

# Price-setting behaviour of Norwegian firms – results of a survey

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In the first half of 2007, Norges Bank conducted a survey of price-setting behaviour among a random sample of Norwegian firms. This article presents the results of the survey. The background to the survey is that modern monetary policy theory makes a number of assumptions about how the individual firm sets its prices. For example, it is often assumed that all firms are alike, that there is a certain interval between each time a price is changed, and that price-setters are forward-looking. At the same time, aggregate price movements are a result of all participants' pricing decisions. An insight into what determines prices at the individual firm is therefore very useful for a central bank. The results of the survey support a number of key theoretical assumptions. Almost half of the firms in the survey stated that they change their prices only once a year. Firms have some market power and set the price as a mark-up over costs, and expectations of the future play a role when firms set the price. Other results from the survey fit less well with the assumptions often made in the literature. For example, there are clear differences in price-setting behaviour between different types of firms. There is also little support for the direct costs associated with changing the price being an important reason why many prices remain unchanged over time.

## 1 Introduction

Monetary policy in Norway is oriented towards maintaining low and stable inflation. Importance is also attached to stabilising output and employment. To be able to understand and predict how monetary policy impacts on macro variables such as output, employment and inflation, it is useful to have information on what lies behind the choices made by each individual agent in the economy. Which factors determine firms' price-setting is a particularly important question. This is because modern monetary policy theory is based directly on how each individual firm is assumed to set its prices.

In theoretical models, it is often assumed that there is a certain interval between each time the price of a particular good or service is changed. It is this sluggishness in price-setting that enables monetary policy to impact on the real interest rate – and thereby also on real variables such as output and employment – in the short term. In the long term, monetary policy determines only inflation. The stickier prices are, the greater the potential monetary policy will have to even out fluctuations in output and employment. In other words, how slowly prices in the economy are adjusted is a key issue for a central bank.

Regardless of theoretical standpoint, it is interesting to learn about price-setting at firms because aggregate inflation is a result of all price-setters' decisions. Norges Bank has therefore conducted a survey of price-setting among a sample of Norwegian firms. The survey focused on questions such as the frequency and scale of price changes, which factors cause prices to be raised or lowered, and why many prices are left unchanged over time. This article presents the results of the survey.

One advantage of surveys is that they can shed light on the motives and reasons behind observed price-setting and about factors that we cannot otherwise observe in other data sources. Wulfsberg (2008) looks at the actual individual prices that make up the Norwegian consumer price index. The results of surveys can complement the findings of such studies of actual prices.

The use of surveys to gain a better insight into firms' price-setting behaviour was largely pioneered by the work of Blinder (1991) and Blinder et al. (1998) in the US. This led to similar surveys in the UK (Hall et al., 1997), Sweden (Apel et al., 2005) and the euro area (Fabiani et al., 2006).<sup>2</sup>

<sup>1</sup> Many thanks to all the firms that took part in the survey. We are also particularly grateful to Trond Halvorsen, Thomas Lystad and Agnes Marie Simensen for their valuable help with collecting and processing the data, and would like to thank other staff at Norges Bank for their useful comments. Any remaining errors are the responsibility of the authors

<sup>2</sup> In recent years, there have also been a large number of studies of actual individual prices, based both on data included in the calculation of statistics offices' price indices and on scanner data from various stores (Altissimo et al., 2006; Bils and Klenow, 2004; Nakamura and Steinsson, 2008a).

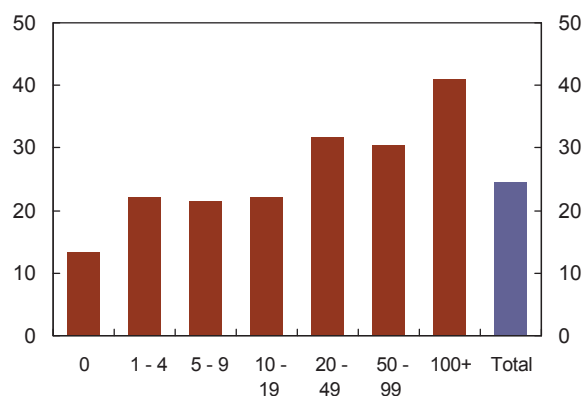
Interpreting the results of a survey can be problematic. Critics point out that the respondents have no incentive to answer truthfully, and that the answers will be coloured by the formulation of the questions. We have tried to take account of this by learning from experience from similar surveys in other countries. Furthermore, choosing a price is an important decision for most firms, so the subject matter should be familiar to the participants in the survey. We also tested the questions on a group of firms before conducting the actual survey.<sup>3</sup> Another issue is that this was a one-off survey carried out in 2007 when the Norwegian economy had been enjoying several years of strong economic growth and low inflation. It is difficult to ascertain the extent to which the results have been influenced by the economic climate at the time the survey was conducted, and how much will apply generally over time.<sup>4</sup>

This article is structured as follows: section 2 presents brief details of the survey; section 3 looks more closely at the questions on how prices are set and whether firms attach importance to historical information or are forward-looking when setting prices; section 4 examines how often prices are changed and the reasons for these changes; section 5 looks in greater depth at various theories of price rigidity; and, finally, section 6 sums up briefly.

## 2 Details of the survey

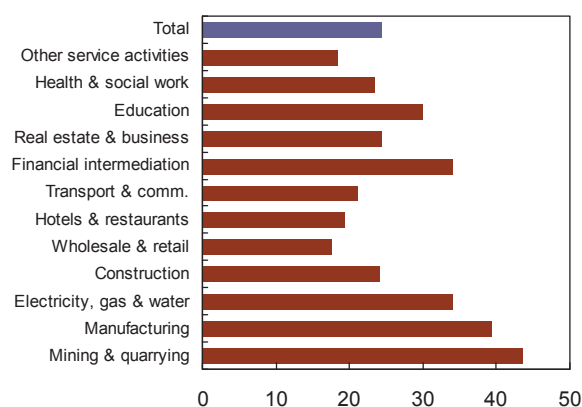
The survey was conducted in the first half of 2007 and covered a sample of around 3,000 firms. How these firms were selected and the survey carried out is described in more detail in the appendix to this article. We received a response from 725 firms – around a quarter of the firms in the sample. The response rate was somewhat lower than for similar surveys in other countries. In surveys in the euro area, the response rate has varied between 30 and 70 per cent. Part of the reason why we received fewer responses than in other surveys may be that we selected a broader range of firms. For example, we included firms of all sizes – from those with no employees to those with several thousands. The response rate was considerably lower among firms with few employees (see Chart 1). As it has been argued that small firms may have less flexible prices than large firms (Hoeberichts and Stokman, 2006), we nevertheless thought it interesting to include the smallest firms in the survey. We also included more sectors than many of the European studies, including the wholesale and retail trade. Fewer than one

**Chart 1** Who responded? Response rate by number of employees



Source: Norges Bank

**Chart 2** Who responded? Response rate by sector



Source: Norges Bank

in five firms in the wholesale and retail trade responded to the survey, whereas we received a response from two out of five manufacturing firms (see Chart 2).

Despite the low response rate, we received answers from more than 700 firms with more than 50,000 employees between them. We have weighted the results by each sector's share of total turnover and employment (see appendix for details). We believe that this provides a representative basis for investigating price-setting behaviour of Norwegian firms.

In the first part of the survey, we asked a number of questions about the firm's customer base, competitive situation and cost structure. This information is useful when it comes to analysing firms' price-setting. We will mention only a few key statistics here. The median firm in the survey generates annual turnover of just over NOK 30 million and has just over 20 employees. Wage costs account for 30–40 per cent of its total costs, and imported inputs for 10–20 per cent.

Almost half of the firms stated that their most impor-

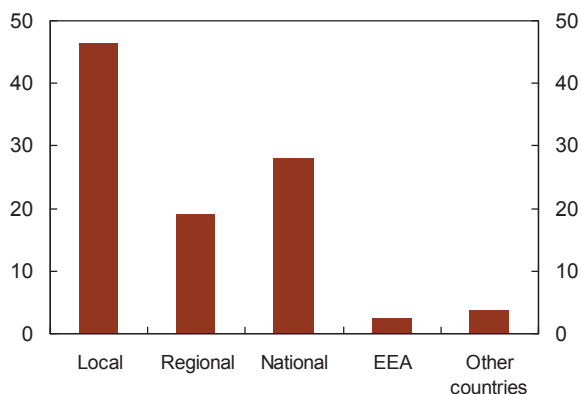
<sup>3</sup> Before the questionnaire was sent out, we conducted a pilot survey of a selection of firms from Norges Bank's Regional Network to test some of the questions. We also tested the complete questionnaire on a few selected firms. The questions were then adjusted to avoid ambiguities.

<sup>4</sup> In an analysis of the data included in the Norwegian consumer price index from 1975 to 2004, Wulfsberg (2008) found that price increases are more frequent during periods of high inflation.

tant market is the local one (municipality, town or village), while just over a quarter consider the whole country to be their main market (see Chart 3). Only 6 per cent of firms cited the export market as their main market.

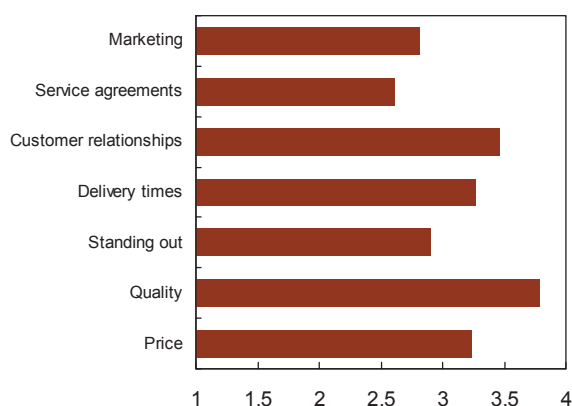
Two out of five firms have other firms as their largest customer group, and roughly the same number said that consumers make up their largest customer group. This

**Chart 3** Where is the most important market for the firm's main product? Breakdown of responses. Per cent

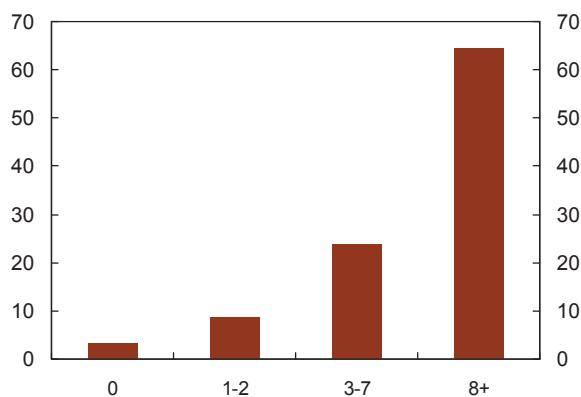


Source: Norges Bank

**Chart 4** How important are the following factors for the firm's competitiveness? Average score for each factor on a scale from 1 ("not important") to 4 ("very important")



**Chart 5** How many competitors does the firm have in the Norwegian market? Breakdown of responses. Per cent



Source: Norges Bank

indicates that their answers will cover both producer prices and consumer prices. In this respect, our survey differs from those in other countries, where firms' customer group consisted primarily of other firms.

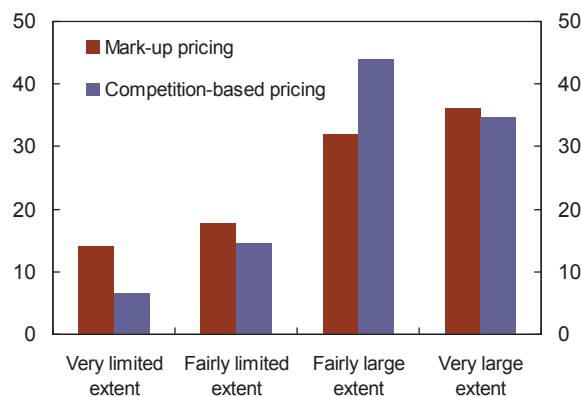
No fewer than three-quarters of the firms indicated that they have long-term relationships with the majority of their customers, but this proportion is somewhat lower among firms stating that consumers are their most important customers. Only one in five firms said that they have mostly occasional customers. Loyalty to customers is considered important for firms' competitiveness. The quality and price of products are also deemed to be important competitive factors, along with delivery times (see Chart 4). The firms in the survey indicate that they have a relatively large number of competitors. More than 60 per cent stated that they have more than seven competitors in the Norwegian market (see Chart 5).

### 3 Price-setting strategies

In recent macroeconomic theory, it is common to assume that the individual firm has some market power, and that prices are set as a mark-up over costs. If costs rise, the firm can reduce this mark-up and continue to make a profit even if prices are unchanged. We therefore asked firms to indicate to what extent prices are set as a mark-up over costs on a scale from 1 ("very limited extent") to 4 ("very great extent"). We also asked them to indicate the extent to which their price depends on competitors' prices.

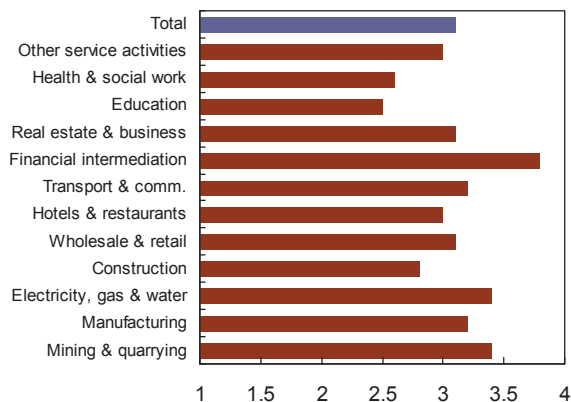
The responses to the survey confirm that most Norwegian firms set the price as a mark-up over costs. Around two-thirds of the firms indicated that they use this pricing method to a "fairly great extent" or a "very great extent" (see Chart 6). There are only minor differences between firms in different sectors. Mark-up

**Chart 6** To what extent are the following pricing methods used in your firm? Breakdown of responses. Per cent



Source: Norges Bank

**Chart 7** To what extent is the price dependent on competitors' prices? Average score for each sector on a scale from 1 ("very limited extent") to 4 ("very great extent")



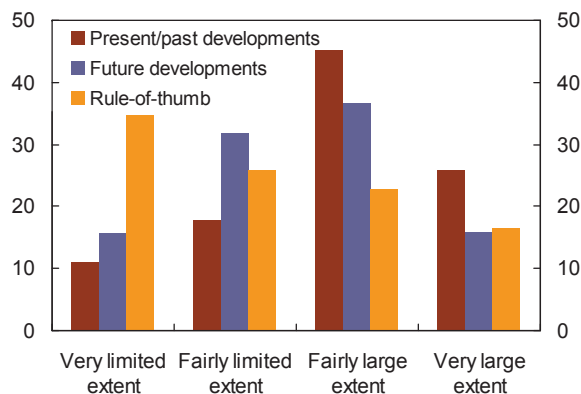
Source: Norges Bank

pricing attracts the highest score in *Hotels and restaurants* and *Manufacturing*, and the lowest score in *Mining and quarrying* and *Electricity, gas and water supply*. Firms indicating that they have fixed and long-term relationships with their customers are more likely to set their price as a mark-up over costs than other firms. This may be because firms with long-term customer relationships have greater market power.

However, the prices charged by firms in the survey are determined to an even greater extent by the prices of their competitors. Almost four out of five firms indicated that their price depends on competitors' prices to a "fairly great extent" or a "very great extent" (see Chart 6). There are clear differences from sector to sector here. The sectors where competitors' prices are most important are *Financial intermediation* and *Electricity, gas and water supply* (see Chart 7). Competitors' prices are least important in *Education* and *Health and social work*. In terms of customer groups, competitors' prices are more important for firms that supply the oil sector or other private firms than for firms that have consumers or the public sector as their main customers.

Questions about whether firms set prices as a mark-up over costs and whether prices depend on competitors' prices have also been asked in many of the national surveys in the euro area. Generally speaking, more firms there responded that prices are set as a mark-up over costs than that prices depend on competitors' prices. Although prices can be set as a mark-up over costs and still depend on competitors' prices, the differences between the results from Norway and the euro area may nevertheless be interpreted as an indication that there is generally stronger competition between firms in the Norwegian market.

**Chart 8** To what extent does the firm take account of the following information when setting the price? Breakdown of responses. Per cent



Source: Norges Bank

### Are firms forward-looking when making decisions?

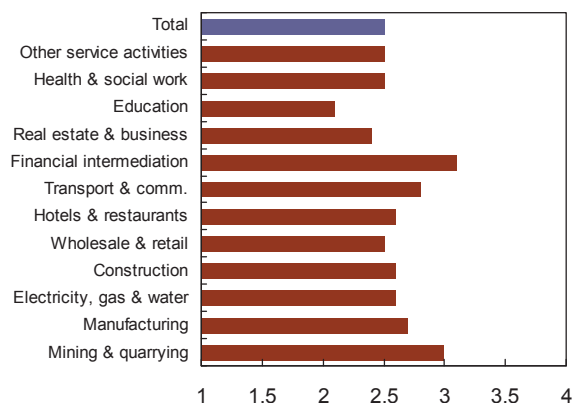
Another key assumption in theoretical macro models is that firms base their decisions on expectations of the future. Because we have no simple measure of firms' expectations, it is difficult to test this assumption using macro data. One alternative is to ask the firms what they actually do. In this survey, we asked firms to what extent they take account of different types of information when setting prices. We gave them three options and, as in the previous question, asked them to assign a score to each of these options. The three options were:

- Information about present and past developments in relevant factors (inflation, demand, costs, competitors' prices, etc.)
- Information about future developments/forecasts in these factors
- The firm uses a rule-of-thumb (such as indexation based on the consumer price index/wage growth)

Present and past developments were considered the most important source of information by the largest number of firms (see Chart 8). All in all, more than 70 per cent answered that they take account of present and past developments to a "fairly great extent" or a "very great extent" when setting prices. This source of information received the highest score in all sectors. The fact that present and past developments are considered the most important does not necessarily mean that companies are not forward-looking: recent developments can often be the best indicator of future developments.

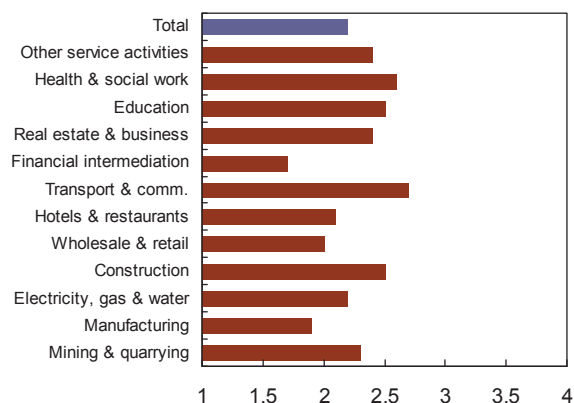
Information about future developments and forecasts are nevertheless also considered important. Around half of the firms stated that they take account of this information to a "fairly great extent" or a "very great extent".

**Chart 9** To what extent does the firm take account of information on future developments when setting the price? Average score for each sector on a scale from 1 ("very limited extent") to 4 ("very great extent")



Source: Norges Bank

**Chart 10** To what extent does the firm use a rule-of-thumb (such as indexation based on the consumer price index) when setting the price? Average score for each sector on a scale from 1 ("very limited extent") to 4 ("very great extent")



Source: Norges Bank

We believe this to confirm that economic models should assume that participants are forward-looking when setting prices.

Firms in *Financial intermediation* and *Mining and quarrying* attach the greatest importance to information about future developments; while those in *Education* and *Real estate, renting and business activities* attach the least importance to this information (see Chart 9). It appears that the higher the proportion of total costs for which imported inputs account, the more forward-looking firms are. This may be because costs for imported inputs are more variable, partly because they are also affected by movements in exchange rates. It is then more important to take account of future developments in relevant factors when setting the price.

The use of rules of thumb for price-setting, such as indexation based on the consumer price index, does not seem to be particularly widespread among Norwegian firms. All in all, around 60 per cent of firms taking part in the survey responded that they use fixed rules to a "very limited extent" or "fairly limited extent", and "very limited extent" alone accounted for more than a third of all answers (see Chart 8). The use of fixed rules does, however, vary somewhat from sector to sector. Of the three options, fixed rules scored lowest in every sector except for *Education* and *Health and social work*. These, together with *Transport, storage and communication*, are the sectors where simple rules are most widespread (see Chart 10). Fixed rules are also most common among firms operating in the local market and those with the public sector or other companies in the same group as their most important customers.

In the survey of the euro area (Fabiani et al., 2006), information about future developments scored highest.

However, present developments were included in both the forward-looking and backward-looking options in that survey, whereas we included only future, and not present, developments in the forward-looking option. This may be part of the reason why current and past developments appear to be more important in Norway.

#### 4 When and why are prices changed?

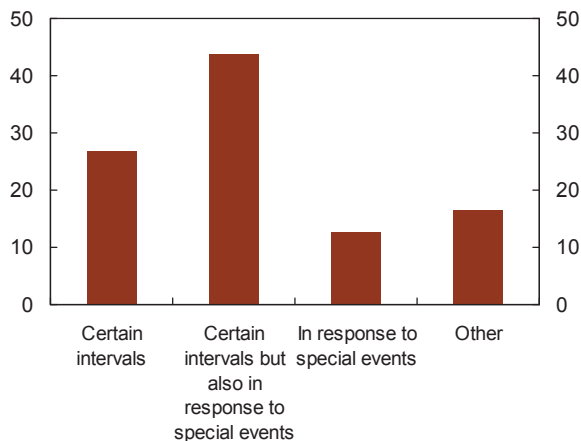
Another key question is in which situations prices are actually changed. In the literature, there are two competing approaches to this. The first is termed *state-dependent pricing*. This means that prices are changed if there have been sufficient changes in the economic factors that determine the price (such as wage costs or demand). It is often assumed that there are costs associated with changing prices, and so the price will be changed only if the gain in profit exceeds the cost of adjustment.<sup>5</sup> Thus the decision to change a price depends on economic considerations. If pricing is state-dependent, it will typically be the firms where there is the greatest discrepancy between actual price and the price the firm would have set in the absence of price rigidities that change their prices. It is therefore difficult for state-dependent pricing to explain small price adjustments.

The other main approach is termed *time-dependent pricing*. Here it is assumed that there is a certain interval between each time a firm can change its price. This will, for example, be the case if prices are laid down in contracts running for set periods. In these models, the time intervals may be fixed, as in the original model by Taylor (1980), or stochastic, as in Calvo (1983). Time-dependent pricing can explain why price adjustments are often small.

<sup>5</sup> See Sheshinski and Weiss (1993) and Rotemberg (1982).



**Chart 11** When does the firm change the price of its main product? Breakdown of responses. Per cent



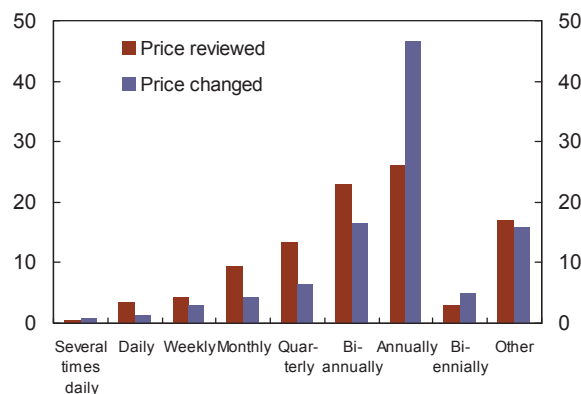
Source: Norges Bank

If there are changes in the economic climate, it can be argued that prices will adapt more quickly under state-dependent than time-dependent pricing. This is because it is the firms with the most to gain that change their price under state-dependent pricing, whereas it will be entirely arbitrary which firms are allowed to adjust their price in the approach taken by Calvo (1983), which is the most widely used modelling method for time-dependent pricing. This means that monetary policy may play a more important role in counteracting the effects of price rigidities in an economy with time-dependent pricing than in one with state-dependent pricing.<sup>6</sup>

In practice, it can be difficult to draw any clear distinction between the two approaches. Even if prices are contractually fixed for a set period, it will in principle be possible to renegotiate the contract. The most common response to the survey's question concerning the situations in which firms change the price of their main product was a combination of the two approaches above. Prices are changed primarily at set intervals, but firms will also adjust the price outside these intervals where warranted by specific events, such as a marked change in competitive conditions. Close to half of the firms chose this alternative (see Chart 11). Just over a quarter indicated that prices are changed only at set intervals, while around an eighth change their prices only in response to specific events. The remainder did not feel that the options we gave them were a good fit. Similar surveys in the euro area have found that a third of firms employ mainly time-dependent pricing, while the remainder include an element of state-dependent pricing (Fabiani et al., 2006).

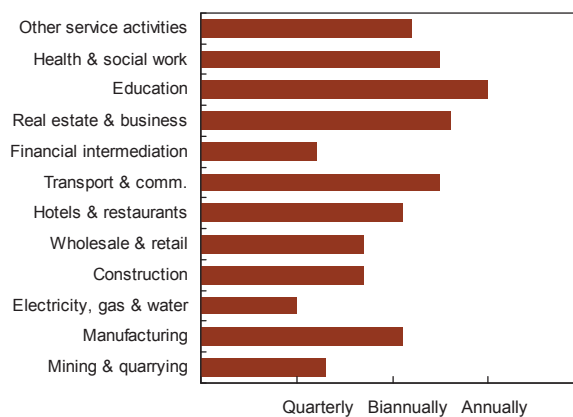
<sup>6</sup> See Caplin and Spulber (1987) and Golosov and Lucas (2007).

**Chart 12** How frequently is the price of the firm's main product actually changed, and how frequently does the firm consider changing its price (without necessarily doing so)? Breakdown of responses. Per cent



Source: Norges Bank

**Chart 13** How often firms change their prices on average. Breakdown by sector



Source: Norges Bank

### Large but infrequent price changes

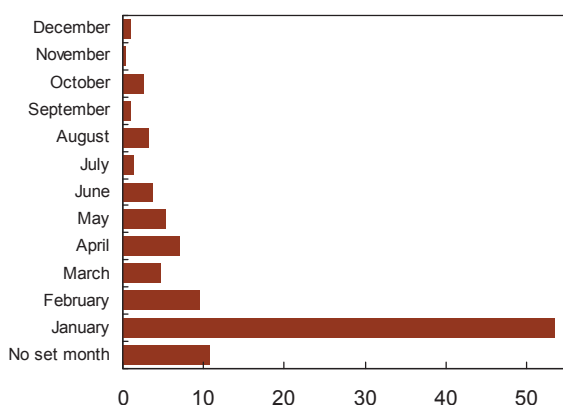
We asked firms how frequently the price of their main product is actually changed. The answers confirm the assumption that there is typically a certain interval between price changes. As mentioned above, it is this sluggishness in price-setting that, in theory, enables monetary policy to impact on the real interest rate and thereby economic activity in the short term.

One in ten firms in the survey stated that they change the price of their main product at least once a month. Almost half said that they change it only once a year (see Chart 12). The frequency of price changes does, however, vary from sector to sector. Unsurprisingly, firms in *Electricity, gas and water supply* change their prices most often (see Chart 13). This is because the sector includes power companies that follow current market prices on the Nord Pool power exchange. The longest intervals between price changes are in service sectors such as *Education and Real estate, renting and business activities*.

It also appears that the more competitors firms have in the Norwegian market, the more often they change their prices. This result is in line with both theoretical and empirical research, which has shown that firms in strongly competitive markets adjust their prices more frequently than other firms (see Álvarez and Hernando, 2006). Furthermore, the higher the proportion of total costs for which wage costs account, the less often firms adjust their prices. This may be because wages in Norway are determined primarily through annual wage negotiations. Total costs at firms where wage costs are a major source of expenditure will therefore be relatively stable during the year, and there will be less reason for them to change their prices frequently.<sup>7</sup>

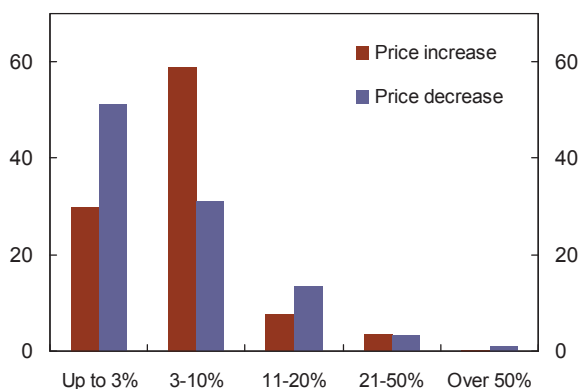
We find a clear seasonal pattern in price-setting by firms that change their price just once a year. More than half of these firms stated that their price is changed in January (see Chart 14). No other months were cited by more than 10 per cent of these firms. This is consist-

**Chart 14** In which month are prices changed? Response from firms indicating that they normally change their price only once a year. Breakdown of responses. Per cent



Source: Norges Bank

**Chart 15** Most common percentage price increase and price decrease. Breakdown of responses. Per cent



Source: Norges Bank

ent with a study Norges Bank made of the actual price data used in the calculation of the Norwegian consumer price index (Wulfsberg, 2008). Here too, it emerged that January was the month with the greatest number of price changes.

Firms consider changing the price more often than they actually do so. More than half of the firms indicated that they review their price at least every six months (see Chart 12). The fact that firms consider price changes more often than they actually make them can be interpreted as a sign that there are costs associated with price changes. It is asking a lot for the factors that play a role in pricing not to have changed since the last time the prices was adjusted. We return to the reasons why firms choose to leave the price unchanged over time in the following section.

Although there is typically a certain interval between each time firms change their prices, they compensate for this by making relatively large adjustments. Almost 60 per cent of the firms responded that their most common price increase over the last couple of years had been between 3 and 10 per cent (see Chart 15). Studies of actual individual prices in both the euro area and Norway have found average price increases of more than 10 per cent (Wulfsberg, 2008; Altissimo et al., 2006). The most common price decrease in our survey was slightly smaller. Of the firms stating that they had cut their prices in the last couple of years, more than half indicated that the most common price decrease was up to 3 per cent (see Chart 15).

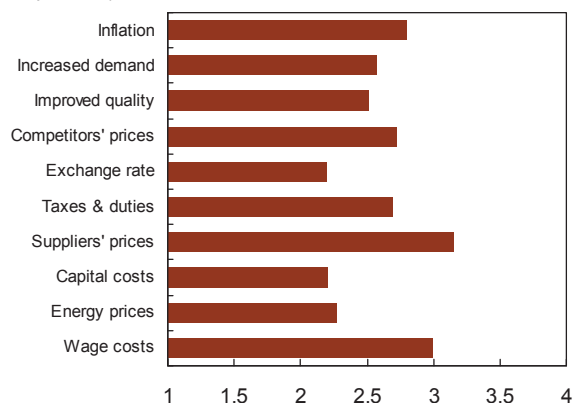
### Why are prices changed?

Four out of ten firms taking part in the survey reported that they had lowered the price in the last couple of years, while nine out of ten had increased the price. We asked only those firms that reported price changes to indicate how important various factors had been for their decisions to raise or lower the price. We asked these firms to rank these factors on a scale from 1 (“not important”) to 4 (“very important”).

As in the euro area, the responses show that the most important reasons for price increases differ from those for price decreases. An increase in costs (wage costs or suppliers’ prices) is considered the most important reason for price increases (see Chart 16). An increase in demand is not considered as important a reason. This may indicate that firms are worried about being seen as disloyal if the price is increased when demand rises. If, on the other hand, companies can refer to higher costs,

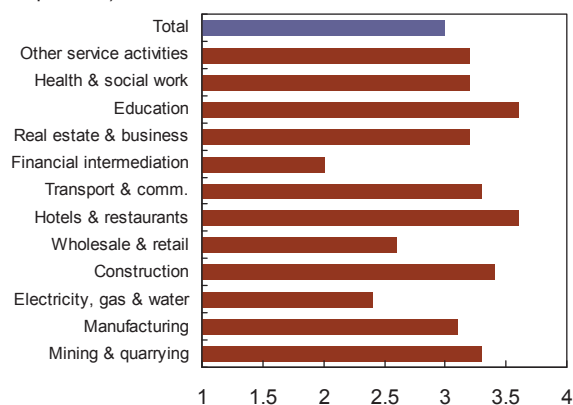
<sup>7</sup> We found no clear relationship between the size of a firm’s workforce and how often its price is adjusted. In other words, the results of this survey do not support the hypothesis that firms with few employees have stickier prices than those with a large workforce.

**Chart 16** Which factors have been important for price increases in the last couple of years? Average score for each factor on a scale from 1 ("not important") to 4 ("very important")



Source: Norges Bank

**Chart 17** How important have increases in wage costs been for price increases in the last couple of years? Average score for each sector on a scale from 1 ("not important") to 4 ("very important")



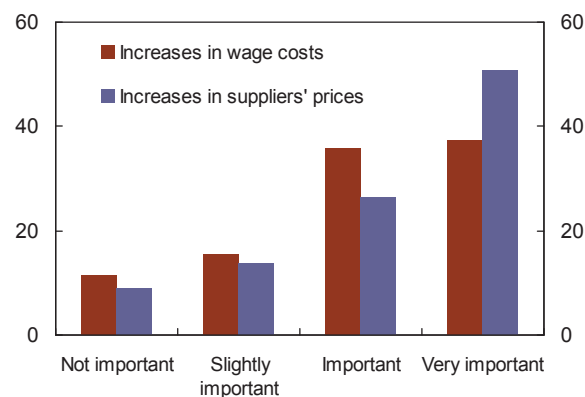
Source: Norges Bank

it may be more acceptable for them to raise their price. When it comes to price decreases, firms cite market conditions – and in particular increased competition – as the most important factors.

Not surprisingly, the importance of wage costs as a factor increases as their share of total costs rises. Increases in wage costs rank highest in typical service sectors such as *Hotels and restaurants* and *Education* (see Chart 17). On the other hand, wage costs are not seen as a particularly important reason for price increases in the *Wholesale and retail trade*. All in all, three-quarters of the firms indicate that increases in wage costs are “important” or “very important” (see Chart 18).

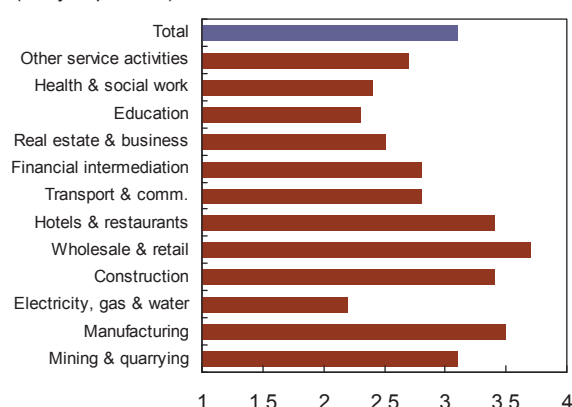
Increases in suppliers’ prices are the only factor considered more important for price increases than increases in wage costs. As many as half of the firms replied that increases in suppliers’ prices are “very important”. Increases in suppliers’ prices are most important in the *Wholesale and retail trade* (see Chart 19). Increases in suppliers’ prices become, however, less important for

**Chart 18** Reasons for price increases in the last couple of years. Increases in wage costs and suppliers’ prices. Breakdown of responses. Per cent



Source: Norges Bank

**Chart 19** How important have increases in suppliers’ prices been for price increases in the last couple of years? Average score for each sector on a scale from 1 ("not important") to 4 ("very important")



Source: Norges Bank

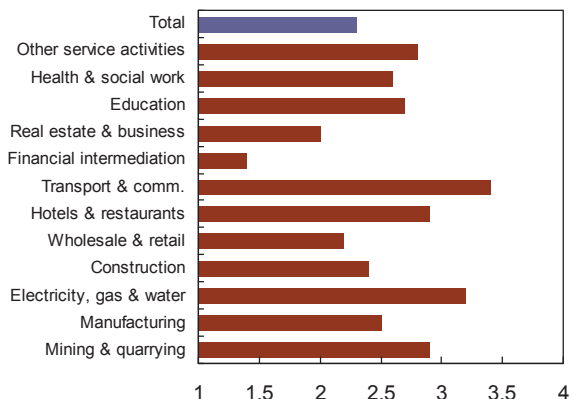
price increases when wage costs account for a high proportion of total costs.

Behind increases in wage costs and suppliers’ prices, the most important reasons for firms’ price increases are inflation, increases in competitors’ prices, and increases in taxes and duties (see Chart 16). Firms with the public sector as their most important customer group are among those that attach the greatest importance to inflation. This may be because the budgets of some public bodies are linked to the consumer price index.

Energy prices have soared in recent years, and increases in energy prices are often mentioned as a possible reason for increases in prices for other goods and services. According to the firms in our survey, however, increases in energy prices have only to a limited extent been a reason for them to raise their own prices. Three out of five firms indicated that energy prices had been “not important” or “slightly important” for their price increases. There are, however, considerable variations from sector to sector. Unsurprisingly, energy prices are

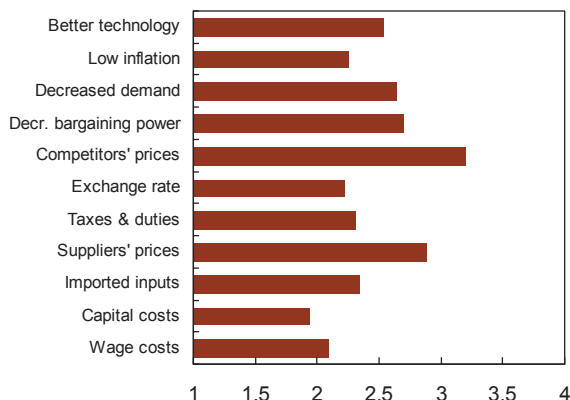


**Chart 20** How important have increases in energy prices been for price increases in the last couple of years? Average score for each sector on a scale from 1 ("not important") to 4 ("very important")



Source: Norges Bank

**Chart 21** Which factors have been important for price decreases in the last couple of years? Average score for each factor on a scale from 1 ("not important") to 4 ("very important")



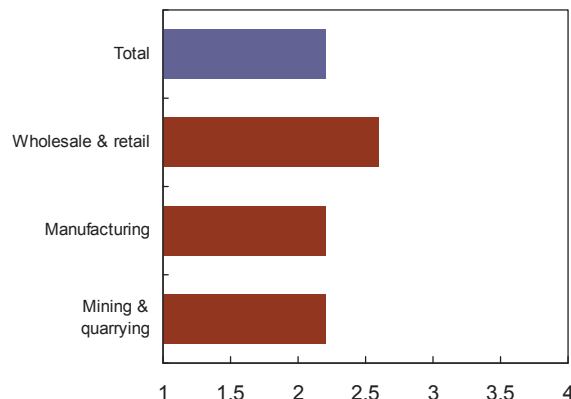
Source: Norges Bank

very important for companies in *Transport, storage and communication* and *Electricity, gas and water supply*, which includes power companies, and least important in *Financial intermediation* (see Chart 20).

When it comes to reasons for lowering prices, decreases in competitors' prices are considered the most important factor (see Chart 21). The next most important are decreases in suppliers' prices, reduced bargaining power and lower demand. Firms in the *Wholesale and retail trade* in particular cited price reductions by suppliers as a reason for price decreases. The higher the proportion of total costs for which imported inputs account, the more important decreases in suppliers' prices become. Movements in the exchange rate is not considered a particularly important explanation for price decreases in general, but the exchange rate is slightly more important in the *Wholesale and retail trade* than in other sectors (see Chart 22).

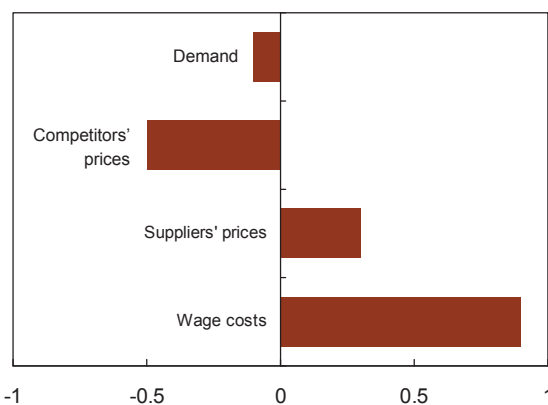
In the surveys in the euro area, changes in demand were considered more important for price decreases than for price increases. In our survey, changes in demand were

**Chart 22** How important have changes in the NOK exchange rate been for price reductions in the last couple of years? Average value for selected sectors on a scale from 1 ("not important") to 4 ("very important")



Source: Norges Bank

**Chart 23** Differences between the factors considered important for price increases and price decreases. Average score for increases on a scale from 1 ("not important") to 4 ("very important") less average score for price decreases on the same scale<sup>1)</sup>



<sup>1)</sup> A positive net score means that the factor is considered more important for price increases than for price decreases, and vice versa

Source: Norges Bank

considered of more or less equal importance for price increases and price decreases (see Chart 23). One reason for this may be that most Norwegian firms enjoyed strong growth in demand in the years leading up to the survey, and few had encountered dwindling demand. However, the finding that increased costs are the main reason for price increases, while price decreases are due more to market conditions, was confirmed.

## 5 Why are prices sticky?

Our survey has confirmed a number of empirical studies that prices for most goods and services typically stay the same for long periods. However, these empirical studies can shed only limited light on *why* prices are left unchanged over time. A survey can therefore provide valuable insight when it comes to differentiating between different theories of price rigidity.

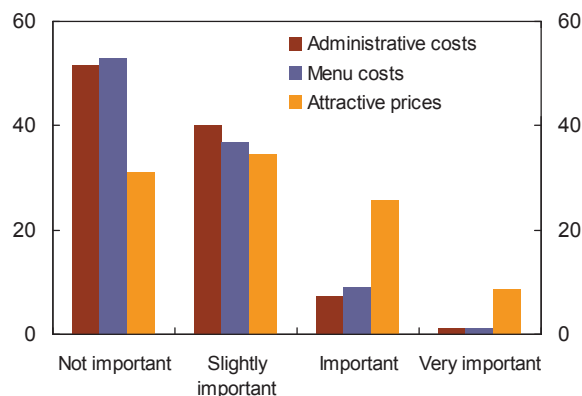
We therefore asked firms about the reasons why they leave the price unchanged. We attempted to formulate different price-setting theories in such a way that the participants in the survey would be able to grasp them (see copy of questionnaire in the appendix). As with the questions concerning reasons for price increases and price decreases, we asked firms to rank the importance of these different theories on a scale from 1 (“not important”) to 4 (“very important”).

Probably the best-known explanation for sticky prices is “menu costs”. The classic example of this theory is that it will cost a restaurant money to print new menus. Price changes will therefore pay off only if the gain from the change in price is greater than the cost of printing new menus. Similarly, printing new price lists, catalogues and so on may be an obstacle for price changes. However, the firms in our survey provide very little support for the menu costs theory interpreted directly as we have done here (see Chart 24). More than half of the firms indicated that the direct costs of price changes are “not important”, and only one in ten responded that the direct costs are “important” or “very important”. The menu costs theory scores poorly in all sectors.

It will not always be easy to know which price will be best for a firm. Obtaining and processing the information needed to assess the market for the firm’s product can be a costly and time-consuming process, and this is another well-known explanation for why there can be a certain interval between price changes (see Mankiw and Reis, 2002). However, administrative costs – or “costly information” as the theory is often known – receive just as little support as menu costs in our survey. Around half of the firms indicated that administrative costs are “not important”, and fewer than one in ten stated that administrative costs are “important” or “very important” (see Chart 24). It is also a relatively common result in other countries for the menu costs and costly information theories to find little support in surveys.<sup>8</sup>

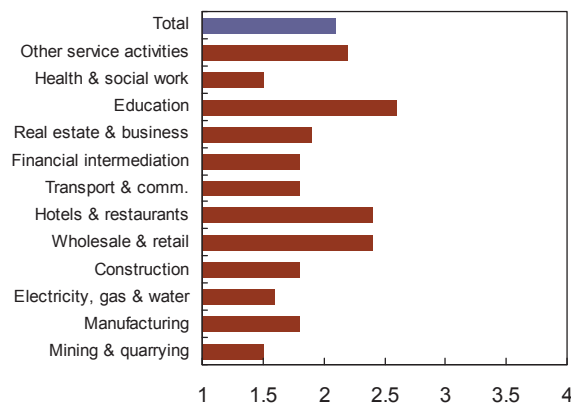
A third well-known theory, denoted “attractive prices”, also finds limited support in our survey. Two-thirds of the firms indicated that this factor is “not important” or “slightly important” (see Chart 24). Examples of attractive prices are 299, 399, 499 and so on. If, for example, a firm’s purchase prices change, it may be that its own price will remain unchanged until the “optimum” price approaches the next “attractive” price threshold, moving from, say, 299 to 399. However, attractive prices are considered slightly more important in *Education*, the *Wholesale and retail trade* and *Hotels and restaurants* (see Chart 25).

**Chart 24** Reasons for sticky prices. Administrative costs, menu costs and attractive prices. Breakdown of responses. Per cent



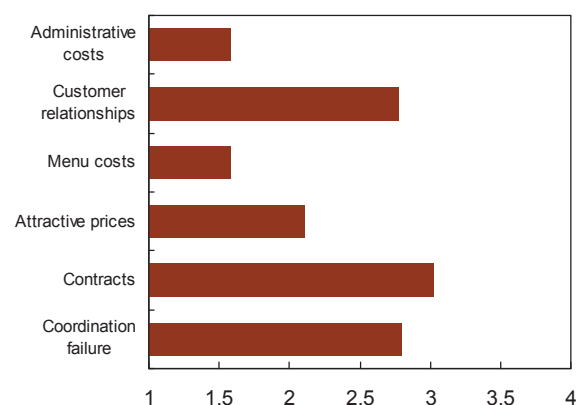
Source: Norges Bank

**Chart 25** How important is wanting to stick to “attractive” prices as a reason for prices being left unchanged over time? Average score for each sector on a scale from 1 (“not important”) to 4 (“very important”)



Source: Norges Bank

**Chart 26** Different theories of sticky prices. Average score on a scale from 1 (“not important”) to 4 (“very important”)

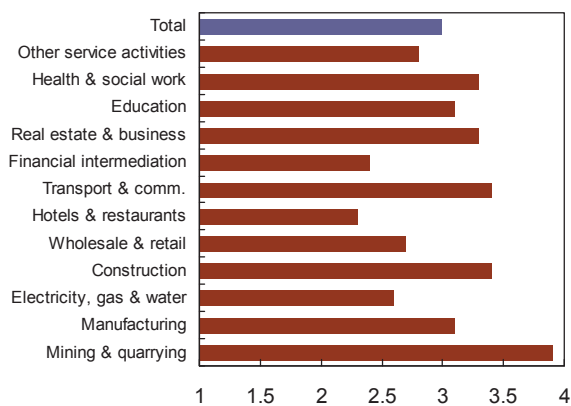


Source: Norges Bank

Firms cited factors other than those mentioned above as the most important reasons why prices are left unchanged over time. The price being fixed by contracts receives the highest score (see Chart 26). Three-quarters

<sup>8</sup> See, for example, Fabiani et al. (2006) and Apel et al. (2005).

**Chart 27** How important are contracts as a reason why prices are left unchanged over time? Average score for each sector on a scale from 1 ("not important") to 4 ("very important")



Source: Norges Bank

of the firms indicated that this is an “important” or “very important” factor. There are, however, major variations from sector to sector. In *Mining and quarrying*, nine out of ten firms replied that contracts are a “very important” reason for unchanged prices. Contracts are considered less important in the *Wholesale and retail trade*, *Electricity, gas and water supply*, *Financial intermediation* and *Hotels and restaurants* (see Chart 27). Not surprisingly, contracts play a smaller role at firms with consumers as their customer group. Contracts are also more common among firms indicating that they have fixed and long-term relationships with their customers.

The risk of a firm’s price falling out of alignment with competitors’ prices is highlighted as another important factor. This can be viewed as uncertainty about how competitors will respond to a price change causing a firm not to make a change. Concern that price changes will damage customer relationships scores equally high (see Chart 26). One can imagine that the firm enters into an implicit contract with the customer to supply at a stable price, even if this is not laid down in a contract (see Okun, 1981). Frequent price changes can make it difficult for customers to plan, and keeping track of differences between different suppliers’ prices will also be more labour-intensive. The potential for price changes to damage customer relationships is deemed relatively important in most sectors.

The reasons for price rigidities considered most important in our survey – explicit contracts, implicit contracts and coordination failure – have also been ranked as the most important factors in similar studies in other countries. The fact that the different surveys have varied

somewhat in formulation and structure but have still obtained more or less the same results would suggest that these results are relatively robust.

## 6 Summary

The results of the survey support some of the most important assumptions in recent macroeconomic theory. Firms set the price as a mark-up over costs, they are to some extent forward-looking when setting the price, and there is generally a certain interval between price changes. For example, almost half of the firms in the survey stated that they change their price only once a year.

However, the results of this and similar surveys also present clear challenges for work on theoretical models. For example, many modern macro models assume that all agents are alike. This is, of course, a simplification made to make these models manageable. If a model is too large and complex, it loses much of its utility as an analytical tool. At the same time, it is important to analyse how the results will be affected if allowance is made for there being different types of participants in the economy. In response to many studies having shown that there are big differences in the frequency of price changes in different sectors, a body of literature looking at the consequences of this has emerged. One example is Nakamura and Steinsson (2008b), who show that monetary policy has a much greater impact in an economy where the cost of changing prices varies between different types of firm than in an economy where all firms face the same cost.

Another challenge is to gain a better understanding of why prices are left unchanged over time. Like other similar surveys, our survey shows that those who actually set the prices in the economy do not really see themselves in any of the best-known theories to explain sticky prices, such as menu costs and administrative costs. Instead, the emphasis is on prices being fixed in contractual arrangements and the potential for price changes to harm customer relationships. All in all, the reasons why prices are sticky is a field in which we still have much to learn – particularly given how important this assumption is in the theoretical literature. It is to be hoped that this and other surveys can contribute to improvement in our understanding in this area. The survey will also make a useful contribution to modelling work at Norges Bank and to the further development of economic analysis work at the Bank in general.

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## Appendix

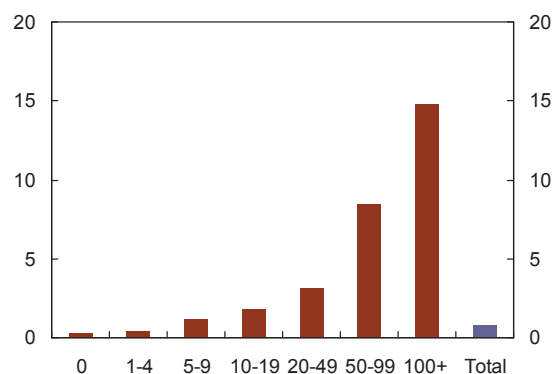
### Further information about the survey

The survey was conducted among a sample of Norwegian firms in different sectors. Around 3000 firms were drawn at random from Statistics Norway's Central Register of Establishments and Firms. Sectors that are either greatly affected by economic aid/subsidies or do not sell any product in a market were excluded. We excluded firms in the following sectors: *Agriculture, hunting and forestry; Fishing; Public administration and defence; Extra-territorial organisations and bodies; and Domestic services.*

Around 475000 firms were included in the register when the sample was drawn. Almost 400000 of these had no more than four employees. An entirely random sample from the entire register would therefore have contained a very high proportion of firms with no or very few employees. Price-setting by large firms will normally have a greater economic impact than price-setting by smaller firms. As a result, for each firm with no employees that we selected, we also selected one firm with 1–4 employees, three firms with 5–9 employees, five firms with 10–19 employees, ten firms with 20–49 employees, 30 firms with 50–99 employees and 50 with more than 100 employees. This meant that we selected 0.3 per cent of all registered firms with no employees but 14.8 per cent of all registered firms with 100 or more employees (see Chart A1). We also decided to select more firms from sectors with high levels of turnover and/or employment. This meant that we had more firms from the *Wholesale and retail trade* and from *Manufacturing* in our sample than would otherwise have been the case.

In order to be able to analyse differences in price-setting between different sectors, we also decided that there must be at least 88 firms from each sector in the sample. The sectors that were affected by this requirement were *Mining and quarrying; Electricity, gas and water supply; Hotels and restaurants; Financial intermediation; Education; and Other community, social and personal service activities.* The other sectors were reduced proportionally. The percentage of the population in each sector that was selected is shown in Table A1. All in all, we selected 0.8 per cent of the firms in the entire population. In the sectors affected by our requirement of at least 88 firms from each sector, the percentage is therefore higher than this. In *Mining and quarrying*, for example, we selected no less than 7.1 per cent of registered firms. The reason why we selected 1.5 per cent of registered firms in the *Wholesale and retail*

**Chart A1** Percentage of population selected for the survey. Breakdown by number of employees



Source: Norges Bank

**Table A1.** Percentage of the population in each sector in our sample, and each sector's weight based on its share of total revenue and employment

Sector	Percentage of sector in sample	Weight by turnover and employment (per cent)
C – Mining and quarrying	7.1	0.2
D – Manufacturing	1.5	8.4
E – Electricity, gas and water supply	4.9	0.1
F – Construction	0.3	7.1
G – Wholesale and retail trade, repair of motor vehicles and personal and household goods	1.5	41.8
H – Hotels and restaurants	0.7	0.8
I – Transport, storage and communication	0.6	6.2
J – Financial intermediation	2.0	0.3
K – Real estate, renting and business activities	0.4	29.5
M – Education	0.8	1.1
N – Health and social work	0.3	2.9
O – Other community, social and personal service activities	0.2	1.4
Total	0.8	

*trade and Manufacturing* is that these sectors account for higher levels of turnover and employment than the other sectors.

Once we had aggregated the responses from the firms in the different sectors, we first calculated the breakdown of responses and average values for each specific sector. At this level, all of the firms in each sector count equally. We then weighted the answers from the different sectors on the basis of each sector's share of total turnover and employment. The weights used are shown



in the far right-hand column of Table A1. As can be seen, the *Wholesale and retail trade, repair of motor vehicles and personal and household goods* sector has by far the heaviest weight, followed by *Real estate, renting and business activities*. Weighted in this way, the aggregate results we present in the article should paint a representative picture of price-setting by Norwegian firms as a whole, even though the response rate varied somewhat from sector to sector, and even though we made a number of adjustments to the sample to ensure adequate representation of all sectors.

The survey was conducted in the period February–May 2007. The questionnaire was sent to all of the firms by post, and is reproduced at the end of this article. The questionnaire could be answered either by posting back the hard copy or electronically by logging into a dedicated page on Norges Bank’s website. All companies that did not initially respond were given a reminder by e-mail, telephone or a second letter.

Most firms sell more than one type of product. In the guide to the questionnaire, we therefore asked respondents to base their answers on the firm’s main product – in other words, the product that accounts for the largest proportion of the turnover or best represents the firm. When it came to the price concept that respondents were to use, we asked them to use actual selling price (including value-added tax) in Norwegian kroner. If the firm had a set list price but normally applied a price other than the list price for some reason, we asked for the actual selling price to be used. If the firm charged different prices to different customers, we asked for answers to be based on the price charged to the most common customer group (largest customer). If the firm sold products both in Norway and abroad, we asked for answers to be based on its main product sold in Norway.

*Enclosed: Questionnaire*

**PART I GENERAL INFORMATION****Background information**

- A. What is the firm's main product/product category? .....
- B. Annual turnover: .....
- C. Percentage of turnover generated in Norway: .....
- D. Questionnaire completed by: .....

**Question 1.**

**Where is the most important market for the firm's main product? Please choose one only.**

- Local (municipality, town, village etc.)
- Regional (wider area)
- National (whole country)
- EEA
- Other countries: .....

**Question 2.**

**What is the largest customer group for the firm's main product? Please choose one only.**

- Consumers
- Oil sector
- Other companies in the same group
- Other private firms/industry
- Public sector
- Other: .....

**Question 3.**

**What kind of relationship does the firm have with the majority of customers for its main product?**

- Fixed long-term relationship
- Few regular customers, mostly occasional customers
- Other: .....

**Question 4a.**

**Is your main product imported?**

- Yes → go to question 4b
- No → go to question 5

**Question 4b.**

**In which currency does the firm pay for the product?**

- NOK
- EUR
- USD
- Other. Please specify: .....

**Question 5.**

How many competitors does the firm have in the Norwegian market? Please answer based on your main product.

- We have no competitors
- 1-2 competitors
- 3-7 competitors
- More than 7 competitors

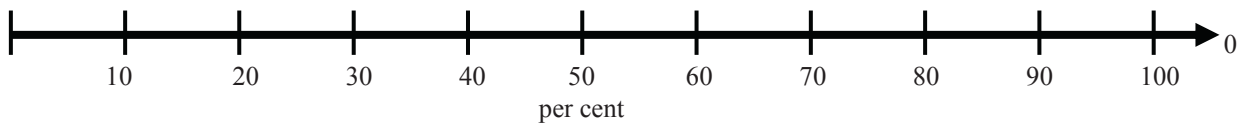
**Question 6.**

A variety of factors can determine a firm's competitiveness. How important are the following factors for your firm? Please answer based on your main product.

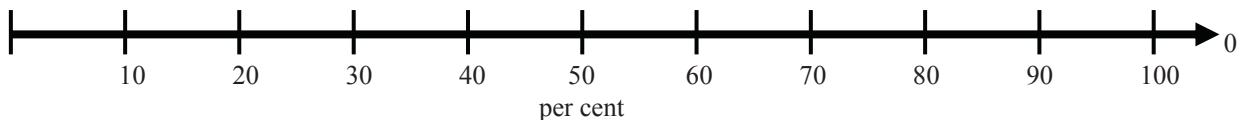
	Not important	Slightly important	Important	Very important	Not relevant/Don't know
A. The price of our main product .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. The quality of our main product .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. The degree to which our main product stands out from competitors' products .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Delivery times .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Loyalty to customers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Service agreements (after the main product has been sold) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Marketing .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Other important or very important factors. Please specify: .....					

**Question 7.**

For roughly what proportion of the firm's total costs do wage costs account? Please indicate with a cross on the scale below.


**Question 8.**

For roughly what proportion of the firm's total costs do costs for imported inputs (goods/services) account? Please indicate with a cross on the scale below.



**PART II PRICE-SETTING**
**Question 9.**
**Which of the following alternative best describes who determines the price of your main product?**

- The firm is able to set the price itself, market conditions given
- The price is determined through negotiations/contracts with the customer
- The price is determined entirely by a Norwegian parent company/group, market conditions given
- The price is determined entirely by a foreign parent company/group, market conditions given
- The price is determined outside the firm in some other way (e.g. by the authorities or by customers).

Please specify: .....

**Question 10.**
**To what extent are the following pricing methods used in your firm when setting the price of its main product?**

	Very limited extent	Fairly limited extent	Fairly great extent	Very great extent	Not relevant/ Don't know
A. The price is set as a mark-up over costs.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. The price depends on our competitors' price.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Other. Please specify: .....					

**Question 11.**
**To what extent are the following statements true for your firm?**

	Very limited extent	Fairly limited extent	Fairly great extent	Very great extent	Not relevant/ Don't know
A. The price of the firm's main product is the same for all customers.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. The price of the firm's main product depends on the quantity sold.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. The price of the firm's main product is decided from case to case.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Other. Please specify:.....					

**Question 12.**

To what extent does the firm take account of the following information when setting the price of its main product?

	Very limited extent	Fairly limited extent	Fairly great extent	Very great extent	Not relevant/ Don't know
A. Information about <i>present and past developments</i> in relevant factors (inflation, demand, costs, competitors' prices, etc.) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Information about <i>future developments/forecasts</i> in relevant factors (inflation, demand, costs, competitors' prices, etc.) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. We use a rule-of-thumb (such as indexation based on the consumer price index/wage growth) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Other. Please specify:.....					

### PART III PRICE CHANGES

**Question 13a.**

When does the firm change the price of its main product? Choose the option that best describes your firm.

In practice, we change the price of our main product...

- ... at certain intervals
- ... mainly at certain intervals, but also in response to specific events (e.g. as a result of marked changes in input prices, competitive conditions, etc.)
- ... only in response to special events
- Other. Please specify: .....

**Question 13b.**

How frequently is the price of the firm's main product actually changed?

- Several times daily
- Daily
- Weekly
- Monthly
- Quarterly
- Biannually
- Annually. If so, please specify in which month: .....
- Biennially. If so, please specify in which month:.....
- Other. Please specify: .....



**Question 14a.**

To what extent does the firm *consider* changing the price of its main product (without necessarily doing so)?  
Choose the option that best describes your firm.

We *consider* changing the price of our main product...

- ... only at certain intervals (e.g. monthly, quarterly, annually)
- ... mainly at certain intervals, but also in response to special events (e.g. as a result of marked changes in input prices, competitive conditions, etc.)
- ... only in response to special events
- Other. Please specify: .....

**Question 14b.**

How frequently does the firm *consider* changing the price of its main product (without necessarily doing so)?

- Several times daily
- Daily
- Weekly
- Monthly
- Quarterly
- Biannually
- Annually. If so, please specify in which month:.....
- Biennially. If so, please specify in which month: .....
- Other. Please specify: .....

**Question 15.**

Based on changes made to the price of your main product in the last couple of years, how big was the most common price change?

- Not relevant – we have not made any price changes in the last couple of years

	Up to 3%	3-10%	11-20%	21-50%	Over 50%
A. Most common price increase (choose one only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Most common price decrease (choose one only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## PART IV REASONS FOR CHANGING PRICES

### Question 16.

Based on *increases* made in the price of your main product in the last couple of years, which typical factors have played an important role in these increases? Please indicate how important each factor has been for your firm.

Not relevant – we have not made any price increases in the last couple of years

	Not important	Slightly important	Important	Very important	Not relevant/ Don't know
A. An increase in wage costs .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. An increase in energy prices (electricity, oil, petrol etc.) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. An increase in capital costs (depreciation of machinery, equipment, rent, financial assets, etc.) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. An increase in prices for inputs other than those in A, B and C above.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. An increase in suppliers' prices .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. An increase in taxes and duties.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. A change in the NOK exchange rate.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. An increase in competitors' prices.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Decreased competition.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Improved product quality .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Increased demand for the product.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Inflation (increase in the consumer price index) ....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M. An expectation of future cost increases .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. An expectation of future growth in demand.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Price increases were made when entering into contracts with new customers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P. Other important or very important factors. Please specify: .....					

### Question 17.

Imagine the following situation. You are to set a new price for your main product and pick up signals that wage costs (or costs for another important input) will rise in the next year. What do you do? Please choose the option that best describes your firm.

- We increase the price even if these costs will not be going up for a while
- We leave the price unchanged until these costs actually go up
- We leave the price unchanged and see what our competitors do
- We leave the price unchanged for other reasons. Please specify: .....

**Question 18.**

Imagine the following situation. You are to set a new price for your product and pick up signals that inflation in the next year will be higher than previously expected. What do you do? Please choose the option that best describes your firm.

- We increase the price
- We leave the price unchanged until this inflation actually materialises
- We leave the price unchanged and see what our competitors do
- We leave the price unchanged for other reasons. Please specify: .....

**Question 19.**

Based on *decreases* made in the price of your main product in the last couple of years, which typical factors have played an important role in these decreases? Please indicate how important each factor has been for your firm.

- Not relevant – we have not made any price decreases in the last couple of years

	Not important	Slightly important	Important	Very important	Not relevant/ Don't know
A. A decrease in wage costs .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. A decrease in capital costs (depreciation of machinery, equipment, rent, financial assets, etc.) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. A decrease in prices for imported inputs.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. A decrease in suppliers' prices.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. A decrease in taxes and duties .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. A change in the NOK exchange rate.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. A decrease in competitors' prices .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Increased competition .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Decreased bargaining power.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Decreased demand for the product.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Low inflation (increase in the consumer price index) .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. Improved technology .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M. An expectation of future cost decreases .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N. An expectation of a future decrease in demand .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Customer wished to renegotiate contract .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P. Other important or very important factors. Please specify: .....					

**Question 20.**

Imagine the following situation. Demand for the firm's main product falls permanently by 10 per cent. What do you do? Please choose the option that best describes your firm.

- We lower the price
- We leave the price unchanged and cut back production
- We lower the price and cut back production
- We cut employees' wages
- We leave the price unchanged for other reasons. Please specify: .....

**PART V REASONS FOR LEAVING PRICES UNCHANGED**
**Question 21.**

Some firms change their prices frequently, while others leave them unchanged for several months. A number of possible reasons why firms leave their prices unchanged are given below. Please indicate how important each reason is for your firm, based on what your firm has actually done in the last couple of years.

	Not important	Slightly important	Important	Very important	Not relevant/ Don't know
A. Risk of price falling out of alignment with competitors' prices.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Risk of subsequently having to change price back the other way .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Price has been fixed through negotiation with customers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Price has been fixed in contracts.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. We like to keep an "attractive" or "psychological" price (e.g. NOK 999) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. The cost of price changes (advertising, printing price lists, etc.) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Price changes can damage customer relationships...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. The cost of obtaining the information on which to base such a decision.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. An important part of our costs are fixed and prevent us from lowering our prices in response to market conditions .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. There is a danger of our customers taking a reduction in price as a reduction in quality .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Our variable costs do not fluctuate much with market conditions, so our price is fairly stable.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L. In a downturn, we only retain our most loyal customers anyway, so we can leave our price unchanged .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M. Other important or very important factors. Please specify: .....					

*Thank you very much for completing this survey.*