



# INFORMATIONAL REPORTS

## CENTRAL BANK OF ICELAND

No. 1.3

### Market expectations survey

*In 2012, the Central Bank of Iceland began conducting a survey of market expectations concerning leading economic variables, including inflation expectations. The survey is used by the Bank in monetary policy implementation and in research, and the findings are made available to market agents and the general public. Responses given by individual participants are confidential.*

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**Icelandic letters:**

ð/Ð (pronounced like th in English this)

þ/Þ (pronounced like th in English think)

In *Monetary Bulletin*, ð is transliterated as d and þ as th in personal names, for consistency with international references, but otherwise the Icelandic letters are retained.

**Symbols:**

- \* Preliminary or estimated data.
- 0 Less than half of the unit used.
- Nil.
- ... Not available.
- . Not applicable.

# Market expectations survey<sup>1</sup>

## 1. Introduction

Sound measures of inflation expectations are important for both research and the implementation of forward-looking monetary policy. Capacent Gallup surveys inflation expectations among Iceland's households and largest firms regularly on behalf of the Central Bank. The results of these two surveys often differ radically from inflation expectations according to bond market developments. In order to gain a clearer view of market expectations, the Central Bank decided at the beginning of 2012 to begin carrying out regular market surveys of expectations vis-à-vis various economic variables, including inflation expectations. The Bank hopes that the findings will provide an accurate view of market agents' inflation expectations and make it possible to break inflation expectations in the bond market down into actual inflation expectations, on the one hand, and risk premia, on the other.

The market expectations survey is constantly under development; therefore, it is possible that questions will change or new ones will be added. The participant group could change as well. Appendix 3 contains a summary of changes in questions and a list of participants since the survey was first carried out.

## 2. Inflation expectation data and their use

Inflation expectations are usually assessed through analysis of the market yield curve and through direct questionnaires. The Central Bank of Iceland has used both methods to measure them.

Calculating zero-coupon yield curves for nominal and indexed bonds makes it possible to calculate inflation expectations based on the so-called breakeven inflation rate using the Fisher equation, according to which nominal interest rates are equivalent to real rates plus inflation expectations. The simplest form of the Fisher equation does not take account of factors such as risk premia due to inflation risk, liquidity risk, and maturity risk, to name just a few, and this skews the assessment of actual inflation expectations. Calculations of the yield curve can also be skewed by a number of factors, such as supply- and demand-side effects and the shallowness of the Icelandic bond market. If the assessment of the yield curve is skewed, the calculation of inflation expectations will likewise be skewed.

Two questionnaires on inflation expectations are administered by Capacent Gallup on behalf of the Central Bank, one on household in-

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1. The Central Bank wishes to thank participants in the focus group meetings held in autumn 2011 for useful comments and discussion.

flation expectations and the other on the expectations of Iceland's 400 largest firms. In both surveys, respondents are asked about inflation expectations 1 and 2 years ahead. However, these respondents often have little or no involvement in the bond market, which reduces the usefulness of the results for determining inflation expectations based on zero-coupon yield curves.

### 3. Market expectations survey

An expectations survey carried out among participants in the bond market will hopefully provide a more accurate view of actual inflation expectations than breakeven inflation. The survey is modelled on surveys carried out by central banks around the world, chief among them the Survey of Professional Forecasters (SPF) questionnaires conducted by the US Federal Reserve Bank and the European Central Bank. In the SPF surveys, analysts and professional forecasters are asked about their expectations concerning various economic variables during the upcoming period.

Because there are few analysts and professional forecasters in Iceland, it was decided to approach a broader group of market agents in order to increase the size of the survey sample. Participants therefore include UCITS management companies, financial and economic research departments, the country's 10 largest pension funds, securities brokers, and companies licensed to operate as asset management firms. It would be best if the actual respondents on behalf of these participants were the individuals who make purchase and sale decisions or manage asset portfolios, as these parties can be expected to have considerable interests at stake and are therefore likely to have well-grounded expectations concerning developments in major economic variables. A list of those invited to participate in the survey can be found in Appendix 2.

The market expectations survey is in three parts: short-term expectations, long-term expectations, and opinions on the Central Bank of Iceland's monetary stance. The short-term questions focus on expectations over the coming 2 years, while the long-term questions centre on expectations up to 10 years ahead. A sample of the Central Bank expectations survey can be found in Appendix 1.

#### Short-term expectations

The first part of the survey, which focuses on short-term expectations, contains four questions. The first two centre on respondents' expectations concerning inflation, the ISK exchange rate, Central Bank interest rates, and short-term nominal and real rates 12 and 24 months ahead. Respondents are asked about 12-month changes in the CPI 12 and 24-months ahead; that is, annual inflation 1 and 2 years ahead, in the same month that the questionnaire is answered. In the question about the exchange rate, respondents are asked about the EURISK exchange rate; that is, what one euro will cost in krónur.

Items relating to Central Bank of Iceland interest rates are based on the Bank's 7-day collateralised lending rate 12 and 24 months ahead. Short-term nominal and real interest rates are defined as nominal rates on 1-year Treasury bonds, on the one hand, and real rates

on 1-year indexed Treasury or Housing Financing Fund bonds, on the other, after 12 and 24 months.

In the third question in the first part of the survey, respondents are asked what they think average inflation will be in each quarter for a period of just over one year. This refers to the change in the CPI between the average for the quarter in question and the average for the same quarter in the prior year. The first column of the question contains the inflation measurement for the preceding quarter.

Finally, respondents are asked what they expect Central Bank of Iceland's seven-day collateralised lending rate to be at the end of each quarter in the upcoming year. Thus the survey asks about interest rates on the last day of each quarter. As in the third question, the figure on the last day of the preceding quarter is given.

### Long-term expectations

The second part of the survey comprises three questions. In each of them, the respondent is to estimate annual inflation, on average, for various periods of time, with annual inflation defined in the same way as in the first half of the survey. The first question, which concerns expectations on average over the next five years, also asks about short-term nominal and real interest rates.

In the last two question in this part of the survey, which concern expectations on average over the next ten years and a five-year period five years ahead; that is, the average for years 6-10. If the question is asked in 2015, the question pertains to the average for the period 2020-2025. In addition to inflation expectations, these questions ask about long-term nominal and real interest rates; i.e., nominal interest rates on non-indexed 10-year Treasury bonds and real interest rates on 10-year Treasury or Housing Financing Fund bonds.

### Opinion of the Central Bank of Iceland's monetary stance

The third part of the survey comprises three questions. In the first question, respondents are asked their opinion of the Central Bank of Iceland's monetary stance at the time the survey is conducted. The term *monetary stance* refers to the level of the Bank's interest rates with respect to the objective of keeping average inflation as close to 2½% as possible. The response options are "Far too loose," "Too loose," "Appropriate," "Too tight," and "Far too tight." An appropriate monetary stance means that the Bank's interest rates are appropriate to bring inflation to target within an acceptable length of time. If the stance is too loose (tight), the Bank's interest rates are too low (high) to attain the target within an acceptable length of time.

In the latter two questions in the third part of the survey, respondents are asked what they think the monetary stance will be at the end of the next quarter and in one year's time. The response options are the same as in the first question in this part of the survey.

### Special questions

At the end of the survey is a special question that can change between surveys. The question is not bound to a specific topic but rather involves issues that the Central Bank deems important for research and

the conduct of monetary policy. A list of these questions can be found in Appendix 4.

#### 4. Execution of the Central Bank expectation survey

The Central Bank expectations survey is conducted four times a year, about a week prior to the publication of *Monetary Bulletin*, or around the middle of each quarter. In general, the survey is sent out on a Monday, and the response deadline is on the following Wednesday. However, if any important data are published in that week (for instance, the consumer price index), the response window is shifted until after that publication. A short response time is specified in an attempt to avoid publication of new information just prior to the response date and ensure that all respondents' answers are based on comparable sets of data.

The survey is conducted electronically; participants are sent an e-mail containing a link to the survey website, enabling them to respond online. Responses from individual participants are treated as confidential, but the Central Bank will have access to individual responses in order to categorise them by participant and monitor participation.

The results of the survey are then published on the Central Bank website, according to the statistics publication calendar. The results include the mean and median response to each question in the survey, as well as the standard deviation of responses in each instance. Thus the results should provide an accurate view of market expectations.

#### 5. Executive summary

The Central Bank hopes that the survey is well received by participants and that respondents will deem it in their own interests to take part. Knowledge of the expectations of market agents, in addition to those of households and businesses, can be of great importance for research and analysis within the Central Bank. Experience has shown that there are a number of flaws in the measurements of household and corporate expectations; therefore, it is important to obtain information on the expectations of market agents, who have genuine financial interests to protect.

This information could be useful for the market agents themselves, as publication of the survey findings enables them to position their own expectations within the respondent group. The results also give market agents, as well as the Central Bank, more detailed information on market participants' actual inflation expectations than can be gleaned from the yield curve. Consequently, the survey is thus a welcome addition to the current body of expectation measurements and should be of use outside the Bank as well as inside it.

## Appendix 1

# Market expectations survey, Q1/2015

### Part I: Short-term expectations:

1. In your opinion, what will the following economic variables be 12 months from now?

Variable	In 12 months' time
Twelve-month inflation	
EURISK exchange rate	
CBI collateralised lending rate	
Short-term nominal interest rate	
Short-term real interest rate	

Further explanation:

- Twelve-month inflation: the 12-month change in the consumer price index (CPI) after 12 months; that is, the change in the CPI after 12 months, in comparison with the current month.
- EURISK exchange rate: the price of one euro in krónur after 12 months.
- CBI collateralised lending rate: the Central Bank of Iceland's nominal seven-day collateralised lending rate after 12 months.
- Short-term nominal interest rate: nominal interest rates on non-indexed 1-year Treasury bonds after 12 months.
- Short-term real interest rate: the real interest rate on indexed 1-year Treasury or Housing Financing Fund bonds after 12 months.

2. In your opinion, what will the following economic variables be 24 months from now?

Variable	In 24 months' time
Twelve-month inflation	
EURISK exchange rate	
CBI collateralised lending rate	
Short-term nominal interest rate	
Short-term real interest rate	

Further explanation:

- Twelve-month inflation: the 12-month change in the consumer price index (CPI) after 24 months; that is, the change in the CPI after 24 months, in comparison with the same month in the prior year.
- EURISK exchange rate: the price of one euro in krónur after 24 months.
- CBI collateralised lending rate: the Central Bank of Iceland's nominal seven-day collateralised lending rate after 24 months.
- Short-term nominal interest rate: nominal interest rates on non-indexed 1-year Treasury bonds after 24 months.
- Short-term real interest rate: the real interest rate on indexed 1-year Treasury or Housing Financing Fund bonds after 24 months.

3. What do you think inflation will measure, on average, in each quarter?

2014Q4	2015Q1	2015Q2	2015Q3	2015Q4	2016Q1
1.3%					

Further explanation:

- This refers to the change in the CPI between the average for the quarter in question and the average for the same quarter in the prior year.

4. What do you think the Central Bank of Iceland collateralised lending rate will be at the end of each quarter?

2014Q4	2015Q1	2015Q2	2015Q3	2015Q4	2016Q1
5.25%					

Further explanation:

- This refers to the Central Bank's nominal 7-day collateralised lending rate at the end of each quarter.

**Part II: Long-term expectations:**

5. In your opinion, what will the following economic variables be, on average, over the next 5 years?

<i>Variable</i>	<i>Five-year average</i>
Twelve-month inflation	
Short-term nominal interest rate	
Short-term real interest rate	

Further explanation:

- Twelve-month inflation: the annual change in the CPI, on average, over the next 5 years.
- Short-term nominal interest rate: the nominal interest rate on non-indexed 1-year Treasury bonds, on average, over the next 5 years.
- Short-term real interest rate: the real interest rate on indexed 1-year Treasury or Housing Financing Fund bonds, on average, over the next 5 years.

6. In your opinion, what will the following economic variables be, on average, over the next 10 years?

<i>Variable</i>	<i>Five-year average</i>
Twelve-month inflation	
Long-term nominal interest rate	
Long-term real interest rate	

Further explanation:

- Twelve-month inflation: the annual change in the CPI, on average, over the next 10 years.
- Long-term nominal interest rate: the nominal interest rate on 10-year Treasury bonds, on average, over the next 10 years.
- Long-term real interest rate: the real interest rate on indexed 10-year Treasury or Housing Financing Fund bonds, on average, over the next 10 years.

7. In your opinion, what will the following economic variables be, on average, over a 5-year period 5 years from now?

<i>Variable</i>	<i>Over 5-yr period, 5 years from now</i>
Twelve-month inflation	
Long-term nominal interest rate	
Long-term real interest rate	

Further explanation:

- Twelve-month inflation: the annual change in the CPI, on average, over the next 6-10 years.
- Long-term nominal interest rate: the nominal interest rate on 10-year Treasury bonds, on average, over the next 6-10 years.
- Long-term real interest rate: the real interest rate on indexed 10-year Treasury or Housing Financing Fund bonds, on average, over the next 6-10 years.

**Part III: The Central Bank of Iceland's monetary stance<sup>2</sup>**

8. What is your perception of the current monetary stance?

Far too loose    Too loose    Appropriate    Too tight    Far too tight

9. What do you think the monetary stance will be at the end of the next quarter?

Far too loose    Too loose    Appropriate    Too tight    Far too tight

10. What do you think the monetary stance will be in one year (that is, in this quarter a year from now)?

Far too loose    Too loose    Appropriate    Too tight    Far too tight

Further explanation:

- The term monetary stance refers to the level of the Bank's interest rates with respect to the objective of keeping average inflation as close to 2½% as possible.
- An appropriate monetary stance means that the Central Bank's interest rates are appropriate to bring inflation to target within an acceptable length of time.
- If the stance is too loose (tight), the Bank's interest rates are too low (high) to attain the target within an acceptable length of time.

2. First asked during the Q2/2012 survey.



## Appendix 2

### List of participants

#### UCITS management firms

- GAM Management
- Íslandssjóðir hf.
- Júpíter rekstrarfélag hf.
- Landsvaki hf.
- Stefnir hf.
- Virðing

#### Financial research departments

- Analytica
- Arion Bank Research
- Íslandsbanki Research
- Landsbankinn Economics Department
- IFS

#### Pension funds (10 largest)

- Almenni lífeyrissjóðurinn
- Festa lífeyrissjóður
- Frjálsi lífeyrissjóðurinn
- Gildi lífeyrissjóður
- Lífeyrissjóður starfsmanna ríkisins
- Lífeyrissjóður verslunarmanna
- Sameinaði lífeyrissjóðurinn
- Stafir lífeyrissjóður
- Stapi lífeyrissjóður
- Söfnunarsjóður lífeyrisréttinda

#### Securities brokerages and licensed asset management firms

- H.F. Verðbréf
- Íslensk verðbréf hf.
- Íslenskir fjárfestar ehf.
- Straumur IB hf.
- Arion Bank Asset Management
- Íslandsbanki Asset Management
- Landsbankinn Asset Management
- MP bank Asset Management
- Arctica Finance hf.
- Jöklar verðbréf hf.

#### Primary dealers in Treasury securities<sup>3</sup>

- Arion Bank
- MP Bank
- Íslandsbanki
- Landsbankinn
- Straumur IB hf.

3. Invited to participate beginning with the Q2/2012 survey.

## Appendix 3:

# Summary of changes from the first survey

### 2012: Second quarter

- Primary dealers in Treasury securities and commercial banks' capital markets departments invited to participate in market participants' survey.
- Questions added to the assessment of the current monetary stance and projections of the monetary stance at the end of the next quarter and in one year's time (questions 8-10).

### 2013: Third quarter

- Response time shortened from Monday-Friday to Monday-Wednesday.

### 2013: Fourth quarter

- Change in the wording of questions 8-10. Response options changed from *Very loose*, *Too loose*, *Appropriate*, *Too tight*, and *Very tight* to *Far too loose*, *Too loose*, *Appropriate*, *Too tight*, and *Far too tight*.

### 2014: First quarter

- Commercial banks' capital markets departments removed from the list of participants.

### 2014: Second quarter

- Special question added at the end of the survey. The question is not bound to a specific topic but rather involves issues that the Central Bank deems important for research and the conduct of monetary policy. A list of these questions can be found in Appendix 4.

### 2015: First quarter

- Questions on long-term nominal and real interest rates after twelve and twenty-four months and on average the next five years changed to questions on short-term nominal and real interest rates.

## Appendix 4:

### Special questions

#### 2014: Second quarter

- If your answer to Question 7 is that you do not expect inflation to be at the Central Bank's inflation target – i.e., if you do not expect annual inflation to average 2.5% over the next five years in five years' time – what do you consider the main reason the Central Bank will not be able to keep inflation at target over the long term? Options: *"It lacks the will to do so"*, *"It cannot do so because of external conditions"*, *"It cannot do so because it lacks the capacity"*, *"Other"*.

#### 2014: Third quarter

- What level of domestic real interest rate, if allowed to prevail for several years, would place economic activity at its potential and keep inflation at the Central Bank's inflation target?

#### 2014: Fourth quarter

- What do you think the bond market inflation risk premium is currently? At horizons of one, two and five years?