Mizuho Economic Outlook & Analysis

October 1, 2015

Verification of the risk of recession driven by external demand

Despite the risk of a small setback, a serious adjustment will likely be avoided

< Summary >

◆ Due to sluggish exports on the back of the emerging market (EM) slowdown, the possibility has emerged that the Japanese economy will contract in the Jul-Sep quarter of 2015 for two consecutive quarters. The risk of economic recession is now increasing sharply.

◆ The degree of export weakness up until now is similar to what we saw in 2012 when Japan's economy experienced a mild recession. Nonetheless, given the stronger performance of ordinary profits compared with 2012 and solid labor market conditions, a serious adjustment of the economy will likely be avoided.

◆ With another 5% fall in export volume, the range of decline will be similar to that recorded after the collapse of the IT bubble. Although this possibility is low, a further slowdown in the EM economies may present a serious blow to Japan's economy, triggering a full-fledged recession.

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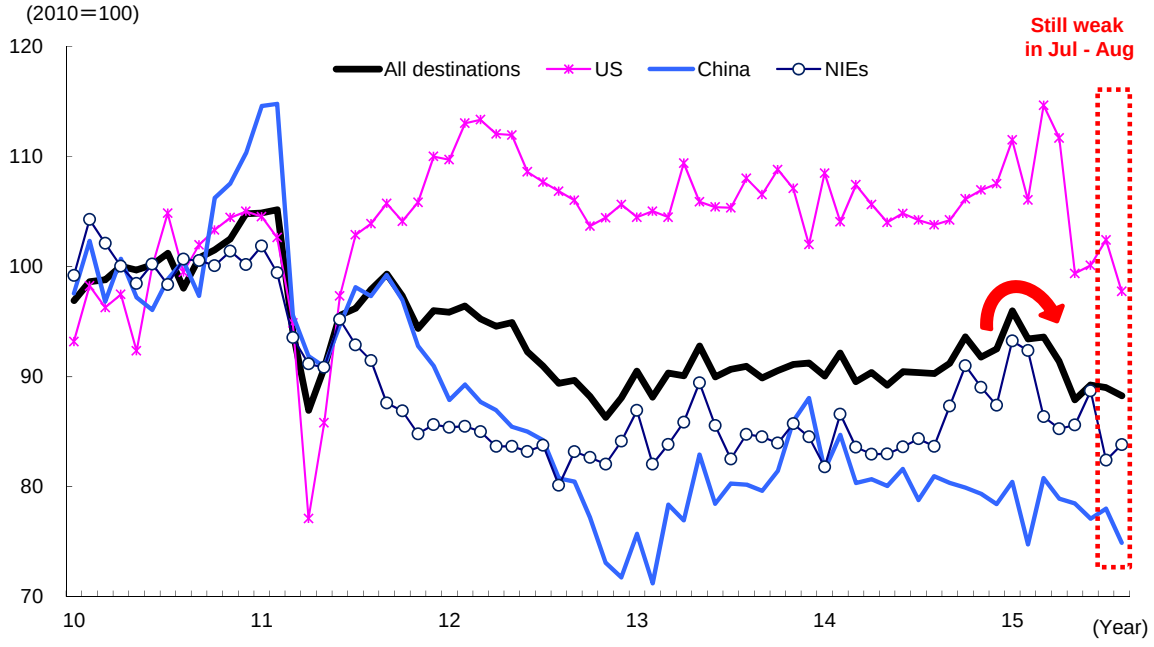
1. The possibility of economic contraction in two consecutive quarters has emerged due to weak exports

Due to the slowdown in the EM economies, Japan's exports continue to be sluggish. In addition to the sharp fall of the export volume in the Apr-Jun quarter (-5.1% q-o-q [seasonally adjusted by MHRI, hereinafter the same]), exports have been lackluster even after July, despite expectations of a rebound (Jul-Aug average change from Apr-Jun period: -1.0%, **Chart 1**). In terms of destinations, exports to Asia, including China (Jul-Aug average change from Apr-Jun quarter: -2.2%), and the NIEs (-3.9% on the same basis) fell sharply in particular, indicating the impact of the slowdown in the EM economies. Furthermore, a clear sign of weakening was also revealed in exports to the US (-3.5% on the same basis), which most likely stemmed from the tepid recovery in the manufacturing sector due to the stronger US dollar, among other factors.

Given the prolonged slump of exports, there is a rising risk of Japan's real GDP contracting for two consecutive quarters in the Jul-Sep quarter. MHRI forecasted that Japan's real GDP growth rate would be slightly positive (+0.2% q-o-q, +0.9% on an annualized basis) on September 8. However, given the announcement of worse-than-expected August export figures (released on September 17), we have started

Chart 1: Export volume by destination



Note: Seasonally adjusted data by MHRI. The latest data are as of August 2015.
Source: Made by MHRI based on the Ministry of Finance, *Trade Statistics*.

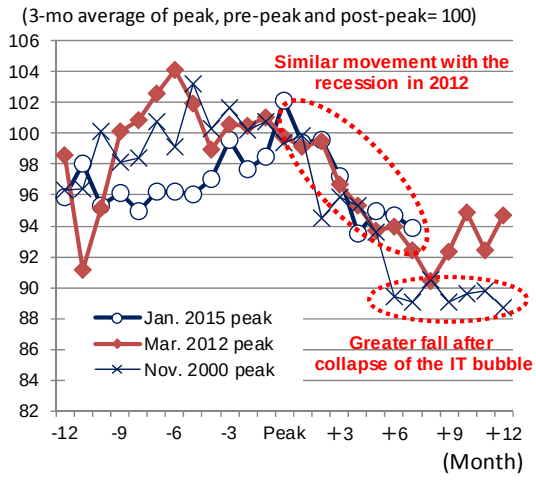
to consider that the economy in the Jul-Sep quarter may actually contract. Moreover, with industrial production (announced on September 30), which has a strong correlation with the real GDP growth rate, falling at a worse-than-expected rate, the possibility of an economic contraction for two quarters in a row in the Jul-Sep quarter has become even stronger. Since a two consecutive quarterly contraction of the economy is considered a yardstick of recession, the risk of Japan's economy falling into recession seems closer to becoming a reality.[1]

2. The current export slowdown is not as bad as in the post-IT bubble period, but is equivalent to the economic recession in 2012

In this section, we shall verify the severity of the current export slowdown through a comparison with prior recessions.

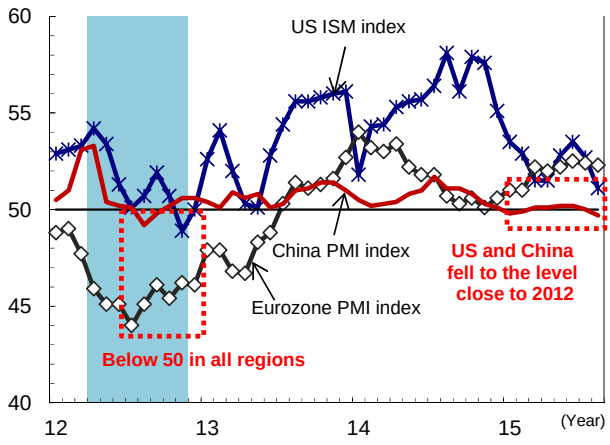
Chart 2 compares the current export volume with the trend before and after the economic peaks recorded in November 2000 and March 2012.[2] (For the latest period, we set January 2015 as the provisional economic peak as the export volume reached its peak then; hereinafter the same.) If we first look at the export volume in the recessionary

Chart 2: Comparison with prior recessions (export volume)



Note: Seasonally adjusted data by MHRI.
Source: Made by MHRI based on the Ministry of Finance, *Trade Statistics*.

Chart 3: Business conditions in the US, Europe and China (manufacturing sector)



Note: Shaded area represents the recessionary phase in Japan. An index higher than 50 means business expansion. The latest data are as of August 2015.
Source: US Institute for Supply Management, Markit, China Federation of Logistics and Purchasing

[1] Provided that the official determination of economic recession is based on the "Historical DI," which is calculated with indexes of business conditions, and that the real GDP is positioned as a reference index.
[2] We excluded the economic recession in 2008 from our comparative study since the decrease in exports following the collapse of Lehman Brothers significantly exceeded the current export slump.

period after November 2000, we can see that the current dip has remained somewhat shallow compared with November 2000. In the period after November 2000, the US economy fell into a recession triggered by the collapse of the IT bubble.[3] Hence it may be fair to say that the current export performance is not as bad as that registered after the collapse of the IT bubble.

On the other hand, looking at developments after March 2012, export performance of the two periods looks very much alike. The period after March 2012 is generally seen as the period when a downturn trend hit the global economy, as seen in the business conditions (manufacturing sector) in the US, Europe and China all falling below 50 (**Chart 3**), albeit the US could avoid a serious recession. Since current business conditions in the US and China have also declined to the level seen in 2012, we can infer that a similar degree of downturn pressure is being exerted on exports now.

Summarizing the above, we can evaluate the current trend of exports as not being as bad as in the post-IT bubble period, but similarly weak as in 2012 when Japan fell into a mild recession and the world in general was undergoing an economic downturn.

3. A downturn of employment and capital investment will be avoided, given the recovery of corporate earnings

Although the weakness in exports is equivalent to what was experienced in the recessionary period in 2012, the overall economy remains firm supported by the sound performance of corporate earnings on the back of the weak yen and low crude oil prices. The possibility of the government officially acknowledging a recession will be discussed separately in the supplementary argument, but even in the case that the government does officially declare a recession, we expect the degree of adjustment to remain limited unless there is further downturn in the global economy.

In fact, as with the export volume, a comparison of the trend of ordinary profits with the recessions at the end of 2000 to 2001 and in 2012, reveals the solid performance of ordinary profits[4] (**Chart 4 (1)**). Ordinary profits showed a relatively steady performance, even in the recessionary phase in 2012, and if the slowdown in exports remains at a similar level as in 2012, we strongly believe the adverse impact on ordinary profits will remain minimal. In addition, the yen depreciation and the drop in crude oil prices appear to be serving as upside factors for corporate earnings in 2015.

Given the improvement of corporate earnings, we expect to avoid the situation where

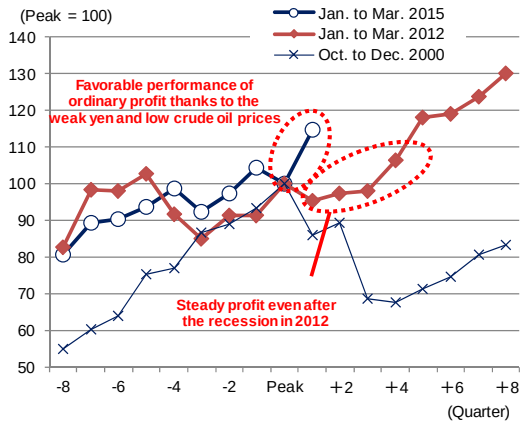
[3] According to the Reference Dates of Business Cycles in the US, March 2001 is registered as an economic peak.

[4] Result of earnings of domestic corporate enterprises. Note the possibility that the impact of poor earnings performance by overseas subsidiaries will emerge in the consolidated financial results in the future.

the slowdown in exports will negatively affect employment and capital investment. The jobs-to-applicants ratio, which best describes the employment situation, is maintaining an uptrend, just as it did in 2012[5] (**Chart 4 (2)**). While the recession following the collapse of the IT bubble (end of 2000 to 2001) was accompanied with the deterioration of labor market conditions, the current dip in exports has not translated into a serious damage to the employment situation since the extent of the slowdown is not as grave as the post-IT

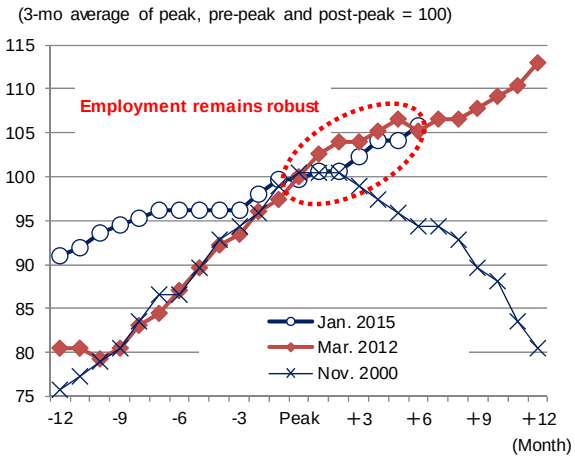
Chart 4: Comparison with prior recessions (by index)

(1) Ordinary profits (quarterly basis)



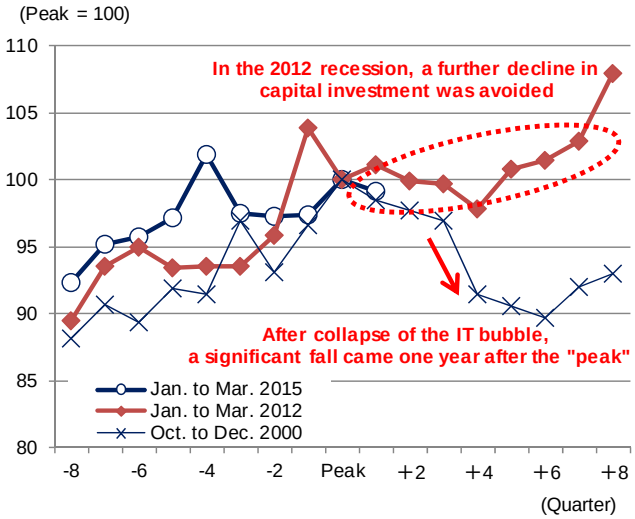
Source: Made by MHRI based on the Ministry of Finance, *Financial Statements Statistics of Corporations by Industry*

(2) Effective job offer rate (monthly basis)



Source: Made by MHRI based on the Ministry of Health, Labour and Welfare, *Employment Referrals for General Workers* .

(3) Capital investment (quarterly basis)



Source: Made by MHRI based on the Cabinet Office, *National Accounts*.

[5] Although missing in the chart, the same result was observed in the unemployment rate.

bubble period, and since the improvement of corporate earnings due to the weak yen and the fall of crude oil prices is serving as tailwinds. It is also likely that the fall of the working-age population is making the employment situation more resilient to short-term economic downturns.

Turning to capital investment, despite the fall in the Apr-Jun quarter of 2015, the extent of its decline may be interpreted as a backlash from the significant increase recorded in the Jan-Mar quarter, and we evaluate that the situation is maintaining firmness (**Chart 4 (3)**). Nonetheless, looking at the past trends, capital investment fell sharply one year after the economic peak in the period immediately after the collapse of the IT bubble (from the end of 2000 to 2001), and we need to pay attention to the fact that capital investment fluctuates with a certain time lag from the overall economic trend. Therefore, it is important to correctly assess whether the current export slump will break through the previous lows. Concerning this point, even though export sluggishness may lead to a more cautious investment stance among firms, capital investment should remain strong supported by stable corporate earnings.

As mentioned above, should the decline in exports continue to remain at the current level (August 2015), we believe that employment and capital investment will not decline further, given the ongoing improvement of corporate earnings. However, if the range of export decrease extends to the level recorded after the collapse of the IT bubble (from the end of 2000 to 2001), corporate earnings, employment and capital investment may deteriorate even further. It should be noted that an additional 5% decrease in export volume from the August level will bring the cumulative decrease in volume close to the level marked after the collapse of the IT bubble. At present, although we believe that the odds of such a decline are slim, we need to be aware of the presence of such risks, which may derail overall economic growth.

Supplementary Discussion: Verification of the possibility that the government will officially acknowledge a recession (calculation of the "Historical DI")

In this supplementary discussion we verify the possibility of the government officially acknowledging a recession by estimating the "Historical DI" used in the official assessment of economic recession. Let us present our conclusion first since the subsequent discussion includes some technical content: in the light of the prior assessment criteria, it is most likely that the government will barely avoid an official declaration of economic recession. However, this conclusion is subject to change depending on the results of upcoming releases of economic indicators, revision of statistics, and direction of government deliberations. Also, even if the government

officially declares a recession, it may designate the official period of recession a year after the consumption tax hike (from April 2014 to March 2015).

(1) Outline of the "Historical DI"

The "Historical DI" is used to determine the turning points in business cycles. Basically, the peak is identified as the month immediately before the DI falls below the 50% threshold, and the trough is identified as the month immediately after the DI rises above the 50% threshold. However, note that there is more to determining turning points in the economy than just the fall below (or rise above) the threshold. The three following assessment criteria must also be fulfilled: "(1) diffusion," "(2) depth," and "(3) duration." [6] In particular, when fulfilling the criterion of "(1) diffusion" in the determination of a business cycle peak, the "Historical DI" needs to fall substantively to around 10%.[7]

The "Historical DI" determines the peaks and troughs of the individual business conditions index (the coincident CI) and is calculated as a share of the indexes that are in an expansion phase (between trough and peak). Here the determination of the peaks and troughs of the individual index is made using the Bry-Boschan method developed by the NBER (National Bureau of Economic Research) in the United States. Since the Bry-Boschan method uses various moving-average methods (Spencer's 15-point moving average [a 15-month moving average using different weights] and 12-month moving average), the correct determination of peaks and troughs requires a data stock of about one and a half years.

(2) Results of the "Historical DI" estimate

We can find the official calculation of the "Historical DI" by the Cabinet Office in the preliminary report of May 2015.[8] According to this calculation, the "Historical DI" declined to 40% immediately after the consumption tax hike in April 2014, but recovered to above 60% after August of the same year (**Chart 5**). Hence we expect that the government will not officially declare an economic recession since the calculation results of the Cabinet Office do not fulfill the minimum judgement criterion of "(1) diffusion,"

[6] Refer to meeting material 2, etc. of the 16th Committee for Business Cycle Indicators (held on July 24, 2015).

[7] In the meeting materials of the Committee for Business Cycle Indicators, a rough standard for determining a recession in the criterion of "(1) diffusion" is explained as "when the number of indicators without peaks or troughs is equal to or less than the number recorded during the reference period in the past." In order to authorize peaks, the "Historical DI" needs to fall below 10% in principle (the ninth to fourteenth recessionary phases). In the fifteenth recessionary phase, the lowest "Historical DI" remained at 20%, but of the indicators without peaks, the "index of industrial production (mining and manufacturing)"was pointed out to have declined to the level equivalent to the other indicators with peaks, and therefore it seems to have been determined that the index fell substantively to 10% (confirmed with the Cabinet Office).

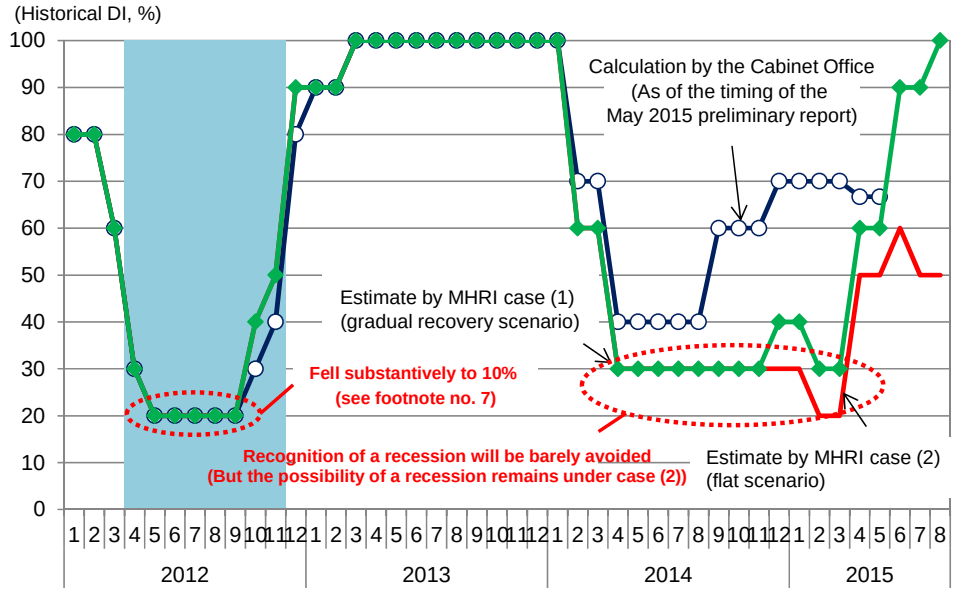
[8] Refer to meeting material 4 of the 16th Committee for Business Cycle Indicators (held on July 24, 2015).

as the lowest Historical DI did not fall below 40%.

However, the results of the Cabinet Office's calculation only covers data up until the May 2015 preliminary report, and the Historical DI will be revised retroactively with the subsequent announcement of the indexes. MHRI has estimated the "Historical DI" by reflecting the data released after the official calculation by the Cabinet Office (up until the final July 2015 report) and by making certain assumptions on the future indicators.[9] [10] For the future indicators assumptions, we assumed two cases where the individual index will (1) gradually recover at a constant pace[11] and (2) where it will remain flat.

Looking at the estimate result, under both (1) and (2), data after the second half of 2014 up to the first half of 2015 were revised downward from the data calculated by the Cabinet Office in the May 2015 preliminary report, due to the fact that the timing of the

Chart 5: Results of the "Historical DI" estimate



Notes 1. Shaded area represents the recessionary phase.
2. For the program used in MHRI's estimate, see footnote no. 10. Due to slight differences in the calculation assumptions, part of MHRI's estimate result is not completely identical to the calculation result by the Cabinet Office.
Source: Made by MHRI based on the Cabinet Office, *Indexes of Business Conditions,* etc.

[9] We included future data up until December 2016 in order to secure sufficient data volume to determine the peaks and troughs of the individual indicators.

[10] Our estimate of the "Historical DI" was conducted based on the program created by Professor Mark Watson using the statistics software called "Gauss" (created in accordance with the program of Bry and Boschan (1971) and is available on the professor's website to enable the recreation of Stock and Watson (2014), which was revised by MHRI in accordance with the statistics software called "Octave." Due to slight differences in the calculation assumptions, our estimate result differs partially from the calculation result of the Cabinet Office.

[11] In concrete terms, it was assumed that "index of industrial production (mining and manufacturing)," "index of producer's shipments (producer goods for mining and manufacturing)," "index of producer's shipments of durable consumer goods," "index of non-scheduled worked hours," "index of producer's shipments (investment goods excluding transport equipment)," "operating profits," and "index of shipments in small and medium sized enterprises" will increase by 0.1% each month. "Retail sales value (change from previous year)" and "wholesale sales value (change from previous year)" were assumed to rise by 0.1%pt each month (provided that they remain flat after the cumulative increase rate reaches +3.0%). "Effective job offer rate" was assumed to rise by +0.01 pt each month.

troughs for “index of industrial production (mining and manufacturing)” and “index of non-scheduled worked hours” was delayed (extension of the recessionary period)[12] by adding new data after June, and that “index of producer's shipments (producer goods for mining and manufacturing)” and “index of producer's shipments (investment goods excluding transport equipment)” created new peaks.[13]

On the other hand, “operating profits” and “effective job offer rate” did not produce any peaks in both cases. Therefore, the lowest “Historical DI” was kept at 30% in case (1) (gradual recovery scenario) and 20% in case (2) (flat scenario), barely failing to fulfill the judgement criterion of “(1) diffusion.”[14] Hence we can conclude that the official declaration of a recession will be avoided at the last minute, unless the economic indicators decline further in the future.

However, in case (2) (flat scenario), the criteria of “(2) depth” and “(3) duration” are being fulfilled, [15] and whether the criterion of “(1) diffusion” will be met or not depends on the outcome of a single index. Therefore, we cannot completely rule out the possibility of an official recognition of a recession, depending on the direction of government discussions. Furthermore, if a recession is authorized under case (2) (flat scenario), the turning points of the business cycle would be March 2014 for the peak and March 2015 for the trough (the recessionary phase covers the period from April 2014 to March 2015). Thus, if the government formally acknowledges a recession, it may be possible to say that Japan has been in a recession for a year, starting immediately after the consumption tax hike in April 2014.

Finally, note that the results of the above estimate may be subject to change depending on the contents of the indicators to be announced in the future and revisions made to the statistics covered.

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[12] For both indicators, the timing of troughs was delayed from August 2014 to May 2015 under case (1) (gradual recovery scenario) and no troughs were recognized in case (2) (flat scenario).

[13] Under both cases of (1) and (2), “index of producer's shipments (producer goods for mining and manufacturing)” peaked in February 2015 and “index of producer's shipments (investment goods excluding transport equipment)” in February 2014 (provided that for the latter index our estimate recognized a peak even when using the data of the May 2015 preliminary report, which is the timing of the Cabinet Office’s calculation, and we believe it was due to slight differences in the calculation assumptions).

[14] A difference arises in the lowest level of “Historical DI” because the timing of troughs for the individual indicators is different depending on case (1) and (2).

[15] For the “(2) Depth” criterion, indexes of business conditions (coincident index) declined by 4.4% during the period that starts from the peak candidate of March 2014 through the trough candidate of March 2015. Here the criterion of “(2) Depth” is fulfilled since the decline rate exceeds the rate (3.3%) recorded in the tenth recessionary phase (from the peak marked in June 1985 to the trough in November 1986). Likewise, the “(3) Duration” criterion has also been fulfilled as 12 months exceeds the standard of 5 months (the timing of peak and trough also fulfills the criterion of being over 15 months after the previous business cycle).

References

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Stock, James H. and Mark W. Watson (2014), "Estimating turning points using large data sets." *Journal of Econometrics*, Volume 178, Part 2.