

Does the Introduction of the Euro have an Effect on Subjective
Hypotheses about the Price-Quality-Relationship?

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Abstract

Product prices are often considered to be an indicator for quality. In our experiment we focussed on the question if consumers' hypotheses can be biased by exchanging the digits on price displays due to currency changes. We found that high numbers in a price expressed in terms of a currency with a relatively low value (German Mark) lead to a higher perceived quality level than an equivalent price expressed in terms of relatively high listed currency (Euro). Contrary to our expectations we could not prove that this effect is stronger for premium than for low-budget products.

Key words: subjective hypotheses, price-quality-relationship,
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Introduction

Consumers' subjective hypotheses are crucial for buying processes because they tend to hang on to their preassumptions and to ignore new information. Consequently, they think and behave as if they had to confirm their preliminary assumptions. Within the psychology of thinking and reasoning this inertia effect is known as the confirmation bias (Klayman & Ha, 1987; Snyder & Swann, 1978; Wason, 1960). Various factors have an influence on consumers' tentative product evaluations. Some can be allocated to the buyer: These are factors like high- and low-involvement processes (e.g. Park & Hastak, 1994), the importance of rationalistic resp. emotional characteristics contributing to the decision as well as the combination of these factors (e.g. O'Cass, 2000; see also literature on the FCB-grid (Vaughn, 1980, 1986)). Other factors are product cues. These can either be intrinsic - like colour, size, and quality - or extrinsic, like brand name or country of origin. (cf. Dawar & Parker, 1994; Dodds, Monroe & Grewal, 1991; Jacoby, Olson & Haddock, 1971; McConell, 1968; Peterson & Jolibert, 1976; Render & O'Connor, 1976; Richardson, Dick & Jain, 1994; Verlegh & Steenkamp, 1999). In our study we focus on the product price. We shall not regard the actual price level: We will address the problem if pricing with different (i.e. low-numbered vs. high-numbered) currencies influences the perception of price and product image.

The relationship between product price and perceived product quality is often an important topic of consumer behaviour research. McConell (1968) showed that the perceived quality of

beer was influenced by its sales price. In recent decades there have been numerous studies which found a relationship between product price and perceived quality (e.g. Chang and Wildt, 1994; Dawar and Parker, 1994; Jacoby et al., 1971; Jung, (1983); Lichtenstein, Ridgway and Netemeyer, 1993; Render and O'Connor, 1976). Also, the interaction between the price effect and other factors like country of origin or quality has been investigated (e.g. Cordell, 1993). This paper also deals with the relationship between product price and perceived quality. In order to extend the research on this topic we focus on the anchoring effect which is induced by the numerical value of the price. Usually, the variables price and numerical values are confounded. The higher the price, the higher its numerical value and vice versa. If a product price is expressed in terms of different currencies, the price of the product remains constant but the numerical value for the price may change. This is the case if one travels to another country with a different currency. In order to assess the price of the product it is necessary to translate the figure representing the price into another figure in terms of one's own currency. There is no need to do this translation if one stays in one's own setting, the digits of the number representing the price reflect the price information. Experiments on the anchor-effect have shown that human judgement is easily influenced by numbers that occur randomly in the judgement context. Russo and Shoemaker (1989) asked their participants to write down the last three digits of their home telephone number. Afterwards, 400 was added to this number. Then the participants were asked: *Do you think that Attila the Hun was defeated before or after that year?* The participants' answers were highly dependent on the initial

anchor, defined by their personal phone numbers. Recently, Ariely, Loewenstein, and Prelec (2003) demonstrated the influence of a random initial anchor in the context of economic psychology: Participants had to state whether they would buy a certain product at an amount of money (in US-\$) determined arbitrarily by the last two digits of their Social Security numbers. The students were then asked for the maximum price they would pay for these goods. These prices proved to be correlated with the last two digits of the participants' Social Security numbers.

Our paper addresses the question if such anchor effects have an influence, when a product with a certain perceived quality is associated with a new and unfamiliar price tag showing an unexpected number. This phenomena has occurred in many European countries after the introduction of the new Euro cash money in January 2002. In all countries the basic currency - Euro, € - was worth more than the basic unit of the old currency (e.g. 1936.27 Italian Lira, 166.386 Spain Pesetas, 6.55957 French Franc, or 1.95583 German Mark (DM)). So in any case one Euro has a greater value than any of the old basic currency units. Yet, there are big differences according to the conversion-rates. It seems very unlikely that these differences do not have any effect on economic behaviour, indeed Desmet (2003) found some differences concerning consumers' buying intentions in Spain and in Germany. If an item that used to cost about 2.000 Lira is suddenly offered for just 1 € this difference is very striking and one feels immediately forced to calculate whether the Lira- and the Euro-price are equivalent. This, of course, is different for the currencies with a value closer to the

Euro, e.g. the German Mark. The ratio is about 1 to 2. Consequently the numbers on price tags should be divided by 2 in order to get equivalent prices in €. This of course is still a big difference but, contrary to the Lira or the Franc, in most cases the format, i.e. the number of digits, remains the same. As a result of this rather familiar format people do not feel forced immediately to convert the Euro-price in terms of Mark. Of course, shortly after a purchase decision these conversions might be applied. E.g. many Germans still - more than one year after the introduction of the € - tend to spend too much money for tipping (cf. e.g. Rheinische Post, 2003). After adding two or three basic currency units (in €) to the restaurant bill, they realized that they gave a tip of almost four or six Marks.

In our study we focussed on the price-perception of low-budget and premium products. An essential distinctive feature for both product groups is the price. This information is conveyed in form of the price segment, which can be operationalized comparatively (e.g. relatively cheap price for a low-budget product) and by the absolute amount of money shown on the price display (e.g. a book for 10 Dollars). In everyday-life these factors price segment and price display are confounded. Therefore this covariation is familiar to the consumers. These covariances change all of a sudden if a new currency unit is introduced. If a product remains in the same price segment new price displays are assigned. If the digits of the price displays remained the same, this would mean that the product belongs to another price segment.

Hypotheses

Our first assumption is that we will find the following relationship between product price and perceived product quality:

H1: The product price has a positive influence on perceived product quality.

Stating this hypothesis might be trivial, but finding supporting data for it is an essential prerequisite to achieve before deciding about our other hypotheses. If a product is allocated in a certain product segment and a new currency unit is applied then we predict that a changed number on the price display suggests that this product is in a new price segment. If the old basic currency unit (e.g. DM) has a lower value than the new unit (e.g. €) then products are likely to be perceived as belonging to a lower price segment. By the beginning of 2001 the numbers on price displays in Germany were divided by about two: A package of cigarettes - formerly sold for 6 DM - actually costs 3 €. Consequently we predicted:

H2: Price displays in DM imply more positive subjective hypotheses about perceived product quality than displays in €.

Usually, customers are interested in paying low prices. But low prices reduce the perceived product quality. E.g. German breweries pay huge grocery store chains for not selling beer at low prices. So the effect proposed in our first hypothesis should be stronger for premium products.

H3: The difference of ratings reflecting subjective hypotheses about product quality between price displays in DM and displays in € is greater for premium products than for low-budget-products.

In statistical terms the third hypothesis predicts an interaction effect between product segment (low-budget versus premium) and price display (DM versus €).

Method

We decided to test our hypotheses in a laboratory experiment for four different kinds of products (car, trousers, hair shampoo, beer). For each kind of product we selected one sample out of the low-budget category and one out of the premium category. Table 1 lists the eight selected products and a short description.

Table 1: List of the products and its DM and €-prices

Kind of Car product	Segment	
	Low-Budget product	Premium product
	<i>Opel Vectra</i> Middle sized notch back limousine from the German subsidiary company of General Motors DM: 39100 €: 20600	<i>Mercedes C-class</i> Middle sized notch back limousine from Daimler Benz DM: 58700 €: 29.990
Trousers	<i>C & A Westbury</i> No-Name product sold by the department store chain C & A DM: 100,00 €: 51,00	<i>Levis 501</i> Classical brand for jeans fashion DM: 175,00 €: 89,00
Hair-shampoo	<i>Aldi Benny</i> No-Name product sold by the grocery shop chain Aldi DM: 1,99 €: 1,02	<i>Douglas Clinique Hair Care</i> Brand product exclusively sold in Douglas boutiques DM: 21,50 €: 10,99
Beer	<i>Oettinger Pils</i> Low price German beer brand DM: 0,49 €: 0.25	<i>Modelo Corona</i> Highly priced party beer DM: 3,90 €: 2,00

These short descriptions are not identical with the versions presented to the participants. The descriptions used in the experiment were longer (150 words each) and contained some information on the product and its producer. At the end of the text the price (either in DM or in €) was presented in big, bold letters. Each participant read four texts either about the low-budget products or the premium products. The factor (kind of product, i.e. car, trousers, hair shampoo, beer) was varied within subjects. Possible sequential effects of the four

products were balanced within a latin squared design. Fifty percent of the participants received the price information in DM, the others in €. Consequently, as for these two variables a 2 (low-budget versus premium segment) x 2 (DM vs €) plan was applied, the last two variables were varied between subjects. The participants (80 1st semester psychology students, average age: 23,0 years) were randomly assigned to the four experimental conditions; each of which was passed by 20 participants. The participants' hypotheses about the product features were operationalized by means of seven-point bipolar adjective scales between -3 and +3 (cf. table 2).

Table 2: Psychometric qualities of scale defining the dependent variable

Seven point bipolar scales	Part whole item total correlations
	Two sided p-values: *p<.20, **p<.05***p<.001
Cheap – Expensive	-0,29**
Strong – Weak	0,52**
Hard – Soft	0,16*
Active – Passive	0,53***
Worth owning – Not worth owning	0,62***
Fast – Slow	0,52***
Exciting – Boring	0,72***
Not attractive – Attractive	0,74***
Complex – Simple	-0,49***
Good – Bad	0,66***
Ugly – Nice	-0,74***
Comfortable - Uncomfortable	0,69***
Internal consistency for all 12 items (Cronbach's Alpha): 0,86	

Results

Analyses of the scales supposed to define the dependent variable proved that part whole item total correlations as well as internal consistency are more than sufficient (cf. table 2). Our three hypotheses were tested by an ANOVA of the 4x2x2-experimental plan with the sum variable defined by the 12 seven point ratings as dependent variable.

H1: The product price has a positive influence on perceived product quality.

The effect proposed in this hypothesis should be reflected by testing the first two main effects (product category and product segment). Both variables had a very strong effect, even after applying a Bonferroni-adjustment of the alpha-error (because we decided on only one hypothesis by two comparisons) both were significant: For the product category "beer" with the lowest middle product price the middled sum rating on the seven point scales was -1,51, for the second cheapest category (hair shampoo) the average sum rating was 0,02, in the trousers category the rating was 3,39, and finally for the cars 5,10. This effect was very significant: $F_{3,19}=5,72$, $p<.01$. Another possibility for testing this effect is the comparison of low-budget products (averaged sum rating=-3,74) with premium products (averaged sum rating=8,26). This main effect became even highly significant ($F_{1,311}=124,218$, $p<.001$).

H2: Price displays in DM imply more positive subjective hypotheses about perceived product quality than displays in €.

The results regarding this hypothesis were also supported: DM-prices lead to the participants' hypotheses that the products are of better quality (averaged sum rating: 3,39) than €-prices (averaged sum-rating: 1,13), $F_{1,311} = 4,220$, $p = 0,02$.

H3: The difference of ratings reflecting subjective hypotheses about product quality between price displays in DM and displays in € is greater for premium products than for low-budget-products.

As suggested by the parallel lines in the interaction diagram (cf. figure 1) this hypothesis failed to be significant ($F_{1,311} = 0,182$, $p = .67$).

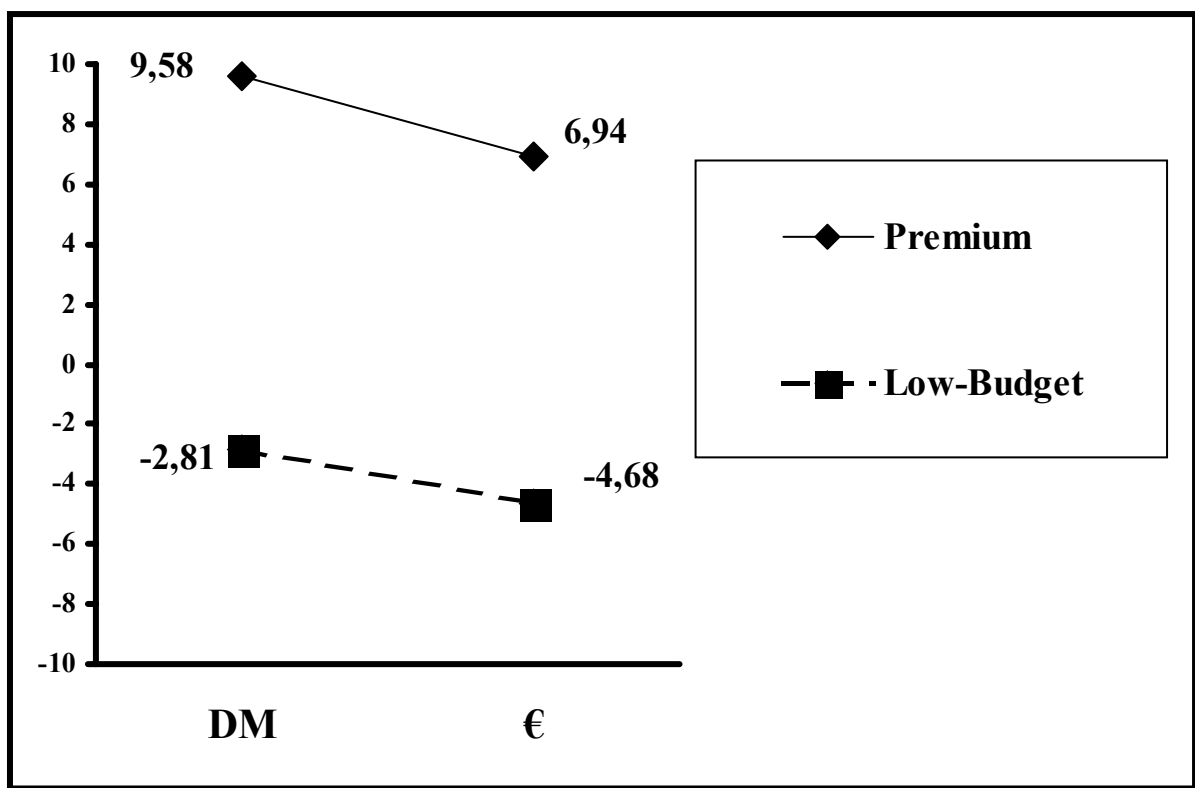


Figure 1: Interaction diagram of the two independent variables product segment and currency with the dependent variable sum rating of the bipolar scales

Discussion

The central findings of our study can be summarized as follows:

(1) We succeeded in replicating the well-known effect of the positive relation between price and perceived product quality. As mentioned above, this is only our prerequisite for the following two innovative findings of our study. (2) We succeeded in applying the anchor effect in the context of introduction of another currency. Keeping the purchase value fixed but changing the currency unit leads to a higher perceived product quality if the new price display has a higher number, and to a lower perceived quality if the price display number is lower as well. (3) We failed to demonstrate that the hypotheses for product quality due to changes in currency are stronger influenced for premium products than for low-budget products. Although scientists usually have prejudices against interpreting results confirming the null hypothesis (Greenberg, 1975) we do this for two reasons. First, the p-value of 0.67 for the interaction between currency and product segment suggests that there is indeed no effect. Second, failure to find existing differences might be due to insufficient definition, operationalization, measurement, and / or false statistical procedures. We can exclude these explanations because analyses of the bipolar scales and of statistics for the first two hypotheses proved that we managed to maximize the influence of systematic sources of variance and minimize error variance. We also do not make use of the possible loophole that we did not find this effect because of our laboratory experimental design. Field studies in everyday-life should also fail to find different effects of changes in price displays for premium products compared to low-budget products. In our

laboratory experiment we managed to find very strong effects (relation between price and perceived quality, anchor effect) which also occur in everyday-life, so why should we have just missed one effect? However, we have to bear in mind that our dependent variable reflected attitudes towards products, it did not reflect decision making or buying behaviour.

Finally, dividing familiar price displays by about two leads to lower perceived product quality. This was the case in Germany when the Euro cash money was introduced. E.g. multiplying old prices with about 1.5 (this would be the case if the € were introduced in the United Kingdom or Cyprus) should lead to higher ratings of the perceived product quality. But the change (not the level!) of perceived quality should depend purely on the anchor effect due to the price displays. It is irrelevant whether the figure of 10.000 Euro (instead of about 20.000 DM or about 6.000 British pounds) is the price of a cheap car or an expensive watch.

References:

Ariely, D., Loewenstein, G., and Prelec, D. (2003) "Coherent arbitrariness: Stable demand curves without stable preferences", *Quarterly Journal of Economics*, Vol. 118(1), 73-105.

Chang T.Z., and Wildt, R. A. (1994) "Price, product information, and purchase intention: An empirical study", *Journal of the Academy of Marketing Science*, Vol. 22(1), 16-27.

Cordell, V. (1993) "Interaction Effects of Country of Origin with Branding, Price, and Perceived Performance Risk", *Journal of International Consumer Marketing*, Vol.5(2), 5-20.

Dawar, N. and Parker, P. (1994) "Marketing universals: Consumers' use of brand name, price, physical appearance, and retail reputation as signals of product quality", *Journal of Marketing*, Vol. 58(2), 81-95.

Desmet, P. (2002) "A study of the potential effects of the conversion to euro", *Journal of Product and Brand Management*, Vol. 11(3), 134 - 146.

Dodds, W.B., Monroe, K.B., and Grewal, D. (1991) "Effects of price, brand, and store information on buyers' product evaluation", *Journal of Marketing Research*, Vol. 28(3), 307-319.

Greenwald, A.G. (1975) "Consequences of prejudice against the null hypothesis", *Psychological Bulletin*, Vol.82(1), 1-20.

Jacoby, J., Olson, J.C., and Haddock, R.A. (1971) "Price, brand name, and product composition characteristics as determinants of perceived quality", *Journal of Applied Psychology*, Vol. 55(6), 570-579.

Jung, A.R. (1983) "Price-quality relationship: An empirical investigation", *Journal of Consumer Studies and Home Economics*, Vol. 7(1), 1-6.

Klayman, J. and Y.W. Ha, Y.W. (1987) "Confirmation, disconfirmation, and information in hypothesis testing," *Psychological Review*, Vol. 94(2), 211-228.

Lichtenstein, D.R., Ridgway, N.M., and Netemeyer, R.G. (1993) "Price perceptions and consumer shopping behavior", *Journal of Marketing Research*, Vol. 30(2), 234-45.

McConnell, J.D. (1968) "Effect of pricing on perception of product quality", *Journal of Applied Psychology*, Vol. 52(3), 331-334.

O'Cass, A. (2000) "An Assessment of Consumers Product, Purchase Decision, Advertising and Consumption Involvement in Fashion Clothing", *Journal of Economic Psychology*, Vol. 21(5), 545-576.

Park, J.-W., & Hastak, M. (1994) "Memory-based Product Judgments: Effects of Involvement at Encoding and

Retrieval", *Journal of Consumer Research*, Vol. 21(3), 534-547.

Peterson, R.A., and Jolibert, A.J.P. (1976) "A cross-national investigation of price and brand as determinants of perceived product quality. *Journal of Applied Psychology*, 61(4), 533-536.

Render, B. and O'Connor, T.S. (1976) "The influence of price, store name, and brand name on perceptions of product quality", *Journal of the Academy of Marketing Science*, Vol. 4(3), 722-30.

Rheinische Post (1993) "Ärger mit den Münzen",
(<http://www.rheinische-post-online.de/slz/projektbeilage/menschen/203.shtml>).

Richardson, P.S., Dick, A.S, and Jain, A.K. (1994) "Extrinsic and intrinsic cue effects on perceptions of store brand quality", *Journal of Marketing*, 58(4), 28-36.

Russo, J.E. and Shoemaker, P.J.H. (1989) *Decision Traps*. New York: Simon and Schuster.

Snyder, M., & Swann, W.B. (1978) "Hypothesis testing in social interaction", *Journal of Personality and Social Psychology*, Vol. 36(11), 1202-1212.

Verlegh, P.W.J. and Steenkamp, J.B.E.M. (1999) "A review and meta-analysis of country-of-origin research", *Journal of Economic Psychology*, 20(5), 521-546.

Vaughn, R. (1980), "How Advertising Works: A Planning Model, " *Journal of Advertising Research*, Vol. 20(5), 27-33.

Vaughn, R. (1986), "How Advertising Works: A Planning Model Revisited, " *Journal of Advertising Research*, Vol. 26(1), 57-66

Wason, P.C. (1960) "On the failure to eliminate hypotheses in a conceptual task". *Quarterly Journal of Experimental Psychology*, Vol. 12, 129-140.