

# INTRODUCTION OF A SURVEY ON INFLATION OUTLOOK OF FIRMS IN THE BANK OF JAPAN'S SHORT-TERM ECONOMIC SURVEY OF ENTERPRISES IN JAPAN

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The views expressed are those of the speaker and should not be attributed to the Bank of Japan.

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## I. Overview of Tankan Survey

- II. Firms' inflation outlook survey will be launched as a TANKAN's new survey item.
- III. Two pilot surveys were conducted in 2012. What did these pilot surveys test?
- IV. Results of pilot surveys and feedbacks to questionnaire design
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# What is **TANKAN**?

Tankan = Short-Term Economic Survey  
of Enterprises in Japan

Purpose	Providing an accurate picture of business conditions ⇒ Contributing to the appropriate implementation of monetary policy
Survey Items	<ul style="list-style-type: none"><li>• Judgement survey (e.g., Business conditions index)</li><li>• Quantitative data (e.g., Sales, Fixed investment)</li></ul>
Coverage	<ul style="list-style-type: none"><li>• Sample enterprises : 10,910 (Sept. 2011)</li><li>• Population enterprises : 213,210</li></ul>
Frequency	Quarterly (March, June, September, December)

# Survey items of Tankan

Judgement Survey (13 items)		Business Conditions
		Domestic Supply and Demand Conditions for Products and Services
		Overseas Supply and Demand Conditions for Products
		Inventory Level of Finished Goods and Merchandise
		Wholesalers' Inventory Level
		Production Capacity
		Employment Conditions
		Financial Position
		Lending Attitude of Financial institutions
		Change in Interest Rate on Loans
		Conditions for CP Insurance
		Change in Output Prices
		Change in Input Prices
Quantitative Data (25 items)		Sales
		Exports
		Exchange rates for Exports
		Material Costs
		Personnel Expenses
		Depreciation Expenses
		Operating Profits
		Financial Income
		Financial expenses
		Current Profits
		Net Income
		Fixed Investment
		Land Purchasing Expenses
		Software Investment
		Total Liabilities
		Loans from Financial institutions
		Commercial Paper
		Corporate Bonds
		Total Assets
		Cash and Deposits
		Securities Listed as Liquid Assets
		Securities Listed as Fixed Assets
		Number of Employees
		Part-time workers
		Number of New Graduates Hired

# Strength of the Tankan Survey

## ① High response rate

- 98.8% (Sept. 2011)  
: keeping a high response rate (95.6%) even immediately after the Great East Japan Earthquake (March 2011)

## ② Long history

- The predecessor of the present Tankan started in 1957.  
: on the model of "Economic test" by the IFO Institute
- The present Tankan started in 1974.  
: registering the 150<sup>th</sup> survey in Sept. 2011

## ③ Statistical accuracy

- Stratified sampling to reduce sampling errors
- Regular revision of the sample enterprises

## ④ Quick release

- Response collected in one month
- Released on the day after the end of the survey period

## ⑤ Various survey items

- Judgement survey (13 items)
- Quantitative data (25 items)

Virtuous cycle

Credible data

Useful data

The value of the Tankan survey shared among respondents

Heavily used by policy makers and analysts



# Planned revision of the Tankan Survey

- Goal: Make the survey **more useful**, while **reducing** the respondents' **reporting burden**.
- Solution:
  - 1) Removing **16 out of 25** quantitative survey **items** will drastically reduce the reporting burden.
  - 2) Launching a survey on the **inflation outlook of firms** will fill the data gap concerning inflation outlook.

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# BOJ will launch firms' inflation outlook survey

- The Bank of Japan will launch a survey on the inflation outlook of firms as a new item of **TANKAN** around the first half of 2014.

## Overview of firms inflation outlook survey (1)

Survey Items	“Output Prices”, “General Prices”
Forecasting Horizons	1 year ahead 3 years ahead 5 years ahead
Sample Firms	Equivalent to the sample firms of the current <i>Tankan</i> (10,623 firms as of June 2013)



# Overview of firms inflation outlook survey (2)

## Questionnaire of Outlook for Output Prices

Relative to the current level, what are your institution's expectations of the rate of price changes in your mainstay domestic products or services for one year ahead, three years ahead, and five years ahead, respectively?

Please select the range nearest to your own expectation from the options below.

### [Options]

Rate of changes relative to the current level

1. around +20% or higher (+17.5% or higher)
2. around +15% and more (+12.5% ~ +17.4%)
3. around +10% and more (+7.5% ~ +12.4%)
4. around +5% and more (+2.5% ~ +7.4%)
5. around +0% and more (-2.5% ~ +2.4%)
6. around -5% and more (-7.5% ~ -2.6%)
7. around -10% and more (-12.5% ~ -7.6%)
8. around -15% and more (-17.5% ~ -12.6%)
9. around -20% or lower (-17.6% or lower)
10. Don't know.

## Questionnaire of Outlook for General Prices

What are your institution's expectations of the annual % change in general prices (as measured by the consumer price index) for one year ahead, three years ahead, and five years ahead, respectively?

Please select the range nearest to your own expectation from the options below.

### [Options]

In annual percent rate change

1. around +6% or higher (+5.5% or higher)
2. around +5% and more (+4.5% ~ +5.4%)
3. around +4% and more (+3.5% ~ +4.4%)
4. around +3% and more (+2.5% ~ +3.4%)
5. around +2% and more (+1.5% ~ +2.4%)
6. around +1% and more (+0.5% ~ +1.4%)
7. around 0% and more (-0.5% ~ +0.4%)
8. around -1% and more (-1.5% ~ -0.6%)
9. around -2% and more (-2.5% ~ -1.6%)
10. around -3% or lower (-2.6% or lower)


※If you have no clear views on general prices, please select one of the three following reasons.

11. Uncertainty over the future outlook is high
12. Not really conscious of inflation fluctuations because they should not influence the strategy of the institution.
13. Other

# Rational for the new survey item

1. Inflation expectations are important determinants of economic activities and price formations
2. Survey method is one of the effective means of measuring inflation expectations
3. Presently there are no inflation outlook surveys in Japan that ask firms for their views on medium- to long- term inflation.

# Inflation Outlook Surveys in Japan

	Forecasting Horizons	
	Short-term (1 year or less)	Medium- to long-term (2 to 10 years)
Households	<ul style="list-style-type: none"> <li>• Opinion Survey (1 year)</li> <li>• Monthly Consumer Confidence Survey (1 year)</li> </ul>	<ul style="list-style-type: none"> <li>• Opinion Survey (5 years)</li> </ul>
Business	<ul style="list-style-type: none"> <li>• Tankan (3 months)</li> <li>• Business Outlook Survey (3, 6 months)</li> <li>• Annual Survey of Corporate Behavior (1 year)</li> </ul>	
Economists	<ul style="list-style-type: none"> <li>• ESP Forecast (1 year)</li> <li>• Consensus Forecast</li> </ul>	<ul style="list-style-type: none"> <li>• ESP Forecast (2, over 5 years)</li> <li>• Consensus Forecast</li> </ul>

# Overseas Inflation Outlook Surveys

	Forecasting Horizons	
	Short-term (1 year or less)	Medium-to-long-term (2 to 10 years)
Households	<ul style="list-style-type: none"> <li>•US: Surveys of Consumers (Michigan Survey) (1 year)</li> <li>•Euro Area: Business and Consumer Surveys (1 year)</li> <li>•UK: Inflation Attitudes Survey (1 year)</li> </ul>	<ul style="list-style-type: none"> <li>•US: Surveys of Consumers (Michigan Survey) (5-10 year)</li> <li>•UK: Inflation Attitudes Survey (2&amp; 5 year)</li> </ul>
Business	<ul style="list-style-type: none"> <li>•US: Empire State Manufacturing Survey (6 months)</li> <li>•US: Business Outlook Survey (6 months)</li> <li>•Canada: Business Outlook Survey (1 year)</li> <li>•Euro Area: Business and Consumer Surveys (3 months)</li> <li>•UK: CBI Company Survey (1 year)</li> <li>•NZ: Survey of Expectations (3 months, 1 year)</li> <li>•NZ: Business Outlook (1 year)</li> </ul>	<ul style="list-style-type: none"> <li>•Canada: Business Outlook Survey (2 years)</li> <li>•NZ: Survey of Expectations (2 years)</li> </ul>
Economists	<ul style="list-style-type: none"> <li>•US: Survey of Professional Forecasters (Every 3 months until 1 year, 1 year)</li> <li>•US: Livingston Survey (6 months, 1 year)</li> <li>•Euro Area: Survey of Professional Forecasters (1 year)</li> <li>•Sweden: Inflation Expectations (1 year)</li> <li>•Consensus Forecasts</li> </ul>	<ul style="list-style-type: none"> <li>•US: Survey of Professional Forecasters (2,3, 5, 10 years)</li> <li>•US: Livingston Survey (2, 10 years)</li> <li>•Euro Area: Survey of Professional Forecasters (2, 5 years)</li> <li>•Sweden: Inflation Expectations (2, 5 years)</li> <li>•Consensus Forecasts</li> </ul>

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# Exploring effective questionnaire design

- Can **corporate executives** answer to questions on inflation outlook?
  - They may be reluctant to reveal outlook on output prices for strategic reasons; and they may not have clear views on general price (unlike professional economists).
- **“Easy-to-answer”** is the key—will encourage respondents to answer.
- Questionnaire design often affects answers. How to best achieve **“unbiased”** results?

# Pilot surveys

- Two pilot surveys were conducted in March and June 2012.
  - 1400 samples were selected from the regular sample of TANKAN, identical for both pilot surveys
  - Samples were divided into 7 groups. To compare results of possible survey formats, we prepare a slightly different set of questions for each group.
  - “Don’t have a clear view” option was prepared so that respondents would not be forced to provide numerical forecasts when they find it difficult to do so.

# What did pilot surveys test?

1. Is it feasible to survey the inflation outlook of firms?
2. What is the most effective type of question?

Does any of the following factors

- the number of options
- the range of options
- the order of options
- the numerical range of each option

have an effect on the distribution of responses?



# Questionnaire for the pilot survey

- Please note that the pilot surveys are conducted with the questionnaire slightly different from the final format (will come back to this issue later).

Original expression for the pilot surveys	Modified expression
1. +4%, or above	1. around +4%, or higher (+3.5% or higher)
2. on and over 3% ~ less than 4%	2. around +3% (+2.5% ~+3.5%)
3. on and over 2% ~ less than 3%	3. around +2% (+1.5% ~+2.5%)
4. on and over 1% ~ less than 2%	4. around +1% (+0.5% ~+1.5%)
5. on and over 0% ~ less than 1%	5. around 0% (- 0.5% ~+0.5%)
6. on and over -1% ~ less than 0%	6. around -1%, (- 1.5% ~- 0.5%)
7. on and over -2% ~ less than -1%	7. around -2% or lower (- 2.5% or lower)
8. -2% or below	
9. Don't know	8. Don't know

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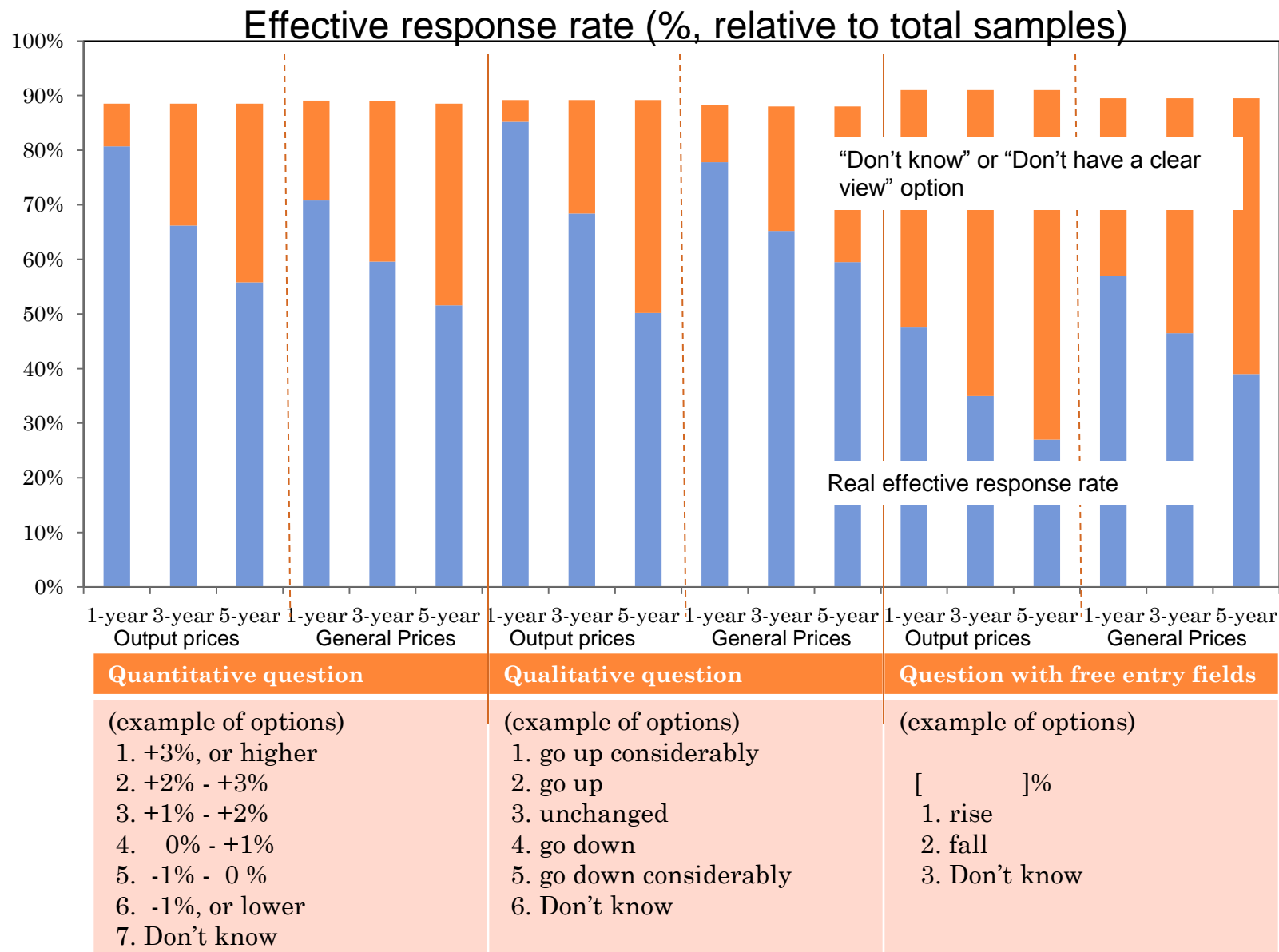
# 1. Is it feasible to survey the inflation outlook of firms?

- Effective response rates were around 90%.
- Real effective response rate(\*) was lower for longer forecast horizon.

But, around half of all respondents had given serious consideration to price trends over even a five-year horizon.

(\*) Real effective response rate excludes “Don’t know” or “Don’t have a clear view” responses from effective response.

## 2. What is the most effective type of question?



## 2. What is the most effective type of question?

(Results)

- Real effective response rate of “free-entry type” was significantly lower than others.
- Many respondents feel uncomfortable when asked to provide mid- and long- term inflation forecasts with pinpoint accuracy.

=> The **quantitative multiple-choice** approach has been adopted.

### 3. Does **the number of options** have an effect on the distribution of responses?

(Pilot surveys)

- Whether might respondents be less comfortable choosing from a larger number of options?
- Two sets of questions with 6 and 8 options were prepared for the “General Prices” survey.

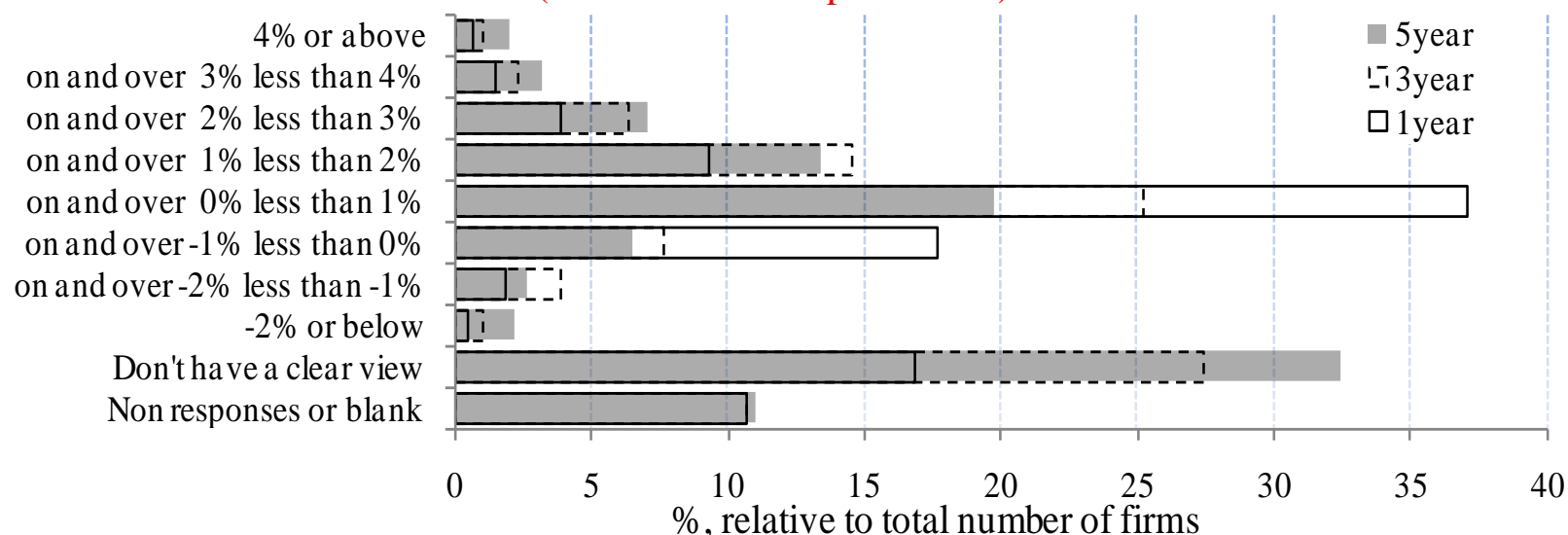
(Results)

- The distribution looks to be **almost identical**, with no significant difference in the percentages of respondents selecting “Don’t have a clear view”.
  - Two sets of questions with 6 and 10 options were prepared for the “Output Prices” survey, with very similar results.

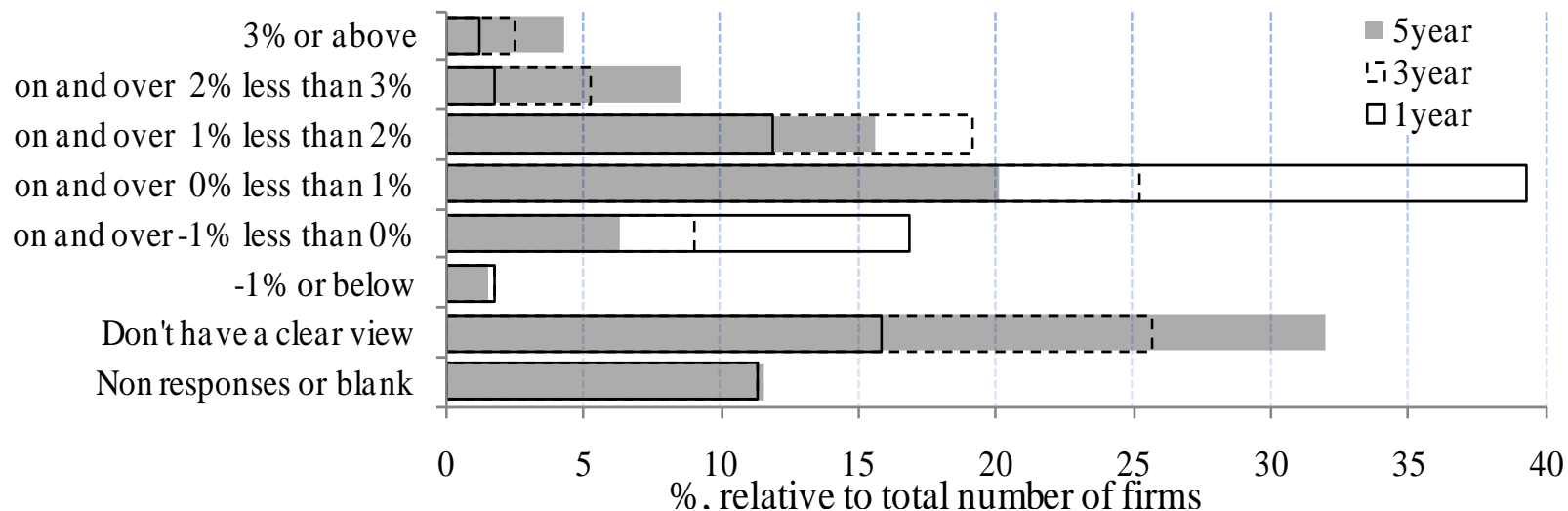
=> **9 numerical options** will be prepared.

Chart 1: The distribution of respondents of “General Prices” at the second pilot survey

(The number of options is 8)



(The number of options is 6)



## 4. Does **the range of options** have an effect on the distribution of responses?

(Pilot surveys)

- Do some respondents select an option due to its relative position (e.g., the option at the center or at the upper end) ?
- Two questions (ranging from +4% to -2% and from +3% to -3%) were prepared.

(Results)

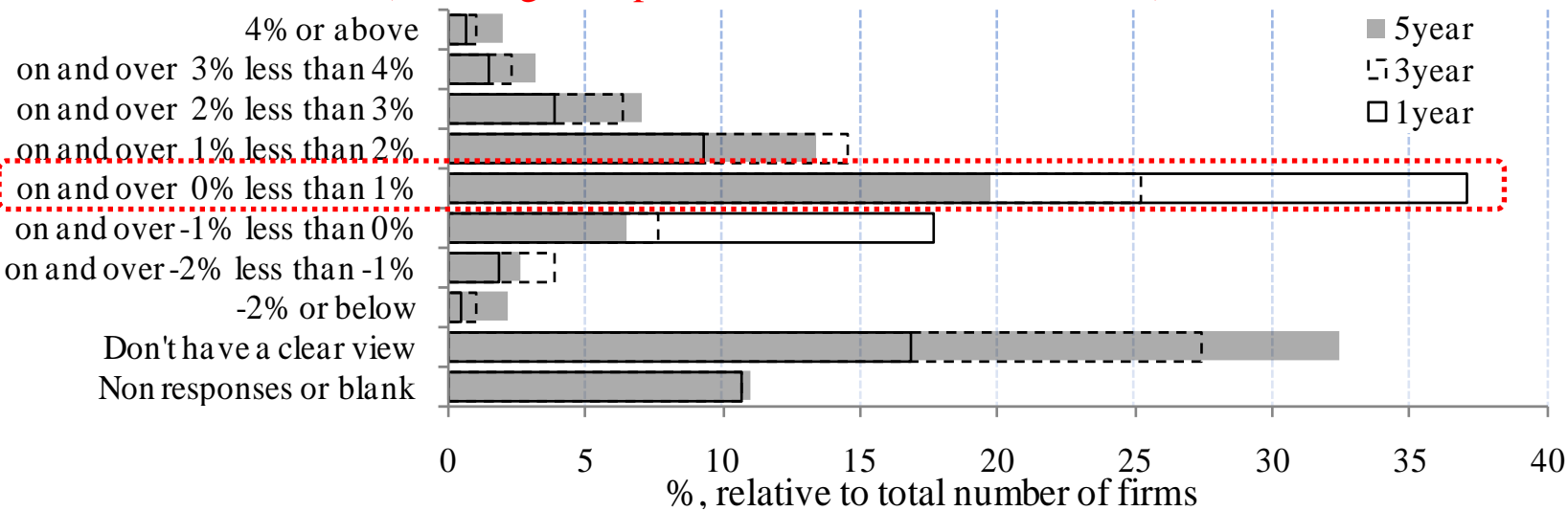
- For both questions, the most frequently chosen option was the same; “on and over 0% less than 1%”.

=> Specific range of options might not have a major impact on responses.

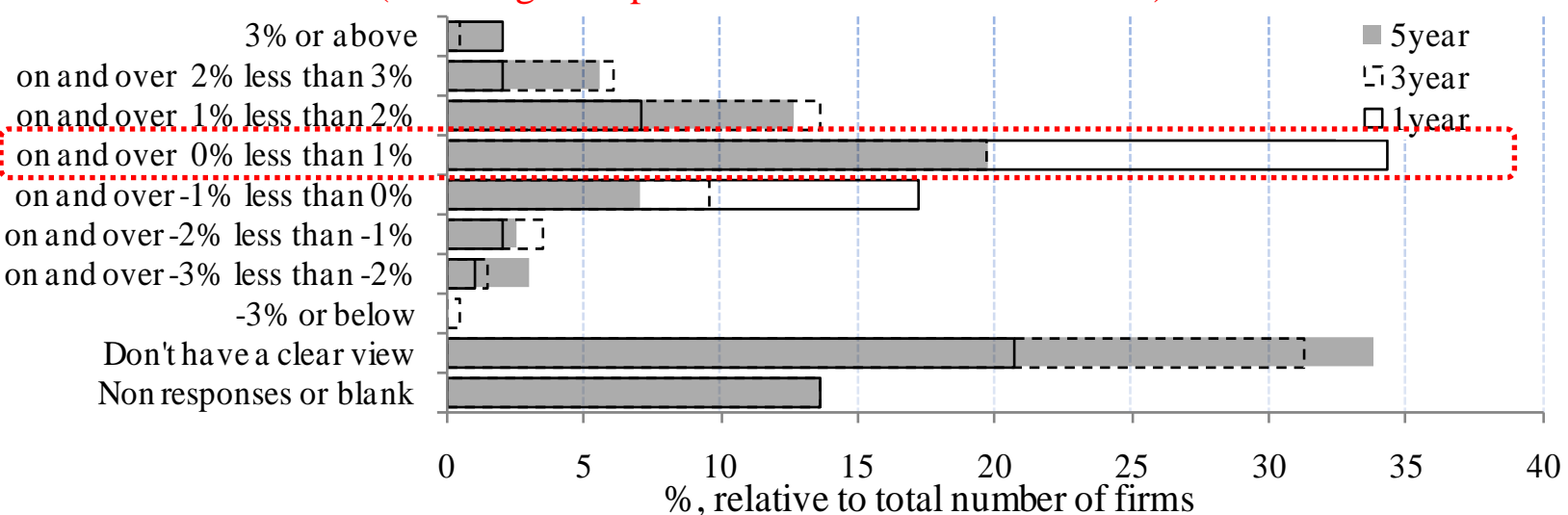


Chart 2: The distribution of respondents of “General Prices” at the second pilot survey

(The range of options is between +4% and -2%)



(The range of options is between +3% and -3%)



## 5. Does the order of options have an effect on the distribution of responses?

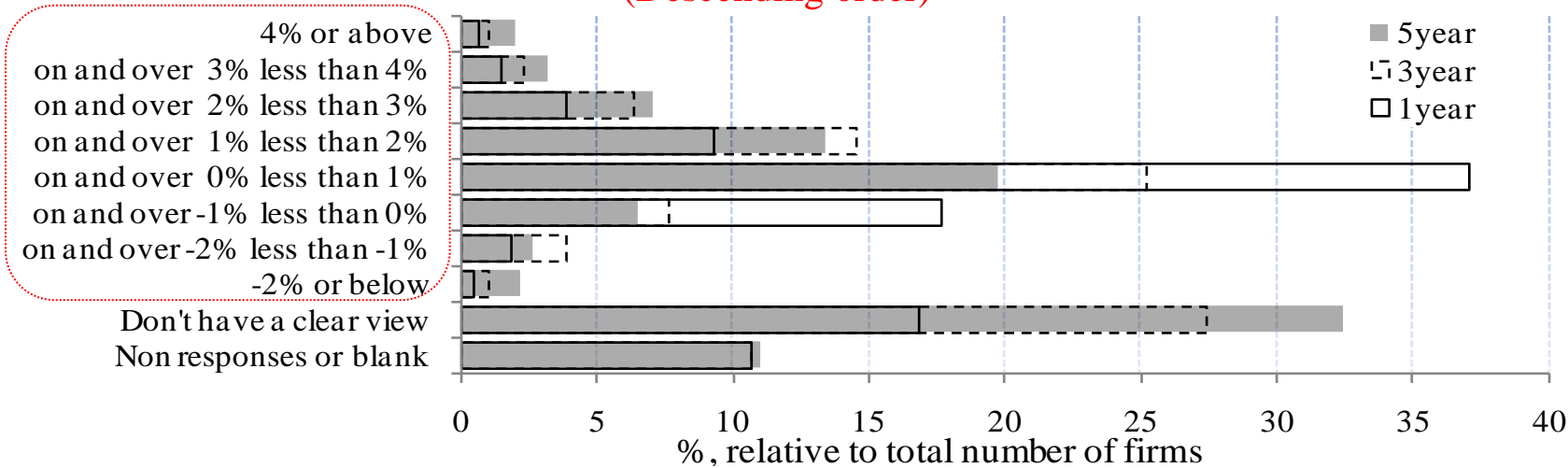
(Pilot surveys)

- For most of our questions, the response options were laid out **in descending order**. Does ascending order affect the selection of respondents?
- Questions in both of **descending** order and **ascending** order were prepared.

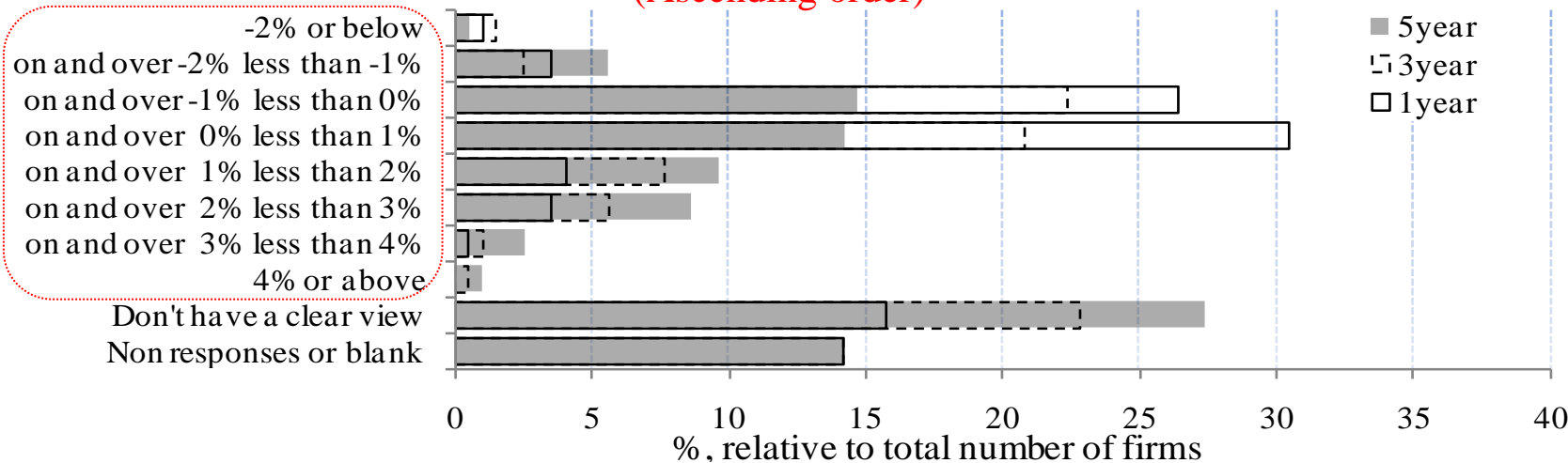
Descending order	Ascending order
1. +4%, or above	1. -2% or below
2. on and over 3% less than 4%	2. on and over -2% less than -1%
3. on and over 2% less than 3%	3. on and over -1% less than 0%
4. on and over 1% less than 2%	4. on and over 0% less than 1%
5. on and over 0% less than 1%	5. on and over 1% less than 2%
6. on and over -1% less than 0%	6. on and over 2% less than 3%
7. on and over -2% less than -1%	7. on and over 3% less than 4%
8. -2% or below	8. +4%, or above
9. Don't know	9. Don't know

Chart 3: The distribution of respondents of “General Prices” at the second pilot survey

(Descending order)



(Ascending order)



## 5. Does the order of options have an effect on the distribution of responses? (cont.)

(Results)

	The most frequent option in <b>descending</b> order	The most frequent option in <b>ascending</b> order
For 1 year ahead	on and over 0% less than 1%	on and over 0% less than 1%
For 3 years ahead	on and over 0% less than 1%	on and over -1% less than 0%
For 5 years ahead	on and over 0% less than 1%	on and over -1% less than 0%

- These results show the response order effect may exit.
- Does it mean the typical “primacy effect”?

## 5. Does the order of options have an effect on the distribution of responses? (cont.)

➔ Not necessarily. This effect may be interpreted as “primacy effects” combined with gravity toward “around 0%” (the prevailing inflation rate in Japan)

- Respondents with an outlook of “around 0%” may simply choose the first option which includes “0%”.

Descending order	Ascending order
1. +4%, or above	1. -2% or below
2. on and over 3% less than 4%	2. on and over -2% less than -1%
3. on and over 2% less than 3%	3. on and over -1% less than 0%
4. on and over 1% less than 2%	4. on and over 0% less than 1%
5. on and over 0% less than 1%	5. on and over 1% less than 2%
6. on and over -1% less than 0%	6. on and over 2% less than 3%
7. on and over -2% less than -1%	7. on and over 3% less than 4%
8. -2% or below	8. +4%, or above
9. Don't know	9. Don't know

=> A clearer explanation is necessary so as not to confuse the respondents.

## 6. Does the appearance of options have an effect on the distribution of responses?

- Respondents with an outlook of around  $X(\text{integer})\%$  cannot choose easily between “on and over  $X\% \sim$  less than  $X+1\%$ ” and “on and over  $X-1\% \sim$  less than  $X\%$ ”.

Original expression	Modified expression
1. +4%, or above	1. around +4%, or higher (+3.5% or higher)
2. on and over 3% ~ less than 4%	2. around +3% (+2.5% ~+3.5%)
3. on and over 2% ~ less than 3%	3. around +2% (+1.5% ~+2.5%)
4. on and over 1% ~ less than 2%	4. around +1% (+0.5% ~+1.5%)
5. on and over 0% ~ less than 1%	5. around 0% (- 0.5% ~+0.5%)
6. on and over -1% ~ less than 0%	6. around -1%, (- 1.5% ~- 0.5%)
7. on and over -2% ~ less than -1%	7. around -2% or lower (- 2.5% or lower)
8. -2% or below	8. Don't know
9. Don't know	

- To address this issue, each response option is expressed as “around  $X\%$ ” with a numerical range.
  - This modification clarifies the range indicated by options. It helps to mitigate the response order effects.

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# Conclusion

- The pilot surveys showed that to survey the firms' inflation outlooks should be quite feasible.
- The pilot surveys and academic experts suggested that responses could potentially be influenced by subtle differences in questionnaire format.
- Next, the effectiveness and appropriateness of the survey format should be appraised by a certain amount of time-series data.
- BOJ will start this new survey around the first half of 2014.



## ...and food for (relatively near) future thought

- The BoJ **collected suggestions** on the proposed revision plan and received comments from 32 interested parties.
- The comments include those **not related** to the proposed revision:
  - starting to collect data on a consolidated basis;
  - introducing items about enterprises' activity in foreign countries;
  - introducing items about the predicted euro/yen exchange rate; and
  - and introducing items about the spending on R&D (as required by 2008SNA).

Thank you for your attention!