



Measuring firms' inflation expectations

Economic agents' inflation expectations are crucial for monetary policy, in particular those of firms, as they set the prices of goods and services produced and consumed in the euro area. At end-2020, the Banque de France therefore set up a pilot survey in two major regions to gather business leaders' opinion on inflation in France. According to this experimental survey, which will be broadened at end-2021, business leaders expect inflation to average 1.9% to 2.2% over a one to five year horizon, in line with the monetary policy objective. Moreover, their opinions are fairly homogeneous: almost 60% of responses ranged between 0 and 2%. These expectations differ from those of households. The latter expect average inflation to be much higher (around 3.5% at end-2020), with a greater dispersion of their responses.

Paul Bouche, Mathilde Gérardin
Surveys and Sectoral Statistics Directorate

JEL codes
E31, E52

Erwan Gautier, Frédérique Savignac
Microeconomic and Structural Analysis Directorate

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1.7%

average inflation perceived by the firms surveyed at end-2020

2.0%

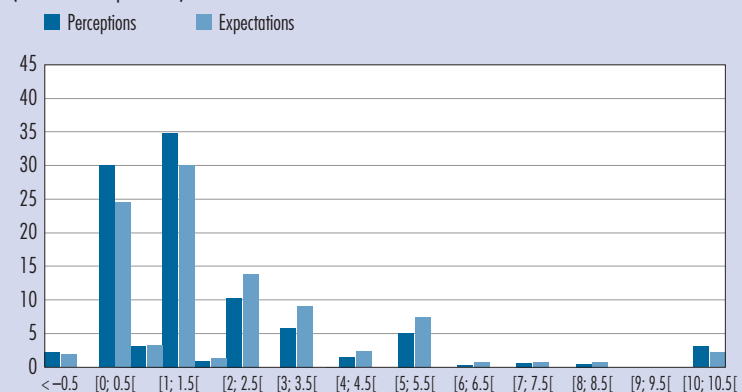
average inflation expected by firms in two years

60%

share of firms expecting inflation to be zero or below 2% in one year

Distribution of quantitative responses on perceived and anticipated inflation over one year

(in % of responses)



Source: Banque de France – pilot survey on inflation expectations.



1 Measuring firms' inflation expectations in France

Since the 1990s, central banks have improved their communication to make their monetary policy more transparent and predictable. Communication has thus become an additional monetary policy tool. Thanks to this clear communication, it is possible to anchor economic agents' expectations to the monetary policy objective and make monetary policy decisions more effective (Barthélémy et al., 2019). In particular, a key challenge for these communication policies is to stabilise economic agents' inflation expectations at a level close to the inflation target (Blinder et al., 2008).

Monitoring household and corporate inflation expectations is crucial for monetary policy

For a long time, traditional indicators for monitoring expectations were primarily based on market information (e.g. ILS – Inflation Linked Securities) or on information collected directly from professional forecasters (e.g. SPF – *Survey of Professional Forecasters*). A number of studies use this type of data to show that central bank communication, including the adoption of an explicit inflation target, has contributed to lowering and stabilising inflation expectations (Ehrmann, 2021). However, financial market participants and professionals have a fine understanding of macroeconomic mechanisms and are distinguished from the general public by their higher level of information and attention to monetary policy. It therefore seems difficult to extrapolate the expectations of forecasters and financial market participants to deduce what all economic agents, and in particular firms and households, think.

Monitoring the expectations of a wider population than just experts has thus become a crucial issue today as

central banks have adapted their communication to address firms and households more directly (Draghi, 2014; Haldane and McMahon, 2018). Central bank communication can indeed help to influence the inflation expectations of firms and households and thus improve the effectiveness of monetary policy (Binder, 2017).

The aim of this communication is to anchor household and corporate inflation expectations to the inflation target. In the case of the euro area, the inflation target was revised in July 2021 (following the strategy review conducted by the ECB and the national central banks) to "2% over the medium term".¹ The ECB's credibility in fulfilling its mandate depends on its ability to keep firms' and households' expectations close to this target. Firms are the economic agents that set the prices of goods and services produced and consumed in the euro area, and also play an important role in setting wages. In the presence of large-scale economic shocks, keeping their expectations close to the target helps to stabilise price dynamics in the medium term and therefore to secure the currency's purchasing power.

In addition, in the more recent context of very low interest rates, central banks have introduced communication policies aimed at supporting household and corporate inflation expectations in order to stimulate activity and limit deflation risks (Boneva et al., 2016). Indeed, in the presence of low interest rates, if households or firms expect a rise in prices tomorrow, they have a greater incentive to consume today (see Andrade, Gautier and Mengus, 2020, for households) and to invest (see Coibion, Gorodnichenko and Ropele, 2020, for firms). This helps to prevent deflation and stabilise the economy when it has become more difficult for central banks to use the standard interest rate instrument.

¹ See the ECB's monetary policy strategy statement published on 8 July 2021: https://www.ecb.europa.eu/home/search/review/html/ecb.strategyreview_monpol_strategy_statement.fr.html. Between 2003 and 2021, the definition of price stability was an inflation rate below, but close to, 2% over the medium term.



In order to monitor changes in household and corporate expectations as closely as possible, a number of central banks have put in place regular surveys in recent years. Household surveys in particular have grown significantly since 2012 (e.g. New York Federal Reserve, ECB, Bundesbank). In comparison, business surveys are somewhat less numerous. Within the euro area, only the Bank of Italy has had such a regular monitoring tool for more than twenty years, while outside Europe, the Federal Reserve of Atlanta, the Bank of Japan and the Central Bank of Uruguay have developed this type of survey since the mid-2010s (see Appendix 1).

A new Banque de France survey among firms

It is in this context that the Banque de France surveyed business leaders, for the first time, on their inflation and wage expectations over the last four months of 2020. This pilot survey will be followed by a regular survey as from end-2021. Approached in the framework of the monthly business survey (MBS), close to a thousand firms in Hauts-de-France and Provence-Alpes-Côte d'Azur (PACA) gave their opinion on past and future inflation (see Box below). This article presents the conclusions drawn from this pilot survey.

A pilot survey on firms' inflation expectations

Between the end of September 2020 and the beginning of January 2021, the Banque de France conducted a pilot survey among firms, before considering making the module of questions on expected inflation part of a regular survey. This survey was conducted in two regions (Provence-Alpes-Côte d'Azur and Hauts-de-France), and was linked to the monthly business survey (MBS) to which business leaders are accustomed to responding.

A total of 821 firms of all sizes and from all sectors of industry, construction and market services covered by the MBS were surveyed. During the four months of the experiment, each firm was surveyed only once. The aim of this pilot phase was in particular to test different question formulations, in order to achieve the dual objective of questioning on a concept that is both understandable to the firms surveyed and relevant to the conduct of monetary policy.

In practice, the questions were asked by telephone. Over 200 testers responsible for regularly surveying firms in the framework of the monthly business survey were mobilised in both regions, after having participated in a training session. In most cases, the contact person in the firm was the managing director or the administrative and financial director in the largest firms.

Between three and six questions – depending on the month – were added to the monthly business survey. As the questions were intended to be read over the phone, they were relatively short and did not include a definition of the concepts covered. The idea was to find out business leaders' opinion about inflation, without influencing their judgement with additional details. As such, it could be made clear to them, if necessary, that there was no right or wrong answer to these questions and that it was simply a matter of recording their sentiment.

In order to test the sensitivity of the responses, two formulations of questions on inflation were tested each month with two groups of similar firms: the first asked for a figure for the change in consumption prices, while the second asked the firm about the inflation rate. The questions were asked over different time horizons: the past twelve months, in one year, in two years and in five years. As an example, here are the formulations for the time horizon "in one year":

"In percentage terms, what do you think will be the change in consumer prices in France over the next twelve months?"

or

"In percentage terms, what do you think the inflation rate in France will be in one year?"

Finally, in the last two months of the pilot survey, additional questions were asked about the past and future evolution of wages in France.



2 A limited inflation perception bias and fairly low dispersion of expectations

Based on all the responses collected over the four months of the pilot survey, we present here the main quantitative results of the questions on price and wage changes in France.

French firms expect inflation to be close to 2% in the medium term

At end-2020, firms' perceived inflation was on average 1.7%, whereas the inflation published by the Institut national de la statistique et des études économiques (Insee) in France (measured by the Harmonised Index of Consumer Prices - HICP) was between 0 and 0.2% (see Table 1). A positive perception bias is frequently observed in household surveys and can be explained, in particular, by purchasing experiences that may lead to an overestimation of the importance of certain price changes. For example, price changes vary greatly from one good to another, and individuals may be more attentive to price increases than to price decreases. Similarly, the most regular purchases (petrol, bread, etc.) may have a greater influence on expectations than more irregular purchases (cars, furniture, etc.; see D'Acunto et al., 2021). For firms, the literature shows that these inflation perception biases depend largely on the macroeconomic context and the attention paid by firms to inflation.² In New Zealand, where inflation is low, Coibion et al. (2018) show biases close to five percentage points, while this perception bias is very low for unemployment and economic activity, which are economic quantities that are more closely monitored. In other countries with higher inflation, the bias is smaller or even zero (notably in the case of Ukraine - Coibion and Gorodnichenko, 2015 – and Uruguay – Frache and Lluberas, 2019). In the case of France, firms' inflation perception bias does exist, but it is relatively limited and consistent with what has been obtained from surveys of business leaders in Japan and Italy.

T1 Mean and median of responses to questions on price and wage changes

(in %)

	Prices/inflation		Wages	
	Mean	Median	Mean	Median
Past 12 months ^{a)}	1.7	1.0	0.9	1.0
Next 12 months	1.9	1.0	0.8	1.0
In two years	2.0	1.5	–	–
In five years ^{b)}	2.2	1.5	–	–

Source: Banque de France – pilot survey on inflation expectations.

Note: The statistics presented in the table are not weighted.

a) All responses over the four months of the survey (except responses obtained from the formulation with information on past inflation). Questions on wages only asked in November and December.

b) Responses collected from surveys conducted in October, November, and December, "inflation" formulation only.

By way of comparison, the perception bias on wage growth is even weaker than that on inflation, or even negative: firms believe that wages in France increased on average by 0.9% in 2020, while the Ministry of Labour measured the observed change in basic wages at 1.5% at end-2020 and that of the minimum wage (Smic) at 1.2%.

Over future horizons, business leaders' inflation expectations are slightly higher than their perceptions and the time profile of these expectations increases slightly over time: on average, they expect inflation to be close to 1.9% by end-2021, 2% by end-2022 and 2.2% in the long term. As regards aggregate wages, expectations for next year are close to their perceptions for 2020, at 0.8% on average.

² And, more generally, to the macroeconomic environment in which they operate. Andrade, Coibion, Gautier and Gorodnichenko (2021) show that firms' aggregate expectations can be significantly affected by specific shocks that firms extrapolate to the rest of the economy.



Businesses' inflation expectations are slightly heterogeneous

The responses supplied by firms show a certain divergence in their perception of inflation or in their expectations of its future level. While, on average, perceived inflation is 1.7%, half of the firms believe that inflation is between 0 and 1%. Chart 1 shows the distribution of firms' responses on perceived inflation and expected inflation. The dispersion of firms' inflation expectations is low: almost 60% of responses on prices are between 0 and 2%. While inflation was close to 0% at end-2020, very few firms expect or perceive an overall fall in prices. Finally, some firms provide high figures, multiples of 5, such as 5, 10, 15%, but they are not many. The dispersion of responses for the most distant two-year and five-year horizons is very similar to that observed for one-year expectations (see Appendix 2).

The empirical analysis of the differences in responses between firms shows that firm size and the position of the respondent in the firm play a significant role on expectations: smaller firms have higher expectations on average. Such differences by firm size have already been observed, for example in Japan (Muto, 2015).

CEOs and administrative directors have significantly lower expectations than other types of interlocutors (HR managers, production managers, accountants, etc.). On the other hand, there are no significant differences according to sector of activity.

As regards wages in France, the differences in opinion between firms are even smaller: close to 90% of business leaders believe that wages will increase by between 0 and 2%, and the median is almost equal to the mean of responses (see Chart 1).

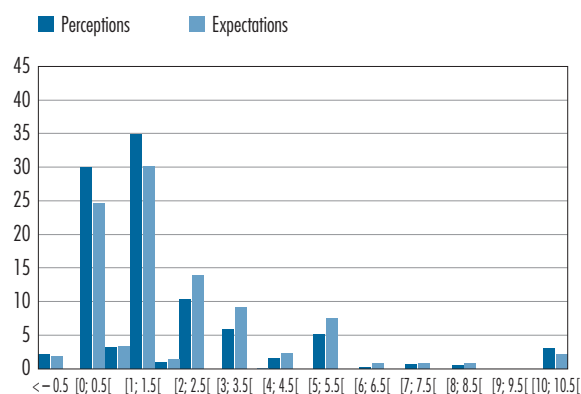
Responses on inflation surrounded by uncertainty

The vast majority of firms were able to give a figure for perceived or expected inflation: only about 10% of the firms surveyed were unable to give a figure for past inflation or inflation one year ahead. This absence of response rises slightly with the time horizon of expectations, but close to 70% of the firms gave a figure for expected inflation in five years. In addition, about half of the respondents expressed difficulty in answering the questions, which suggests that their responses are surrounded by a certain degree of uncertainty. Qualitatively, firms report difficulties in

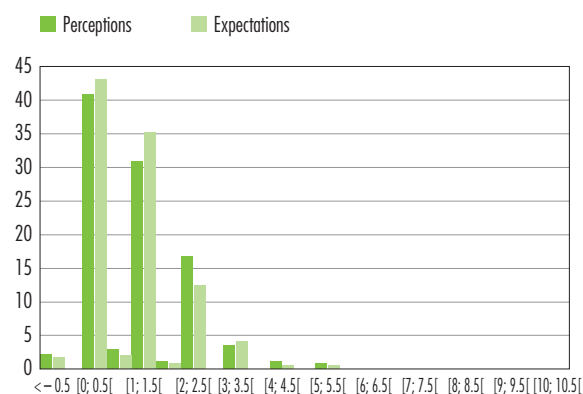
C1 Distribution of quantitative responses on perceived and expected one-year changes

(in % of responses)

a) In prices



b) In wages



Source: Banque de France – pilot survey on inflation expectations.

Note: All quantitative responses including all formulations. For price changes, responses above 10.5% were not represented, i.e. nine observations for perceptions and four for expectations.



accurately quantifying price changes, in seeing beyond their sector or in distinguishing their personal sentiment (daily purchases) from the macroeconomic concept of inflation. The uncertainty surrounding the responses may also be linked to the very moderate levels of inflation in France over the past thirty years, which may have made economic agents less attentive to price trends. By way of comparison, firms had much fewer difficulties in responding about wage trends: almost 95% of firms gave a response, which suggests that firms pay more attention to this variable.

3 French firms' inflation expectations are different from those of households, but similar to those of firms in other euro area countries

We compare the responses obtained in this survey with those obtained from French households (Insee survey) or with the results of other surveys conducted in the euro area at end-2020.

Firms' inflation perceptions are less biased than those of households

Firms' inflation perceptions and expectations are significantly lower than those of households (Insee survey) over the same period. On average, households perceived that prices had risen by 5.3% by end-2020 and expected prices to increase by an average of 3.6% (see Table 2).³

T2 Mean and median of responses to questions on price and wage changes

(in %)

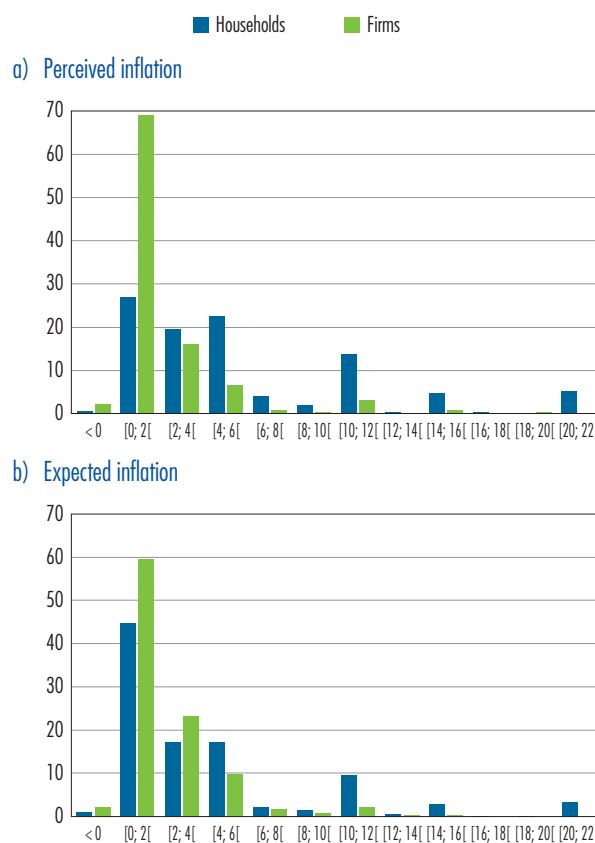
	Firms		Households	
	Mean	Median	Mean	Median
Past 12 months	1.7	1.0	5.3	4.0
Next 12 months	1.9	1.0	3.6	2.0

Source: Banque de France – pilot survey on inflation expectations for the “firms” section, Institut national de la statistique et des études économiques (Insee) – monthly survey among households (Camme – *enquête mensuelle de conjoncture auprès des ménages*) from September to October 2020 for the “households” section.

These differences in averages between households and firms reflect much greater divergences among households than among firms (see Chart 2). In particular, almost one-third of households believe that inflation will be higher than 5% over the next twelve months, compared with only 10% of business leaders. More generally, households tend to give less precise answers: 70% of them answer with a multiple of 5 (0, 5, 10), compared with less than 40% of firms. Firms' expectations are therefore different from those of households. Moreover, they differ from those of financial markets and professional forecasters (see Appendix 2).

C2 Comparative distribution of household/firm quantitative responses on price changes over one year

(in % of responses)



Sources: Banque de France – pilot survey on inflation expectations for the “firms” section and Institut national de la statistique et des études économiques (Insee) – monthly business survey on households (Camme – *enquête mensuelle de conjoncture auprès des ménages*) from September to October 2020 for the “households” section.

³ The significant perception bias observed for households at end-2020 is in line with that observed on average over the long period (see Andrade, Gautier and Mengus, 2020).



Firms in Germany and Italy have similar inflation expectations

Table 3 presents a detailed comparison of the responses obtained simultaneously from the Banque de France and the Bundesbank's pilot surveys among firms, and the results of the Bank of Italy's regular survey for the fourth quarter of 2020.⁴

In all three countries, the levels of perceived and expected inflation are similar. In Germany, the expected price increase averages 1.5%, against 1.9% in France. In Italy, where the survey provides respondents with information on observed inflation in the country (-0.6% in the survey conducted at end-2020), expected inflation averages 0.1%. In France, when firms are asked a similarly worded question, the divergence between expected inflation (0.9%) and observed inflation is similar to that observed in Italy. A study by the Bundesbank also points out that the inflation expectations of German firms are much lower than those of households.

The Banque de France survey of business leaders conducted in the framework of the monthly business survey (MBS) showed that business leaders were quite willing to answer this type of question. It also provided new information on business leaders' perception of inflation in France. At end-2021, questions on inflation in France will be integrated into the MBS via a quarterly module, making it possible to regularly monitor the evolution of business leaders' inflation expectations in France. Eventually, this new module will also provide a better understanding of how firms' inflation expectations affect ultimately their pricing and wage-setting decisions.

T3 Average perceived and expected inflation reported by firms in France, Germany and Italy

(in %)

	France	Germany	Italy
Past 12 months	1.7	1.5	-
Next 12 months	1.9	1.5	-
Next 12 months (+ information on past inflation) ^{a)}	0.9	-	0.1
Average observed inflation ^{b)}	0.1	-0.6	-0.6

Sources: Banque de France – pilot survey on inflation expectations; Bundesbank – pilot survey of firms (BOP F – *Bundesbank Online Panel of Firms*); Bank of Italy – Survey on Inflation and Growth Expectations (SIGE), 4th quarter 2020; Eurostat for inflation figures.

a) Responses collected between the end of December 2020 and the beginning of January 2021 for the Banque de France pilot survey (information on past inflation in France contained in the question: "0.2% in November 2020") and responses between the end of November and mid-December for the Bank of Italy survey (information on past inflation in Italy contained in the question: "- 0.6% in October 2020")

b) Average inflation over the period September-December 2020 (year-on-year HICP – Harmonised Index of Consumer Prices).

⁴ The wording of the questions may differ between surveys and we present comparisons for similar wordings.



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Appendix 1

Main surveys on firms' inflation expectations

Institution – Name of the survey	Number of firms	Horizon	Prices	Availability
Europe				
Banque of Italy – <i>Survey on Inflation and Growth Expectations</i>	1,000 (roughly)	6 months, 1 year, 2 years, 3-5 years	HICP	Since 1999
Czech National Bank – <i>Company Manager Inflation Expectations</i>	120	1 and 3 yers	ICP	Since 1999
Narodowy Bank Polski – <i>NBP's Quick Monitoring</i>	–	one year	ICP	2001-2008, then 2008-2016
National Bank of Hungary – <i>Medián/Tárki survey</i>	–	one year	Inflation	Since 2002
National Bank of Ukraine	1,000	one year	ICP	Since 2006
Swiss National Bank – <i>SNB regional network survey</i>	250 (roughly)	6 months to one year / 3 to 5 years	ICP	Since 2010
CBI (Confederation of British industries) – <i>Industrial Trend Survey</i>	400	1 and 2 years	Prices/wages	–
outside Europe				
Federal Reserve Bank of Atlanta – <i>Business Inflation Expectations</i>	300 (roughly)	1 year, 5-10 ans	Unit costs	Since 2012
United States – <i>Survey of Firms' Inflation Expectations ("SoFIE")^{a)}</i>	300 to 600	1 year, 5 ans	ICP	Since 2017
Banque du Canada – <i>Business Outlook Survey</i>	100 (roughly)	2 years	ICP	Since 2001
Central Bank of Uruguay	500	1 year, 2 years	ICP	Since 2010
Bank of Japan – <i>Tankan survey, module "Inflation Outlook of Enterprises"</i>	11,000	1, 3, ans 5 years	ICP, IPP	Since 2014
Banque centrale sud-africaine	1,000	1, 2 et 5	Headline inflation	Since 2000

Source: Banque de France.

Note: HICP: Harmonised Index of Consumer Prices, CPI: Consumer Price Index, PPI: Producer Price Index.

a) Country of origin of the survey – see Candia, Coibion, Gorodnichenko (2021) and <http://firm-expectations.org/index.html> for more information on this survey.



Appendix 2

Business leaders' inflation expectations are higher than those of forecasters and financial markets

On average, business leaders' expectations tend to be higher than those of professional forecasters and financial markets, regardless of the time horizon (see table). This confirms that it is impossible to extrapolate data obtained from professional forecasters and financial markets to firms.

Comparisons with average professional expectations (SPF and Consensus) and market indicators (ILS)

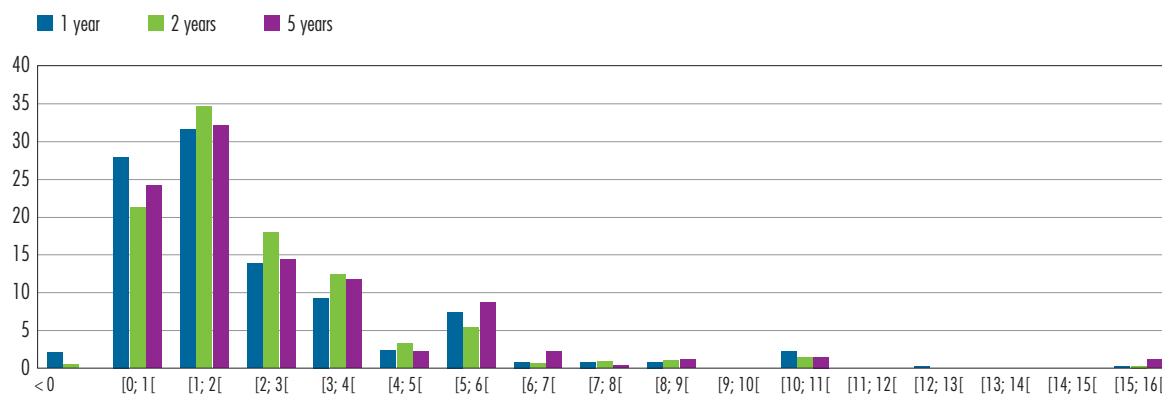
Average expectations according to horizon	Business survey (France)	SPF (euro area)	Consensus (France)	ILS (euro area)
In 1 year	1.9	1.3	0.9	0.7
In 2 years	2.0	1.4	1.3	0.7
In 5 years	2.2	1.7	1.7	0.8

Source Banque de France.

Notes: SPF: European Central Bank *Survey of Professional Forecasters* for the first quarter of 2021 (one-year forecast: December 2021, two-year forecast: December 2022, and five-year forecast: 2025); Consensus: *Consensus Forecasts* survey published by Consensus Economics with data for France updated to October 2020; ILS – Inflation Linked Securities: average over the period September-December 2020.

Distribution of firms' quantitative responses on price changes at 1, 2 and 5 year horizons

(in % of responses)



Source: Banque de France – pilot survey on inflation expectations.

Note: All quantitative responses including all formulations.

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