

Consumer prices and the changeover from Deutsche Mark to euro

Now that just over six months have passed since the introduction of euro banknotes and coins on 1 January 2002, this article looks once again at the euro's impact on prices, taking the official price statistics as a basis. In this connection, a special study of 35 selected goods and services provides deeper insights. For instance, prices were changed in significantly more cases in January 2002 than is normally the case in any single month. Despite this fact, price adjustments were fewer than might have been expected in the event of a one-step changeover to "attractive" euro prices. Instead, in January 2002, just over two-thirds of the 18,000 or so prices reported for the selected goods were converted exactly from the December Deutsche Mark prices to the new euro prices. This finding is consistent with the conclusion, derived from the official price index as a whole, that the changeover from D-Mark to euro did not play a major role in pushing up prices. Even so, there were a number of exceptional price changes which had an impact on the inflation "perceived" by many consumers. Nevertheless, this may have been influenced by the fact that there had already been a marked rise in the prices of food, industrial goods and services last year – a rise that can hardly be attributed to the introduction of euro banknotes and coins.

Determinants of pricing behaviour

Introduction of euro banknotes and coins

On 1 January 2002, the Deutsche Mark was replaced by the euro as sole legal tender in Germany. This date was known a long time beforehand, as was the conversion factor of 1.95583 to be applied when converting D-Mark amounts into euro. Market participants were consequently able to take due account of this and make their plans well in advance. As far as households are concerned, the impending changeover may have led, for example, to purchases being brought forward – because of uncertainty as to whether suppliers would use the introduction of euro cash to raise prices. There is, admittedly, no precise information available on this, but there were complaints in the retail trade during the first few months of this year about consumers cutting down on their purchases. This may indicate that there was still considerable uncertainty about the extent to which a newly displayed price was to be regarded as reasonable or excessive.

Faced with the introduction of euro banknotes and coins, various strategies were available to the suppliers. First, making price changes prior to the changeover may have been advisable to avoid placing an additional strain on the exchange of payment media and to position themselves advantageously for the start for the euro era. Second, given the fact that the conversion ratio was not 1:1 and would necessarily result in a “new look” for prices, the cash changeover is likely to have been regarded as a suitable occasion to adjust prices. This approach would also save costs that inevitably arise when new prices

Goods and services of the consumer price index selected for the special study

Item	Weight in ‰
Food	
Noodles	3.99
Salami	2.45
UHT milk	2.03
Butter	1.95
Spinach (frozen)	0.79
Sugar	0.83
Luxury food and drink	
Milk chocolate	2.30
Filter coffee	4.16
Mineral water	4.41
White wine	2.84
Clothing	
Men's socks	0.61
Ladies' pullovers	4.23
Tights	0.81
Shoes	2.87
Industrial goods	
Washing machine	2.87
Coffee machine	0.51
Colour TV	3.05
Pocket camera	0.70
Three-piece suite	3.38
Batteries, monocell	1.12
Filter papers	0.17
Toilet paper	1.00
Remote control toy car	0.43
Writing pad	0.30
Daily newspaper, subscription	4.18
Motor oil	0.42
Day cream	1.28
Toothpaste	0.95
Dog food	2.37
Services	
Dry cleaning	0.51
Car wash	0.26
Cinema ticket	2.93
Men's hairdressing	3.31
Beer consumption	6.34
Overnight stay in hotel	4.39
Total	74.74

Deutsche Bundesbank

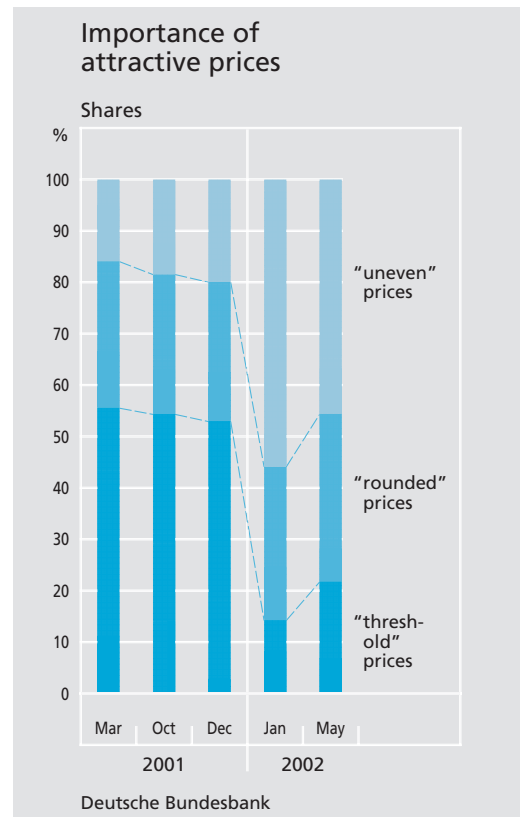
are introduced. Finally, one conceivable option was to take account of heightened watchfulness and awareness accompanying the currency changeover and wait for a while before implementing scheduled price changes.

Special study

The following is an attempt to gain a deeper insight into suppliers' pricing behaviour.¹ This study is also based on special analyses of the price statistics which are being conducted by the Federal Statistical Office² and the Bundesbank. These cover the price reports for 35 separate items taken from the German consumer price index. These make up around 8% of the overall basket of goods. This selection consists of goods and services in daily use together with representative items from the food, drinks and tobacco industry as well as the industrial goods and services sectors (see the list on page 16). Another major consideration in selecting these items was the availability of price information which is as comprehensive and widespread as possible. In total, more than 18,000 individual price series were analysed. Taken together, these cases form the basis of the analysis. No qualifications are made with regard to individual products, their relative importance in terms of consumption or their respective degree of representation.³

Attractive prices

In terms of price formation at the consumer level, "attractive" prices in the shape of "threshold" or "rounded" prices are a major factor. A price is described as "threshold" when it ends with the digit 9. Examples of this, for lower prices, are DM1.49 or €1.89 and, for higher amounts, DM59 or €499. Owing to their psychological impact, such



prices are regarded as "attractive" in the sense of boosting sales. A "rounded" price has a 0 or a 5 as its last digit, eg DM1.60 or €25. The major consideration here is making it easier to pay bills or give change.

The prime importance of attractive prices is confirmed by the special analysis. At the start of 2001, ie a date well before (and, it may be assumed, largely uninfluenced by) the changeover, only some 15% of all prices

Major importance of threshold prices

1 For earlier analyses, see Deutsche Bundesbank, *Monthly Report*, February 2002, p 37-39; March 2002, p 8-11; May 2002, p 53; *Annual Report 2001*, p 18-19.

2 See W Buchwald, J Chlumsky, N Engelhardt, Zum Einfluss des Euro auf die Preisentwicklung in Deutschland, *Wirtschaft und Statistik*, Heft 3/2002, p 182 ff.

3 This ignores the fact that there were around 1,000 price reports each for, say, butter or milk chocolate (which together account for a 4.2% share of consumption), whereas no more than 250 reports per product were available for washing machines and colour television sets (which have a share of 5.9%).

charged were for an "uneven" amount. The overwhelming majority were attractive prices. Threshold prices are especially common in the case of goods with a comparatively low product value. More than four-fifths of all recorded individual prices in this segment ended in 9. The higher the prices of goods and services, the more prominent "even" prices become. In the upper price groups, their share increases to around one-third. In the highest price group, certain uneven prices also become more widespread, displacing mainly threshold prices and attaining a share of around 30%.

Prices and price developments in 2001

*Stable prices
in 2001*

Prices as they appeared in early 2001 remained virtually unchanged almost throughout the year. It was only towards the end of the year that price adjustments became more frequent, with a move away from attractive DM prices towards uneven DM prices. Even so, in December 2001, less than one-fifth of all reported prices were in the "uneven price" category. This indicates that the changeover to the euro and the desire to maintain the appearance of attractive prices in the new currency were probably not yet major factors in terms of price-setting, even though it was common practice for prices to be displayed in both D-Mark and euro. Instead, the major consideration in effecting price changes continued to be an interest in psychologically "favourable" (even) DM prices.

Modified pricing was, however, already observable in the clothing sector in 2001. A

marked increase in atypical pricing was ascertainable in the case of men's socks, ladies' pullovers, tights and shoes, all of which are included in the special analysis. Except for women's outer wear, this led to a sharp increase in prices. Between January and December 2001, the average increase amounted to more than 2½%. Last year also saw a significant rise in the prices of other industrial goods. Averaged across all industrial sector products included in the consumer price index, this gives a year-on-year price increase of 1.2% in December 2001. This was distinctly more than one year before, when the increase had been less than one-third as much. The deterioration in the price climate is likely to have been due not only to the euro's weakness on the foreign exchange markets but also to the sharp rise in oil prices in 1999 and 2000, which made this major source of energy and raw material persistently more expensive worldwide.

With a year-on-year rise of 2.8% in December 2001, the prices of services as a whole rose much more sharply than those of industrial goods. In this case, too, the rate of price increase was noticeably higher than in 2000. To a large extent, this was due to administrative measures. There was a dramatic increase in motor vehicle tax for ecologically "unfriendly" older vehicles, for example. At the same time, radio and television licence fees were raised significantly. Even excluding these special influences, however, the year-on-year rate shows a price increase of 1.6%.

It is possible to highlight two main reasons for the sharp upward movement of food

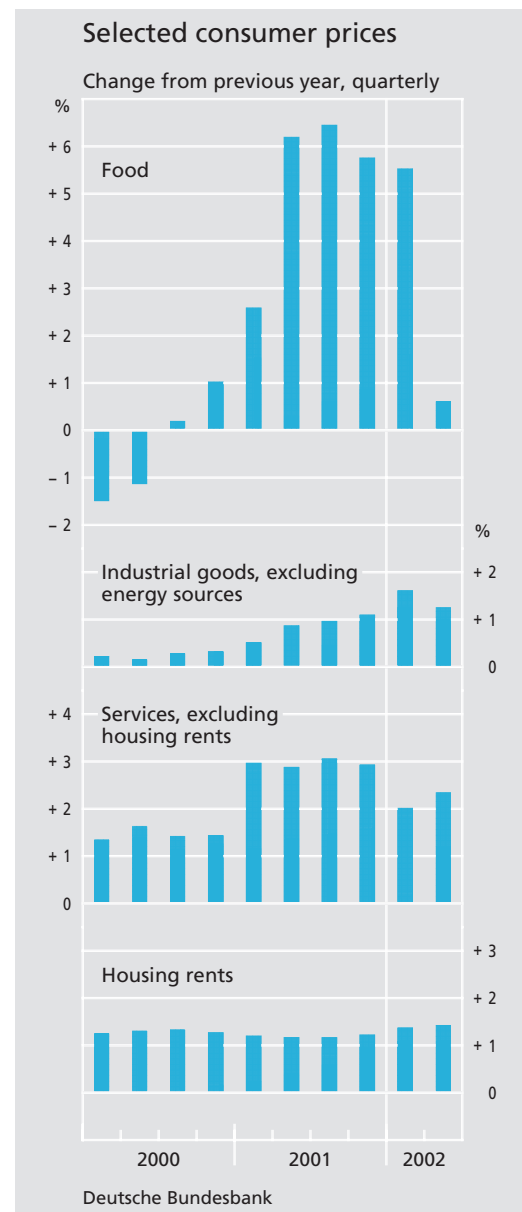
*Price rise in
industrial goods
in 2001*

*Special effects
in the case of
services ...*

... and food

prices in 2001. First, unfavourable weather in the first few months of last year led to supply shortages that pushed up prices. This was followed in spring by a BSE and foot-and-mouth disease crisis, which had a massive impact on prices. Second, there had been a fierce competitive struggle among major supermarket chains in 1999 and 2000, accompanied by marked reductions in prices, after which a process of consolidation set in. This was connected with an official warning issued to individual suppliers by the Federal Cartel Office concerning the practice of selling goods below cost price. As the market situation became calmer again, prices were adjusted and trading margins improved. According to the official consumer price index, food cost 5.3% more overall in December 2001 than one year before.

If the three categories of food, industrial goods and services are taken together, a marked rise in prices is apparent for last year. At 2.4%, the year-on-year rate at the end of 2001 was around two-and-a-half times higher than at the end of 2000. These marked adjustments may have simultaneously created scope for lowering selling prices again in order to arrive at attractive prices following the changeover to the euro, which – in line with the conversion rate – led to uneven prices in many cases. The fact that the end-of-year rate of consumer price increase, at 1.7%, was lower overall was mostly due to energy sources, which were 2.5% less expensive in December 2001 than 12 months previously. Rents, too, had a price-dampening impact insofar as their rise, at 1.3%, matched the rate in the comparable month of 2000.



From the Deutsche Mark to the euro

At the turn of 2001-02, the replacement of the Deutsche Mark meant that attention was focused on what prices looked like in euro. In line with the official conversion factor of €1 = DM1.95583, a previously attractive DM price generally turned out to be an uneven figure in euro. The special study involving the 35 selected goods and services shows that some-

*DM to euro
changeover*

what more than two-thirds of the roughly 18,000 individual prices were converted exactly. The share of uneven prices thus more than doubled and, at over 50%, became the most prominently featured type of price on display. Even more numerous were exact conversions in the case of, say, washing machines, coffee machines or wine, where shares of around 90% were achieved. Cinema tickets, hairdressing services and the cost of an overnight stay in a hotel were well below the average, with the percentage of precise conversions ranging from less than one-third to just under 50%.

Even though prices in January were converted exactly in the majority of cases, the number of price changes in that month was far higher than usual. Whereas, on average, less than 10% of the prices covered by the special analysis were changed each month in 2001, the number was three times as high at the start of the year. Smaller adjustments to a nearly equivalent attractive euro price were also quite frequent. In other cases, however, suppliers evidently attempted to exploit the reduced transparency in the changeover period to effect quite sharp price increases. Just over half of all price changes were upward. Not quite so many were downward adjustments.

The statement, derived from the special analysis, that the euro had no more than a moderate impact on inflation fits well with the picture presented by the overall data of the consumer price index. The officially recorded 0.9% month-on-month price increase in January 2002 and the jump in the annual rate from 1.7% in December to 2.1% at the start

of 2002 indicate a considerable surge in prices. Even so, on the whole, no major inflationary impact can be ascribed to the changeover from D-Mark to euro at the turn of 2001-02. This is because there were a number of extraordinary influences in January 2002 which also have to be taken into consideration and which have no causal relationship with the cash changeover.

In the case of food, the onset of exceptionally cold winter weather led to dramatic price rises, especially for supplies of seasonal fruit and vegetables. These increases were all the more marked because harvests in the Mediterranean countries, which supply a large part of the domestic market in the winter months, were also affected by failures. If seasonal products are excluded, food prices went up 0.3% month on month in January. Although this was more than on a multi-year average, it would hardly be appropriate to speak of a price surge on a broad front.

With the exception of tobacco, for which taxes were increased, price developments in the case of industrial goods were quite subdued. A month-on-month rise of no more than one-tenth indicates that prices were adjusted by far smaller amounts in January than in the second half of 2001. The year-on-year rate, too, increased only slightly from 1.2% in December 2001 to 1.3% in January 2002. Apart from electricity and petrol, for which the third stage of the ecology taxes came into force, energy sources (which also include gas and central/district heating) became less expensive. If all groups of goods affected by special factors are extracted from the con-

sumer price index, ie around 12% of the entire basket of goods, the increase in the general price level between December 2001 and January 2002 falls to 0.3%.

No major euro influence at the turn of the year

Even that price increase cannot simply be regarded as being attributable to the euro, however. Rather, a factor to be taken into consideration is that, in quite an appreciable number of cases, price adjustments are traditionally made at the start of the year – one example of this being housing rents, which are usually adjusted only at fairly long intervals. Federal Statistical Office data indicates numerous rent adjustments for January of this year, too. As a rule, the euro is unlikely to have been a significant factor in this connection either, since a landlord has to state the amount of rent explicitly and the tenant can easily check that amount by converting it back. Excluding the rent component and the above-mentioned special factors, the month-on-month rise in the consumer price index falls to 0.2%. “Normal” price adjustments are likely to have been made in the case of other goods and services, too. Moreover, in many cases, price adjustments that had been planned for some while may have been timed to coincide with the introduction of the euro in order to keep repricing costs as low as possible. The cited 0.2% thus marks, if anything, the upper limit of the euro’s influence.

Higher prices for services

Nevertheless, in some areas the introduction of the euro was used to effect specific price increases. One factor in the suppliers’ calculations may have been that a changeover to a completely new “look” for prices makes it easier to push through price increases since

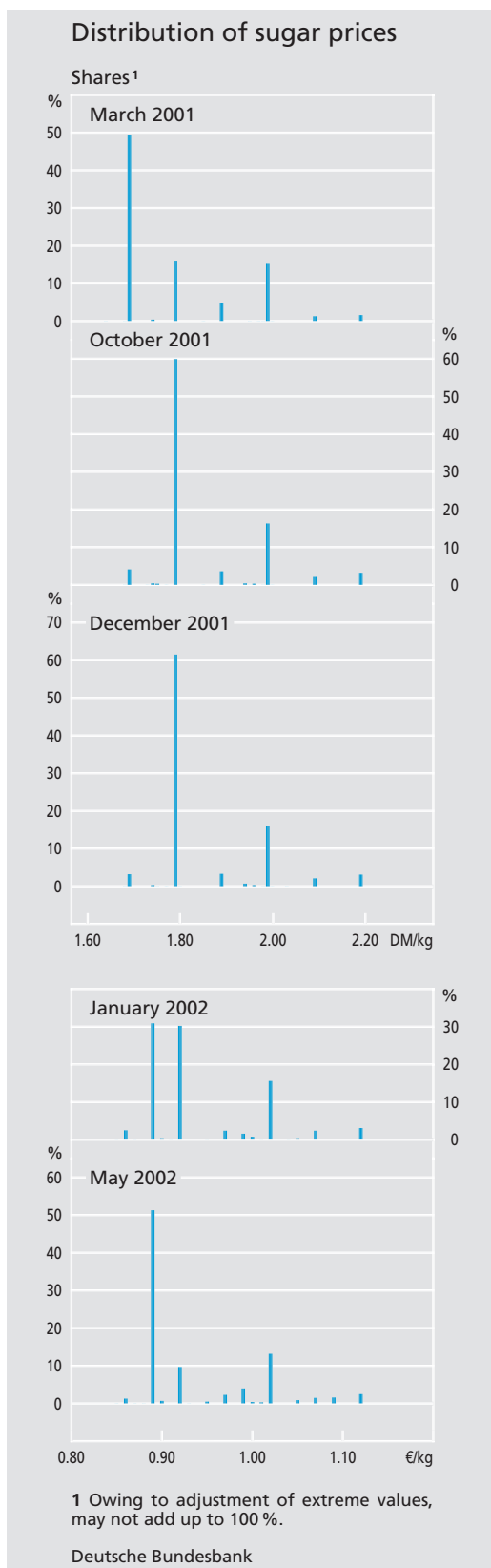
there is no immediate possibility of making a comparison with the old D-Mark prices. The sector most heavily affected was services, where prices were put up sharply. This was the case, in particular, in the hotel, restaurant and catering trade, for hairdressing and motor vehicle maintenance services as well as for repairs of electrical appliances and for a visit to the cinema.

Perceived inflation

This price-setting behaviour as well as the increase in the rate of inflation caused by higher taxes and the extremely cold and wet winter may have played a part in creating the general public’s frequent impression that the introduction of the euro had been accompanied by a broad wave of price rises.

Consumers’ perception of prices

A major cause of dissatisfaction is likely to be the increase in the general level of prices in 2001. This is all the more the case as the debate on inflation generally focuses on the year-on-year rates which cover price developments over the preceding 12 months. It is open to question whether the remembered “old” DM prices, which are used for comparison with euro prices and which determine “perceived” inflation, always took full account of the previous year’s upward movement in prices. In the case of food, in particular, BSE and foot-and-mouth disease resulted in marked shifts in the overall level of prices. Additionally, fairly frequent tax increases, which – given their regular occurrence – are not readily identifiable in the year-on-year analysis, undoubtedly have an effect on how



prices are perceived. Moreover, price changes in products which are paid for in cash feature more prominently in consumers' perceptions than when amounts are debited from a bank account. Finally, it should be noted that converting euro prices into D-Mark (which people need to do if they want to compare old and new prices) using the rule of thumb €1 = DM2 overstates inflation by around 2¼%. In summary, it may be stated that, although prices at the consumer level did show a marked rise in 2001 and at the turn of the year, this upward movement was not due primarily to the euro but to other factors.

Price developments since early spring 2002 have been quite moderate. In seasonally adjusted terms, the consumer price index in June (more recent data are unavailable at present) was no higher than it had been in March. During the same period, the year-on-year rate of price increase fell from 1.8% to 0.8%. Food and industrial goods played the major part in creating a calmer price climate, with prices falling in both cases. (Taken together, these make up nearly half of total consumption expenditure.) This decline slightly more than offset the persistent price rises not only in services, in particular, but also in housing rents. At the end of the period under review, energy prices generally stabilised at a high level.

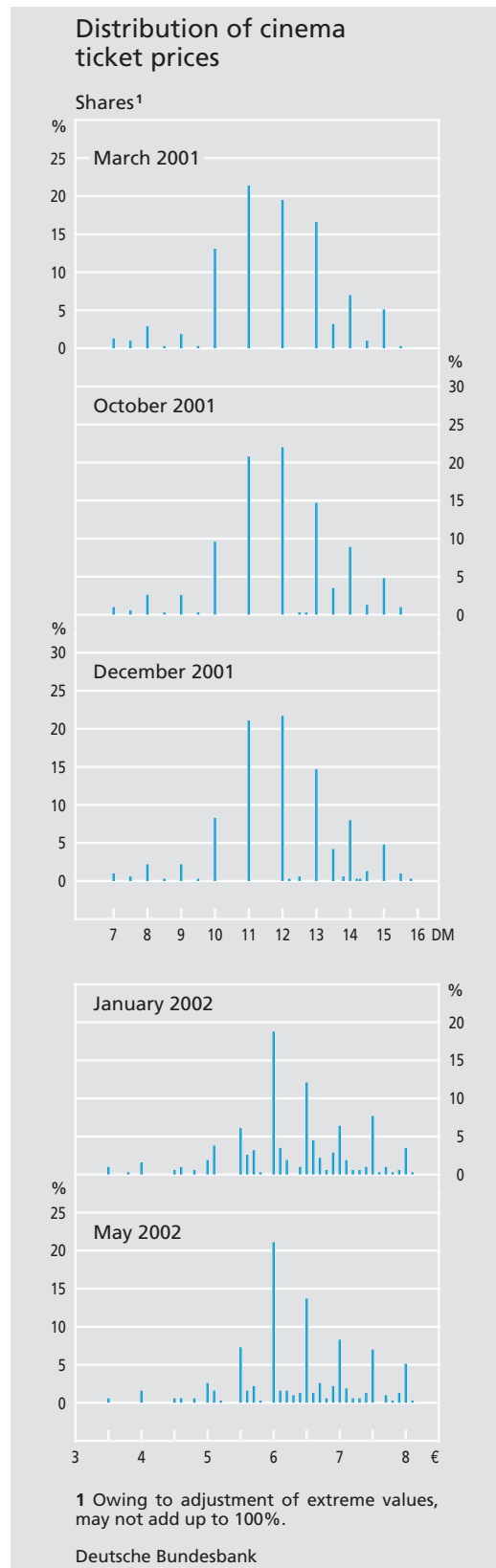
More moderate price developments in 2002

As the special study shows, the recent aim has again been to offer attractive prices for individual items. This mostly involves small price changes. The distribution of prices for individual products and services shows an increasing tendency towards concentration on a small number of price key points. A good

Return to attractive prices

example of this is sugar, the pricing of which is shown in the chart on page 22. A concentration of prices at DM1.79 per kilo is clearly identifiable for 2001. By October, this price point had, in fact, become even more prominent because of a dramatic fall in the number of price reports at DM1.69 as individual suppliers had raised the price of sugar by DM0.10. In January, the distribution of prices shows two peaks in connection with the conversion into euro. The prices €0.89 and €0.92 are almost equally well represented. The latter corresponds to an exact conversion, while the former signifies a slight price reduction. In May, there is a discernible trend towards a new key price point of €0.89 at the expense of an exact conversion. So far, the price of DM1.99, which used to mark the upper price segment before the introduction of the euro, has largely retained its importance when exact conversions are made.

The overall picture presented by prices tended to become rather diffuse immediately following the euro changeover – and thus probably also contributed to consumers' reluctance to buy – but has now gradually taken on a clearer shape. The example of tickets for admission to the cinema is one way of illustrating this. In 2001, a distinct concentration on "rounded" amounts at key price points of DM11 and DM12 can be identified. By contrast, in January 2002, a large number of intermediate prices appear. By May, however, the situation becomes noticeably clearer again. The "uneven" prices disappear and give way to "rounded" prices. A new key price point for a ticket forms at €6, surrounded by other frequently encountered prices at



intervals of 50 cents. If converted precisely, DM11 and DM12 would correspond to €5.62 and €6.14, respectively. The present €6 therefore indicates a distinct price increase.

Overall, however, the impression gained from the special analysis is that the share of threshold prices has so far been much smaller than in the D-Mark era. "Rounded" prices, however, have gained in importance. The possibil-

ity that these are being used more often with the euro than they used to be with the D-Mark cannot, it seems, be ruled out. In the case of more expensive goods and services, uneven prices are, so far, significantly more strongly represented than before the currency changeover. It would be premature, however, to regard this as evidence of a fundamental change in price-setting behaviour.