

A Primer on the *Tankan*

— Characteristics and Peculiarities of Major Items —

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The *Tankan* is one of the most carefully watched business surveys in Japan. As an indicator of short-term economic developments as well as an indicator of long-term structural changes of the economy, it is used by a large number of statistics users in numerous analyses. Meanwhile, statistics inevitably have their peculiarities. The *Tankan* also includes peculiarities in its results of aggregation, due to various factors, such as the psychology of the respondents or factors peculiar to the industry or the size of the enterprise being surveyed. Not all users, however, are aware of this fact. This *Review* will describe the characteristics and peculiarities of the major survey items of the *Tankan* with the aim to improve its usefulness and to deepen its understanding on the part of a wider segment of statistics users.

1. Introduction

Short-term Economic Survey of Enterprises in Japan (*Tankan*) is a statistical survey compiled and released quarterly by the Bank of Japan on the business conditions as perceived by enterprises and enterprises' business projections, with the aim of "contributing to the appropriate implementation of monetary policy by providing an accurate picture of business trends of enterprises in Japan." The population of the *Tankan* comprises approximately 210,000 private enterprises with capital of 20 million yen or more (excluding financial institutions) based on "Establishment and Enterprise Census" conducted by the Ministry of Internal Affairs and Communications. The 11,283 sample enterprises in the September 2010 survey were chosen out of the population by industry and size according to certain criteria on statistical accuracy. It is characterized by 1) accurate capturing of business trends among enterprises thanks to its high response rate; 2) speedy release; 3) numerous survey items which are capable of meeting various needs and 4) full time-series data.¹ The *Tankan* is highly regarded by statistics users, who include both business executives and economists at home and abroad, as an indicator of short-term business trends in Japan as well as an indicator of long-term trends and structural changes in the Japanese economy (Charts 1 and 2). As

a result, the enterprises covered by the survey extend their cooperation, and the resulting high response rate, in turn, leads to the high accuracy in the *Tankan*. Thus, a virtuous cycle is at work.

Chart 1: The Ten Most Frequently Used Statistics on Business Conditions (Nippon Keidanren, 2004)

	Name of statistics	Index
1	<i>Tankan</i> (Business Conditions)	78.2
2	Quarterly Estimates of GDP	75.8
3	Consumer Price Index	70.7
4	Labour Force Survey	66.9
5	Indexes of Business Conditions	65.3
6	<i>Tankan</i> (Fixed Investment Projections, etc.)	65.1
7	Corporate Goods Price Index	61.5
8	Indices of Industrial Production, Shipment and Inventory	61.0
9	Trade Statistics	59.6
10	<i>Tankan</i> (Sales and Current Profit Projections)	59.1

Note: The survey was taken in June-July 2004, covering 234 enterprises, including the members of Keidanren which were also its permanent directors, and other major member enterprises, including think tanks. The survey asked the members to evaluate 72 statistics on business conditions as "Always use it when released (3 points)," "Sometimes use it (2 points)," "Have used it (1 point)," "Never used it (0 point)." The points were aggregated for each statistics and the average value as a percentage of the maximum possible point (3) is calculated as an index.
Source: Nippon Keidanren (Japan Federation of Economic Organizations), "Tokei no Ryo Kakudai ni Mukete" (For Increased Use of Statistics), (2004)

Chart 2: Evaluation Results of Statistical Surveys (NIRA, 2008)

	Name of statistics	As an indicator of business conditions	As an indicator of structural changes
1	Indices of Industrial Production, Shipment and Inventory	91	89
2	<i>Tankan</i>	91	87
3	Trade Statistics	86	87
4	Consumer Price index	83	87
5	Indexes of Business Conditions	81	72
6	Corporate Goods Price Index	80	79
7	Economy Watchers Survey	79	53
8	Financial Statements Statistics of Corporations by Industry	77	85
9	Labour Force Survey	74	84
10	Construction Starts Statistical Survey	74	74

Note: The survey was taken in June-July 2008, covering 31 economists, centering on ESP forecasters. The survey asked the respondents "How do you assess them as a statistical indicator for capturing short-term economic developments and business conditions?" and "how do you assess them as a statistical indicator for capturing long-term economic trends and structural changes?" on 23 economic statistics, and asked them to give each from 1 to 3 points. The figures in the table are the results of aggregation of points given to these statistics.
Source: NIRA, "Shijo Buseki Senmonka no Tachiba kara Mita Keizai Tokei ni Kansuru Anketo" (A Questionnaire on Economic Statistics as Seen by Market Analysis Specialists), (2008)

On the other hand, all statistics inevitably have their "peculiarities" (certain patterns which are not related to the economic conditions of the time and which need to be taken into account when the statistics are used). The *Tankan* also includes its peculiarities in the survey results, due to such factors as the psychology of the respondents and factors peculiar to the industry groups or size of the enterprises being covered. In order to eliminate such statistical peculiarities, one possible approach could be to revise the framework of the *Tankan* survey or questions in the judgment items designed to find out qualitatively sentiments of enterprises. However, it will undermine the continuity of its time-series data, which is a major attraction of the *Tankan*, and may also involve the risk of creating new peculiarities. Therefore, deepening the users' understanding of the characteristics and statistical peculiarities by survey item will allow the users of the *Tankan* to assess the business conditions and enterprises' activities more accurately, while the contents of the questionnaire are being maintained. Against this background, this *Review* will describe the characteristics and statistical peculiarities which need to be taken into account on the major survey items of the *Tankan*, in order to improve its usefulness and to deepen the understanding of the *Tankan* on the part of a wider segment of its users.

2. Judgment of Business Conditions

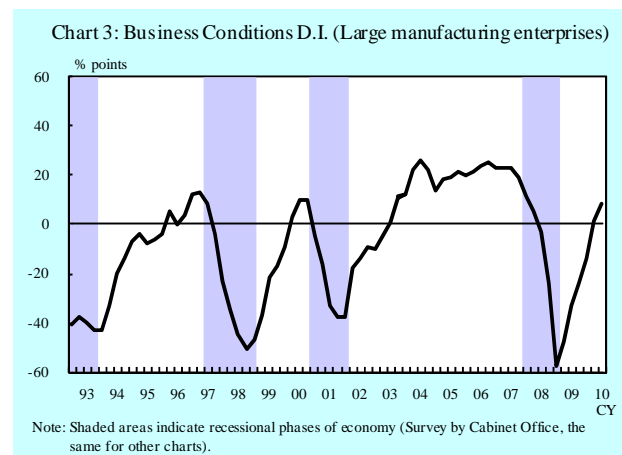
An Outline and Characteristics of Judgment of Business Conditions

The judgment of business conditions is the item which attracts the most attention in the *Tankan*. For this item, the survey asks sample enterprises to choose one of the following three responses: "1. Favorable," "2. Not so favorable," and "3. Unfavorable" regarding the actual result (judgment at the time of the survey) of and forecast (that for three months ahead) for "general business conditions, primarily in light of individual profits." The number of enterprises choosing each response is simply aggregated and a diffusion index (D.I. = (percentage share of enterprises responding Choice 1) – (percentage share of enterprises responding Choice 3)) is calculated and released.² The D.I. of business conditions is released by industry group and by the size of enterprises. The

D.I. of large manufacturing enterprises, in particular, attracts attention as useful information on capturing the trend in business cycles.

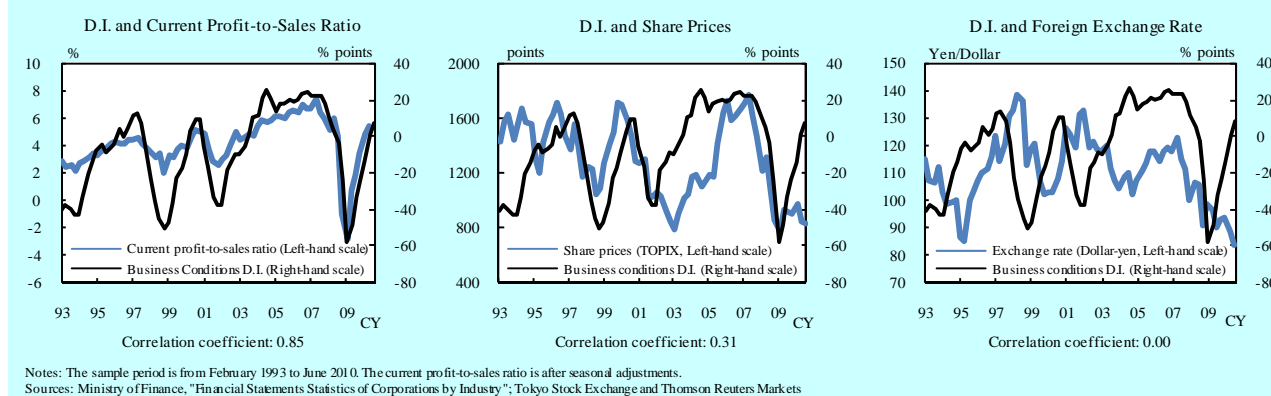
1) *The Business Conditions D.I. (Actual Result)*

The business conditions D.I. (actual Result) denotes information on the business conditions of enterprises at the time when the response is made (hereafter to be referred to as the actual business conditions D.I.). The actual business conditions D.I. has two main characteristics. First, it is highly linked to the latest trend in the business cycle. Compared with the peaks and bottoms of the business cycle (The Reference Dates of Business Cycle released by the Cabinet Office), the actual business conditions D.I. of large manufacturing enterprises has captured the turning points of the economy accurately (Chart 3).



Second, it is highly correlated with the current profit-to-sales ratio of enterprises (Chart 4). This is consistent with the objective of the question, which is to find out how enterprises judge "general business conditions, primarily in light of individual profits." On the contrary, when seen against other indicators, which are linked to corporate profits or enterprises' perception of business conditions, such as share prices or the foreign exchange rate, there has not always been high long-term correlation. Even when there were dramatic changes in share prices or the foreign exchange rate during the survey period, no significant day-to-day changes were observed in the responses obtained on different days. These facts suggest that in responding how they judge their business conditions, enterprises are not swayed by the conditions of the financial markets. Instead, they are mainly focused on their profit situations at the time.³

Chart 4: The Characteristics of Business Conditions D.I. (Large manufacturing enterprises)

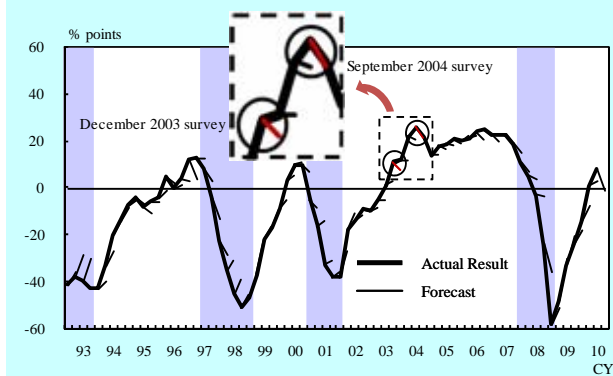


In sum, the actual business conditions D.I. is the survey item which most clearly demonstrates its strength in the *Tankan*. It is timely and moreover it captures the turning point of the business conditions and profit trends of enterprises in real time. This is why it is closely watched by a large number of statistics users.

2) The Business Conditions D.I. (Forecast)

The business conditions D.I. (forecast) shows how enterprises look at their business conditions three months ahead (hereafter to be referred to as forecast business conditions D.I.). This information is important on forecasting a turning point of the economy or short-term economic fluctuations (Chart 5). However, due to unexpected developments of the situation during the following three months or the impact of the peculiarities, which will be described later, the forecast D.I. does not always accurately forecast the actual D.I. obtained in the following survey.

Chart 5: Business Conditions D.I. (Large manufacturing enterprises) Actual Result and Forecast



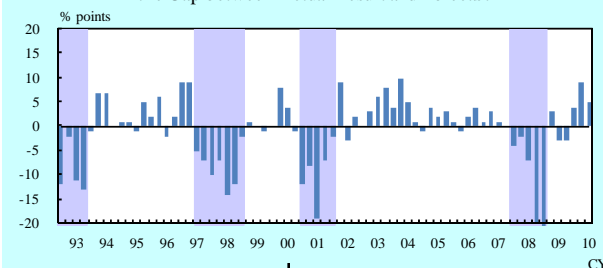
For example, in the September 2004 survey, taken immediately before the Japanese economy reached a plateau due to the inventory trimming in the

information technology and related industries, the forecast D.I. of the large manufacturing enterprises was 21, indicating a deterioration from the then actual D.I. of 26 (a decline of 5 points). In the following survey taken in December 2004, the actual D.I. declined to 22, which was roughly on the same level as the forecast D.I. in the September 2004 survey. On the contrary, in the December 2003 survey, the forecast D.I. indicated the deterioration of the business conditions, but the actual D.I. in the following survey continued to improve.

Peculiarities of the Forecast Business Conditions D.I.

The forecast business conditions D.I. of large manufacturing enterprises tends to be rather cautious when the economy is expanding, and somewhat bullish when the economy is contracting. Past data show that while the actual business conditions D.I. tends to be higher than the forecast D.I. in the previous survey in an expansionary phase of the economy, the reverse is true in a recessionary phase of the economy (Charts 5 and 6).⁴

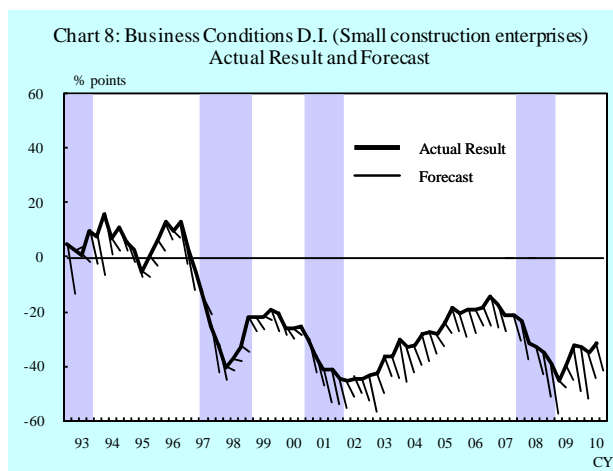
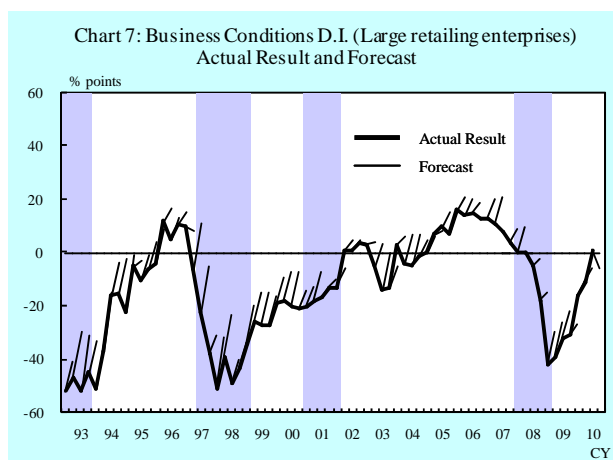
Chart 6: Business Conditions D.I. (Large manufacturing enterprises) the Gap between Actual Result and Forecast



	Coefficient	t value	(p value)
Expansionary phase dummy	2.7	4.4	(0.00)
Recessionary phase dummy	-9.4	-9.9	(0.00)

Note: A multiple regression analysis was conducted with the gap between the actual and forecast business conditions D.I. as a dependent variable, and two dummy variables (expansionary period = 1 (0), and recessionary period = 0 (1)) as explanatory variables, to see the tendency of the gap between the actual and forecast business conditions D.I. The sample period was from February 1993 to September 2010.

These peculiarities vary by industry group and by the size of enterprises. For example, among the large enterprises in the retailing industry, the actual business conditions D.I. is always lower than the forecast D.I. in the previous survey. This means that these enterprises tend to be rather bullish in their outlooks (Chart 7). On the other hand, among the small enterprises in the construction industry, the actual business conditions D.I. is always higher than the forecast D.I. in the previous survey, indicating that these enterprises tend to be cautious in their outlooks (Chart 8). Taking these past peculiarities into account, the user may be able to assess the forecast D.I. more accurately.



An Assessment of the September 2010 Survey

In the latest survey taken in September 2010, the forecast D.I. of large manufacturing enterprises was 9 points below the actual D.I. This was the largest deterioration after the 12-point gap between the actual and forecast D.I. in the December 2008 survey, taken immediately after the Lehman shock. Enterprises appear to be expecting the fall in sales in reaction to

the last-minute rush increase in demand with the expiration of subsidies for purchasing energy efficient cars, the impact of the yen's appreciation and slowdown in the overseas economies. However, since the forecast D.I. in the September 2010 survey does not necessarily forecast accurately the actual D.I. in the December 2010 survey for the reasons described above, one should give some allowance in its assessment.

By industry group and the size of enterprises, the forecast D.I. of the large enterprises in the retailing industry was 7 points below the actual D.I., the largest gap between the actual and forecast D.I. after the February 1992 survey, when the forecast D.I. was 8 points below the actual D.I.⁵ This was a phenomenon seldom seen among the large enterprises in the retailing industry, which tend to be rather bullish in their outlooks. This may mean that due to the recent robust improvement in business performance reflecting the last-minute rush increase in demand with the expiration of subsidies for purchasing energy efficient cars and the impact of unusually hot summer, enterprises were extremely wary of its reaction during the months ahead. Meanwhile, the forecast D.I. of small enterprises in the construction industry was 10 points below the actual D.I. Although this gap was larger than that between the actual and forecast D.I. in the large enterprises in the retailing industry, when compared with past data, it may be within the normal range of the gap between the actual and forecast D.I. of this group, given its tendency to be cautious in its outlook.

In forecasting the future course of the economy, more accurate information can be obtained by comparing the forecast D.I. with that at the past turning points of the economy, or by taking into account its peculiarities by industry group and by size of enterprises.

3. Fixed Investment Projections

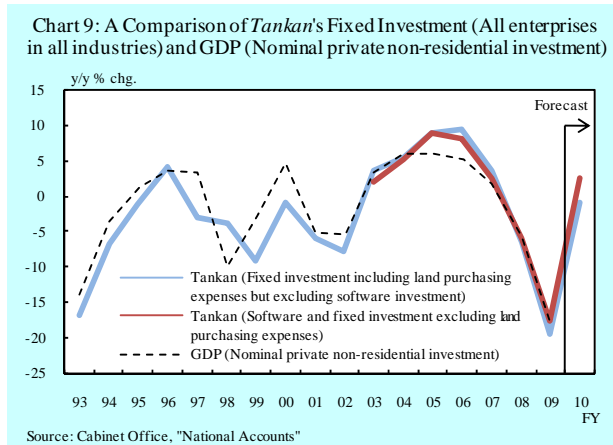
An Outline and Peculiarities of Fixed Investment Projections

Fixed investment projections are the survey item which attracts the most attention only next to the judgment of business conditions. Fixed investment is

a major component of the GDP and is also the engine of economic growth which creates future production capacity. The *Tankan* in principle surveys enterprises' fixed investment projections during the fiscal year in which the survey is taken,⁶ and the figures obtained through responses are inflated for all enterprises in the population, through population estimate.⁷ Then the actual amount and the rate of change from the previous year are calculated for release.

Two survey items, "Fixed Investment including Land Purchasing Expenses but excluding Software Investment" and "Software and Fixed Investment excluding Land Purchasing Expenses" are released.⁸ The statistics on the former have been accumulated for a longer period than those on the latter, and these time-series data are more closely watched when they are released. On the other hand, from the standpoint of measuring value added, it would be more appropriate to look at the latter.

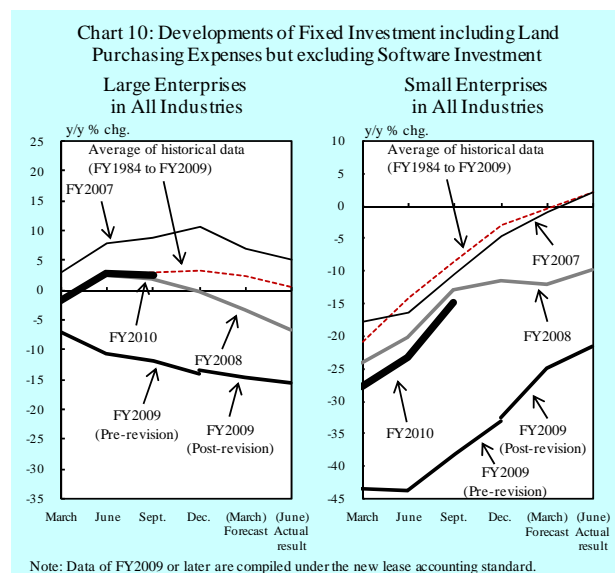
In comparing the fixed investment projections in the *Tankan* with fixed investment on the basis of GDP,⁹ there is a high correlation between the two although these two items are not identical because of the slight differences in their coverage of sample enterprises and the definitions of "fixed investment," (Chart 9). Thus, fixed investment projections in the *Tankan* can be used as useful information in forecasting the GDP-base fixed investment.



The *Tankan* surveys enterprises' fixed investment projections quarterly and calculates and releases the rates of revision from the previous survey. By looking at these figures, it is possible to capture how enterprises' appetite for fixed investment has changed over time.

Peculiarities of Fixed Investment Projections - The Patterns of Revisions -

The peculiarities of fixed investment projections can be verified by looking at "a development chart." This chart shows the pattern of revisions (developments) of the rate of change from the previous year of fixed investment projections. It shows how fixed investment projections have been revised in the six consecutive surveys, from the initial survey (taken in March) to the June survey in the following year, in which the final figure for actual fixed investment in the previous fiscal year appears. *Tankan* Summary, comes out on the first day of releases, includes a development chart for "Fixed Investment including Land Purchasing Expenses but excluding Software Investment" (Chart 10).



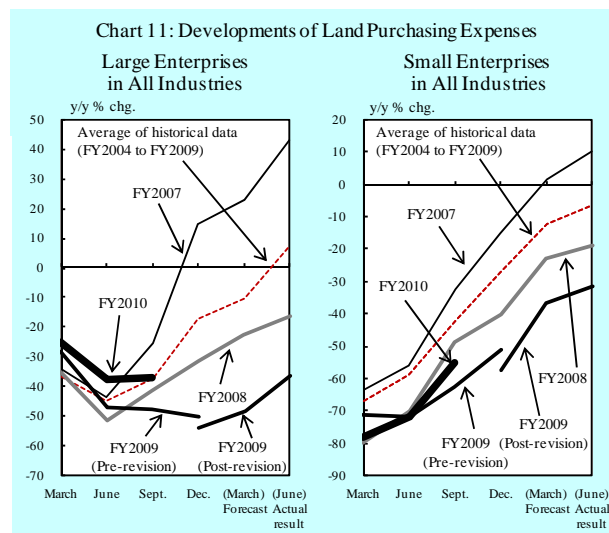
This chart shows that there are different patterns between large enterprises and small enterprises. The fixed investment projections for large enterprises tend to be revised upward from the initial March survey to the June survey. Following slight revisions between June and the following March, it is revised downward in June, when the final actual amount of fixed investment in the previous fiscal year becomes available. This pattern may be attributed to the following facts. First, in the June survey, which takes place early in a fiscal year, projects originally planned for the previous fiscal year but were delayed into the new fiscal year are included in the new fiscal year's projections. Second, in the survey taken in June of the following year, the actual amount is revised downward due to projects delayed into the following

year because of slow progress of works or postponements of projects. On the contrary, fixed investment projections for small enterprises tend to be cautious in the initial March survey, and be gradually revised upward in later surveys. This pattern may be attributed to the fact that small enterprises include projects in their fixed investment projections only after the projections become definite or when projects are actually implemented.

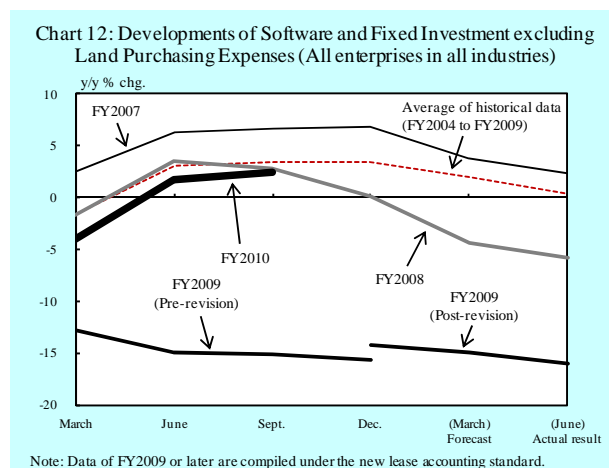
Given these patterns, one can compare fixed investment projections with past data for the same survey months or with past data in the same phase of economic cycles and make a relative assessment, rather than just looking at the level of the year-to-year changes. In the latest survey taken in September 2010, fixed investment projections of large enterprises in all industries increased by 2.4 percent from a year earlier, more or less the same level as in the previous survey (which showed a year-to-year increase of 2.7 percent). By contrast, fixed investment projections by small enterprises in all industries were down by 15.0 percent from a year earlier, which represented a large upward revision from the previous survey (-23.3 percent). At first glance, it may appear that while there was no significant change in large enterprises' appetite for fixed investment, small enterprises' appetite had improved. However, a comparison of these figures with past patterns of developments shows that the revisions of both large and small enterprises are in line with their patterns in the previous years. Therefore, it would be more appropriate to assess that, there was no significant change in the appetite for fixed investment among either large or small enterprises.

Meanwhile, looking at land purchasing expenses, which is a sub-category of fixed investment, its pattern of revision tends to be different from that of fixed investment projections as a whole (Chart 11). That is, the projections for land purchasing expenses among large enterprises are revised downward from the initial March survey to the June survey, and then continue to be revised upward. On the other hand, projections for land purchasing expenses of small enterprises, like those for their fixed investment as a whole, tend to be revised upward from survey to survey. These patterns may reflect the fact that land-purchasing projects tend to be included in annual

investment projections only after they become definite (e.g., property meeting the enterprise's needs becomes available) or when projects are actually implemented. The downward revision of investment projections by large enterprises at the beginning of a fiscal year may be attributed to the fact that the actual amount for the previous year, with which that for the current year is compared, has been revised upward (thus, the fall in the rate of year-to-year change).



Turning to the developments of fixed investment projections on the basis of "Software and Fixed Investment excluding Land Purchasing Expenses" of all enterprises (all industries and all sizes), which is a concept close to that of GDP-base fixed investment, it appears that projections tend to be revised upward at the beginning of a fiscal year, and then following slight revisions, somewhat revised downward toward the end of the fiscal year. In forecasting GDP-base fixed investment, one can also take into account these patterns (Chart 12).



Note: Data of FY2009 or later are compiled under the new lease accounting standard.

The *Tankan's* fixed investment projections, in particular the patterns of revisions peculiar to each sector, could provide not only roughly at what level investment will eventually turn out to be but also multifaceted assessments of the macro- and micro-economic situations.

4. Sales and Profit Projections

An Outline and Characteristics of Sales and Profit Projections

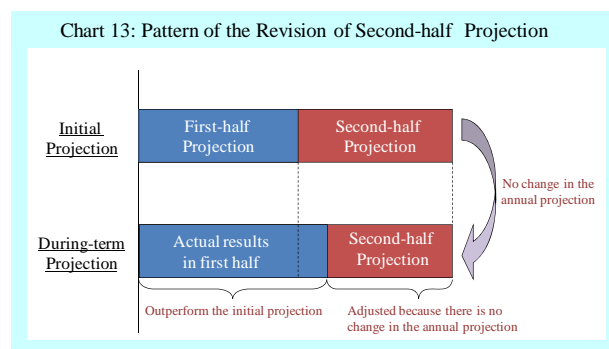
"Sales and Profit Projections" is also a closely watched survey item. The *Tankan* in principle surveys projections for sales and profits for the current fiscal year. After making an estimation for the population based on the responses, its actual amount, the change from the previous year or the rate of revision from the previous survey, are aggregated for release. Amongst all, the amounts of sales and current profits are closely watched. Since the survey requires reporting of the actual amounts, it is possible to capture the business environment quantitatively. It also allows the computation of the current profits to sales ratio, etc., and historical comparisons by survey items to see changes in the enterprises' profit structures, and thus can be used in in-depth analyses.

Peculiarities (1)

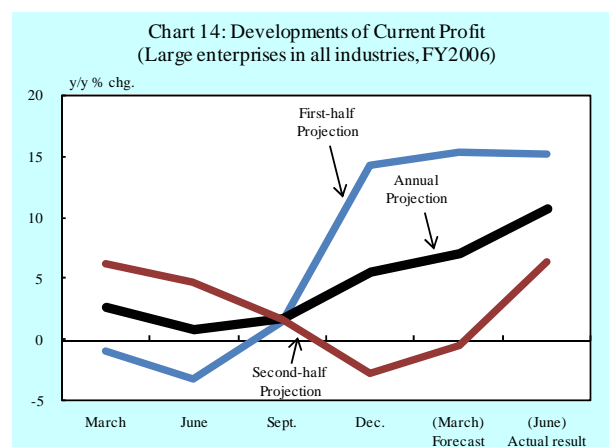
- The Patterns of Revisions of Figures for the First Half and the Second Half of a Fiscal Year -

Sales and current profits are surveyed so that figures can be obtained separately for the first and second halves of the fiscal year, in order to capture developments during the fiscal year more precisely. In looking at figures for the first and second halves of the year, one should take note of the fact that the projections for the second half could change in reaction to the developments in the first half. This is because many enterprises make annual sales and profit projections at the beginning of a fiscal year and they do not revise their annual projections during the first half as actual figures come in. As a consequence, if sales or profit figures in the first half are higher (or lower) than originally planned, enterprises often revise their projections for the second half downward (or upward), rather than revising their annual projections (Chart 13). Therefore, the revisions of the second half

projections are just on paper. As actual figures come in during the second half, they are often revised upward (or downward).



As a concrete example, let us take the movements of current profits (as compared with the previous year) of large enterprises in all industries in fiscal 2006, when the economy was in an expansionary phase and the profit environment for enterprises is deemed to have continued to improve throughout the fiscal year (Chart 14). While the annual projections continued to be revised upward after the June survey, projections for the second half continued to be revised downward through the December survey, when the final figures for the first half became available. Given the business conditions at that time, there was no special reason to revise the second half projections sharply downward during this interval. The downward revisions may have probably been a reaction to the upward revisions for the first half. After the December survey, downward revisions for the second half were corrected and revised upward through the June survey of the following year. This pattern of revisions of the second half projections is seen in many years. Therefore, in assessing the second half projections, one should bear in mind that they are likely to contain the inevitable reaction to the better (or worse) than expected results in the first half.



Looking at the latest survey compiled in September 2010, current profit projections for the first half of the year of large enterprises in all industries were sharply revised upward from the previous survey (from a year-to-year increase of 37.9 percent to a year-to-year increase of 53.4 percent). At the same time, projections for the second half were also revised slightly upward to a year-to-year increase of 11.3 percent from a year-to-year increase of 10.5 percent in the previous survey. Viewed against the usual pattern of revisions of profit projections, the second half projections reported in the September survey can be judged to have been firmer than in other years. However, given the sharp deterioration of the forecast business conditions D.I. and the yen's appreciation to a level stronger than that anticipated by enterprises, future revisions of second-half profits need to be closely watched.

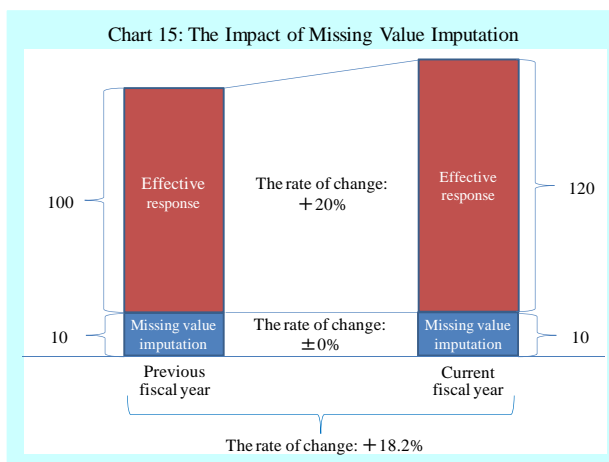
Peculiarities (2)

- The Impact of Missing Value Imputation -

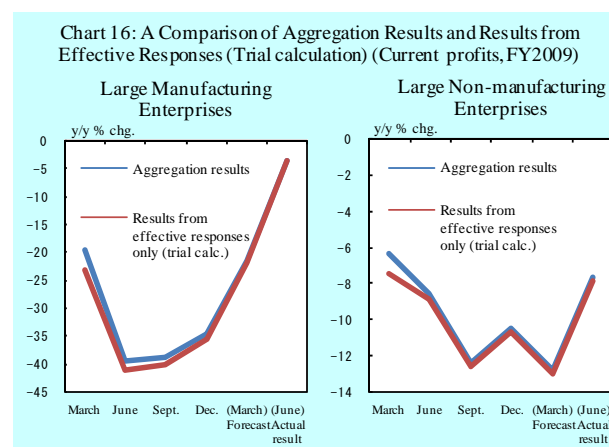
With respect to numerical items, such as sales and profits, missing value imputation may cause peculiarities. A number of methods for missing value imputation have been developed to deal with the situation when a response is not available in a statistical survey. The *Tankan's* method of imputation is to use the figure obtained for the previous year (or in the previous survey) from the same sample for the missing figure.¹⁰ Although the *Tankan* survey seldom fails to get a response, when figures for the new fiscal year are asked in the March surveys, enterprises sometimes withhold responses on the grounds that they are still working on. These figures, however, often become available in the June survey. Because of this phenomenon, the rates of year-to-year changes in the figures for the new fiscal year obtained in the March survey, or the rate of revision from the previous survey in the June survey need to be viewed with some allowances.

At the same time, when the economy has changed dramatically from the previous year, such as immediately after the Lehman shock, missing value imputation has relatively large impact. An example which well illustrates this point is as follows. When current profits for this fiscal year obtained from

enterprises giving effective responses are 120 and the current profits of these enterprises in the previous fiscal year are 100, the rate of increase from the previous fiscal year of the enterprises giving effective responses is 20 percent. However, when the current profits of the non-responding enterprises (the objects of the missing value imputation) in the previous fiscal year are 10, the rate of increase from the previous fiscal year of all samples (including the non-responding enterprises) is 18.2 percent, slightly lower than 20 percent because the current profits of the non-responding enterprises are fixed (Chart 15). As a result, there is a gap of 1.8 percentage points (= $20\% \times 10/110$) between this figure and the rate of growth obtained exclusively from the enterprises giving effective responses.



In fact, when the results of aggregation including values obtained by missing value imputation and those obtained only from the values given by the enterprises giving effective responses (trial calculation) are compared on the rate of year-to-year change in current profits during the recessionary phase of the economy following the Lehman shock, we find a gap between the two in the March survey (Chart 16).¹¹



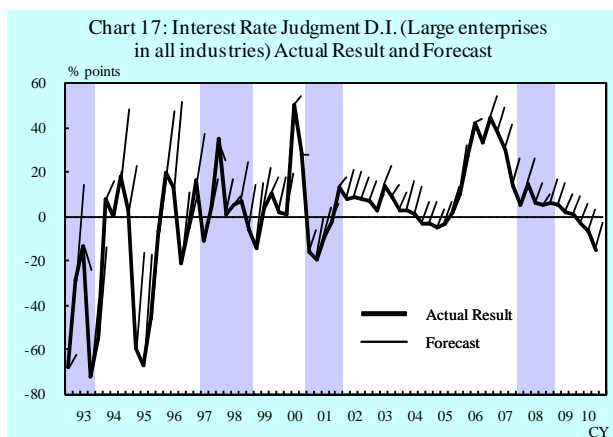
Thus, when the phase of the economy is perceived to have changed dramatically since the previous year, as after the Lehman shock, the aggregation results for the rate of year-to-year change in the March survey and the rate of revision from the previous survey in the June survey need to be viewed with some allowances.

5. Other Survey Items

The *Tankan* includes many other useful survey items. They include judgment items on which qualitative information is available, such as supply and demand conditions, inventories, production capacity, employment conditions, financial positions, change in interest rate on loans, conditions for CP issuance, change in output prices and change in input prices. The numerical items include figures on a flow basis (e.g., sales, profits, and fixed investment) as well as figures on a stock basis (e.g., outstanding assets and liabilities) and the number of new graduates hired.

Peculiarities of the D.I. for the Change in Interest Rate on Loans

To obtain the D.I. for the judgment of the change in interest rate on loans (hereafter referred to as Interest Rate Judgment D.I.), respondents are asked to judge the actual and forecast levels of interest rates on loans compared with three months earlier, and choose one of the following three responses: "1. Rise," "2. Unchanged," and "3. Fall." The results show that forecast D.I. tends to rise irrespective of the economic cycle (Chart 17).



In the latest survey taken in September 2010, the D.I. for the large enterprises in all industries was -15 for actual result and -3 for the forecast D.I., indicating that the outlook for the D.I. was for an increase.

However, in both the March 2010 and June 2010 surveys, the Interest Rate Judgment D.I. indicated that future D.I. would rise, but in both cases, the actual D.I. in the following surveys declined from that in the previous surveys. Taking this pattern into consideration, it would be appropriate to view that the forecast D.I. in the September 2010 survey does not necessarily forecast an upward change in the actual D.I.

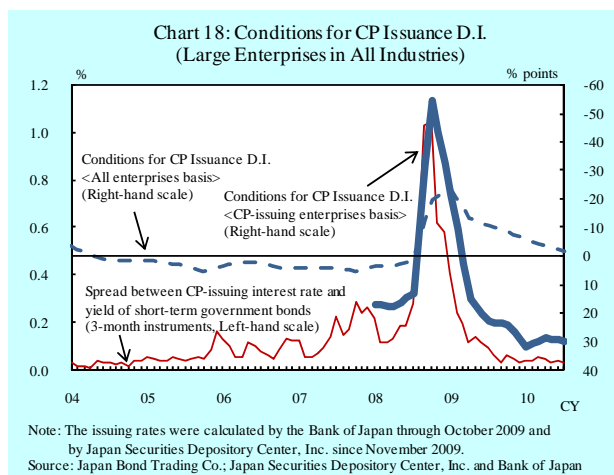
Rather, the characteristic of the September 2010 survey is that for the first time after the March 2001 survey, which was taken immediately after the start of quantitative easing in monetary policy, the forecast D.I. fell into negative territory (the responses forecasting "Fall" outnumbered the responses forecasting "Rise").

Peculiarities of the D.I. for Conditions for CP Issuance

The D.I. of conditions for CP issuance shows that since the samples include enterprises which have not issued CP, there is a gap between the D.I. and actual trends in the CP issuing market. As this tendency intensified following the Lehman shock, statistics users have begun to show interest in the D.I. obtained on the basis exclusively of the enterprises which have actually issued CP.

Therefore, the *Tankan* began to issue the D.I. for conditions for CP issuance (based on CP-issuing enterprises) starting with the March 2010 survey, limiting the enterprises surveyed to only those which have issued CP. This new D.I. moves in parallel with the spread between the CP issuing rate and the yield on short-term government bonds, which is linked to the conditions for CP issuance. The latest survey taken in September 2010 verified that the conditions for CP issuance was extremely eased (Chart 18).

Thus, it would be appropriate for statistical users to choose the D.I. depending on their needs. When they undertake cross-sectional analyses by using values obtained from the same samples as in other survey items, they are advised to use the conventional all-enterprise basis D.I., while when they analyze the conditions for CP issuance which is closer to the actual market conditions, they are advised to use the issuing enterprises basis D.I.



6. Conclusion

The *Tankan* includes a great amount of information which is useful in capturing short-term economic developments or long-term changes in the structure of the economy. At the same time, the Bank of Japan continues to make efforts to improve the accuracy in its statistics, while taking into account the needs of their users.¹² However, in any statistics in which responses from the sample enterprises are aggregated,¹³ there emerge certain peculiarities in their aggregation results, reflecting the psychology of respondents or factors peculiar to the industry group or the size of enterprises. The *Tankan* is no exception.

This *Review* has presented the characteristics and peculiarities by survey item, based on the assumption that the continuity of the *Tankan's* time-series data, which is a major attraction of the *Tankan* survey, is to be maintained. By understanding these peculiarities better, the users of the *Tankan* will be able to assess more accurately the status of the economy and corporate activities. This *Review* will contribute to deepening the understanding of a wide spectrum of the users of the *Tankan* and help them make a precise judgment on the Japanese economy.

¹ The response rate stood at 98.9 percent (in the September 2010 survey). In principle, the survey results are released on the day following the last day of the survey period, which lasts approximately one month. The survey items include judgmental survey items, which seek qualitative information (such as the business conditions of enterprises) and annual projections items (such as earnings projections and fixed investment projections) and quarterly data items (such as the outstanding assets and liabilities). (All the questions are on a

non-consolidated basis.)

² In aggregating the judgment items, since there is no information on the population as a whole, statistically processing the responses may cause confusion on the part of statistics users. Hence, simple aggregation is used.

³ This may be attributed to the facts that share prices change sharply due not only to profits at the time but also to profits forecasts, risk premiums, etc., and that although changes in the foreign exchange rate have large impact on earnings, the impact of short-term changes in the foreign exchange rate on profits during a survey period is eased to a certain extent by risk-hedging through forward contracts, etc.

⁴ These peculiarities may be attributed to the facts that enterprises tend to view the changes in the actual business conditions as temporary phenomena and to go back to their previous response in forecasting the future, and that they tend to select the response "2. Not so favorable" when they are not sure in their assessment of the future.

⁵ Starting from the March 1997 survey, the *Tankan* has changed its survey periods from February, May, August and November to March, June, September and December.

⁶ For example, the March 2010 survey surveys the estimated actual results for fiscal 2009 and projections for fiscal 2010, the June 2010 survey surveys actual results in fiscal 2009 and projections for fiscal 2010, while September and December 2010 surveys survey projections for fiscal 2010.

⁷ Based on the percentage of the number of surveyed enterprises in the number of the enterprises in the population (the sampling ratio), the sum of the replied figures of the sample enterprises is inflated to obtain the value for the entire population. For example, if out of the 200 enterprises in the population 50 enterprises are chosen as samples to survey their investment projections, and if the figures obtained by simple aggregation of their investment projections is 150, the estimated value for the population is as follows:

$$\text{Population estimate} = (150/50) \times 200 = 600$$

⁸ "Software and Fixed Investment excluding Land Purchasing Expenses" has been released starting with the March 2004 survey.

⁹ When comparing with GDP, which is the aggregate of all newly-created value added, "Software and Fixed Investment excluding Land Purchasing Expenses" is closer in concept. Since the figures in the *Tankan* are nominal values, it would be appropriate to compare them with nominal GDP.

¹⁰ More specifically, it uses the value obtained in the last response from a particular enterprise before the survey in question. For detail, see the FAQ on *Tankan* (3-2. Missing Value Imputation Method).

(<http://www.boj.or.jp/en/type/exp/stat/tk/faqtk02.htm>).

¹¹ The calculation was made assuming that the rate of year-to-year change on the basis of enterprises giving effective responses was [(the rate of year-to-year change in aggregation results)/(1 - the ratio of missing value imputation)]. The ratio of missing value imputation used was [1 - (the number of reporting enterprises/the number of all sample enterprises)]. (In a more rigorous sense, the ratio of missing value imputation should be obtained by using the actual value on the basis of the population estimates, however the number of enterprises which was released was used in its place). The figures for (March) forecasts and (June) actual results were calculated using the missing value imputation ratio in December.

¹² For example, the Bank's recent efforts include the launching of the release of the D.I. for conditions for CP issuance (Based on CP-issuing enterprises) in March 2010 and the introduction

of a new framework for the treatment of outliers (November 2010).

¹³ As a prerequisite, the *Tankan* screens individually all questionnaire sheets with responses, contacts whenever necessary by phone, etc. responding enterprises to verify the accuracy of numerical values in their responses, and otherwise make careful efforts to keep the errors from arising.

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