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Survey of market expectations

In 2012, the Central Bank of Iceland began conducting a survey of market expectations concerning leading economic variables such as inflation and interest rates. 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.

Survey of market expectations¹

1. Introduction

Sound measures of inflation expectations are of key importance for both research and the implementation of forward-looking monetary policy. Gallup conducts two surveys of inflation expectations for the Central Bank, one among households and the other among Iceland's largest companies. The results of these two surveys often differ radically from the breakeven inflation rate indicated by the bond market. 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. The Bank hopes that the findings will provide an accurate view of market agents' inflation expectations and make it possible to fractionate the breakeven inflation rate in the bond market 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 added. The participant group could change as well. Appendix 3 contains a summary of changes since the survey was first carried out

2. Inflation expectation data and their use

Inflation expectations are usually assessed through analysis of the yield curve in the bond market 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 Gallup on behalf of the Central Bank, one on household inflation expectations and the other on the expectations of Iceland's 400 largest

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

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 survey findings for determining inflation expectations based on zero-coupon yield curves.

3. Survey of market expectations

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 Federal Reserve 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, pension funds, securities brokers, and companies licensed to operate as asset management firms. It is best if the respondents on behalf of these participants are the individuals who actually 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- and medium-term expectations, long-term expectations, and opinions on the Central Bank of Iceland's monetary stance. A sample of the Central Bank expectations survey can be found in Appendix 1.

Short- and medium-term expectations

The first three questions in the survey focus on short- and medium-term expectations. In the first question, 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.

In the second question, participants are asked what they expect the Central Bank's collateralised lending rate – i.e., the nominal rate on collateralised seven-day loans – to be at the end of each quarter for a period of just over one year. Thus the survey asks about interest rates on the last day of each quarter. As in the first question, the figure on the last day of the preceding quarter is given.

The third question focuses on participants' expectations concerning twelve-month inflation – i.e., the twelve-month change in the consumer price index – and concerning short-term nominal and real interest rates 12 months ahead, 24 months ahead, and as an aver-

age over the next five years. The term short-term nominal and real interest rates refers to nominal interest rates on Treasury bonds with a one-year duration, on the one hand, and real interest rates on indexed Treasury or Housing Financing Fund bonds with a one-year duration. Questions are also asked about expectations concerning Central Bank's collateralised lending rate and the exchange rate of the króna 12 and 24 months ahead. More specifically, participants are asked what they expect the EURISK exchange rate – i.e., the price of one euro in krónur – to be.

Long-term expectations

The fourth question concerns expectations 10 years ahead. Participants are asked what they think average twelve-month inflation will be in the next 10 years, with twelve-month inflation defined in the same way as in the previous part of the survey. In addition, they are asked about long-term nominal and real interest rates, which refers to nominal interest rates on non-indexed Treasury bonds with a 10-year duration and real interest rates on indexed Treasury or Housing Financing Fund bonds with a 10-year duration.

Opinion of the Central Bank of Iceland's monetary stance

In the last question in the survey, 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 key interest rate 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 Central Bank's key rate is appropriate to bring inflation to target within an acceptable length of time. If the stance is too loose (tight), the Bank's key rate is too low (high) to attain the target within an acceptable length of time.

Special questions

At the end of the survey, there may be additional questions that are not necessarily bound to a given topic but concern issues that the Central Bank considers important for research and the conduct of monetary policy. A list of questions that have been asked in the past 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, shortly before the publication of each *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 information.

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 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 also 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.

Appendix 1

Survey of market expectations, Q2/2017

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

2017Q1	2017Q2	2017Q3	2017Q4	2018Q1	2018Q2
1.8%					

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.

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

2017Q1	2017Q2	2017Q3	2017Q4	2018Q1	2018Q2
5.75%					

Further explanation:

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

3. In your opinion, what will the following economic variables be 12 months from now, 24 months from now and, on average, over the next five years?

Variable	In 12 months' time	In 24 months' time	5-year average
Twelve-month inflation (%)			
EURISK exchange rate (kr.)			
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).
- EURISK exchange rate: the price of one euro in krónur.
- CBI collateralised lending rate: the Central Bank of Iceland's nominal seven-day collateralised lending rate.
- Short-term nominal interest rate: nominal interest rates on non-indexed one-year Treasury bonds.
- Short-term real interest rate: the real interest rate on indexed one-year Treasury or Housing Financing Fund bonds.

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

Variable	10-year average
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 non-indexed 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.

5. What is your opinion of the current monetary stance?

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 key interest rate 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 key interest rate is appropriate to bring inflation to target within an acceptable length of time.
- If the stance is too loose (tight), the Bank's key rate is too low (high) to attain the target within an acceptable length of time.

Appendix 2

List of participants

UCITS management firms

- GAM Management
- Íslands sjóðir hf.
- Júpiter rekstrarfélag hf.
- Landsvaki hf.
- Stefir hf.
- Virðing

Financial research departments

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

Pension funds

- Birta lífeyrissjóður
- Festa lífeyrissjóður
- Frjálsi lífeyrissjóðurinn
- Gildi lífeyrissjóður
- Lífeyrissjóður starfsmanna ríkisins
- Lífeyrissjóður verslunarmanna
- Stapi lífeyrissjóður
- Söfnunarsjóður lífeyrisréttinda

Securities brokerages and licensed asset management firms

- Íslensk verðbréf hf.
- Íslenskir fjárfestar ehf.
- Arion Bank Asset Management
- Kvika banki Asset Management
- Íslandsbanki Asset Management
- Landsbankinn Asset Management
- Arctica Finance hf.

Primary dealers in Treasury securities

- Arion Bank Proprietary Trading
- Kvika banki Proprietary Trading
- Íslandsbanki Proprietary Trading
- Landsbankinn Proprietary Trading

Appendix 3:

Summary of changes since 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.

2015: Third quarter

- MP Bank hf. and Straumur IB hf. merged under the name of MP Straumur. Subsequent changes were made to the list of participants.

2015: Fourth quarter

- H.F. Verðbréf hf. was acquired by Arctica Finance hf. and therefore removed from the list of participants.
- MP Straumur's name changed to Kvika banki. Subsequent changes were made to the list of participants.

2016: Third quarter

- Survey shortened by three questions. Questions focusing on market agents' opinions concerning economic variables, on average, over a five-year horizon five years ahead, the monetary stance at the end of the next quarter, and the monetary stance one year ahead were taken out.

2016: Fourth quarter

- The pension funds Sameinaði lífeyrissjóðurinn and Stafir lífeyrissjóður merged under the name Birta Pension Fund. Subsequent changes were made to the list of participants.

2017: Second quarter

- The questions concerning economic variables after 12 months, after 24 months, and on average over the next five years were merged into a single question.

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?

2015: First quarter

- What do you think the bond market risk premium for uncertainty about inflation is at present? At horizons of one, two and five years?

2015: Second quarter

- The five- and ten-year breakeven inflation rates in the bond market have risen by just under 1½ percentage points since the end of January, to just under 5% by the end of April. What do you consider the main reason for this increase?

2015: Third quarter

- In your opinion, what is the probability that twelve-month inflation will measure 2-3% in 12 months' time?
- In your opinion, what is the probability that twelve-month inflation will measure 2-3% in 24 months' time?

2015: Fourth quarter

- The five- and ten-year breakeven inflation rate in the bond market has fallen by approximately 2 percentage points since end-June. It measured just under 3% in mid-October. What do you consider the main underlying reason for the decline in the breakeven rate?

2016: Fourth quarter

- What impact, if any, did Statistics Iceland's error in calculating inflation, discovered in September, have on your short-term inflation expectations (1-2 years ahead) and long-term inflation expectations (5-10 years ahead)?
- Yields on nominal Treasury bonds fell by 0.5-0.8 percentage points between mid-August and mid-October, when they lay in the 5.2-5.5% range. What do you consider the main underlying reason for this decline?

2017: First quarter

- The Bank's key interest rate – the rate on seven-day term deposits – is currently 5%. What do you think it should be (in percentage points)?

2017: Second quarter

- In April, house prices rose by 20% year-on-year. In your opinion, which of the following will apply to house prices in the next six months? Response options: "*They will rise more rapidly*"; "*They will rise more slowly*"; "*They will rise at the same pace*".
- In April, house prices rose by 20% year-on-year. In your opinion, which of the following will apply to house prices in the next twelve months? Response options: "*They will rise more rapidly*"; "*They will rise more slowly*"; "*They will rise at the same pace*".