

University of Heidelberg

Department of Economics



Discussion Paper Series | No. 458

**Coping with People's Inflation  
Perceptions During a Currency  
Changeover**

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November 2007

# COPING WITH PEOPLE'S INFLATION PERCEPTIONS DURING A CURRENCY CHANGEOVER

- REVISED VERSION\* -

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## ABSTRACT

The discrepancy between popular impressions of how the 2002 changeover to the euro affected prices and its actual impact is perhaps the most surprising consequence of the single currency's introduction. Following the changeover, perceived inflation rose significantly and returned to its pre-changeover level only several months later. This paper argues that people's inflation misperceptions could have been avoided. Using principles of crisis communication, we identify the mistakes made and present policy recommendations for future changeovers.

Keywords: euro changeover, perceived inflation, communication, perceptual crisis

JEL Classification: E50, E60, Y80

## 1. INTRODUCTION

The discrepancy between popular impressions of how the 2002 changeover to the euro affected prices and its actual impact is perhaps the most surprising consequence of the single currency's introduction. In this paper, we argue that misperceptions of this kind

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\* This is a greatly revised version of an earlier working paper with the same title published in this working paper series.

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can be avoided with better communication and that there are policy instruments that can help prevent the public outcry that followed the changeover.

The actual impact of the changeover on prices was close to negligible but there is widespread belief among Europeans that the conversion of the national currencies into euros was done to their detriment. In a survey conducted by the European Commission (Eurobarometer 2003) two years after the changeover, 89 percent of the respondents expressed such opinions.

Misperceptions of actual price movements become relevant to economists and economic policy makers as soon as they induce people to alter their behaviour. A change in consumers' behaviour was observed in the restaurant industry, for example, where revenue declined significantly after the changeover. There is also indirect evidence for such changes in behaviour. The changeover and the ensuing discussion about price stability appear to have had a profound negative impact on consumer confidence and on people's satisfaction with their income. The question of the degree to which this negative impact caused or extended the period of slow growth in the euro-zone that followed the changeover is unresolved. It seems unlikely, though, that an impact on financial satisfaction as strong as that observed after the changeover would not influence people's consumption decisions. The loss in reputation suffered by many institutions should also be mentioned at this point. It was interesting to observe how even well-regarded institutions such as central banks or statistical offices suddenly faced severe credibility problems when the quality of their data was questioned and people preferred to acquire information about the impact from other sources such as the media. The persistency of the gap between actual and perceived inflation in countries like France and Spain shows how difficult it is to recover a good reputation once it is lost.

The best way to understand how to cope with people's misperceptions is to recognize that the public outcry that followed the changeover constitutes what is called a 'perceptual crisis'. The literature distinguishes several types of crises ranging from the more familiar ones caused by large accidents or natural disasters to perceptual crises caused by false information or false impressions. The technical term for false

information circulating in the public is ‘rumour’. Not all rumours turn into a crisis, but if they do, they have the potential to cause severe damage.

Perceptual crises and rumours have been extensively studied in the academic literature, primarily in the field of communication studies, and effective instruments have been developed to cope with such phenomena. What we observed at the euro changeover is therefore not a new phenomenon. The new aspect is only that the rumours developed in the context of a currency changeover; further, what is new is probably the extent of the damage inflicted by the crisis.

In the literature on the perceived impact, people’s misperceptions are usually explained by some form of ‘non-rational’ behaviour. This explanation suggests that the misperceptions and the outcry that followed the changeover are something policy makers cannot do much about. We agree that it is sometimes useful to explain certain phenomena in economics with non-rational behaviour, but we strongly object to the view that inflation misperceptions are a sort of ‘unavoidable side-effect’ of currency changeovers. People are mistaken in believing that the changeover had a significant impact on prices and good communication, and in general, a good policy can prevent people from making such mistakes. The 2002 changeover offers several examples where even the most basic rules of good communication have been violated.

The rest of the paper is organised as follows. The next section reviews the related literature and provides some background of the changeover’s actual impact on prices and people’s perceptions. In section 3, we first present the theoretical framework based on which we will study the 2002 changeover and then discuss the shortcomings and provide policy advice for future changeovers. The goal of this section is also to provide a short introduction to the field of crisis communication as far it is relevant to economists and economic policy makers. A summary in section 4 concludes the paper.

## **2. LITERATURE AND GENERAL BACKGROUND**

Before we review the related literature, it is necessary to give a short description of the changeover’s actual impact on prices. As we mentioned in the introduction, the impact was small but not entirely absent. Eurostat (2003) estimates that of a total harmonised

index of consumer prices (HICP) inflation of 2.3 percent in January 2002, the changeover might have contributed between 0.12 to 0.29 percentage points. Studies conducted at the national level find comparable magnitudes.<sup>1</sup> Assessing the impact is difficult since we do not know what the inflation would have been if the changeover had not taken place, and any estimation involves a considerable amount of uncertainty. There are, however, some price movements at the level of individual sectors that strongly suggest a changeover-related impact.

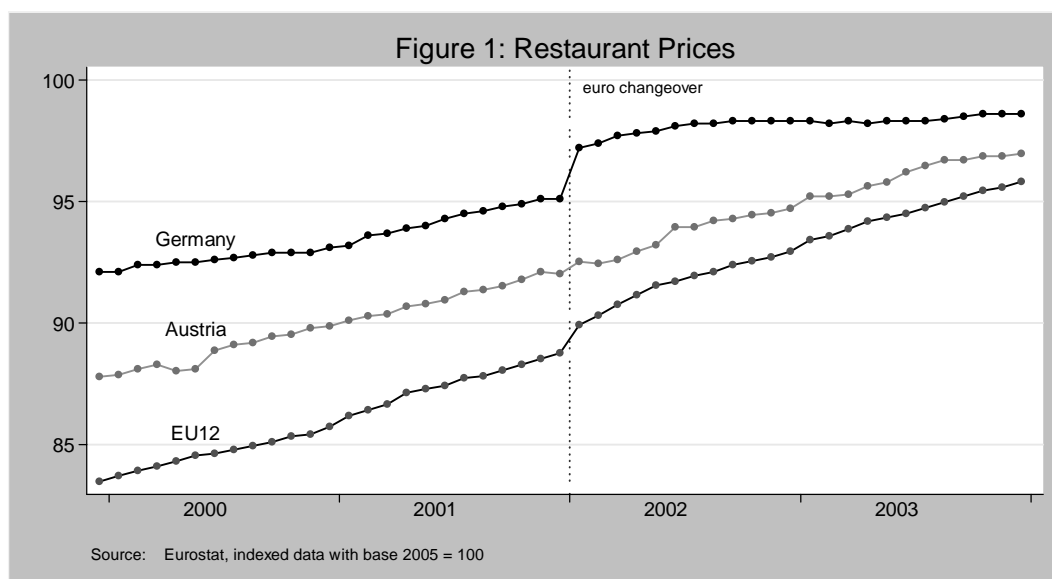


Figure 1 shows the index of restaurant prices in the four years around the changeover for Germany, Austria and the average of the then 12 euro countries (EU12).<sup>2</sup> In Germany, restaurant prices increased by about 2 percent in January 2002 when euro coins and banknotes were introduced. An increase of this size within one month is quite unusual, suggesting that the changeover indeed triggered the price rise. The average impact in the 12 Euro countries is somewhat smaller as it appears to be absent in countries like Austria. Restaurant prices received the most attention, although other services prices such as dry cleaning or hair dressing show a similar pattern. In addition to services, seasonal products such as fruit and vegetables might have experienced some impact as well. The reason why these price increases are barely noticeable at the aggregate level is that people spend only a small fraction of their income on these items, and their weight in the consumption basket is small. Despite the changeover-

<sup>1</sup> See the literature cited in Aucremanne et al. (2007, p.1) and Del Giovane, Lippi and Sabbatini (2005, p.164).

<sup>2</sup> Slovenia, the 13<sup>th</sup> member of the euro-zone, joined in January 2007.

related price increases we just mentioned, the euro-zone inflation in 2002 was lower than the rates in the previous years.

For the discussion in the subsequent sections, it is important to note that even though the actual impact is small, it is still significantly larger than what most economists (including the authors of this article) and central banks had expected, thus explaining many of the mistakes made. While economists usually find the impact shown in figure 1 surprisingly large, the general public finds it surprisingly small. There is widespread belief in Europe that the changeover led to a considerable rise in overall prices—not only in restaurant prices. At the time, it was not unusual to hear people speak of a ‘doubling’ of prices. The discussion that took place in all twelve euro countries in summer 2002 was quite lively, and in some countries, consumer strikes against the price rises were organized.<sup>3</sup> Fuelled to some extent by this discussion, a gap between actual inflation and people’s ‘perceptions’ of it developed.

Inflation perceptions are usually estimated from the Consumer Confidence Barometer Survey of the European Commission. The measure used is the percentage balance between respondents stating that prices have risen and those who believe that prices have fallen. This measure of perceived inflation considerably increased after the changeover in all euro-zone countries; it is presently, five years after the changeover, still significantly above its pre-changeover level in some countries. Note that the gap also developed in countries like Austria where the actual impact appears to be absent (Eife 2006a).

The gap between actual and perceived inflation is well documented, and several explanations have been suggested for this phenomenon.<sup>4</sup> All explanations are based on the idea that consumers are in some respect ‘non-rational’. Three groups of explanations can be distinguished. One explanation starts with the observation that most of the items that increased are frequently bought items (such as restaurant services). Based on the work of Kahneman and Tversky (1979), it is argued that consumers more powerfully perceive price changes for goods they buy more

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<sup>3</sup> Examples of these are Greece (September 2<sup>nd</sup> 2002), Italy (July 5<sup>th</sup> 2002) and Germany (July 1<sup>st</sup> 2002).

<sup>4</sup> See, for example, European Commission (2005), European Central Bank (2005), Fluch and Stix (2005) and Del Giovane and Sabbatini (2005).

frequently than for goods they buy less frequently. This behaviour was confirmed in experiments by Marques and Dehaene (2004). A related argument is that people perceive price increases more powerfully than price decreases (Burgoyne, Routh and Ellis 1999). Both arguments have been formalised and tested by Brachinger (2005, 2006).<sup>5</sup>

A second explanation uses people's predisposition for a phenomenon called 'expectancy confirmation'. People tend to search evidence selectively in order to confirm their expectations. Stated differently, people who, before the changeover, expected prices to rise are more likely to perceive price increases later. This argument is interesting because many people had held strong expectations that the euro would bring about price increases, and these expectations might have influenced their opinion and judgment of the impact after the changeover (Traut-Mattausch et al. 2004).

A third explanation is that people continue to use reference prices in the old currency. When comparing new euro prices with old reference prices, people tend to hold the changeover responsible for any price increase they observe and tend to ignore that prices have increased in the years before the changeover as well and that there is not necessarily a causal relationship between the changeover and the price changes. Dziuda and Mastrobuoni (2006) find, for example, that the longer people convert prices into the old currency, the stronger is the tendency to overestimate actual inflation.

A salient feature of the discussion about people's inflation misperceptions is that the question of how the perceived impact can be avoided is seldom addressed. The above explanations barely leave room for policy and the perceived impact appears as something policy makers cannot do much about. However, many of the explanations seem reasonable, and we agree that it is sometimes useful to explain certain phenomena in economics with non-rational behaviour. Nevertheless, we strongly disagree with the idea that inflation misperceptions are a sort of 'unavoidable side-effect' of currency changeovers.

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<sup>5</sup> See also Ehrmann (2006) and Aucremanne et al. (2007).

People's misperceptions are based on false information or false impressions, and a good policy should be able to prevent them from making mistakes. How to cope with problems of this kind is the subject of the field of communication studies, especially crisis communication, which provides the appropriate framework for our analysis. The idea that people's misperceptions are caused by communicative mistakes has been suggested before. The European Commission (2005 and 2006) addresses some aspects, and Bechthold and Linz (2005) discuss what statistical offices can do to enhance the credibility of the consumer price statistics. Our paper differs from these in the following: (1) It provides a theoretical framework for studying such phenomena. (2) It gives a detailed account of the main mistakes made. (3) It provides specific policy advice for future changeovers.

Given that there was some impact of the changeover on prices, it might appear that the public outcry was justified; at least in the case of services such as restaurants or hair dressing. There are, however, three points to bear in mind. First, as figure 1 suggests, the actual impact on prices cannot be found in all twelve euro countries (Eife 2006a). Yet curiously enough, people in countries without the impact complained about rising prices just as much as people in the other countries and the phenomenon of rising inflation perceptions occurred in the whole euro-zone (Aucremanne, Collin and Stragier 2007; Fluch and Stix 2005). Second, restaurant prices increased at the changeover but remained relatively stable afterwards (see figure 1). The public outcry, however, did not occur when prices increased but only several months later in summer 2002. This point will be resumed in section 3.3.2. Third, the index of restaurant prices increased by about 2 or 3 percent at the changeover and from a statistical point of view, an increase of this size is quite unusual but it is difficult to imagine that an increase in the price of a cup of coffee from, say, 1.00 to around 1.03 would have caused such a heated discussion.

People's perceptions of a significant impact, thus, do not seem to be caused directly by the actual price increases. The actual impact might, however, have contributed indirectly to people's perceptions because of the difficulties the authorities had in communicating appropriately on this issue.



An important question is whether inflation misperceptions may have real effects. The Bundesbank (2003) and Corsetti (2007) discuss this issue; given the magnitude of the public outcry in 2002, such a possibility does not seem far fetched, but few papers test this hypothesis. The difficulty with such an exercise is that we do not know how people would have behaved without the misperceptions and arguing that an observed decline in, for instance, consumer spending, is caused by the misperceptions is difficult. Two approaches have been taken in the literature.

The first approach confronts data from euro-countries with that from countries outside the euro-area. Doing this enables controlling for factors other than the changeover that might have affected consumer behaviour at the time, such as the terrorist attacks in September 2001. Wunder et al. (2006) follow this approach and use data from the German Socio-Economic Panel (SOEP) and the British Household Panel Survey (BHPS) to estimate the impact of the changeover on people's satisfaction with their income. The authors find a 'clear negative impact on financial satisfaction' and calculate a compensating variation of around one third. That is, in order to be as well off as without the new currency, German household incomes need to increase by about 30 percent. The paper does not consider actual changes in behaviour, but it seems unlikely that an impact as large as that estimated would not affect people's consumption decisions.

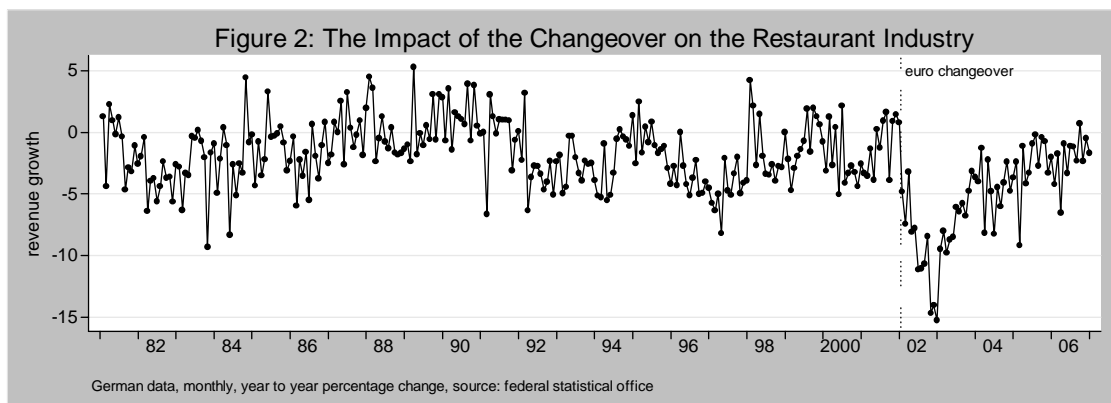


Figure 2 depicts the revenue growth in the German restaurant sector from 1981 until 2006 and can be used to illustrate the second approach. Note the contraction in 2002 and 2003. The question raised by this figure is whether the contraction was caused by the changeover or whether it can be explained by normal business cycle movements or

by factors other than the changeover. The second approach tries to identify any changeover-related impact by relying on long data sets. Following this approach, Eife and Maier (2007) argue that the contraction was too strong to be explained by the business cycle and that it reflects changes in behaviour caused by people's misperceptions. The following observations support this viewpoint. First, since 1962 when the data were first collected, the restaurant sector has not seen such a pronounced contraction. Second, note that in January 2002 when prices increased (see figure 1), revenue decreased only slightly and the main contraction occurred between 6 and 18 months after the changeover. This matches the observation that the discussion on changeover-related price increases was relatively contained in the months immediately following the changeover and only started to intensify in summer 2002. This point is resumed in section 3.2.2.

### **3. LESSONS FROM COMMUNICATION PRINCIPLES**

The best way to understand what caused the public outcry and to prevent it in the future is to understand that the outcry constitutes a 'perceptual crisis'. The literature on crisis communication which started with Fink's (1986) influential contribution distinguishes several types of crises, ranging from the more familiar ones caused by large accidents to perceptual crises caused by rumours. Rumours can be defined as false information circulating in the public about a company, a product or any object of public interest.<sup>6</sup> Not all rumours turn into a crisis, but if they do, they may cause severe damage and, like any other type of crisis, require a well-prepared response.

A crisis extends over a period of time, usually with warning signs appearing before the actual breakout, a trigger event and the time needed to attend to the damage until there is evidence that the crisis is over (Coombs 2007). The standard theoretical framework for analysing and managing a crisis follows this chronological order and distinguishes four stages: prevention, preparation, response, and learning. The first three stages are analysed below where we define each stage, analyse the mistakes made and provide policy recommendations. In the fourth stage (learning), experiences from past crises

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<sup>6</sup> Examples are the rumours that link Marlboro or the Snapple Beverage Company to the Ku Klux Klan. An example of a rumour that turned into a crisis is Audi's 'sudden acceleration syndrome'.

are collected and studied in order to improve prevention, preparation and response in the future. Writing this paper is part of the fourth stage.

Before exploring the various stages, it is useful to present a communicative instrument that we will refer to several times below: transformative explanations. These explanations are named after the fact that they try to transform pre-existing and intuitive but inadequate understandings or conceptions. The following example illustrates their role in the context of a currency changeover.

Simplifying somewhat, there are two opposing views about the possibility of a currency changeover affecting prices. One view, which is typically represented by economists, states that a changeover cannot have a significant impact on prices. For economists, the changeover provided a model test for one of their most fundamental theoretical results, the homogeneity postulate. The basic models of consumer and producer behaviour predict that the supply and demand functions are homogeneous of degree zero in prices. Multiplying prices by some factor  $k$  will not have real effects as relative prices are unaffected.

The other view is that a currency changeover may lead to significantly higher prices. One version of this view states that the confusion that accompanies the introduction of unfamiliar coins and banknotes and the changing of nominal prices may be used by firms to raise prices, and once they agree on a higher price, firms stick to it so that the changeover might even have a persistent effect. Following the literature, we will refer to this view as the 'lay theory'.

The lay theory has some apparent plausibility. It begs the question, though, why firms have not colluded on a higher price before the changeover. If firms are able to demand a higher price after the changeover, they should have been able to do so before. Firms do try to collude and set prices as high as possible but there are strong forces (competition) that hinder firms' freedom to do so. Moreover, taking advantage of the confusion is not without risk. There is a possibility that a firm damages its reputation as a fair trader, and the more vigilant consumers are, the higher this risk.

Note that the homogeneity postulate does not imply that a currency changeover cannot affect prices. There is a difference between a currency changeover and the thought experiment of multiplying the price vector by a factor  $k$ . In practice, multiplying prices by a factor  $k$  leads to some confusion and firms might try to profit from this. In addition, the tendency to price at pricing points (such as 0.99 or 24.90) forces firms to round up or down which might be noticeable in aggregate data under certain circumstances (Eife 2006b). Economic theory does, however, predict that any effect of a changeover on prices must be limited; this was confirmed by the data.

Communication is difficult when the message opposes the pre-existing understandings of the people addressed. In public health matters, policy makers often face such situations and repeatedly need to apply transformative explanations. Two classic examples (both from the 1960s/1970s) are to persuade people to fasten seat belts when driving and to overcome parents' concerns against vaccinating their child against small pox. Following Rowan (1988), transformative explanations contain four key steps.

- State the lay theory.
- Acknowledge the lay theory's apparent plausibility.
- Demonstrate the lay theory's inadequacy.
- Establish the greater adequacy of the advocated theory.

In order to overcome the lay theory, policy makers first need to acknowledge that the lay theory exists and that it has some apparent plausibility. Acknowledging consumers' logical motivations for holding the lay theory is a critical step. Simply stating that consumers' intuition is flawed places them in a defensive position and may put the transformative objective of the message at risk. Consumers must be dissatisfied with the lay theory before abandoning it. The fourth step is to demonstrate that the advocated theory is more adequate.

In general, good transformative explanations treat audiences like scientists. Scientists do not give up their theories until they receive a compelling reason to do so. Similarly, people do not give up lay notions simply because someone says they are wrong. Returning to the changeover, people will not give up their conviction that firms may

raise prices during a currency changeover simply because economists say they would not.

### **3.1 PREVENTION**

Crisis management begins with prevention. Prevention means to identify potential risks and to mitigate or reduce them as far as possible. During the run-up to the changeover, the first signs that a crisis was approaching can be found in surveys conducted on behalf of the European Commission in which a growing number of respondents agreed to say that they ‘feared abuses and cheating on prices’ when the euro replaces the national currencies. Four months before the changeover, 78 percent of respondents expressed such fears (Eurobarometer 2001).

In crisis management, this is called a warning sign. A warning sign indicates that a crisis could be developing and requires pre-emptive efforts to prevent the crisis. The later people’s concerns are addressed, the higher is the risk that the situation turns into a crisis. There is also the tendency that people read evidence selectively such that it confirms their expectations. People who, before the changeover, expected prices to rise tend to later believe that prices had indeed increased (Traut-Mattausch et al. 2004). The stronger people’s expectations of rising prices, the harder will it be later to convince them otherwise and the more likely it is that they develop inflation misperceptions. The European Commission (2005) refers to the failure to allay the public’s concerns about the anticipated impact on prices as ‘one of the weakest points’ of the 2002 changeover.

When fears of rising prices arise, a good strategy is to assure people that their fears are taken seriously, that it is possible that some firms might try to take advantage of the changeover, that consumers have the right to complain and that they should do so and that firms that increase prices will be contacted and will have to justify their price setting.

At this point, it is also important—and possible—to remind people that they should be fair in their criticism. People should not discredit the whole sector when they observe one restaurant increasing its prices. People should also appreciate if a restaurant lowers

its prices. Not all price increases are changeover-related, and in well working economies, prices change continuously. In the services sector particularly, prices tend to increase and will continue to rise after the changeover just as they did before. These ‘reminders’ should be provided before the changeover. After the changeover, when people have already formed their opinion, they might appear didactic and might not serve their purpose.

The strategy we have described above is a continuation of the transformative explanation from the previous section. Besides preparing the public, it is also important to inform retailers and service providers that there is a danger that price increases of a few firms might discredit the whole industry. Firms should also know that if there are complaints, the concerned firms would be contacted and asked to justify their price setting. Since this policy is for the benefit of the whole sector, it should possibly win the support of retail associations. The question of who should contact retailers and, in general, communicate with the public, is addressed in the next section.

### **3.2 PREPARATION**

One of the most severe problems of the 2002 changeover was that there was no institution assigned to communicate with the public on the issue of prices. Several government agencies (European and national central banks, European and national statistical offices, ministries, etc.) provided sometimes contradicting information which led to a considerable amount of confusion about what really happened to prices.<sup>7</sup> This confusion allowed the media to control the situation and to assume a leading role in informing the public on the issue of prices. As we will discuss in the next section (response), this was a critical mistake because it made the authorities appear unprepared or even incompetent in the eyes of consumers.

The purpose of the preparation stage is to establish such an institution and to prepare crisis communications procedures that provide instructions on how to respond if rumours of rising prices emerge. Servet (1998) anticipated the need for such an institution and proposed the creation of ‘euro-observatories’.

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<sup>7</sup> Section 3.3 provides a few examples. Engels (2003) provides a nice account of this episode; see also Eife and Coombs an earlier version of this paper (2007).

The observatories' role will be to monitor price conversions, spot any difficulties, collect information, operate as a point of reference, [and] distribute information.

[The observatories] should thus promote transparency of the changeover by guaranteeing to consumers that the conversion of national currencies into the euro will not be accompanied by underhand price increases.

[The observatories] must not be regarded as simple 'message-bearers' of governments and administrations, which would totally undermine their credibility.

Credibility is a crucial quality of these observatories, and establishing an institution with enough integrity to confront rumours of rising prices is one of the biggest challenges in future changeovers. The 2002 changeover has shown that even relatively independent institutions like central banks or statistical offices may face a credibility problem in the sense that people either pay little attention to what these institution say about the actual impact on prices or that they prefer to obtain information from other sources such as the media. A possible solution to this problem is cooperating with consumer groups or other institutions that consumers consider credible. The following two examples illustrate this point.

In spring 2006, when Germany decided to raise VAT rates from 15 to 19 percent, there were concerns that a public outcry may again arise and that there could develop rumours of firms raising prices by more than what would be justified by the VAT change. These concerns and the rather negative experience from the 2002 changeover prompted the German statistical office to cooperate with the largest German consumer interest group (VZBV) to launch a service called the 'price monitor' which includes a web page where people can monitor how prices of various items develop over time. Detailed information regarding the reliability of the data and how the data are collected is provided as well.

Another example, also set during the run-up to the VAT increase in Germany, is the cooperation between several retailers and TÜV, a certification body.<sup>8</sup> TÜV's role in

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<sup>8</sup> TÜV (Technischer Überwachungsverein), founded in the late 19<sup>th</sup> century, began as a body of technical monitoring associations. TÜV later expanded into other businesses and now operates as an

this cooperation was to monitor prices and ‘guarantee’ that the retailers would not raise prices because of the VAT increase. In both examples, the cooperation started because an organization felt that it would need the help of another organization to enhance its credibility. These examples raise the question of whether Servet’s proposal to establish euro observatories is necessary or whether the existing institutions might be able to take on the observatories’ proposed tasks.

The two main tasks of the observatories were (1) to monitor prices and to assure that the changeover would not be accompanied by underhand price increases and (2) to provide information about prices and inflation. The above example suggests that there exist incentives for private firms to allow an independent supervision of its pricing policies in which case establishing observatories as recommended by Servet might be unnecessary. Given the 2002 experience, it is likely that we will see similar cooperation in future changeovers.

For the second task, namely, the provision of information, the ‘natural’ institutions would be the statistical offices, and where necessary, cooperation as in the example above seems a good option. There are, however, countries in which people have little faith in the numbers published by statistical offices, and cooperating with consumer groups might not lead to the desired outcome. It might even be difficult to find consumer groups willing to cooperate. In these cases, creating independent observatories should be considered.

### **3.3 RESPONSE**

The response stage is the most visible and most widely studied aspect of crisis communication. In this section, we will first provide a general discussion of the principles a good response should follow. Subsequently, in section 3.3.1, we will give three examples where these principles were violated during the 2002 changeover. It is interesting that the discussion on price increases was relatively contained in the weeks following the changeover and intensified significantly only five to six months later. This somewhat overlooked phenomenon and the relationship between media coverage and people’s perceptions in general is the subject of section 3.3.2.

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independent consultant and certification body. Companies that sought the assistance of TÜV include Müller (a drug store chain) and Deichmann (a footwear company).



Crisis communication principles state that the initial response to a crisis must be quick, consistent and strategic and that the organization needs to speak with one voice. A strong initial response helps to take control of the crisis. ‘Quick’ in the context of a currency changeover means that some response is necessary as soon rumours of increasing prices appear and, especially, as soon as the media start reporting the issue. Data collection and analysis are time consuming such that it is often not possible to be very detailed in the initial response. If this is the case, it is possible to ask for some more time before providing a comprehensive response. ‘Consistent’ means that the response needs to be free of contradictions and errors. Correcting previous statements gives the impression of being confused and inconsistent.

The response to rumours about rising prices needs to be ‘strategic’, which means that it is not enough to simply present statistics showing that the impact on prices was absent or negligible. The fact that the impact was negligible needs to be defended, even assertively. Further, being strategic means that the communication channels need to be chosen carefully. In the following, we will see an example that illustrates that indirect communication through the media is not always appropriate. Messages communicated directly via advertisements or fact sheets mailed to people have a better chance of being heard. The problem of speaking with a single voice was already addressed in section 3.2.

### **3.3.1 THREE EXAMPLES OF POOR COMMUNICATION IN 2002**

A good example of an inconsistent response is provided by the European Central Bank (ECB). Reporting on price developments at the changeover, the ECB published the following three statements in its monthly bulletin.

February 2002 (p. 22): As regards any pressure on prices stemming from the euro cash changeover, taking the above factors [weather and taxes] into account, there remains no evidence of a significant upward impact.

March 2002 (p. 32): For certain individual components at the disaggregate level—in particular within the service sector—price increases were observed in January 2002, which could be associated with the introduction of euro banknotes and coins.

July 2002 (p. 22): Another factor behind the recent rise in the annual rate of change in service prices appears to be some impact from the cash changeover. This impact seems to be most evident in a number of specific sectors, including restaurants, hairdressing, and dry cleaning.

From the very beginning, the ECB took the rumours that the changeover might have had an impact on prices seriously and addressed this subject in nearly every issue of its monthly bulletin in 2002. However, the three statements above have a serious weakness. In particular, for non-specialists (such as many journalists) it appears that the ECB was correcting itself. Reading the February bulletin, a journalist would quote the ECB saying that there was no ‘significant upward impact’. In March, it appears that the ECB’s position was that there ‘could’ have been an impact, and in July, the ECB’s view about what caused the impact is clear. Even if not intended, this somewhat unfortunate practice undermines an organization’s credibility and might have contributed to people’s impression that the authorities tried to cover up the price increase and ‘admitted’ it only after the public outcry.

It has to be noted that for the February publication, the January HICP data were unavailable, as is clearly stated in the Bank’s bulletin. The statement that there was no ‘significant upward impact’ is based on a rough estimate (called a flash estimate) of the overall HICP inflation. No detailed breakdown of the flash estimate into subcomponents is available. The ECB should be credited for responding in as early as February on the impact of the changeover; however, without having detailed data available, it might have been better to provide an open response leaving room for reaction to later developments.

A good example of a response that is not ‘strategic’ is provided by the Bundesbank and the German Statistical Office. In a joint study, both institutions documented the impact of the changeover on prices in as early as March 2002 (Bundesbank 2002a, Buchwald et al. 2002). Considering that these documents were published only a few weeks after the changeover, they are remarkably detailed. Shortly afterwards, several other official reports appeared (e.g. Bundesbank 2002b and Buchwald et al. 2002b). These reports apparently did not reach a wide audience, and in spring and summer, the

media were able to provide ‘new evidence’ of the impact even though the reports already documented the impact comprehensively.<sup>9</sup>

It is irrelevant whether journalists were truly unaware of the official reports or whether they deliberately ignored them. Letting the media assume the role of the institution informing the public of the ‘truth’ about the impact is a serious mistake. This is firstly because, media reports are often unbalanced and based on small and sometimes biased samples, and secondly, because in the eyes of consumers the authorities appeared unprepared and confused. In case the media do not show any interest in informing the public about the official reports, communicating directly with the public via advertisements or ‘infomercials’ is an option.

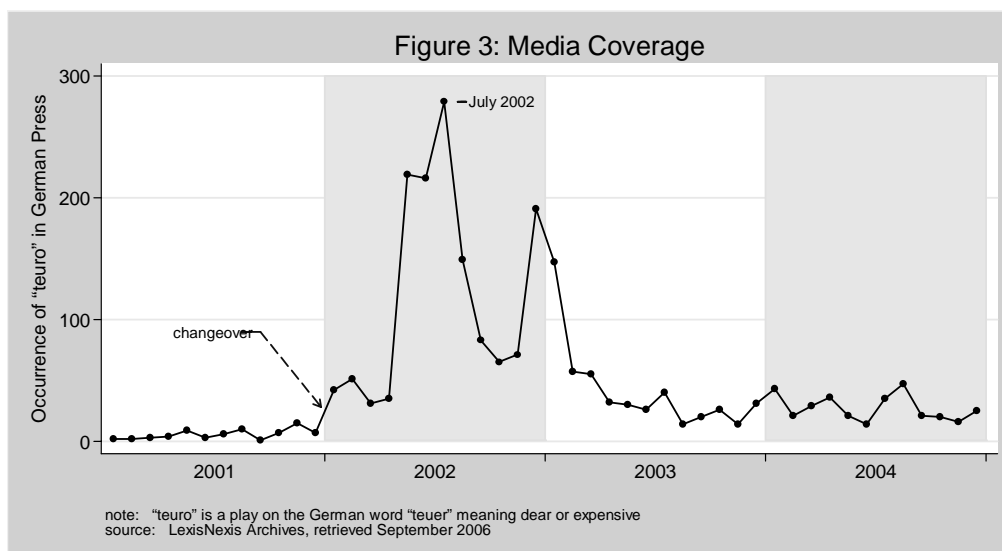
The fact that the German statistical office and the Bundesbank began their joint study nearly two years before the changeover shows how seriously both institutions considered this issue. With 18 000 individual price series for 35 separate items, this study is by far more detailed than any study presented in the media. Given the size and the quality of their data set, it would not have been very difficult for these two institutions to influence the discussion more determinedly and assume a leading role in communicating with the public on this issue.

The third example suitably illustrates the confusion that prevailed in the public with regard to the issue of prices. In an interview in December 2002, twelve months after the changeover, the president of the ECB was quoted saying, ‘We have been reserved about recognising that the changeover influenced prices somewhat’. The interview surprised many because the European statistical office had already estimated the impact in May 2002 and the ECB itself described the impact in its monthly bulletin in July 2002. The confusion that prevailed in the press about the issue of prices at the time is well illustrated by a comment in the New York Times (2002) on the interview; it is stated that prior to this interview, the ECB had maintained ‘that the introduction [of euro coins and banknotes] had no effect on inflation’.<sup>10</sup>

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<sup>9</sup> Headlines like ‘Inflation, the truth about prices’ from the German weekly Focus (2002) were typically seen.

<sup>10</sup> The interview was conducted by the Dutch business channel RTL-Z and was widely reported in European newspapers.



### 3.3.2 MEDIA COVERAGE AND PEOPLE'S MISPERCEPTIONS

Figure 3 plots the occurrence of the word 'teuro' in the German press from January 2001 until December 2004. The word 'teuro' is a play on the German word 'teuer' which means dear or expensive. Taking the word 'teuro' as a proxy, the discussion on the changeover's impact on prices increased in January 2002 and became somewhat steady in March and April; five months later, it intensified significantly to peak in July. A second peak occurred around a year after the changeover.<sup>11</sup> The figure gives the impression that in the weeks immediately after the changeover, the discussion about the impact on prices was relatively contained with only few reports about price rises. This impression is confirmed by the ECB (2002b) reporting that in the first weeks of 2002, some negative stories appeared in the media but that 'the tone overall was very positive'. Isengaard and Schneider (2006) term the coverage at the time 'extremely positive'. The swing in public opinion occurred about five or six months after the changeover.

It is interesting that Moore (1973, p.213) describes a similar pattern after the decimalisation of the British currency. As Moore reports, coverage in the British press immediately after the decimalisation was mostly positive with few complaints about rising prices. However, a considerable swing in opinion occurred about six months later, when several newspapers ran headlines claiming that retailers had used the decimalisation for underhand price increases.

<sup>11</sup> The data presented in Del Giovane and Sabbatini (2005) suggest the same pattern in Italy.

What caused the swing in opinion in May 2002 is not clearly understood. One possibility is that the inconsistency of the authorities' response became clear at around that time when previous statements about the changeover's impact had to be corrected (see section 3.3.1). Another possible explanation is that as time passes, the feeling that prices were converted to the detriment of consumers was getting stronger. This trend is well documented in surveys conducted on behalf of the European Commission (Eurobarometer 2002). A plausible explanation for this trend is that people continue to use reference prices in the old currency, and the older and the more outdated these are, the larger is the error implied by this habit. In fact, the feeling that prices were converted to the detriment of consumers increased once more in 2003 (Eurobarometer 2003).

Here, people's perceptions are based on an erroneous judgment of price observations, and good communication can prevent people from making this mistake. The mistake can be viewed as a version of 'post hoc ergo propter hoc'—the logical fallacy that assumes that if one event happens after another, then the first must be the cause of the second.

A transformative explanation discussed before helps again. The steps are (1) to acknowledge that many prices have risen since the changeover, (2) to acknowledge that it might appear that the changeover was causing the price rise, (3) to remind people that many goods and services tend to become more expensive over time and that they continue to do so after the changeover just as they did before. A good way to make this point more convincing is to graphically show how prices developed over time, similar to what the German statistical office did during the VAT change (see section 3.2). (4) The fourth and last step is to maintain that we would have observed the higher prices without the changeover as well and that the order of events—the changeover followed by higher prices—does not necessarily imply a causal relationship.

## 4. SUMMARY

Our main motivation to write this paper was a general concern with the direction of the discussion on inflation misperceptions. There seems to be a widespread conviction in the literature that inflation misperceptions are sort of ‘unavoidable side-effects’ of currency changeovers and that policy makers cannot do much about this phenomenon. Rather than being an unavoidable side-effect, people’s misperceptions and the public outcry that followed the euro-changeover in 2002 were caused by insufficient preparation and inappropriate communication during the changeover. The changeover offers several examples where even the most basic principles of good communication were violated.

The public outcry constitutes what is called a ‘perceptual crisis’, that is, a crisis based on wrong information or wrong impressions. Like crises caused by large accidents or natural disasters, perceptual crises can cause severe damage and require a well-prepared response. Perceptual crises have been studied extensively in the academic literature and effective instruments have been developed to cope with such phenomena. The phenomenon that Europe experienced in 2002 and 2003 is therefore not new; what is new is only that the misperceptions developed in the context of a currency changeover and probably also the extent of the damage inflicted by the crisis.

Perhaps the main mistake made during the euro’s introduction was to allow the media a leading role in informing the public on its impact. Media reports were often unbalanced and based on small and sometimes biased samples. What was missing was a clear and credible statement about what really happened to prices. The many institutions that communicated with the public on the issue of prices—European and national central banks, European and national statistical offices, European commission, governments, and ministries—often provided contradicting information and sometimes needed to correct previous statements. Mistakes like these made the authorities appear unprepared or even incompetent in the eyes of consumers. It was interesting to observe how even well-regarded institutions such as central banks or statistical offices suddenly faced a severe credibility problem when the quality of their data were questioned and people preferred to get their information from other sources such as the media. The persistency of the gap between actual and perceived inflation in

countries like France or Spain shows how difficult it is to recover a good reputation once it is lost.

There will always be fears that an event as a currency changeover will bring disadvantages. The challenge is to allay people's concerns and fears and to provide credible information about prices so that misperceptions do not turn into a crisis. People's misperceptions and the public outcry are a policy problem and not unavoidable side-effects of currency changeovers.

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