins especially of internationally operating firms. This deterioration is expressed in lower retained earnings, which are a major source of investment financing.

Production

Industrial production, after a sharp decline in October, has exhibited tentative recovery in the final two months of 2001. Despite this incipient recovery, however, growth across 2001 was negative. Production was down 1.8% from 2000. Both industrial order positions and capacity utilisation fell in the course of the year. A relatively large part of industry output is produced for export markets: 60% to 65% of outputs find their way across the border, either directly or via other sectors. In contrast to this is the commercial services sector, some 80% of whose output goes to domestic customers. Chart 7 shows the Dutch sectoral structure broken down into open sectors (all sectors whose cumulative export ratios are over 50%) and ‘closed’ sectors producing predominantly for domestic markets. In general, the open sectors present a more volatile cyclical picture than do the sectors aimed mainly at the domestic market. In parallel with this, the number of producers in the (relatively) open industry sector who indicate that a demand underrun is hindering production rose, during the latter half of the year, to the highest level since 1994 (Chart 8), while the number of producers who indicated that production was impeded by staff shortage appeared sharply reduced. All in all, due the open character of the Dutch economy, the impact of the present international downturn on growth in the Netherlands has been rather heavy.
Labour market tightness becoming fragile

The prolonged period of cyclical boom has for the past few years had a tightening effect on the labour market. The downward trend exhibited by unemployment since 1994 continued into the opening months of 2001. After that, unemployment stabilised at the very low level of 2% of the labour force, some 140,000 persons. After the number of persons unemployed for less than one year had stabilised in 2000, long-term unemployment, too, has almost stopped declining. The latter figure stabilised at a level of about 50,000 persons. The low Dutch unemployment rate contrasts favourably with the rate for the euro area, which in January 2002 stood at 8.4%. Labour market tightness is also apparent from the average number of vacancies an unemployed person has to choose among. By end-1998 – at a time when the cyclical boom had already been continuing for three years – there was, on average, one vacancy for every two unemployed. Since mid-2000, the unemployed have been in an even more enviable position, being able to choose from more than one vacancy, on average (Chart 9). Owing to a slight fallback in the (seasonally adjusted) number of vacancies, this latter ratio showed a modest decline over the past year. The sectoral breakdown of the number of vacancies shows that the decrease was concentrated mainly in the industrial, commercial, transport and communication sectors, which all depend relatively heavily upon the situation abroad. Offsetting this is a small rise in the number of vacancies in non-commercial services, especially health and welfare. All in all, though, the decrease in the number of vacancies may be called modest in view of the robust economic slowdown. During the first nine months of 2001, 693,000 new vacancies were reported, only 2% fewer than during the corresponding period of the record-breaking year 2000. Given the further decline in the numbers of employers who cite staff shortage as a hindrance to production, it appears probable that the number of vacancies did continue to fall during the fourth quarter.

The fact that unemployment has not been rising despite the cyclical downturn appears to be caused by ‘labour hoarding’: by retaining experienced staff, companies hope to be ready in case demand picks up again. This mechanism may have been reinforced in recent times because over the past few years, companies had been faced with tight labour supplies, making the prospect of having to hire new staff look daunting. Labour hoarding cannot serve as a long-term strategy, however, because it eats into profit margins: until recovery comes along, higher wage costs are not offset by higher labour productivity. In addition, falling profit margins take away a major source of investment financing. And because investment is a driving force for structural productivity growth, labour hoarding may even harm productivity in the longer term. As time goes on, companies waiting for a recovery that does not come will, in the end, and increasingly, find themselves forced to lay

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**Chart 8 Production impediments and capacity utilisation**

Net balance of positive and negative responses; percentages

**Chart 9 Unfilled and new vacancies per registered unemployed worker**

Quarterly figures

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1 Seasonally adjusted, private sector.
off staff. Thus labour market tightness, under the present circumstances, points to an expectation of speedy recovery.

The brake path of wage development

The present economic situation differs in many respects from that of a few years ago. A large number of producers saw demand for their products decline last year, especially those producing predominantly for export markets. They were impacted by the international cyclical slowdown and – as was described above – saw themselves forced to reduce sales prices sharply in order to curb the deterioration of their competitive position. Falling sales prices and rising unit wage costs put open sector profits under pressure. Prospects for the near future, meanwhile, remain highly tentative, because as yet, nothing definite can be said about the speed and the robustness of cyclical recovery. Especially employers in internationally operating firms will therefore want to sail a conservative course as regards wage costs.

Employees were kept relatively shielded from the adverse cyclical weather of 2001. They continued to enjoy a high degree of job security, on the assumption that labour market tightness would reduce unemployment risk in the event of redundancy. Average real incomes, meanwhile, went up sharply as wages rose and taxes were reduced, more than offsetting any loss in purchasing power caused by last year’s high inflation.

Deteriorating competitive power plus the possibility that labour market tightness may evaporate overnight may, however, lead to a rapid change in the situation. It is therefore crucially important that economic partners take their cue from the international macroeconomic situation and prospects. Wage developments must not be allowed an extended brake path, as happened after the slowdown which started in 1991. During the years that followed, unemployment rose by 2 percentage points (150,000 persons) until it peaked in 1994, the same year that saw the end of the rise in wage costs.

The lagging effect of wage developments already appears to be taking place as a result of the collective wage agreements made last year. To the extent that these will be effective throughout 2002, they point to a 3.8% average market sector wage rise. The present economic situation demands that considerably lower rises are agreed in new collective labour contracts.

Monetary developments

Since the 8 November reduction of the interest rates, the Governing Council of the European Central Bank (eCB) has left its rates unchanged. During the second half of the previous year, the interest rate had been lowered in three steps by a total of 125 basis points, on the strength of reduced upward inflation risks in the euro area, which were partly the result of slower economic growth and a decline in energy prices.

Under the second pillar of monetary policy strategy, available information points to a recovery of economic activity in the course of this year. If realised, this would make the cyclical downturn in the euro area mild in historical terms. Various consumer and producer confidence indicators, in particular, have heralded an improvement in the economic climate. Financial markets, too, appear convinced that the cyclical downturn is past its worst, witness both the rise in equity prices since the third quarter of last year and the steepening yield curve. Available projections point to inflation rates falling during the first half of this year, to within the price stability zone, although under the impact of basis effects in connection with earlier energy and food price rises the road followed by inflation may still be bumpy. Inflationary effects of the euro cash changeover appear to have been limited. According to Eurostat calculations, the introduction of the physical single currency gave the January hicp inflation rate for the euro area an upward impact of between 0% and 0.16%.

The money growth rate analysed under the first pillar of monetary policy strategy increased by 7.8% over the period from October to December 2001, which is well above the 4½% reference rate. Yet the risks this entails regarding prospective inflation remain limited: the high monetary expansion rate looks to be temporary, because linked to investors increased demand for liquidities amid uncertain economic prospects. The continued slowing down of bank lending to the private sector in December, to 6.1% (down from 6.6% in November) also underpins the non-inflationary character of the recent increase in money growth.

Bank lending in the Netherlands

The growth of total bank lending in the Netherlands levelled off during the second half of 2001, at about 8% (Chart 10). In December 2001, total bank lending grew by 7.9%. Although the growth rate of total bank lending in our country was still higher than the average growth
for the euro area, 6.1% in December, Dutch growth does tend to move towards that figure, apparently ending a period of exuberant growth in bank lending. Within the larger scope of total bank lending, the ‘other loans’ category, mostly corporate lending, slowed down abruptly during 2001. In the fourth quarter of 2000, other lending was still up 16.3% in annual terms, while one year later that figure had come down to 4.6%. Apparently, as a result of growing uncertainty about the economic prospects in 2001, corporations needed to borrow less money from the banks for purposes including, e.g., investment. The growth of the other component of bank lending, mortgage lending, continued on the same level throughout 2001, although annual growth for the fourth quarter of 2001 (12.3%) was lower than it had been in the boom years of 1997-1999, when growth figures of about 20% were recorded.

1 See also Berndsen & Brosens, Lastenverlichting en consumptiegroei in Nederland: is er een puzzel in 2000? [Tax and social security relief in the Netherlands: does the year 2000 present a puzzle?], Maandschrift Economie, February 2002.

2 Including both direct exports and output redirected across the border via other sectors, calculated on the basis of input/output tables.

3 It should be noted, however, that the numbers of vacancies for different professional groups may vary widely as a result of labour market mismatch.
In the past quarter the world was startled by the news of the Enron and Argentina ‘defaults’. These two débâcles and a worldwide increase in corporate failures led to loan losses at banks. The Netherlands did not come off unscathed. In the results of banks, these adverse developments are reflected in an increase in loan loss provisions. The commission income of banks, too, suffered, but this was largely compensated by higher interest income. Moreover, for the first time in 2001, the Dutch banking industry’s cost/benefit ratio improved in the last quarter. If the banking industry were to succeed in maintaining this upward trend into next year, and in improving the cost/benefit ratio in relation to the international competition, this would be a favourable development.

Developments in the financial sector

The Enron and Argentine defaults and their consequences

In the last quarter of 2001, the world was faced with Enron’s application for protection under chapter 11 of the US bankruptcy code and Argentina defaulting on its international payment commitments. Both defaults are already being referred to in the press as the largest of their kind. The extent of the total Enron loans worldwide is still not entirely clear owing to the lack of transparency in this organisation’s financial structure. Argentina’s foreign debt amounts to some USD 150 billion.

There is considerable difference between the Enron and Argentinean defaults. As will be apparent from chart 1, the suspension of payments by Argentina did not take the markets by surprise. The credit spread between loans to Argentina and ‘risk-free’ loans (in this case US Treasury Bills), had been ascending for some time. The Enron bankruptcy had been anticipated by the markets to a much lesser extent. The credit spread remained low for a long period and did not show any unusual fluctuations. With the benefit of hindsight, however, the market price could have been a warning to investors that problems were looming (the movement in both variables is shown in chart 2).

Partly owing to the unexpected nature of Enron’s demise, the question has been asked whether the available financial information actually enabled investors to form a sound opinion on the state of affairs of this corporation. Among the questions being asked in this context is whether the quality of rules and regulations in this area was in fact adequate. Particularly as regards the accounting of off-balance sheet activities, (US) rules and regulations, seem to fall short of what is required. It would seem that this enabled Enron to manipulate its financial position. The Enron affair casts new light on the use of fair value accounting, too (a system under which rights and obligations are carried at current value instead of historical cost). This confirms the earlier conclusion that it is difficult to determine carrying values objectively and consistently. In addition, the collapse emphasises that in a system that allows several accounting policies for the determination of carrying values to be used side by side, the potential for profit manipulation is greater than in a system allowing only one such policy. The presentation of off-balance sheet

![Chart 1: Argentine credit spread](image1)

Source: Bloomberg and DNB calculations.

![Chart 2: Enron credit spread](image2)

Source: Bloomberg and DNB calculations.
activities and the application of fair value accounting are high on the agenda of the banking sector as well. The Bank accordingly follows this debate closely and, among other things through the Accounting Task Force of the Basel Committee, takes an active part in it.

Having said that, in the Enron scandal, enforcement of the regulations seems to have been even more important than their quality. The independence of auditors in public practice and the manner in which the auditing profession is supervised have again come under public scrutiny. In the past, the Bank drew attention to the importance of independent supervision of the auditing profession, and accordingly follows this discussion with interest.

In the media and in politics, the Enron scandal has raised the question of how broad the scope of supervision should be. The question is being asked whether a corporation such as Enron ought not to have been under supervision. This is strongly reminiscent of the discussion of a few years ago on the collapse of the 'Long Term Capital Management' hedge fund. The Enron failure underscores once more, however, that it is impossible to supervise every party in a position to cause a substantial and comprehensive bankruptcy. The broad range of modern financial instruments enables every business to take up substantial and risky positions in financial markets. Exercising supervision over all these businesses seems an impossible task. It is more realistic to organise the supervision in such a way as to minimise the chances of a crisis such as in the Enron case spreading through the financial system and causing a crisis that jeopardises the operation of this system. To this end, adequate supervision of institutions that are critical to the operation of the system, such as banks and insurance companies, would suffice. A supervision of this kind would contribute to the ability of financial institutions to make a prompt and adequate assessment of their total loans to individual counterparties, and of the associated risks.

The impact of bankruptcies on the results of banks
Owing to their size, both these defaults have attracted a great deal of attention. Unique though they may be, they certainly did not stand alone, since they occurred in a period of adverse economic conditions. As shown in chart 3, defaults on rated debts in 2001 rose strongly worldwide. As is apparent from Chart 4, the Netherlands was no exception to this. In the past year, the number of bankruptcies in the Netherlands went up from 1343 in the first quarter to 1554 in the fourth.

The less flourishing economic conditions impacted on the performance of Dutch banks (see table 1). The amount they set aside to provide for loan losses in the last quarter of 2001 was up on the 2000 fourth quarter by nearly 300%, and loan loss provisions for the whole of 2001 doubled. The events of 11 September and the two demises discussed above have undoubtedly affected the extreme increases in provisioning during the last quarter. Yet, this increase is the continuation of a trend that already manifested itself in previous quarters.

How the loan losses of Dutch banks will develop in the period ahead will depend in part on how the US and European economies perform. The international diversification of Dutch banks' loan portfolios makes them relatively immune to fluctuations in the performance of an individual country's economy. Rating agencies

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**Chart 3** Percentage of counterparties with a Standard & Poor's rating who failed to meet their debt servicing commitments on the due dates

![Chart 3](chart3.png)

Source: Standard & Poor's.

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appear to recognise this and, unlike at the time of the Asia crisis, they did not see any reason on this occasion to hold out the prospect of changes in the rating of banks. However, the ongoing effects of the Argentine crisis are deserving of attention. Any spilling over of the crisis into neighbouring countries, such as Brazil, would make its effect on the Dutch banking system greater than it now is.

Needless to say, the situation in Japan, too, is being closely monitored. Since the collapse of Japan’s bubble economy, the country’s economic performance has been a cause for concern. The banking system in particular is vulnerable. A large part of the banks’ loans qualifies as non-performing. Moreover, since Japanese share and property prices fell substantially in recent years, it is doubtful whether the collateral for the loans still gives the banks adequate security.

In the past decade, the Japanese government has attempted on several occasions to solve the problem of bad loans. Yet, the problem seems to be increasing rather than decreasing in extent. The low nominal rate of interest and the current deflationary conditions in Japan add to the problems: deflation makes it more difficult for businesses and consumers to meet their repayment obligations, while the low rate of interest prompts banks to adopt a wait-and-see attitude in case of non-payment, instead of clamping down on the offenders.

Through a step-by-step elimination of the deposit guarantee scheme, the Japanese government and supervisory authorities want to force banks to solve the problems. This has already induced the rating agencies to downgrade their rating of a number of Japanese banks. The Bank closely monitors this process, but the loans of the Dutch banking sector to the Japanese banking sector are not a major cause for concern.

Apart from lending to individual countries, the sector spread of loans, too, is of interest to the Bank. As the Enron case suggests, unexpected corporate failures in

### Table 1 Results of Dutch banks

<table>
<thead>
<tr>
<th></th>
<th>Movements in relation to same period previous year, per cent</th>
<th>Cumulative movements in relation to same period previous year, per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1999</td>
<td>2000</td>
</tr>
<tr>
<td>Total income</td>
<td>19.7</td>
<td>17.5</td>
</tr>
<tr>
<td>Interest</td>
<td>15.2</td>
<td>6.3</td>
</tr>
<tr>
<td>Commission</td>
<td>23.8</td>
<td>28.9</td>
</tr>
<tr>
<td>Total expenses</td>
<td>11.8</td>
<td>16.7</td>
</tr>
<tr>
<td>Operating expenses</td>
<td>15.2</td>
<td>19.8</td>
</tr>
<tr>
<td>Provisions</td>
<td>-24.3</td>
<td>-14.6</td>
</tr>
<tr>
<td>Operating result after tax</td>
<td>53.7</td>
<td>21.5</td>
</tr>
</tbody>
</table>

Explanatory note: Quarterly data may differ slightly from yearly data due to variations in the represented population.

Source: DNB.

Chart 4 Number of bankruptcies in the Netherlands

Source: CBS (Dutch Central Bureau of Statistics).
particular are a threat to financial stability. The terms and conditions of loans regarded as inherently risky automatically allow for the risk concerned. In addition, adequate buffers will have been provided for any residual risk. In unexpected corporate failures, these measures will not have been taken to the same extent. Relating individual, rated loans which defaulted in the year 2001 to the total number of defaulting loans for the period 1981 to 2001 gives an idea of the surprise element in sector risk (chart 5). The telecom sector appears to have been the most vulnerable in this period. A positive aspect is that defaults were down at the end of 2001, while specifically for the Netherlands, the improved capitalisation of *KPN* also helped to reduce concern about this sector. Compared to the extreme sensitivity of the telecom sector, the other sectors pale into insignificance. Yet, the percentage of defaults for 2001 was higher than the industry average in heavy industry, utilities and financial institutions (save for insurance companies).

The events of 11 September, too, had a direct impact on a number of sectors. Notably the aircraft, tourism and insurance industries were hit. A more detailed analysis of these sectors suggests that lending by Dutch banks to the aircraft industry is approximately in line with the European average. Lending to the tourist sector clearly below the European average, while lending to insurance companies is clearly higher than this average. Given the financial sector’s interdependence, the relatively high exposure to the insurance sector does not come as a surprise, and would not appear to be a cause for concern. The impact of 11 September would seem to be less drastic than was originally thought. This is also suggested by the relatively low score in the default index reproduced earlier.

The lending of Dutch banks to the insurance sector, which is relatively high compared to the rest of Europe, illustrates that the interdependence of banks and insurers has progressed further in the Netherlands than in the rest of Europe. Furthermore, the impact which the recently accentuated EU solvency requirement for insurance companies has on the risk profile of bank loans contributes to improving financial stability as well. After all, an improvement in the solvency of insurers improves the risk profile of institutions which have made large loans to them.
The stock exchange climate, the yield curve and how they affect interest and commission income

Banks’ principal sources of revenue, i.e. commission and interest income, moved in opposite directions in the past year. ‘The collapse of the new economy’ and the resultant slump in stock exchange prices put an end to the rise in commission income. In the first three quarters of 2001, commission income even fell significantly. Results for the last quarter show that the revival of stock markets prompted some recovery. Although, in the last quarter, too, and certainly for the year as a whole, commission income lagged behind on balance, it still is at a higher level than it was a number of years ago.

Although commission income has clearly gained in importance in recent years, interest income is still the most significant constituent of a bank’s results. Interest income rose in the last quarter of 2001. In the context of the economic slowdown and the resultant downward pressure on prices, the short-term rate of interest was lowered, while the long-term rate was virtually unchanged. On balance, this led to a steepening of the yield curve (chart 6). Basically, banks recycle short-term funds into long-term funds (otherwise known as gapping), so that a steeper yield curve leads to better results. This is reflected in the figures. Owing to the relative importance of interest income, we also see that the growth in interest income (up 6.5%) largely makes up for the decrease in commission income (down 10.7%).

Cost structure

For a long time now, the Dutch banking industry’s cost structure, which is high in international terms, has been the focus of attention. Already in the earlier quarters of 2001, it had become noticeable that the rise was less steep than in previous years. In the last quarter, operating expenses even showed a decrease. This decrease has a favourable effect on the cost/benefit ratio. For the year as whole, however, this ratio deteriorated (on balance, the ratio went up). If the banking industry were to succeed in extending the fourth quarter improvement into 2002, and in closing the gap in its cost/benefit ratio in relation to the international competition, it would be a positive step.

Consultation and regulation

The new Capital Accord

The Basel Committee is working hard on finalising the text of the new Capital Accord. The new proposals allow a more risk-sensitive determination of capital adequacy requirements than under the old 1988 Accord. Capital adequacy requirements are now linked to ratings issued by external parties (rating agencies). Subject to strict conditions, the supervisory authorities may permit selected banks to use an internal rating system. This will enable them to determine capital adequacy requirements in respect of parties who do not have an external rating on a more risk-sensitive basis. The internal ratings-based approach is an issue that is of importance in the European context in particular, since external ratings are less widely available in Europe than in the United States. It would therefore stand to reason.
that all major banks will be applying an internal rating system in due course.

Significant progress has been made in recent months in finalising the proposals. The retail portfolio proposals (which include consumer credit and mortgage loans) have been largely completed, and comments from the industry have been used to dot the ‘i’s’ and cross the ‘t’s’ where necessary. Proposals in the field of securitisation are now at an advanced stage, and the expectation is that they, too, will soon be ready to be discussed with the industry.

The Committee also spent a great deal of time processing the reactions from banks, pressure groups and other stakeholders to the various proposals. Concern about the availability of loans to small and medium-sized enterprises resulted in adjustments to the proposals. The new Accord sets higher capital adequacy requirements in respect of forms of lending involving higher risks. In relation to earlier proposals, the increase in capital adequacy requirements for high-risk loans has been adjusted downwards. This change, which helps to limit the cyclical effect of the Accord as well, means that under the new proposals the capital adequacy requirements for small and medium-sized enterprises are not expected on average to exceed those under the old Accord. Owing to the improved interest rate sensitivity, the requirements will, however, affect individual parties. While the requirements for relatively safe counterparties will be lower, those for high-risk parties will be higher. The Bank expects, however, that funding costs in the Netherlands will hardly be affected, since the new Accord bases itself emphatically on the risk management practices of major banks with international operations. An important objective is to bring the capital adequacy requirements arising from the regulations into line with the capital which – for internal purposes – banks themselves allocate to lending. Major banks with international operations already use this internal capital allocation for their pricing. Assuming that the new Accord succeeds in bringing internal capital allocation into line with its own capital adequacy requirements, the only effect on pricing would be that the inconsistencies under the current Accord are eliminated.

The definitive version of the Accord is expected to take some months to complete. In the course of 2002, the impact of the proposals on the total capital adequacy requirements for the banking industry will first be determined as accurately as possible. The proposals will also undergo a final quality check. Consultations on the full text of the Accord could then be held at the end of that year, and the final version of the Accord signed in the course of 2003.

Financial reporting
In the area of financial reporting, there are two matters to report on for the last quarter of 2001. Firstly, the Bank’s recommendations on the external reporting of banks were adapted. These recommendations flesh out the authoritative statements, recommendations and opinions as set out in part 600 of the CAR’s (Council for Annual Reporting) Guidelines for Annual Reporting. In consultation with the sector, the recommendations will be made definitive in 2002. Once implemented, the recommendations will again be in line with the recently amended Guidelines for Annual Reporting.

The second matter concerns the ongoing debate on fair value accounting. Fair value accounting is a technique whereby balance sheet items are carried at their current cost (market value) and not at their historical cost. When fair value accounting is applied in full, changes in the value of financial instruments resulting, for instance, from changes in the rate of interest and the quality of the loan portfolio, are taken direct to the income statement. Whether this practice is desirable and feasible is currently the subject of heated international debate. The Bank is actively engaged in this debate. The Accounting Task Force of the Basel Committee is chaired by a director of the Bank, Mr Schilder, and in this capacity he is also a member of the Standards Advisory Council of the International Accounting Standards Board (IASB). In recent times, the Accounting Task Force has undertaken intensive research into the pros and cons of fair value accounting. This research ultimately resulted in a letter from the Basel Committee to the IASB, in which the Committee suggests that the time is far from ripe for the implementation of fair value accounting in the primary (as opposed to the notes to) financial statements in respect of all financial instruments. There is consensus about the potential longer term merits of fair value accounting, however, and the recommendation of the Committee accordingly is that more use be made of fair value accounting in the notes to financial statements.

Customer due diligence
As a sequel to the events of 11 September and in consultation with the FBI, the Banking Supervisory Committee of the ECB and the Basel Committee of the Bank of International Settlements (BIS), the Bank is lending its support to the tracing of suspicious funds. These events highlight once more how important it is
for banks to have adequate client acceptance policies in place. The 
BIS issued a report on this subject which deals in detail with Customer 
Due Diligence (CDD). Further to this, the Bank carried out a quick scan 
to evaluate the CDD policies of Dutch banks. The Bank is also in 
consultation with the NVB (Dutch Bankers’ Association) on a rule of 
conduct that deals in more detail with the requirements with which 
CDD policies should comply.

1 The terms rated/rating refer to a loan assessment by a rating agency 
such as Fitch, Moody’s or Standard & Poor’s.
Current developments in payments and securities systems

The payment system has completely switched over to the euro. The successful conversion is described in a separate article in this Quarterly Bulletin. A substantial amount of the guilder banknotes is yet to be returned to the Bank, though. The first months of this year saw a remarkable increase in the number of payments by electronic purse (‘chipknip’ and ‘chipper’). Besides a possible stimulating effect of the introduction of the euro, the main factor contributing to this increase is the policy adopted by several municipalities to permit payment of parking fees by prepaid card only.

In co-operation with Euronext, the Bank is adapting its cash settlement and securities transaction services in the light of the integration of settlement processes. Within this scope, it recently created the – efficiency enhancing – possibility for clearing members to centralise the collateralisation required by Euronext’s clearing organisation in one location (for Dutch clearing members: the Bank). Within the same context, the oversight exercised on Euronext’s settlement organisations is being restructured, too, in order to safeguard also in an international context a secure and efficient settlement of securities transactions. Early this year, the overseers agreed a Memorandum of Understanding on settlement, opening up the way for Euronext selling the Dutch and Belgian securities depositories Necigef and CIK to the international settlement institute Euroclear.

Banknotes and coins

Circulation

By the end of February 2002, the Bank had, on balance, put 266 million euro banknotes (EUR 9.4 billion) into circulation, i.e. 3.7% of the circulation in the euro area, and the guilder banknote circulation had declined to 59 million banknotes (EUR 1.4 billion). The total value of guilder and euro banknotes outstanding at the end of February 2002 was EUR 6.6 billion below the value of the guilder circulation on 31 December 2000 (see Chart 1). It is expected that the total value of the banknotes in circulation after the conversion to the euro will be structurally lower, among others, because multiple-currency cash holdings in border areas and at banks will no longer be required. Despite an absolute drop in the value of banknotes and coins in circulation, the rate of growth of the policy-relevant monetary aggregate M₃ was not lower than in previous years.

A part of the euro banknotes circulated by the Bank will end up in other countries, for example, owing to tourists taking cash money abroad. Conversely, also euro banknotes issued by other national central banks will be circulating in the Netherlands. As a consequence, it will no longer be possible to determine the exact circulation of euro banknotes in the Netherlands. Through its banknote sorters, which tell from the character preceding a banknote number in what country a banknote was printed, so far the Bank has been able to establish that out of the euro banknotes returned to the Bank 91.7% were issued by the Bank, and 4.4% and 1.4% by the German and the Belgian central banks, respectively. The euro banknotes, which were issued in various countries, will be mixing more rapidly with each other if, in the future, banks in the border areas were to start using the services of national central bank branches in neighbouring countries.

With effect from 30 January 2002, over-the-counter payments for specific high-value products, such as diamonds, are notifiable under the Disclosure of Unusual Transactions (Financial Services) Act, if made with banknotes or coins that are no legal tender, such as the guilder. The notification and identification provisions included in the said act, already obtained for transac-

Chart 1  Banknotes in circulation
End of period in EUR billions

<table>
<thead>
<tr>
<th>Dec. 00</th>
<th>Jan. 01</th>
<th>Feb. 01</th>
<th>Mar. 01</th>
<th>April 01</th>
<th>May 01</th>
<th>June 01</th>
<th>July 01</th>
<th>Aug. 01</th>
<th>Sep. 01</th>
<th>Oct. 01</th>
<th>Nov. 01</th>
<th>Dec. 01</th>
<th>Jan. 02</th>
<th>Feb. 02</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.5</td>
<td>17.9</td>
<td>17.5</td>
<td>17.1</td>
<td>16.8</td>
<td>16.8</td>
<td>16.7</td>
<td>16.5</td>
<td>16.4</td>
<td>16.2</td>
<td>16.1</td>
<td>16.0</td>
<td>15.9</td>
<td>15.8</td>
<td>15.7</td>
</tr>
</tbody>
</table>

As of 2002: end of week
Explanatory note: Since the euro circulation cannot be determined in the Netherlands owing to the migration effects, the chart only shows the net value of the euro banknotes circulated by the bank.
tions in this category of goods if more than EUR 10,000 were involved, irrespective of these being paid with legal tender or otherwise.

By the end of February 2002, the number of euro coins put into circulation by the Bank amounted to 1.6 billion, on balance. This quantity amply suffices for use in active payments. Indeed, a large share of the 6.4 billion guilder coins circulating by the end of 2000 had been lost or had ended up in piggy banks. Out of the 3 billion guilder coins expected to be returned, some 2.3 billion had been restored to the Bank by the end of February 2002.

On 4 February 2002, the Government put 1 million special 10 euro coins into circulation in commemoration of the wedding of HRH The Prince of Orange and HRH Princess Máxima. The special coins will be distributed through the post offices. This coin is only accepted as legal tender in the Netherlands. On a European level it has been decided that individual countries may continue to mint special coins after the introduction of the euro currency, with the proviso that these coins only have legal tender status in the country where they were issued and that they are not in the first place intended for circulation. Special coins have a different appearance, besides possessing a value deviating from regular euro coins.

Distribution
Around mid-January 2002, the number of euro banknotes banks deposited at and withdrawn from the Bank on a daily basis was comparable to that of guilder banknotes in 2001, when the Bank received 6.4 million banknotes per day on average. As early in 2002 also large numbers of guilder banknotes were returned to the Bank, the total number of banknotes to be processed by the Bank was temporarily much higher than usual. The additional workload was absorbed by, on the one hand, extra production hours put in by the banknote sorting department for a while and, on the other hand, by additional sorting capacity temporarily available to the Bank. The department in question has started to replace its sorters, but has not yet put the antiquated machines out of operation yet. Just like their predecessors, the new sorters, designed to handle a maximum of 2000 banknotes per minute, separate the soiled from the clean notes and check whether they are genuine and/or possess sufficient and recognisable security features. The percentage of false banknotes has as yet been lower than used to be the case with guilder notes. For the occasional quality-related complaint regarding banknotes, the Bank has adopted the so-called ‘User feedback system’, which it intends to incorporate eventually into an ecb database. To this end it is essential that the party lodging a complaint is also willing to lend the euro banknote in question to the Bank for further investigation.

Production
On ecb level it has been decided how the euro banknote production will be organised in 2002. In the coming years, the national central banks in the euro area will remain in charge of banknote production, but no longer for all denominations. Per denomination basically no more than 3 or 4 printing firms will be involved, and each central bank will be in charge of printing no more than 1 or 2 denominations.

In 2002, the Bank will see to the production of EUR 5 and EUR 50 notes equalling the total number of new banknotes the Bank will need in 2002. The total production for the euro area scheduled for 2002 is 4.8 billion banknotes, account being taken of the demand for banknotes serving to replace unfit banknotes and any increase in banknote circulation. The said production also provides for the requisite supplementation of the logistical supplies of several national central banks. The actual demand for euro banknotes will for the time being continue to be an uncertain factor, due also to uncertainty surrounding the demand for euro banknotes outside the euro area and the rate at which dormant holdings are being built up.

**e-purse on the rise**

In the first two months of this year, the electronic purse or e-purse, by way of the prepaid cards referred to as ‘chipknip’ and ‘chipper’, gained popularity. The number of prepaid card transactions in that period amounted to over 1.5 million per week, compared to a weekly average of fewer than 0.5 million recorded for all of 2001. Seen in the light of the number of debit card transactions, which is highly likely to break through the 1 billion barrier this year, and the estimated 5 to 6 billion cashpos payments, this is still modest. There is sufficient potential for further growth, though. The bulk of the cash payments concern amounts of EUR 10 or less, for which prepaid cards provide a good alternative. The current average of amounts paid this way is EUR 2.8.

Compared to 2001, the use of prepaid cards in the catering industry, including vending machines for confectionery, soft drinks and the like, for parking meters and payments in store chains and fast-food chains, has
rises. The highest growth rate has been recorded in the parking segment. Since 1 January of this year, Dutch municipalities are permitted by law to collect parking money only electronically. The cities of Rotterdam, Nijmegen and Purmerend have put this into practice with immediate effect, rendering it impossible for parking time to be paid with anything but the electronic purse. In this way, parking services can realise substantial savings on efforts to drive back vandalism and robbery, on maintenance and on coin collecting. As the legal adjustment was made conditional upon the creation of an electronic payment option for individuals other than account holders, the banks developed a non-personal card, the so-termed disposable pre-paid card. This is a non-reloadable, loaded card available at €5, 10, 20 and 50. The local authorities see to the distribution of these cards. To this end there are points of sale in parking garages, tourist information offices, tobacco- conist stores, newspaper stands and such.

The disposable prepaid card has a uniform face, showing the colour of the banknote corresponding with its value and featuring the EU stars. Only valid in the Netherlands, it was first and foremost introduced to serve foreign tourists, as most Dutch residents have an electronic purse on their bank cards. Therefore, it was surprising that the cards in the cities concerned were sold out as early as in the beginning of January, even though Nijmegen and Rotterdam charge €2.50 for it. The popularity of this card may be accounted for by a lack of familiarity with the functionality of the electronic purse.

Other institutions, too, such as teaching institutions, may purchase disposable prepaid cards. A more widespread use of these cards may prove a further stimulus to the use of the electronic purse, even though it is more effective of course to make maximum use of the reloadable bank purse to this end. At the end of 2001, more than 22 million prepaid cards were circulating, 6 million of which were loaded, 10% of which were used actively. The Postbank, having a market share of approximately €7 million prepaid cards, decided to replace its e-purse (‘chipper’) system by the banks’ e-purse (‘chipknip’) system and issue new separate debit and prepaid cards. As a result, all electronic purses in the Netherlands will operate to one uniform standard. The introduction of a separate card will lead to a substantial reduction of the number of electronic purses. However, this need not necessarily stand in the way of a further increase in the active use of this type of card. Consumers knowing the convenience of paying for parking facilities by electronic purse may increasingly proceed to paying low amounts electronically for other facilities and products, too, and thus gradually create the mass required for a substantial enhancement of retail payment efficiency.

At present, the number of public load points is approximately 4,000. Reloading is possible at most arms or even at home. Load points are increasingly to be found at places where the electronic purse is used frequently. The Bank has decided that there is no objection to using these so-termed unattended load devices as public terminals.

The right to issue electronic purses is currently reserved to banks, but this may change. In January, a Bill was put forward in Parliament regarding an amendment of the Act on the Supervision of the Credit System 1992 in relation to the introduction of prudential supervision of institutions specialising in electronic money. If this Bill is passed, it will be permitted to issue electronic money under an ‘eased’ supervisory regime. This will make it easier for department store chains, food chains and petrol station chains, but also non-commercial institutions such as municipalities, to introduce their own prepaid cards.

**Interbank transfers in 2001**

The Bank is operationally involved in large-value payments, i.e. the interbank transfers at the top of the imaginary ‘payment pyramid’. The Bank manages the **TOP** payment system, which settles interbank payments gross, i.e. item by item. **TOP** is part of the **TARGET** network, the **ESCB**‘s umbrella system for large-value payments, which plays an essential role in European interbank transfers.

In 2001, **TOP** processed about 16,000 transactions a day, with a value of **EUR 85** billion. Annualised, this amounts to more than fifty times the Dutch **GDP**. Just as in previous years, the system showed rapid growth, in terms of both volume (11%) and value (16%). Just as in 2000, outward **TARGET** payments contributed most to the system’s growth (see Chart 2). These payments, accounting for 55% of **TOP** transactions’ value, increased by more than 20% in value and almost 50% in volume. Owing to the increased frequency at which retail transactions from Interpay are settled at the Bank, the volume of these transactions has risen substantially. After the exceptional growth of Trade-for-Trade (TFT) transactions (the financial settlement of over-the-counter transactions according to the delivery-versus-payment principle) in the previous year, turnover in 2001 fell off...
slightly as a result of the drop in the price of the traded securities. The number of transactions continued to rise slightly.

Securities settlement

To promote a smooth operation of the payments and securities settlement systems and to accommodate market parties, the Bank has in recent years proceeded to providing the Amsterdam stock exchange and its affiliated clearing members (banks) with a range of services in the field of the cash settlement of both exchange and over-the-counter (otc) transactions. The cash leg of stock exchange transactions is settled in the Bank’s books. The Bank also manages collateral that clearing members are required to hold (by way of a risk buffer) at the stock exchange on account of their securities and derivatives transactions. In co-operation with Negicef’s securities settlement platform, the Bank has developed the Trade-for-Trade facility for the settlement of otc transactions in order to safeguard the simultaneous settlement of securities and cash.

The amalgamation of the stock exchanges in Amsterdam, Paris and Brussels into Euronext will have a bearing on these Bank services, since it will be realised through the integration of, consecutively, the trading, clearing, and settlement platforms. The integration of the trading platforms – scheduled for completion in September – will enable trading in all of the securities registered at Euronext via each of the three locations. Legally, the clearing activities come under the Paris-based Clearenct with effect from February 2001. According to the present plan, Clearenct Amsterdam will change operationally to the common ‘Clearing 21’ platform in October 2002. The securities settlement activities will be integrated by the acquisition of the national central securities depositories Necigef, cik and Sicovam by Euroclear, an international securities settlement institute domiciled in Brussels. In the past year, the French Sicovam was taken over and renamed Euroclear France. The take-over of Necigef and cik has been approved by the joint overseers and will be brought to completion by Euroclear in the coming period.

The beneficial effects of the merger will gradually make themselves felt, also as a result of the integration of the settlement processes. One project that the Bank and Clearenct have jointly executed exploiting the new opportunities created by the Euronext merger is the extension of the above-mentioned securities management to corporate level. Formerly, a clearing member active on various stock exchanges used to be required to provide collateral per stock exchange. With the extension of the collateral management as of January 2002, it has now become possible to provide collateral via one of the locations for the purpose of trade conducted on any of the three stock exchanges. This means a considerable efficiency enhancement for internationally operating clearing members. Collateral management implies that, based on collateral provided by the clearing members, the Bank issues a payment guarantee to Clearenct (should Clearenct wish to make use of a clearing member’s risk buffers), to the debit of the clearing members. In other words, this guarantee now enables the provision of collateral for the purpose of the trade in Paris and Brussels.
Within the scope of the integration of Necigef into Euroclear, the Bank and Euroclear will develop a successor for the TFR facility, the settlement of otc transactions according to the 'delivery versus payment' principle. The Bank is conducting talks with Euroclear to this end, in consultation with the Dutch banks. The Euronext merger has inspired the initiative to design a model for cross-border otc transactions, according to which the settlement of the cash leg of the transactions is effected in the books of the central banks. The development of such as model is a complex process because of the many parties involved.

Also the financial settlement of securities transactions realised on the stock exchange must be adjusted as a result of the Euronext merger. While this settlement will continue to be effected in the Bank’s books, the settlement methods employed in the Netherlands, Belgium and France will need to be brought into line with each other. To accommodate the Dutch market’s requirements, this process must be carefully prepared. In view of this process, too, the Bank will proceed from the principle that the settlement should be both safe and efficient.

Oversight of payments and securities systems

Securities settlement systems

Oversight of securities settlement systems serves to reduce systemic risk and promote the safety and reliability of the clearing and settlement systems. One of the requirements the Ministry of Finance has set within the scope of the Exchange Licence Agreement granted to Euronext NV and Euronext Amsterdam NV is that securities settlement systems used by the stock exchange organisation be subject to the Oversight Framework Clearing and Settlement Euronext (cse).

To realise the further integration of the settlement activities, Euronext has sold its Dutch subsidiaries Necigef and NIEC, as well as the settlement activities of the Belgian CISK, to Euroclear, a Belgian-based international settlement organisation. Within the scope of the aforesaid Exchange Licence Agreement, the Bank and the Securities Board (now Authority Financial Markets) of the Netherlands assessed the sale of Necigef ex ante, arriving at the conclusion that there was no objection to the transfer of shares. For a co-ordinated oversight of the settlement systems in the three countries after this sale, the overseers concerned, the Nationale Bank van België (NBB), the Commissie voor het Bank- en Financiewezen (CBF), the Banque de France (BDF), Conseil des Marchés Financiers (CMF), the Securities Board of the Netherlands and the Nederlandsche Bank agreed a Memorandum of Understanding (moU). One of the principal policy decisions laid down in the moU is the foundation of a Settlement Committee of representatives of the Belgian, French and Dutch authorities, entrusted with powers in the field of oversight and supervision of Euronext’s settlement activities. The NBB and CBF were appointed as ‘lead regulators’. The Committee will discuss relevant settlement aspects, as well as studying the alternative migration paths for the full integration of the settlement platforms into Euroclear. Until the moment of full integration of Necigef’s and NIEC’s settlement platforms with Euroclear Bank, the Bank and the Authority Financial Markets of the Netherlands will continue to be responsible for the oversight of Necigef’s systems. For further integration, the consent of the Dutch overseers and the Ministry of Finance will be required. Once the systems are integrated into Euroclear Bank, the Belgian overseers, in their capacity as lead overseers, will conduct examinations, with the Committee acting as advisory body. The Belgian overseers will implement the recommendations to the best of their ability.

The ESCB and the CESR (Committee of European Securities Regulators, i.e., the securities supervisors of the EU member states) have set up a joint task force (ESCBCESR) for the development of standards for securities clearing and settlement system. The recommendations recently drawn up by the CRSS-TOSCO (the G10 central banks and securities overseers) towards enhancing the safety and efficiency of securities settlement systems and reducing systemic risk constitute the basis for the work of the ESCB-CESR’s. Besides pursuing the above objectives in line with the CRSS-TOSCO recommendations, the said task force will compile standards to realise other policy aims relevant to the European environment, such as further integration of the European securities market and the creation of ‘level playing field’ within the scope of the oversight of securities settlement systems. On the one hand, the ESCB-CESR will consider what standards need further elaboration in order to be applicable within the EU and, on the other hand, it will formulate more specific standards for clearing systems.
The euro cash changeover was completed quickly, smoothly and safely. More quickly, smoothly and safely than many had considered possible. The conversion to the euro also proceeded excellently for electronic retail payments and funds transfers. This article provides an overview of the changeover process starting 30 August 2001, when the euro banknotes were unveiled, to 28 January 2002, when the changeover was formally concluded. From that date only one currency has been legal tender in the Netherlands: the euro.

30 August: the unveiling of the euro banknotes

On 30 August, at the unveiling of the security features of the new euro banknotes with the message to ‘look, feel and tilt’, ECB President Wim Duisenberg kicked off the information campaign for the new banknotes. The amount of effort put into this campaign compared to previous banknote launches was unparalleled, including the use of television advertisements which enabled the ECB to take its message directly to the public. Moreover, information material provided by the ECB has been widely used both in Europe and beyond. The National Forum for the introduction of the Euro (NFIE) has also used this material for its own information campaign in the Netherlands. In addition, the Nederlandsche Bank itself distributed over 400,000 information brochures for professionals. Material for use in videos for training purposes was also made available, which was integrated into over 25,000 videotapes by the Retail Trade Council (Hoofdbedrijfschap Detailhandel) alone. Retail staff throughout the country used these tapes, along with banks and even the police in a number of areas. Thousands of people attended training sessions. In addition, special attention was given to particular population groups such as the blind and partially sighted.

Looking back over the months since 30 August, the new banknotes were willingly accepted by the Dutch population. The new coins, however, need getting used to. The quality of the new money has passed its first test with high marks. The number of notes with production flaws was minimal, as should be the case. The security features of the banknotes have also sailed through their first test and thus far the number of forgeries uncovered by the Bank has been well below usual.

1 September: start of (sub)frontloading

1 September, just days after the euro banknotes were unveiled, marked the start of supplying banks and retailers in the euro area with banknotes and coins (frontloading and sub-frontloading). This involved both transporting the euros needed at each location for the changeover on 1 January as well as supplying small amounts of coins and notes for test and training purposes.

The (sub)frontloading was carried out under strict conditions. In line with rules established by the ECB, all the banks involved made frontloading agreements with the Nederlandsche Bank (the Bank). Retailers could only obtain euros once they had signed their sub-frontloading agreement. These agreements included the stipulation that euros must not be put into circulation before 1 January. The only exceptions were the euro kits and the starter kits, both containing euro coins, which were made available to the public from 14 December. Any violation of these stipulations was subject to a Bank-imposed fine of up to 5% of the value of the euros supplied. The Bank’s policy was based on the premise that it should take action in any cases whereby euros were prematurely circulated thereby threatening the changeover scenario. The Bank was forced to take action in only five cases, including one in which the Bank had to initiate legal proceedings against a supermarket to prevent it from selling starter kits before the prescribed date. The public prosecutor was also involved in these efforts, given that any premature circulation of euros was usually also linked to a crime. In light of people’s high level of curiosity once the new banknotes and coins were introduced, it is clear that a tolerant stance would probably have had a snowball effect, and the resulting surge in euro circulation would have compromised the orderliness of the changeover.

As Chart 1 indicates, the Bank’s delivery of the banknotes proceeded more quickly than originally planned. On 1 December, the envisaged date for starting transport of the banknotes, most were already delivered. The distribution of euro coins, in most cases directly to retailers, largely took place in December as expected. During peak days, the Bank’s Storage and Distribution Centre (ODC) in Lelystad was working nearly around the clock. The 160 people working there handled over 1,000 separate orders every day, totalling some 100,000 kilos of coins. Unlike the usual procedure, in the period from October to January all coin orders that were transported by security carriers were individually packaged and issued at the ODC. Normally the security carriers handle
most of the packaging themselves. Starting on 27 December, the retail coin distribution service was also handled from the ODC (also see the section on retail coin distribution).

The frontloading and sub-frontloading generally proceeded smoothly. In the final weeks more mistakes were made than normal given the increasing workload and the lack of familiarity with the special procedures on the part of those involved. However, these were mostly rectified on time thanks to the efforts of all parties: retailers, security carriers, banks and the Nederlandsche Bank.

All in all, up to the end of December the Bank delivered a total of 238 million euro banknotes and 1.5 billion euro coins, which officially went into circulation on 1 January. On that date, there were in fact more 5 and 10 euro banknotes in circulation than 10 and 25 guilder banknotes. This excess of small denominations was needed in order to facilitate the transition to payments in euro. In the Eurosystem as a whole, 6.6 billion notes and 37.9 billion euro coins were put into circulation, with a total value of EUR 151 billion. Of this total, the Bank’s share was EUR 5.2 billion (3.5%). The value of the initial supply of notes and coins delivered through to retailers by the banks amounted to EUR 0.7 billion.

15 October: start of the ‘savings weeks’

15 October marked the launch of the banks’ ‘savings weeks’ campaign that would extend to end-November. During this period, people were encouraged in a variety of ways to deposit their extra guilder coins and cash savings into their bank or giro accounts. After all, a successful savings campaign would ease the actual changeover in January. Ultimately, more coins were deposited than the projected 600 million: in the final quarter of 2001 the number of coins in circulation decreased by 680 million. Hence, during that period nearly one quarter of the total number of coins that were expected to be turned in during the changeover had returned to the Bank. The number of banknotes returned also exceeded expectations. At the end of 2001, 310 million guilder banknotes were still in circulation, far fewer than the projected 350 million. In fact, the return flow of guilder banknotes had already begun early in the year. From January 2001, the number of 1,000 and 250 guilder banknotes in circulation started to decline. At the end of 2001 this decline had increased compared to the year-earlier period, to 50% and 40% respectively. During this period, the total value of the banknotes in circulation fell from EUR 18 billion to EUR 11 billion (~39% compared to ~29% in the Eurosystem as a whole).

As e-day (1 January 2002) neared, the need increased for central coordination of the various activities of the Bank and the external parties mentioned above. To meet this need, the Bank established an internal Bank Coordination Centre (BCC). The external parties – both the security carriers Brink and Geldnet, TPG as the retail coin distribution service provider, major commercial banks and Interpay – informed the BCC weekly and, from 1 December, daily of their progress in the euro conversion in cash payments and funds transfers. The BCC thus united all lines under a uniform responsible body. This guaranteed an expeditious decision-making process in the event of an emergency or crisis.

The ability to make quick decisions in the event of an emergency or crisis was not only ensured by the Bank’s choice for a centrally coordinated structure, but by access to a variety of emergency scenarios for all manner of situations. The Bank’s Euro Changeover Bureau (ECB) developed, discussed and agreed these emergency scenarios with all the parties involved prior to the actual changeover. This meant that in the event of an emergency, action could be taken directly, along previously agreed lines, without requiring an extensive round of discussions in advance.

Many emergency scenarios related to public order and safety. During preparations and the actual cash changeover, the Bank worked closely with the relevant...
responsible authorities, in particular the police, military police, the public prosecutor’s office and relevant departments of the home affairs and justice ministries. In order to coordinate the large-scale and adequate use of police and other government services, the finance ministry used the structure provided by the National Coordination Centre (ncc) from 1 December, as appropriate for this type of large-scale events. By means of the Bank’s daily reports on the progress of the conversion and a direct video link between Amsterdam and The Hague, the finance ministry was able to maintain a good overview and feed the information campaign for the conversion from within the ncc. This continuous stream of up-to-date information would have enabled measures to be taken quickly if there had been any calamities.

Looking back, it can be said that the supervisory structure chosen by the Bank (bcc) and the government (ncc) worked well. The Bank remained responsible for progress in the area of cash payments and funds transfers, while the government maintained primary responsibility for the information campaign and public order and safety. As regards the latter, thanks to solid preparations and clear efforts on the part of the police, there were virtually no security incidents, let alone large-scale disruptions to the changeover scenario. In fact, thanks to the enormous efforts of the regional police, the crime rate was lower than normal during the changeover period.

3 December: mailing of euro kit coupons starts

In the first week of December, all residents aged six and over received an envelope from the NFE including an information folder about the changeover. Also included was the coupon to be redeemed for a free euro kit, a set of eight new coins, that could be collected between 14 and 31 December at most banks and a number of other locations. As requested by the finance ministry, the execution of this entire project was carried out under the mandate and responsibility of the Bank. A total of 14,914,191 envelopes were sent, making it the largest mailing in the country’s history. The tax authorities supplied the address list, the use of which was authorised by the minister. Around 90% of the envelopes were delivered within two days. Some 0.2% of recipients did not receive their envelope, and were sent a coupon or euro kit at a later time.

Nearly 200,000 calls were received by the call centre set up for questions about the euro kit, far fewer than the 675,000 foreseen in preparations. One third of the callers used the voice response system to obtain the latest information on the closest distribution points where euro kits were still available.

14 December: a run on the euro kit and starter kit

As was agreed at European level, starter kits went on sale on 14 December. On the same day, the free euro kit was also made available in the Netherlands. Many greeted the introduction of the euro with enthusiasm. After four days, nearly 8.9 million euro kits had been collected and 5.2 million starter kits sold (Chart 2).

A total of 8 million starter kits were sold to private individuals. On 27 December, half of all households had at least one bag of euro coins. The changeover scenario assumed that from 1 January, one third of those paying in cash would have euro coins. This goal was met. In fact, demand was such that within a short time, it was difficult to obtain the starter kits, which meant some potential buyers were disappointed.

Ultimately, 92% of coupon recipients collected their euro kits, just short of the projected 93%. For those under 16 and over 50, over 95% collected their kits, while only 80% of the 16 to 29-year-olds turned in their coupons. The system chosen for distributing the kits, which was favoured over home delivery because of the lower cost, meant they had to be collected at a distribution location chosen by the individual. In some cases, some effort was therefore required to find a location where kits were still available. However, the three non-

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<td>Euro kit</td>
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Chart 2 Euro kits collected and starter kits sold during last two weeks of December (cumulative)
banking distribution locations (Hema, Shell petrol stations and Combfoto) had enough euro kits at nearly all locations through the distribution period. But in an effort to help out those who were unable to pick up their euro kits prior to 1 January, it was announced at the start of the New Year that a written request could be made until 14 January for uncollected euro kits. Some 18,000 people took advantage of this option.

As a result of the distribution of the euro kits and the sale of starter kits, on the eve of the cash changeover, Dutch residents had an average of 23 euro coins valued at EUR 9, over 60% more than the average for all euro area citizens.

27 December: retail coin distribution service begins

In the middle of the night on 27 December the first of 62 trucks filled with euro coins left the odc in Lelystad to travel to one of TPG's 57 euro locations. Within four days, 1,000 TPG delivery vans distributed a total of 850,000 packages containing a total of 500 million euro coins to 165,000 addresses. Some 1,200 TPG staff members were involved along with another 1,200 co-drivers/supervisors under commission from the Bank and hired by the EURO 2002 security consortium especially for the conversion. Many were retired security staff. This group also did excellent work, whereby experience and worldly wisdom often proved beneficial.

Retailers had signed up for the coin distribution service organised by the Bank in September and October. Retailers that do not normally use the services of a security carrier were able to use this free changeover service, which was unique in Europe. This service appears to have greatly contributed to the expedient changeover that followed. Figures from the association for small and medium-sized enterprises mkb revealed that over 90% of all retail establishments had change in euro prior to 1 January. This percentage is mainly due to the retail coin distribution service and the associated ordering procedure, which forced retailers at an early stage to take notice of the need for change in euro. In turn, the banks made a major effort to get orders from all eligible customers on time. There were often several reminder rounds. An average of 10% more change was ordered than the Bank advised in its ordering rules of thumb. As a result, this segment of the retail sector had plenty of change in euro at the beginning of January. Because the conversion was completed faster than expected, by mid-January some 20% of the retail coin distribution customers expected to have unopened euro coin pack-ets left over. Given these circumstances, relatively few retailers in January took advantage of the option to order additional euro coins using this service.

Looking back on the retail coin distribution service, one can conclude that this exceptionally complex and audacious operation was effective and generally progressed very smoothly. A call centre set up especially for the retail coin distribution service received complaints on only 0.5% of all orders. In addition, there was some criticism in the ordering phase regarding the criteria for participation in the retail coin distribution service, which was determined in mutual consultation. Certain retailers needing change in euro appeared not to comply with the formal application criteria. Some banks took a more lenient stance than others, but in retrospect this did not appear to cause problems during the changeover process.

1 January 2002: e-day

Conversion of electronic payment terminals

At midnight on 1 January 2002, electronic retail transactions (PIN and chip card payments) were successfully converted from the guilder to the euro using a big bang method. Interpay flawlessly converted PIN card payments. The most significant challenge was the preparation phase, during which every electronic payment terminal in the Netherlands had to be made euro-proof. Stunned by the associated costs, retailers initially much delayed submitting orders to convert their electronic payment equipment. Finally, on 31 December, 165,000 electronic payment terminals were euro-proof (99% of the total). Surprisingly, the level of PIN card sales was in the normal range in January. The expectation, and fear among certain parties, that PIN card payments would skyrocket, failed to materialise.

The changeover for chip payments required some additional effort, particularly on the part of ‘Chipknip’ cardholders, who were required to go through additional steps at loading machines in order to convert their balances to euro. In contrast to PIN card sales, sales using chip cards rose considerably in January, up 120% compared to January 2001. This is likely to be partly due to the fact that from January, parking metres in three cities only accepted payment using chip cards. In addition, increasing numbers of company restaurants accept chip cards and the number of larger retail chains accepting the chip card has also increased recently.
Conversion and use of cash dispensers
At midnight on 1 January, 6,800 cash dispensers switched over from the guilder to the euro. Guilders were no longer dispensed from that time, after an increasing number of cash dispensers were taken out of service throughout the day of 31 December. From midnight, half of all cash dispensers immediately issued euro banknotes. By 2.00 a.m., 70% of cash dispensers were operational, and this percentage increased throughout New Year's morning. Cash dispensers that had been sealed to prevent fireworks damage also came online later in the day.

Meanwhile, cash dispensers were widely used, with Interpay reporting an estimated 300,00 withdrawals by 9.00 a.m. It was a busy day and many people took advantage of the holiday to procure their first euro banknotes. By the end of the day, 2.4 million cash dispenser transactions were recorded, rising to a new daily record of 2.5 million on 2 January. Relatively few queues were reported. The economic institute for small enterprises (eim) had earlier indicated that long queues would not be a problem unless the number of transactions exceeded 3.5 million. The number of cash dispenser withdrawals quickly normalised in the days following 2 January. During the first five days of January, over 10 million cash dispenser transactions were registered, 2 million more than normal. This was just about as the Bank had projected in its changeover scenario.

The most critical aspect of the cash dispenser changeover was whether the switch would technically run smoothly, which it did. There were very few technical problems with these sensitive machines during the changeover to an entirely new type of banknote, which was not the case in some other countries. Banks and equipment manufacturers made excellent preparations for the operation.

The transition for funds transfers
In addition to the cash dispensers and electronic payment machines, all funds transfer products and instruments were adapted to the euro. This involved converting tens of millions of current accounts, savings accounts, loans, mortgages and other financial contracts. It also meant converting standing orders, printing and distributing euro transfer forms and giro collection forms, adapting and sending euro-compatible telebanking packets, as well as companies switching to making and receiving funds transfers in euro (such as wage payments and direct debits).

Starting in 2000, the Bank closely monitored preparations for this changeover, particularly at the top 10 banks in terms of payment transactions, and Interpay. In this context, the Bank also paid close attention to their efforts to adapt their IT systems to the euro and preparations for the cash changeover. Most major banks opted for a phased approach to the changeover of giro payment transactions, whereby from end 2000, IT systems had been adapted and accounts converted. The remaining banks chose a big bang approach, and carried out these activities during the conversion weekend.

Shortly before e-day, the question remained as to whether distributors of euro giro collection forms would be able to test them on time. This testing was necessary to prevent problems from arising during automated processing of the forms. Because the testing was progressing so slowly, the Bank’s Payment Transactions Escalation Committee met several times to clarify problems and agree on how they should best be tackled. A large percentage of distributors ultimately participated in the testing with positive results. Interruptions in processing were therefore only marginally above normal. However, more interruptions did result from changes made to giro collection forms or distributors using the wrong software (although they had the suitable, tested software in their possession).

Right from e-day, the use of euro for funds transfers accelerated (Chart 3). This came after the three-year
period during which payments could already be made with the new currency had shown relatively little ‘euro activity’, in line with the Dutch changeover scenario. The changeover to the euro did not lead to any significant problems in the private or public sectors: child benefit, wages and other benefits were properly transmitted and processed. There were a few incidents reported by banks due to IT system errors, such as standing orders in guilders being processed as euro transfers. These erroneous postings were rectified within one or two days. As for electronic delivery of fund transfer instructions, these could still be made in guilders until 28 January. ‘Paper’ instructions, such as transfers and giro collection forms, could be processed in guilders until 1 April 2002 at the latest.

2 January: cash payments in euro

On 1 January most retail establishments were closed. But it was apparent that a lot of people already wanted to pay with euros at restaurants and cafes, for example. Would all go smoothly on the first shopping day? After all, the gamut of preparations described above were made in order to ensure that in the beginning of January, actual cash payments could switch to euro as soon as possible. Under the motto: ‘make it easy for one another’, people were encouraged to pay with exact change wherever possible and in euro as soon as possible. The Bank’s scenario included a target of 75% of cash payments (payments using banknotes and coins) in euro by Monday 7 January. In order to keep a close eye on developments, starting on 2 January the Bank held a representative public survey each evening, asking people which currency they used for payments made in the course of that day. The first results that came in on the evening of 2 January exceeded all expectations: 65% of payments were made in euro. Over 90% of respondents said the changeover was not so awkward and 73% even said they had had no problems at all. Moreover, the vast majority of the retail sector complied with the agreement not to give change in guilders. This was only found to be the case in 3% of payment transactions made on 2 January.

It can generally be said that in most cases, retailers made excellent preparations. Perhaps in reaction to the feared chaos, there were in fact no long queues and payments at the cash register ran smoothly in most cases. At the end of January, a survey commissioned by the Bank revealed that 90% of shopkeepers reported no problems during the changeover, and a massive 97%

After getting off to a flying start, it was no surprise that on Saturday 5 January, 90% of cash payments were made in euro (Chart 4). The conversion in retail payments was in fact completed. However, in the weeks up to 28 January some shoppers still paid with guilders, in particular at large retail chains (which were well equipped for this situation). But in most cases, the guilder practically disappeared. During this quick changeover period, there were hardly any reports of problems whereby payments in guilders were refused.

The most significant problem that surfaced during those days was a direct result of the flying start of the changeover process on 1 and 2 January. People used the large-denomination euro banknotes – particularly 50 euro notes – they had obtained from cash dispensers to pay at supermarkets and retail chains. And those using guilders during the initial days often paid with 100 guilder notes. As a result, there was an impending shortage of 5, 10 and 20 euro notes by the end of 2 January, specifically at chain stores. People appeared to spare smaller enterprises. In response to this development, the Bank expressed understanding for shops refusing to accept 100 guilder notes for small payments. The subsequent day, banks made an inventory among large retail chains of how much change was needed to replenish their supply. Additional deliveries were organised. On the evening of Thursday 3 January, however, it appeared that in a number of cases these deliveries

Chart 4 Cash payments in euro and change in euro after v-day

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would not arrive on time. Thankfully, on Friday local police were willing to keep an eye on things if, in contrast to the usual procedure, larger retailers needed to get change from local banks. This was rarely needed. As indicated by the survey held on Thursday evening, people’s wallets contained just as many smaller denomination banknotes as is normally the case, if not more. This partly resulted from the distribution of lower denominations via cash dispensers, nearly half of which temporarily issued 5 euro notes. Retailers were therefore rarely forced to give change in guilders.

There were also relatively few problems with vending machines accepting coins or banknotes. Most modern vending machines were euro-proof starting right from 1 January and according to the finance ministry, 90% of vending machines accepted euros by 9 January.

2 January: crowds at banks and post offices

It was surprising how many people wanted to turn in their guilders at banks or post offices right away on 2 January. Although this could be done until 1 April, and although shops accepted guilders until 28 January, many chose to queue up, sometimes waiting over an hour. Post offices were especially crowded because a portion of sub-post offices were closed due to difficulties related to the end of the year. The crowds were so heavy at some banks that for security reasons the doors had to be temporarily closed, allowing customers waiting inside to be helped first before more entered. Given the circumstances, it was particularly helpful that most banks extended their hours of operation during the week and were open on Saturday. From 2 to 9 January, a total of over 3.5 million people turned in their guilders at the bank or post office. It is likely that an equal number did the same in the ensuing months.

A number of people complained that guilders were generally required to be deposited in a bank or post office account and could not be exchanged for cash. In mid-January, the finance ministry therefore requested that customers wishing to exchange their guilders for cash be allowed to do so. This, of course, did not affect the rule that at any rate those wishing to exchange more than EUR 10,000 were required to show identification and that the justice ministry’s Office of Disclosure for Unusual Transactions (mot) had to be informed.

Distribution and collection of the coins

The 1.5 billion or so euro coins that were issued by the Bank on 1 January barely increased thereafter and totalled 1.6 billion at the end of February. Hence, 53% of the 2.9 billion Dutch euro coins that were made are currently in circulation. The remaining 1.3 billion coins constitute the Bank’s stock. Although the stock of euro coins is therefore more than sufficient, most supplementary orders received in January could not be delivered in the desired type of packaging. Coins with a higher denomination were temporarily only available in the starter kit packages used for the retail coin distribution service. However, by mid-February, enough euro coins were returned from vending machine operators to meet all packaging requests.

Between 1 January and end-February, 1.5 billion guilder coins were returned to the Bank. Added to the 0.7 billion guilder coins received in 2001, this means that by end-February nearly 75% of the expected number had found its way back to the Bank. However, a number of batches of coins from the banking sector that had not yet been counted were still in the possession of so-called coin processors. This was also partly due to the speed with which the conversion took place which meant that the retail sector deposited fewer guilder coins than expected and, in particular, made less intensive use of the special channels for depositing sorted guilder coins. Hence, the use of the retail coin distribution service was 25% lower than expected.

The administrative and financial settlement of coin transactions generally proceeded well, particularly in light of the size of the operation and the large number of parties involved. For example, debiting for the euro coins delivered via the retail coin distribution service was well-executed, as was crediting for guilder coins collected and the per-bag deposit premium of EUR 11. There were initially some delays and reports of discrepancies involving crediting for guilder coins deposited via security carriers, mostly due to a failure to take account of the agreed procedures.

Banknote circulation

By mid-January, the number of euro banknotes put into circulation by the Bank rose to 320 million. After that, the lowest denominations dominated the flow of banknotes returned. For example, the number of EUR 5 notes in circulation fell from a high point of 101 million to 35 million by end-February. This large proportion of
low denominations was no longer needed as a lubricant to stimulate payments in euro. Given that the circulation of higher denominations continued to gradually increase, the total value of the euro banknotes circulated by the DNB rose sharply in January and February, from EUR 4.7 billion to EUR 9.4 billion (Chart 5). This means the DNB accounted for 3.9% of the total value of banknotes issued in the Eurosystem.

In line with expectations, the value of the guilder banknotes still in circulation in January and February declined from EUR 10.4 billion to EUR 1.4 billion. The number of bills in circulation fell from 297 million to 59 million. In the first week of January, the Bank processed over 90 million banknotes, over three times the normal level. While in 2001 the return of the 250 and 1,000 guilder banknotes outweighed those of smaller denominations, the 100 guilder note dominated the return flow during this period.

At end-February, the value of the euro banknotes circulated by the Bank was 87% of the combined value of these euro banknotes and the guilder banknotes still outstanding. This percentage was nearly the same in neighbouring countries Germany and Belgium. Even when spread over a longer period, there appears to have been a sharp decline in people’s banknote holdings. At end-February, the value of the euro banknotes and national banknotes in the Eurosystem as a whole stood at EUR 288 billion, down 24% compared to the beginning of 2001. At 32%, the decline in the Netherlands was quite a bit sharper. As in Germany, it appears a large proportion of high denomination cash held in early 2001 was spent or converted into other assets.

28 January: the dual period ends

From midnight on 28 January 2001 the guilder ceased to be legal tender. This marked the formal end of the changeover period. Looking back, the entire changeover process went remarkably smoothly. Thanks to painstaking preparations, much of which started years ago, to the efforts of all parties involved and the enthusiastic cooperation of the general public, the targets of the scenario – a smooth, fast and safe transition – could easily be met. These factors, together with the Netherlands’ favourable geography and infrastructure relative to other euro area countries, enabled the cash changeover process to proceed more quickly here than in any other country.

1 See the article elsewhere in this Quarterly Bulletin: ‘Smooth euro changeover, higher prices?’
Articles
The House of Representatives (Tweede Kamer) of the Dutch Parliament recently approved the proposals contained in the Minister of Finance’s policy memorandum entitled ‘Reform of the supervision of the financial sector’. This policy memorandum proposes that financial supervision in the Netherlands should no longer be organised along sectoral lines, but should instead be function-based. The basic premise is that a distinction should be made between prudential supervision, which is intended to ensure the financial soundness of financial institutions, and conduct-of-business supervision, which is intended, among other things, to ensure consumer protection. In this structure the Dutch central bank (De Nederlandsche Bank N.V.), hereinafter referred to as the Bank, and the Pensions and Insurance Supervisory Authority will be responsible for prudential supervision whilst the Netherlands Authority for the Financial Markets (Autoriteit Financiële Markten)1 will evolve into the authority for conduct-of-business supervision throughout the entire financial sector. To this end the Bank has transferred its conduct-of-business duties to the Netherlands Authority for the Financial Markets. These duties consist of supervision of consumer information and consumer credit, which passed to the Netherlands Authority for the Financial Markets on 1 March, and supervision of the conduct of business by investment institutions, which will pass this summer. Conversely, the Netherlands Authority for the Financial Markets will transfer its prudential supervision to the Bank. In addition, the cooperation between the prudential supervisors (i.e. the Bank and the Pensions and Insurance Supervisory Authority) will be intensified under the new model. This article describes the new supervision structure, the changes that this will entail, and the reasons for the reform.
Introduction

In late November the Minister of Finance forwarded the policy memorandum entitled ‘Reform of the supervision of the financial sector’ to the House of Representatives, which approved the proposals contained in this memorandum in early February. This memorandum, which is partly based on the proposal of the joint financial supervisors (the Bank, the Pensions and Insurance Supervisory Authority and the Netherlands Authority for the Financial Markets), describes a change in the organisation of financial supervision from sector-based to function-based supervision, based on the distinction between prudential and conduct-of-business supervision. The Bank and the Pensions and Insurance Supervisory Authority are to be responsible for prudential supervision of financial institutions and the Netherlands Authority for the Financial Markets will be the authority for conduct-of-business supervision. Systemic supervision will remain the responsibility of the Bank. In this model the prudential supervisors will concentrate on monitoring the financial soundness of financial institutions. The aim of conduct-of-business supervision will be to promote an orderly and transparent process in the financial markets and proper relations between market participants, thereby contributing to the protection of consumers. Finally, systemic supervision is designed to enforce the stability of the financial system as a whole. The aim is to prevent a situation in which the problems (particularly financial problems) of one institution affect the stability of other financial institutions and/or financial markets. The division between prudential and conduct-of-business supervision means that the Bank transfers its conduct-of-business supervision duties to the Netherlands Authority for the Financial Markets, which in turn transfers its prudential supervision duties to the Bank. This exchange of duties will take place in the first half of this year, the first stage being the transfer from the Bank to the Netherlands Authority for the Financial Markets of supervision of consumer information and consumer credit. The supervision by the Bank of the conduct of business by investment institutions and the prudential supervision of securities institutions exercised by the Netherlands Authority for the Financial Markets will be exchanged this summer.

This article explains the new supervision structure in the Netherlands and describes certain aspects of the introduction of the system. First of all, however, it will consider the reasons for the adjustment to the structure of supervision (section Background). It will then go on to place the structure of supervision in the Netherlands in an international context (section Models for the organisation of supervision) and, finally, deal with certain practical aspects of the Dutch approach (section The Dutch approach).

Background

The adjustments to the structure of financial supervision have been prompted by various changes in the financial sector. On the supply side mention should be made in this connection of the creation of financial conglomerates (combinations of banks and insurance companies), an increase in the supply of complex products that combine banking, insurance and investment elements (blurring of boundaries between sectors) and the continuing internationalisation of the financial sector. On the demand side, a role is played by the fact that consumers such as bank creditors and insurance policy holders are becoming aware of their rights. Financial conglomerates occupy a relatively important position in the Dutch market and often have a strongly international character. For example, the four largest Dutch conglomerates, namely ABN AMRO, ING, Rabobank and Fortis, earn 60% of their total income abroad (two-thirds outside Europe). The combination of these trends (creation of conglomerates, blurring of boundaries between sectors and internationalisation) has resulted in more overlaps both between financial supervisory authorities in the Netherlands and between Dutch and foreign supervisory authorities. The establishment of the Council of Financial Supervisors in 1999 was in response to the overlaps that had occurred in supervision between the Bank, the Pensions and Insurance Supervisory Authority and the Netherlands Authority for the Financial Markets. The increasingly intermeshed operations of financial institutions made it necessary to develop policy that would accord the same treatment to the separate sectors as the boundaries between them became more blurred. The Council of Financial Supervisors has done this by formulating legislation for, among other things, the ‘Key Features Document’ for investors and the reliability test for executive directors, and by making proposals for the prudential supervision of financial conglomerates.

A second reason for supervisory reform is the increased complexity of financial products and institutions as a result of the trends in the financial markets as described above. This has meant that supervisory authorities are confronted by new challenges. For exam-
ple, more emphasis is now placed on consumer protection and supervision has become more risk-oriented. The often major risks and uncertainties of complex financial products such as investment mortgages require the provision of clear and detailed information to consumers. In addition, financial institutions are making increasing use of advanced techniques and innovative, complex financial instruments in their risk management. This trend is seen throughout the entire financial sector. Since the nature of the risks run by the different types of financial institution is to some extent the same, for example credit risk, market risk and operational risk, it is logical that the supervisory authorities should share their expertise. Since analysis of these common risks requires the same expertise, the Bank and the Pensions and Supervisory Authority can gradually bring their methods of prudential supervision into closer alignment. The Netherlands Authority for the Financial Markets also applies a risk analysis method, which is, however, geared to supervision of securities. In this respect, therefore, there is a division in terms of substantive specialisation between the Bank and the Pensions and Supervisory Authority on the one hand and the Netherlands Authority for the Financial Markets on the other.

Models for the organisation of supervision

The structure of supervision is in a state of flux in other European countries too. The question therefore arises of how the Dutch approach to supervision compares with that of neighbouring countries. First, there are countries that adhere to the sectoral supervision model, which assigns a separate supervisory authority to each of the different types of financial institution. An example is France, where supervision is divided among four authorities. The Commission Bancaire, supported in this connection by the Banque de France, bears primary responsibility for banking supervision. In addition, there is a committee for granting licences to credit institutions and another for formulating general guidelines. Different authorities are also responsible for supervision of securities and supervision of insurance.

Other countries have chosen to supplement or strengthen the sectoral model. The present Dutch structure of supervision falls into this category. In the Netherlands the predominantly sectoral organisation of supervision is supplemented by the Council of Financial Supervisors. This body provides a framework for cooperation between the Nederlandsche Bank, the Pensions and Insurance Supervisory Authority and the Netherlands Authority for the Financial Markets and for their coordination of regulations on subjects not specific to a particular sector. This is intended as a response to the increasing intermeshing between financial sectors in the Netherlands and to limit the scope for regulatory arbitrage (i.e. taking advantage of the unequal treatment of the same activities under the different supervision regimes). The proposed new structure of financial supervision in Germany can also be described as a strengthening of the sectoral model. Legislation is being prepared in Germany to combine banking, insurance and securities supervision in the Bundesanstalt für Finanzdienstleistungsaufsicht (Baf), which is to be established for this purpose. The physical locations and terms of reference of the present sectoral supervisory authorities will, however, continue to be maintained under the new structure. The close involvement of the Bundesbank in the supervision is also to be formalised and strengthened in the new model, because banking supervision activities will generally be based on the findings of the Bundesbank. The establishment of the Baf creates, as it were, an umbrella body that goes a step further than the Dutch Council of Financial Supervisors, which is merely for coordination and consultation. The price paid for the Baf is the possibility of inefficiency due to the creation of an extra supervisory authority in addition to the existing sectoral supervisory authorities.

An alternative to sectoral orientation is function-based supervision. This model has been applied in Australia since 1998. Under this model a separate authority is responsible for prudential supervision of all types of financial institution, while another supervisory authority concentrates on conduct-of-business supervision of the various financial institutions. The central bank is responsible for systemic supervision. The division between prudential and conduct-of-business supervision enhances the effectiveness of the supervision, since there is a potential conflict of interest between ensuring the soundness of financial institutions and providing sound information to consumers. As separate supervisory authorities are responsible in this function-based model for separate (and potentially conflicting) functions, a situation can be avoided in which one function is realised at the expense of another. In addition, a function-based organisation makes it possible to provide better accountability for financial supervision, while at the same time promoting equal competition. This level playing field benefits in particular from merger of the supervision of financial...
Structure of financial supervision

A disadvantage of a function-based model of the kind used in Australia is that the central bank plays no role in the implementation of financial supervision other than through systemic supervision. However, the close relationship between prudential supervision and systemic supervision means that the direct involvement of the central bank in supervision is desirable. This applies in particular if there is a high degree of concentration in the financial sector, as is the case in the Netherlands. A bankruptcy (or imminent bankruptcy) can in this case cause widespread financial instability. A central bank that also acts as supervisory authority has both the instruments and the necessary information to be able to intervene in such a situation and is better able to assess the possible consequences of a crisis in the system. In addition to systemic supervision, the other central bank functions (monetary policy, fund transfers and lender of last resort) are closely related to prudential supervision. Direct involvement of the central bank in the supervision enhances the quality of both the supervision and these other duties. A variant of the function-based model that does not suffer from the disadvantage referred to above involves a combined central bank and prudential supervisory authority and the establishment of a separate authority for supervision of the conduct of business. Such a model is used in Italy. The Italian central bank is responsible both for financial stability and for prudential supervision of banks and investment and securities institutions. The conduct-of-business supervision is the responsibility of Consob (Commissione Nazionale per le Società e la Borsa). On the other hand, the division between prudential and conduct-of-business supervision has not been carried over into the supervision of insurance companies and pension funds. Recently, however, the powers of the Italian central bank have become the subject of debate. A bill to transfer banking supervision to a supervisory authority has been rejected by a parliamentary committee.

Finally, another possible structure of financial supervision is full integration of the kind that has occurred in the United Kingdom. In this model, a single supervisory authority is responsible for supervision of banks, insurance companies and investment and securities institutions. This model makes it possible to take full advantage of economies of scale. On the other hand, it has a number of drawbacks. For example, the combination of several functions in a single authority may result in a lack of clear focus and detract from the effectiveness of the different functions. In addition, it is more difficult to arrange for the accountability of a single supervisory authority since decisions on the various functions are taken internally and are not transparent and subject to external scrutiny. In this model, the central bank also generally plays only a limited role in supervision, which is not desirable given the close relationship between supervision and the other duties of the central bank.

The Dutch approach

The essence of the reform of the financial structure of supervision in the Netherlands is greater coordination of the prudential supervision of all types of financial institution by the Bank and the Pensions and Supervisory Authority, and the evolution of the Netherlands Authority for the Financial Markets into the authority for conduct-of-business supervision. This approach is a continuation of the existing supervision arrangements, and thereby safeguards the quality of the supervision more effectively than would an abrupt change in the structure of supervision. This benefits the competitive strength of the Dutch financial sector, since good supervision makes a substantive contribution to the quality of business operations and adequate risk management by the institutions. In addition, this approach offers the advantages of the objective-oriented model described above, and at the same time maintains the link between prudential supervision and systemic supervision. This promotes adequate and rapid action, based on the most up-to-date information, by the central bank in the unfortunate event of a financial crisis or potential financial crisis.

The introduction of the new model requires first of all that a distinction be made between prudential supervision and conduct-of-business supervision. The treatment of price-sensitive information, the protection of property rights, the protection of investors, and consumer information and advice are classified for this purpose as conduct-of-business supervision. These aspects play a crucial role in the supervision by the Bank of consumer lenders, the great majority of the supervision of investment institutions, and the activities connected with the Key Features Document for investors. This is why these duties will be transferred from the Bank to the conduct-of-business supervisor, namely the Netherlands Authority for the Financial Markets. The House of Representatives has approved the proposal of the Minister to make these changes in the near future.
According to the present timetable, the follow-up work in relation to the Key Features Document (introduction and regular supervision) will be carried out exclusively by the Netherlands Authority for the Financial Markets from March 2002 onwards. From then on the Netherlands Authority for the Financial Markets will be responsible for supervision of consumer information. Supervision of consumer lenders will also be transferred on 1 March, and the supervision of the conduct of business of investment institutions will be transferred from the Bank to the Netherlands Authority for the Financial Markets this summer.

The primary aim of prudential supervision is to promote the financial soundness of financial institutions. Supervision of this kind, which is primarily geared to solvency, liquidity and the business operations of institutions in general, focuses on management practices (including quality, structure and decision-making processes), organisation (such as structure and reporting routes) and administration (including accounting and internal control procedures). The supervision of the capital adequacy of securities institutions, which is currently carried out by the Netherlands Authority for the Financial Markets, belongs to the field of prudential supervision and will therefore be transferred to the Bank.

The distinction between prudential and conduct-of-business supervision is also of importance to the granting of licences. The primary nature of the supervision determines which supervisory authority grants the licence. Since the supervision of banks and insurance companies is primarily of a prudential nature and the supervision of investment institutions and securities firms can be described as primarily conduct-of-business supervision, it follows that the prudential supervisors (the Bank and the Pensions and Insurance Supervisory Authority) will grant licences to banks and insurance companies respectively and that the conduct-of-business supervisor (Netherlands Authority for the Financial Markets) will grant licences to investment institutions and securities firms. Whether it is necessary to introduce a system of sub-certificates as a supplement to this licensing system will be examined at a later stage.

A second aspect of the new model is the intensification of the cooperation between the Bank and the Pensions and Insurance Supervisory Authority. This will take place in four fields in practice. First, the actual supervisory activities; here, the proposed prudential supervision of mixed financial conglomerates will be carried out jointly by the two supervisory authorities. As regards other financial conglomerates (primarily banking or primarily insurance) the Bank and the Pensions and Insurance Supervisory Authority will exchange information on a more consistent and frequent basis concerning, for example, investigations that have been carried out at institutional level and changes to group structure. In addition, mixed supervision teams will be established to take responsibility for such matters as the establishment of risk profiles at group level. Moreover, cooperation will be intensified by combining financial analyses and coordinating supervision work plans, as well as deploying mutual expertise in fields where this is useful. Second, there will be more intensive cooperation in the area of policy formation and research. This will include joint study of subjects such as supervision methods and techniques, organisation and control, capital adequacy requirements and financial stability. Third, cooperation on support projects will be intensified. Areas suitable for such intensified cooperation include planning and control, training and secondment of staff and risk/data processing. Finally, cooperation in the legal field will be intensified. This will involve legal support in the structuring of management cooperation between the Bank and the Pensions and Insurance Supervisory Authority and the preparation of cooperation agreements. These closer relations between the Bank and the Pensions and Insurance Supervisory Authority will be put on an institutional footing by means of management cooperation between the two authorities. This has already been achieved by cross-appointments at the highest supervisory level of the Bank and the Pensions and Insurance Supervisory Authority and by mutual appointments to the Supervisory Boards of the Pensions and Insurance Supervisory Authority and the Bank.

Good cooperation between the financial supervisors will continue to be necessary in the new model too. Certain aspects of financial organisations, for example probity, are relevant from the perspectives of both prudential supervision and conduct-of-business supervision. The Council of Financial Supervisors (NvM) will therefore continue to exist as a consultative forum for common issues, for consultation about new trends in supervision, and for statements of principle on and evaluation of legislation and coordination of action at the international level.

1 New name (since March 2002) of the Securities Board of the Netherlands (Stichting Toezicht Effectenverkeer / Stt).
2 Naturally, these changes are accompanied by other trends in the financial markets such as the strong growth of derivatives markets.
the increasing use of the Internet and the disintermediation trend. Another factor of importance in this connection is the increased interest in the probity of the financial sector, which has been strengthened still further by the terrorist attacks in the United States. However, this article will deal only with the creation of conglomerates and the blurring of boundaries between sectors, since these developments create overlaps between national supervisory authorities and hence influence the organisation of supervision. The article confines itself to the structure of supervision in the Netherlands and does not deal with the consequences of the growing importance of financial institutions that operate across borders.
One of the greatest puzzles for economists today is the pricing of exchange rates. Before the collapse of the Bretton Woods system of fixed exchange rates in 1973, the dominant idea among economists was that freely floating exchange rates would follow a predictable pattern, reflecting the underlying economic developments. Experience since then has led to more modest assumptions. Despite a plethora of economic theories, exchange rate movements, particularly their short-term dynamics, are still little understood. This article will evaluate some existing, popular theories of exchange rates and present some new results of a model developed by the Nederlandsche Bank. This model assigns a major role to growth differentials. When applied to the euro/dollar exchange rate, it can evidently explain only a small part of the depreciation of the euro. Sentiment also seems to play an important role. Possible structural changes caused by the introduction of the euro further increase the uncertainty about an equilibrium rate for the euro.
What do we understand about exchange rates?

Purchasing power parity theory

The purchasing power parity theory is the most popular exchange rate theory. It states that prices in different countries cannot diverge too far when expressed in the same currency, because large price differences lead to loss of business in the expensive country, since consumers will increasingly buy their products from the cheapest country. The strictest form of this ‘arbitrage’ on the product market (absolute purchasing power parity) predicts that goods will always have to be priced the same everywhere. A well-known test of this theory is the ‘Big Mac index’, published regularly by The Economist. This index compares price levels in different countries on the basis of a single product, identical in all countries, namely the Big Mac hamburger. It is not surprising that the price is not always the same in all countries. One reason for the price differences is that prices measured in the national currency are adjusted far less often than exchange rates. Therefore, even if the cost and demand conditions are the same in both countries, prices will regularly differ. Price surveys in the euro area show that a stable exchange rate is no guarantee of similar prices either. Identical products may vary by more than 60% in price from one country to another. The reasons include differences in taxation, transport, labour or rental costs, competition and purchasing power, or people’s preferences.

There are therefore plenty of reasons to assume that price levels will diverge from country to country. However, many of these underlying factors vary little over time. Certainly in the short term, fluctuations in the real exchange rate (the exchange rate adjusted for price differentials) are totally dominated by the nominal exchange rate. The relative version of the purchasing power parity theory states that the underlying factors in international price differences can also be assumed to be constant in the long run. In that case, the real exchange rate also tends towards a constant equilibrium value. Despite the intuitive appeal of this assumption, the relative version of the purchasing power parity theory also seems to be particularly difficult to prove in practice. Only if a very long period is considered (e.g. one hundred years), or if the same structure is imposed on data from different countries in a panel data set, are there clear pointers in favour of the theory. However, in both cases it is not only floating exchange rates that are considered. For example, a long sample period means that the Bretton Woods period is included, while the panel data tests produce a positive result for the theory mainly if many European currencies (which are regulated) are taken into account.

One of the factors which may explain the weak support for the theory is that not all products can be traded internationally, while the real exchange rate is calculated on the basis of the price of all consumption goods. The real exchange rate will therefore not tend towards an equilibrium value if the price ratio between tradable and non-tradable goods is not the same in both countries. Changes in domestic price ratios are caused mainly by differences in productivity trends between different sectors, where the increase in efficiency generally tends to be greater in the case of tradable goods. As a result, the real exchange rate tends to appreciate in countries producing stronger growth: this is called the Balassa-Samuelson effect.

Uncovered interest rate parity

A second popular exchange rate theory is the uncovered interest rate parity. This theory is based not on arbitrage on the market in goods, but on arbitrage on the financial markets. According to the theory, expected variations in exchange rates precisely compensate for interest rate differentials between countries. The profit which can be made by borrowing money in the country with the lowest interest rate and lending it in the country with the highest interest rate will therefore be wiped out, on average, by the loss on the currency transaction which is necessary for that purpose. In order to test this theory, it is necessary to have a yardstick for the predicted future exchange rate. The most popular variant uses the future actual exchange rate as the predicted exchange rate. This rational expectations variant of the theory is almost always rejected. An alternative approach links the predicted depreciation of the exchange rate with the current value of the real exchange rate. This combines the theory of the uncovered interest rate parity with the purchasing power parity theory. The underlying idea is that, in the short term, the exchange rate is determined on the financial markets, whereas in the long term equilibrium on the goods market is equally important. The results are variable. For small, open economies, there is often a small but statistically significant link between the real exchange rate and interest rate differentials. Large economies with freely floating exchange rates do not usually show any sign of that link.

The uncovered interest rate parity theory assumes that international investors do not need any risk premium, as arbitrage operates in full on the international financial markets, so that the expected return
What do we understand about exchange rates?

from arbitrage tends towards zero. In view of the exchange rate risk incurred in this transaction, that does not seem to be a logical starting point. The uncovered interest rate parity relationship is therefore often augmented by a risk premium, and much research has focused on explaining that premium. However, that research has not been very successful either. An important problem in describing this risk premium is that not all players on the currency market run the same risk. Assuming that all traders measure their results in their own currency, the risk for an American is that the dollar may appreciate, while for a European the risk is that the dollar may depreciate. Consequently, it is not immediately clear who pays the risk premium, and whether it is always the same party. The risk premium is in fact only determined if the interest rate differential is large enough. Small differentials do not attract arbitrage, since the expected profit is not enough to outweigh the risk. This therefore tells us little about expected depreciations. The two-sided character of the currency market is less of a problem in the case of regulated exchange rates, because in that case the risk that the strongest currency (e.g. the Deutsche mark in the former European monetary system) may devalue is negligible. The risk premium is therefore paid by the country with the weak currency, which – via its interest rate policy – keeps its currency sufficiently attractive to maintain the exchange rate peg. The uncovered interest rate parity relationship (augmented by a risk premium) therefore seems tenable mainly in the case of regulated exchange rates.

The role of the money supply

The monetary approach assumes a prominent role for the money supply in developments on the foreign exchange market. The permanent equality of demand for money and the supply of money in both countries is central. Demand for money has a positive correlation with output (owing to the transaction motive) and a negative correlation with interest rates (owing to the investment motive). An additional (undesired) supply of money in one of the two countries leads to additional demand for bonds and goods from that country. This leads to a lower interest rate and, if prices are flexible, higher prices. The influence on the exchange rate is then determined by assuming that the purchasing power parity theory and/or the uncovered interest rate parity theory are valid, depending on the variant of the monetary model. The flexible price monetary model assumes that prices are adjusted directly to imbalances on the goods market, combined with absolute purchasing power parities. In that case, there is a one-to-one relationship between changes in the money supply and the exchange rate. In contrast, the rigid price monetary model assumes that prices on the goods market take time to react and that the purchasing power parity theory is valid only in the long run. However, the uncovered interest rate parity relationship is always valid. This relationship determines the exchange rate in the short term. An additional supply of money leads to a lower domestic interest rate. If the foreign interest rate remains steady, this must be associated with the expectation of a currency appreciation. Ultimately, the monetary stimulus also leads to higher prices and therefore to nominal depreciation. The combination of appreciation expectations and eventual depreciation implies that the exchange rate has to overshoot its new equilibrium value at first by a greater initial depreciation. Since there is no evidence for key components of these theories, it is no surprise that the monetary models have not proved a resounding success.

In the portfolio model for exchange rates, domestic money is one of the forms in which financial wealth can be held. The alternative forms of investment are domestic and foreign bonds. These bonds are not perfect substitutes, since the uncovered interest rate parity relationship is not assumed. This is the most important discerning factor between the monetary approach and the portfolio approach. In this model, an additional supply of money increases demand for domestic and foreign bonds. Additional foreign bonds can be obtained only via a current account surplus. For this, it is necessary to have a lower value for the real exchange rate. The predictions made by this model are also seldom borne out by the figures.

Fundamental exchange rate equilibrium

The lack of success in predicting exchange rate movements, or even explaining them in retrospect, has nurtured the idea that exchange rates depend far more on market sentiment than on fundamental economic trends. Exchange rates fluctuate widely, especially in the short term. One of the factors here is that not all currency dealers base their dealings on a fundamental economic model. Technical analyses, often based on extrapolation of trends from the recent past, can sometimes cause exchange rates to deviate substantially from what might be called an ‘equilibrium rate’. This will be
What do we understand about exchange rates?

so in particular if a large percentage of dealers use technical analyses, or if they adopt other people’s predictions indiscriminately, so that herd behaviour may result. However, if there is too large a difference between the actual and the theoretical equilibrium exchange rate, that must mean that more and more dealers will believe that the exchange rate is untenable, so that sentiment will be reversed. In the long run, fundamental economic trends are therefore expected to play a greater role. However, in view of the great uncertainty about the fundamental equilibrium exchange rate, and since arbitrage entails costs and risks, where disequilibrium occurs it can last a long time.

For many economic processes it is nonetheless very important to know whether the current exchange rate is sustainable in the long term. For example, an importer will be quicker to adjust his prices to exchange rate changes if these appear to be permanent. Also, the effectiveness of intervention on the foreign exchange market will generally depend on the degree to which the current exchange rate deviates from its equilibrium value. In connection with the possible enlargement of $\mu$, it is also very important to have some idea of the long-term sustainability of exchange rates, if only to determine the correct entry rate.

The economic literature has come up with a number of concepts for determining fundamental exchange rates. The balance of payments identity is central to these approaches: every deficit (surplus) on the balance of payments current account has to be financed by a surplus (deficit) on the capital account. The influence of the real exchange rate on this relationship operates mainly via the balance of trade, it being assumed that a real depreciation leads to an improvement in the balance of payments. The methods of determining a fundamental exchange rate differ on such points as the time scale considered. Short-term methods offer the optimum exchange rate prediction given the current economic situation, and can therefore produce a volatile pattern. Medium-term methods are based on internal and external equilibrium. Here, internal equilibrium means low unemployment and low inflation, and external equilibrium means a sustainable current account deficit. Long-term concepts also assume a stable net foreign debt as a percentage of gross domestic product (GDP).

Determinants of the equilibrium rate in the long term may be linked to the size of the net foreign asset position or the composition of the current account. The net foreign asset position will depend mainly on past developments, but also on demographic factors, for example. The net foreign assets in turn also influence the current account via the capital income account. A larger debt leads to higher net payments (interest or dividends) to the rest of the world, and these have to be financed by the trade balance. This requires a lower currency valuation. Differences in the yield on foreign assets and debts may further reinforce this effect, since countries with a larger debt generally have to pay a higher risk premium on the international capital market. Other variables which influence the current account are productivity differences and changes in the terms of trade. Productivity differences influence the trade balance via the Balassa-Samuelson effect mentioned earlier. Changes in the terms of trade have a similar effect. If the price which has to be paid for imports shows a structural increase against the average export price, e.g. because of a sustained rise in oil prices, the real exchange rate has to depreciate in order to prevent a larger current account deficit.

In the short to medium term, cyclical factors also play a role. These materialise primarily in the real interest rate differential, which influences the exchange rate via the uncovered interest rate parity relationship. In addition, the economic situation may also have a direct influence on savings and/or investment patterns, which in turn influences the current account. Structural factors are also important in the medium term, especially for emerging economies. For example, the expected stronger economic growth during the period when the economy is catching up will attract capital to these economies for a longer period, so that a current account deficit of a certain size is sustainable and even desirable.

In practice, the determination of an equilibrium exchange rate is beset with great uncertainty. One reason for this is the difficulty in measuring the net foreign asset position, the return on foreign investments, inflation expectations and international and sectoral productivity differences, for example. In addition, in the case of structural, medium-term methods, it is particularly difficult to determine a sustainable current account deficit, and the cyclically neutral, real exchange rate which would bring about such a deficit. Since both internal and external equilibrium are rare in practice, many model assumptions have to be made for this purpose, which are all subject to great uncertainty. An alternative method is based on a purely statistical approach in which fluctuations in the ‘short-term’ fundamental exchange rate are divided into a temporary and a permanent component. In this way it is possible to obtain a stable medium or long-term equilibrium rate without having to define an equilibrium internal
and external situation. These purely statistical methods are based only on the extrapolation of trends from the past, and are therefore less suitable where structural changes occur, e.g. in connection with the introduction of the euro.

The wide variety of equilibrium models and the large margins of uncertainty attached to each of these models make it almost impossible to determine ‘the’ equilibrium exchange rate. Quite often, different models produce totally different results. Evaluation of these models is also hampered by the fact that the actual exchange rate may deviate from the equilibrium rate for long periods. Mediocre forecasting ability may therefore be due both to errors in the model and to persistent imbalances on the foreign exchange market. Moreover, it is unclear what period is considered by a medium-term or a long-term approach. According to the fundamental approach, the present growing deficits on the US current account should ultimately lead to depreciation of the dollar. However, at the same time the US is once again expected to lead the way to recovery for the world economy. This will tend to cause the current account deficit to expand further. Clearly, the financing of this deficit is not regarded as an important issue, at least not at the moment. That is probably because the dollar is the most important international reserve currency. This means that, for the US, a larger foreign debt does not have direct implications for the risk premium on the international financial markets. The link between the net foreign asset position and the real exchange rate is therefore least convincing in the case of the US.

The influence of real growth

Many people have stressed the influence of actual or expected growth differentials, particularly in connection with the depreciation of the euro against the dollar. However, the theoretical support for that influence is less clear. The traditional explanation for the influence of growth differentials is the Balassa-Samuelson effect. In view of the large and expanding US current account deficit, however, the real exchange rate did not change purely because of the relative prices of non-tradable goods. The competitive position of the US in internationally tradable goods was clearly also affected. Moreover, the persistent strength of the dollar is difficult to reconcile with this traditional growth explanation, despite the sharp deceleration in US growth. A cyclical explanation via the interest rate differential is also implausible in view of the substantial fall in interest rates in the US in 2001.

The popular press, in particular, links growth differentials to real exchange rates, mainly via the stock market. According to this view, additional growth generates additional foreign demand for American stocks, causing the dollar to appreciate. However, in theory it is not immediately clear why additional growth makes American stocks more attractive to foreigners. If profit forecasts are rising, that makes those stocks more attractive to American investors, too, and share prices should already reflect that. Furthermore, this channel does not explain why foreigners want to buy more American stocks year after year, yet that is necessary to finance the large and expanding deficit on the US current account.

An alternative link between growth differentials and the exchange rate runs via direct investment. Businesses in a country with high economic growth are attractive take-over candidates for foreign firms, since they offer a distribution network in a relatively fast growing market. Furthermore, the faster growth may be due to superior technology, in which case an acquisition makes it possible for the parent company to increase its own efficiency. These synergy gains outweigh the excess acquisition costs. The relevance of this channel will be discussed in more detail on the basis of a model developed by the Nederlandsche Bank (see Vlaar, 2002).

The theoretical model

The starting point for the theoretical model developed at the Bank is the balance of payments identity: Every current account deficit has to be offset by a surplus on the capital account. Here, the current account consists of the trade balance and the capital income account, and the capital account comprises direct investment and portfolio investments (equities, bonds, etc.) . The trade balance is described as a function of the real exchange rate and changes in the business cycle. The capital income account is determined by the net foreign assets and the short-term interest rate. Direct investment depends on the trend growth of the economy. The portfolio investment flows are directed by the desired size of the net foreign assets, which in turn depends on expected deviations from the uncovered interest rate parity.

The operation of the model is illustrated in chart form below, on the basis of the effect over time of a specific shock to a relevant variable in the economy. Chart 1 shows the respective effects on the real ex-
What do we understand about exchange rates?

The influence of growth on the exchange rate depends on the composition of that growth. Growth which is due to a change in the expected trend growth of the economy leads to approximately 18% real appreciation after two and a half years. This appreciation is due to the additional direct investment attracted by the higher trend growth. In contrast, demand shocks initially lead to a small depreciation. Two opposing effects play a role here. On the one hand, the demand shock causes the interest rate to rise, both because of the positive effect on economic activity and because of higher inflation. This should have a positive effect on the exchange rate. However, at the same time demand for imports is stimulated. This should eventually lead to a real depreciation in order to keep the net foreign assets in line with the desired volume. In view of the initial depreciation, this last effect predominates in the short term. Finally, an interest rate shock leads to a real appreciation as a result of the stronger foreign investment demand and a likely surplus on the balance of trade, due to the deteriorating economic situation.

The model therefore offers two explanations for the persistent strength of the dollar against the euro, despite the large US current account deficit and the current adverse economic situation. First, the higher trend growth in the US ensures a continuous flow of direct investment which can partially compensate for the current account deficit. Second, in view of the opposite effect on the exchange rate, the distinction between cyclical and structural growth differentials is very important. The longer the period of high growth without high inflation persisted in the US at the end of the 1990s, the more convinced the market became that this growth was structural. This changing perception made it possible for the dollar to appreciate further even though growth differentials between Europe and the US had ceased to widen. In contrast, the slackening of growth in the US in 2001 is viewed as cyclical and therefore does not lead to a depreciation of the dollar.

As regards the expected size of the exchange rate effects, the results are rather disappointing. The largest effects can be expected from a trend growth shock. However, the 18% appreciation shown results from a shock of one percentage point per quarter. In view of the relatively minor fluctuations in trend growth, even this shock cannot explain more than about 8% of the real appreciation. The theoretical influence of demand shocks is limited to a maximum of 2.5% while the influence of interest rate shocks is even smaller. These results suggest that changes in sentiment may play a more important role in the case of large exchange rate fluctuations.

An empirical example

The key conclusion of the theoretical model is that growth caused by an improvement in the business cycle has a negative influence on the exchange rate, while an improvement in the trend growth causes the real exchange rate to appreciate. This prediction was examined more closely for the bilateral exchange rate between the Deutsche mark and the dollar. No attempt was made to follow exactly the structure of the theoretical model, as that model is both too complex and too limited since it does not include all the variables which are relevant for the exchange rate. Instead, an equation was specified for the mark/dollar exchange rate in the spirit of the literature on the short-term fundamental exchange rate, discussed earlier. The real exchange rate was described as a function of differences in trend growth.

Chart 1 Percentage appreciation of the real exchange rate as a consequence of shocks

<table>
<thead>
<tr>
<th>Trend growth shock</th>
<th>Demand shock</th>
<th>Interest rate shock</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>0.5</td>
<td>0.8</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>0.6</td>
</tr>
<tr>
<td>5</td>
<td>-0.5</td>
<td>0.4</td>
</tr>
<tr>
<td>0</td>
<td>-1</td>
<td>0.2</td>
</tr>
<tr>
<td>-5</td>
<td>-1.5</td>
<td>-0.2</td>
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<tr>
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<td>-2</td>
<td>-0.4</td>
</tr>
<tr>
<td>-15</td>
<td>-2.5</td>
<td>-0.6</td>
</tr>
</tbody>
</table>

Quarters
growth, business cycle and the short-term interest rate, and the oil price. This last variable reflects terms of trade effects. Since Europe is a larger oil importer than the US, an increase in the oil price should cause the dollar to appreciate. The estimated results support the theoretical predictions. Differences in trend growth appear to have a large appreciating effect, while positive variations in the cycle are associated with a lower exchange rate. The size of these effects, and of the interest rate effect, is much larger, however, than might be expected on the basis of the theoretical model.

Chart 2 shows the prediction capability of the empirical model. A dynamic prediction was made in which the exchange rate was predicted on the basis of the actual oil price and differences in the interest rate, trend growth and the economic cycle, and the predicted exchange rate. Next, this prediction was compared with the actual results (the zero line in the Chart). The Chart also shows the overvaluation of the dollar on the basis of the purchasing power parity theory, assuming an equilibrium rate in the first quarter of 1973.

The Chart clearly shows that the purchasing power parity theory cannot offer a full explanation for the movement in exchange rates. The real exchange rate fluctuates too much for that. In the case of the empirical model, the fluctuations are smaller on average. Almost half of the variability in the real exchange rate can be attributed to fluctuations in the model variables. Nevertheless, this model prediction can also deviate substantially and for a protracted period from the actual exchange rate. The strong appreciation of the dollar in the mid 1980s is particularly difficult to explain. This result tallies with virtually all other studies on the dollar. This episode is therefore usually assessed as a state of disequilibrium.

We have yet to consider whether the current exchange rate of the euro should also be regarded as a disequilibrium rate. In historical terms, the current valuation of the euro is not exceptional, though this period of apparent undervaluation does seem to have lasted a relatively long time. However, the persistent strength of the dollar can be readily explained in the model if the current decline in US growth is largely cyclical. Labour productivity figures still show robust growth. For the time being, trend growth appears unaffected. The present undervaluation might also be due to a structural change as a result of the introduction of the euro. For example, this could lead to restructuring of international investment portfolios on account of the reduced scope for diversification in the euro area.

Conclusions

Finding an explanation for the behaviour of exchange rates remains a challenge. Existing economic theories can offer hardly any explanation for the observed, large fluctuations in real exchange rates. Conversely, the predictions

Chart 2 Percentage overvaluation of dollar relative to simulated Deutsche mark/euro
of exchange rate theories are often not borne out by the figures. In the short and medium term, in particular, market sentiment appears to play a greater role than fundamental economic trends.

Empirical models show that in the somewhat longer term underlying economic factors do have a predictive value. Key variables include inflation, economic growth, interest rates, government deficits, the terms of trade, the net foreign debt and productivity differentials. As regards economic growth, the Bank’s research reveals that the origin of that growth is crucial. Where higher trend growth leads to a substantial appreciation, a cyclical improvement actually causes a depreciation. The margins of uncertainty surrounding these models are very substantial, however. Furthermore, the effects found are often so great that they are difficult to explain on the basis of economic theory.

Literature consulted


Vlaar, P.J.G., ‘On the strength of the us dollar: can it be explained by output growth?’, dnb Staff Reports 82 (February 2002), The Nederlandsche Bank.


What do we understand about exchange rates?
The Dutch changeover to euro banknotes and coins proceeded both remarkably smoothly and rapidly. After one week, over 90% of all cash payments were being made in euro. Fears of the payment system breaking down, always rampant among businesses and the public alike, did not materialise. Fears of price rises, on the other hand, were not entirely unfounded, as evidenced by a survey held by the Bank among retailers in January. The changeover from guilders to euro has pushed consumer prices up by 0.2-0.4%, in part because retailers passed the ensuing costs on to their customers, but also because prices were neatly rounded upwards. In time, the introduction of the euro will presumably lead to price falls.
Introduction

On 1 January 2002, e-day, the Netherlands switched to euro banknotes and coins. Ten years had passed since the Treaty of Maastricht was signed, which laid the basis for the single currency. The enthusiasm for the new currency was considerable. On the stroke of midnight, people crowded round cash dispensers, eager to see the new banknotes. Twenty-four hours later, a record number of transactions had been registered. The complementary euro kit, collected by more than 90% of the Dutch population aged 6 and over in December, had helped to warm the public to the changeover.

These were the first signs of an almost spotless and speedy changeover from the guilder to the euro. After one week, over 90% of cash payments were being made in euro.

This was the good news. On the downside, there were persistent reports of major price rises as a result of the changeover. These were said to be unjustified, with prices being rounded upwards. Surveys held by the Nederlandsche Bank in the run-up to the introduction of the euro had shown that consumers had been increasingly worried on this score, incidentally not just in the Netherlands. In the other EMU countries, too, such fears abounded.

In order to gain insight into the nature of the price rises recorded since 1 January 2002, and to gauge the first experiences after the changeover, the Bank held a representative survey among 900 retailers. These included a variety of shops: supermarkets, bakeries, butchers, clothes and shoe shops, as well as furniture shops, but also hairdressers, beauty parlours, restaurants and hotels. The interviews took place in the third week of January. The main results are presented here.

The changeover in practice

Preparations completed in time

Early last year, the authorities were still worried that the changeover preparations in the Netherlands were progressing unduly slowly. The European Commission, too, urged Europe’s business sector to press ahead. These concerns were justified, because little progress had been made in 2000. Having made a considerable investment to make their businesses millennium-proof, entrepreneurs seemed to need a breather before tackling the next big event. In the course of 2001, however, it became clear that the corporate sector had seriously set to work. By mid-2001, large and medium-sized Dutch businesses had completed 80% of their preparations and small businesses 60%. In the retail trade, the degree of preparedness ranged from around 60% in the non-food sector to nearly 70% in the food industry. On the first working day in January it became clear that Dutch entrepreneurs had completed their preparations in time. Theirs was a major feat, and a considerable contribution to the successful introduction of euro banknotes and coins. This was especially true of the retail trade, shops being the first to be confronted with the massive changeover to cash payments in euro.

Fears that the payment system would break down, which had invariably figured prominently in earlier euro surveys held among businesses and the public, were not borne out. Nearly 90% of the shopkeepers interviewed did not come up against problems during the changeover. Only 8% experienced minor inconvenience in the form of a shortage of euro banknotes and coins, unfamiliarity with the new currency and malfunctioning electronic payments. These problems arose relatively often in shops selling daily necessities. It is hardly surprising that of the shopkeepers who cited unfamiliarity as a major inconvenience, many had introduced double-currency price tags at the eleventh hour. Not having had time for a dry run, they suffered the consequences in the first weeks following the changeover. Still, a sigh of relief must have swept through the food shops. As late as July 2001, one-third of them still feared serious complications and/or bottlenecks in the days following the changeover.

For 80% of all retailers, it was business as usual on 2 January. Only 7%, nearly all of them small shops presumably wishing to watch from the sidelines, were closed for the week.

It is interesting that in the second and third week of January some supermarkets saw turnover of over 10% up on last year. Consumers may have failed to appreciate the true value of the new currency, spending euro as if they were guilders, or may simply have multiplied euro prices by two. This phenomenon was not observed in the non-food retail trade, where the range of goods is more expensive. As consumers are more alert when buying dearer products, they probably converted the euro prices into guilders more accurately.

Slightly more than half (57%) the shopkeepers believe that consumers have become more price-conscious as a result of the introduction of the euro. This greater awareness is incidentally less evident in shops where consumers buy their daily necessities. This too confirms the impression that the public was – as yet – spending euro as if they were guilders. In this context,
it may be noted that customers were not significantly influenced by the early or late introduction of double-currency pricing.

Thanks to the changeover to the euro, the public has become alive to relative prices within the euro. On the Internet, there are numerous sites offering comparisons of the prices of popular goods. It is, however, too early to tell whether the euro is inducing customers to shop across the border. Research shows that so far consumers have been stimulated to shop elsewhere not so much by price differences as by a desire for variety.²

The survey also shows that the favourable economic situation of recent years has enticed Dutch consumers to spend more. This is the impression gained by chain stores (48%), as compared with 34% who did not observe this development, and 16% who believe that consumers have become more price-conscious.

A small majority (57%) does not have the impression that cash payments have increased recently. The food sector is relatively less inclined to think so. This confirms the picture emerging from earlier euro surveys, namely that consumers have been unloading part of their cash holdings while shopping. This did not pose extra problems. Retailers furthermore do not believe that consumers paid with large denominations more often than usual. If they did, this was notably the case in general food stores and in the non-food sector (furniture and household appliances, building materials etc.). Half of these transactions involved 100-guilder notes. 250- and 1000-banknotes each accounted for a quarter of all cases, albeit that the latter were hardly used in food shops, if at all. There is, however, a clearly discernible correlation between the size of the shop and the use of 250-guilder notes: the larger the shop, the more often customers paid with these notes.

Thanks to the rapidity of the changeover in the Netherlands, practically no inconvenience was caused by an excess of banknotes and coins. Retailers’ fears of long queues at the cash registers, a recurring theme in earlier euro surveys, did not materialise. Small wonder that no less than 97% of those surveyed were satisfied with the preparations made.

In July 2001, over 90% of retailers said that they had been optimally informed on how the changeover from the guilder to the euro could proceed successfully. This has clearly borne fruit. The changeover’s success can undoubtedly be ascribed in part to the effective information campaign, as well as the alacrity with which consumers switched to paying with euro.

Higher prices attend changeover to the euro

Over the past few months, a large number of complaints reached the euro desk of the consumers’ organisation and the various complaints desks installed by the media, to the effect that prices have been considerably rounded upwards. The survey, too, shows that these are not mere incidents. Nearly half the retailers interviewed in the survey raised their prices when euro came to figure more prominently in pricing than guilders. One in 25 retailers interviewed admitted having raised prices by 10% on that occasion.

Consumers believe these price adjustments to have been caused exclusively by the euro, because the price rises coincided with the changeover to euro prices. As will be explained in more detail later, businesses combined the changeover to euro prices with their regular price adjustments, which ensue from higher costs.

The total price rises effected for various reasons when the euro prices were introduced diverge materially between the various retail sectors (Chart 1). In the catering industry, for instance, prices have undergone above-average rises. In supermarkets, on the other hand, much more moderate price rises have been recorded. The overall impression is therefore less pronounced: the total price rise, roughly weighted with turnover shares, is 1.4%.

More in general, it is worth noting that small shops effected above-average price rises, of around 2%, compared with over 1% in shops with 5 or more employees. Here competitiveness seems to have played a major role. Earlier surveys showed that large shops, supermarkets in particular, are confronted with fierce competition. Smaller shops and catering businesses, however, say that they face much less competition.

The magnitude of the price rises reported within the retail trade is also correlated with shops’ willingness to double-price their ranges. According to the survey, 15% of businesses failed to show both currencies. In this group of mostly smaller shops, the range of goods has become nearly 3% dearer. Shops showing prices in both guilders and euro raised their prices by less than half that percentage. This is an indication that the agreement reached between the consumers’ organisation, the organisation of small and medium-sized enterprises, and representatives of the retail trade about what information should be given to the public has had a disciplining effect.

Finally, it is worth noting the price-setting behaviour of retailers selling goods at attractive or psychological prices. On average, retailers wielding neatly rounded or
psychological prices, who switched to attractive euro prices in one go, raised their prices by 3\%. This is true of a quarter of such shops. Other retailers, who had switched to attractive euro prices earlier or did so gradually, raised their prices by 1.6\%. Sectors where psychological prices are of minor importance raised their prices even less (1.1\%).

Were the price rises caused by the changeover? The price rises were caused by the changeover to the euro in those cases where retailers passed the costs of making their businesses euro-proof on to their customers (channel 1). The euro may also be to blame if the new prices were rounded off upwards (channel 2). The survey shows that the price rises were accounted for by a range of factors besides the introduction of the euro, which included overheads such as wages and cost prices.

A rough indication of the importance of the first channel may be provided by the changeover costs reported by the retail trade. Now that the euro conversion has been completed, the actual costs can be gauged more accurately. The retail trade has footed a changeover bill totalling around EUR 0.9 billion, around 1\% of their annual turnover. Although the bulk of these costs was incurred in 2001, retailers passed only a small part on in their prices (10\%) in that year. The costs will presumably be spread over several years. Assuming this period to be three years, retail prices this year and the next two years would be 1/3 percentage point higher than if the changeover costs were not passed on. In terms of the consumer price index (cpi), this scenario makes for price rises of 0.15 percentage point in the years 2002-2004. It must be remembered that the retail trade provides around 45\% of the total package of goods and services figuring on the consumer price index.\footnote{This effect will disappear after 2004. In other words, inflation may undergo a one-off increase of just over 0.1 percentage point this year because retailers pass their changeover costs on to their customers, while in 2005 inflation would decline to the same extent.}

Retailers were asked to indicate the importance of the various considerations underlying the determination of the new euro prices. It is worth noting that small shops see rounding to attractive euro prices as a more important reason to raise prices than larger shops. Generally speaking, the answers given show that though euro-related considerations played a major role, higher overheads of various sorts figured even more prominently in retailers’ price-setting. This is also borne out by the fact that 80\% of the shops switching from attractive guilder prices to attractive euro prices combined this move with their regular price adjustments. During these rounds, prices would in any case have been adjusted for increases in overheads.

A euro effect? Just as price rises accompanying the changeover to euro prices cannot be wholly ascribed to the euro, they are not accounted for exclusively by cost movements either. There is a euro effect, as evidenced by the considerable number of ‘suspicious’ price changes ob-

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**Chart 1 Total price rise, generated by different factors, upon switch to euro prices**

By sector and shop size, per cent

<table>
<thead>
<tr>
<th>Sector</th>
<th>Shop size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food, general</td>
<td>1-4 employees</td>
</tr>
<tr>
<td>Food, special</td>
<td>5-9 employees</td>
</tr>
<tr>
<td>Clothes</td>
<td>10-19 employees</td>
</tr>
<tr>
<td>Furniture and household goods</td>
<td>20-49 employees</td>
</tr>
<tr>
<td>Other non-food</td>
<td>Over 50 employees</td>
</tr>
<tr>
<td>Catering</td>
<td>20-49 employees</td>
</tr>
</tbody>
</table>

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Smooth euro changeover, higher prices?

DNB / Quarterly Bulletin March 2002
served by consumers and the consumers’ organisation, and the remarkably large number of price adjustments in sectors facing little competition. Such an effect also shows up in the model-based inflation forecasts regularly made by the Bank. The inflation forecast for January, which allows for movements in wage costs as well as energy, commodity and import prices up to and including December 2001 comes out below the crf figure of 4.0% for February published on the 8th of that month. Even if allowance is made for the surprisingly strong rise in the prices of vegetables and fruit around the turn of the year, the forecast error for inflation in January exceeds the usual uncertainty margins.

The magnitude of the euro effect
Although the survey does not give direct information about the magnitude of the euro effect, the effect can be estimated indirectly on the basis of the statistical link between the price rises effected by shops when they switched to euro prices, and their characteristics (sector and size), price-setting behaviour (such as the frequency of price adjustments), and the importance attached by retailers to the different considerations underlying price determination (such as wage costs, cost prices, passing on euro conversion costs and rounding). The influence of each of these factors on price rises was quantified with the aid of a regression analysis of the survey data. The euro effect can then be calculated as the price rise which would have taken place if retailers had had to base their price decisions on euro-related factors only.

It may be concluded that on average retail prices went up by some 0.5–0.9% as a result of the changeover, in other words, the changeover to the euro as a whole caused prices on the Dutch crf to go by 0.2–0.4%. Broken down by rounding to attractive prices, on the one hand, and passing on the costs of the euro changeover to consumers, on the other, rounding accounts for about two-thirds of the effect, while the remainder may be attributed to changeover costs.

In this context, however, several remarks are in order. To begin with, a quarter of the businesses surveyed was unable or unwilling to give information about the price rises effected by them at the time of the switch to euro prices. In part this has to do with them being dependent on their head office for price setting. It may be noted, however, that the other retailers who did not state the percentages of their price increases do indicate that the price adjustments were considerably influenced by the costs of the changeover and rounding to attractive prices. Finally, the survey was held among retailers only, whereas the consumers’ organisation noted that the local authorities have also effected euro-related price rises (parking fees, etc.). Given the latter two arguments, the euro effect may have been slightly underestimated.

Euro effect concentrated around turn of the year
The survey held by the Bank among retailers in March of last year showed that most shops would be making the switch to psychological prices towards the end of 2001 or at the beginning of this year. It also showed that to save further costs – retailers would be combining these price adjustments with their regular price rises. This is borne out by the latest survey. Over 80% of shopkeepers who rely on attractive prices indicated that they adopted appealing euro prices when effecting their regular price adjustments. Fewer than 10% of the retailers advanced or postponed their regular price rounds. This means that the regular pricing patterns were not significantly disturbed by the changeover. The survey and recent data published by Statistics Netherlands furthermore show that in December most retail prices were still denominated in attractive guilder prices. This is not surprising as the guilder was still the leading currency in payments in 2001. The switch to appealing euro prices and the concomitant price rises consequently surfaced notably in the crf’s figure for January.

Changeover will presumably lead to lower prices in the longer term
Although, according to the survey, the introduction of the euro led to higher prices, in time prices should be going down. First of all, prices will begin to fall as soon as businesses have depreciated their euro-related investment. In addition, the calculations mentioned earlier do not make allowance for the price-lowering effect of the changeover. Numerous studies have compared prices between countries. They show that the prices for the same product may differ widely between countries. These differences may be accounted for by transport costs, consumer preferences and productivity, as well as national legislation, taxes, non-competition clauses etc. The switch to the euro will, however, enhance price transparency and euro area competition. Price discrimination between countries, which is often the result of imperfect competition, will consequently be thwarted and price differences will decline. In this context, it is interesting to note that the price differences in the United States, an area of comparable size with a single monetary policy, are much smaller than those in the euro area. Furthermore, the euro will act as a catalyst for
the removal of the existing institutional differences or barriers. Apart from the price-lowering effects of price transparency, various surveys show that Dutch businesses expect the changeover to the euro to have major advantages in that a simpler administration will lower overheads, exchange rate risks will no longer have to be hedged etc. These cost cuts will also translate into lower prices.

Conclusions

The main conclusions to be drawn from the survey are:
– The retail trade, too, is of the opinion that the changeover to the euro has proceeded virtually without a hitch. In spite of a slow start, entrepreneurs managed to complete their preparations in time;
– Consumers unloaded part of their cash holdings during their daily shopping rounds. Payments made over the past few months were rarely made with larger denominations than usual;
– Conversion of retail prices to euro has raised the Dutch CPI by 0.2-0.4%. This euro effect was the result of changeover costs being passed on to consumers, and prices being rounded upwards;
– In time, the introduction of the euro should lead to lower prices.

1 On 31 January 2002, both Het Financieele Dagblad and NRC contained an article about the higher turnover recorded by supermarkets consequent on the changeover to the euro.
2 On 7 February 2002, Algemeen Dagblad published an article on how the euro stimulates cross-border shopping.
3 The remainder of this package of goods and services consists mainly of housing costs, water, gas, etc. (29%), transport (11%), consumption-related taxes and government services (5%), insurance and communication (5%).
4 A more detailed explanation to the calculations can be found in a DNB Research Memorandum ‘Smooth euro changeover, higher prices?’, the results of a survey among retailers.