

## Corporate Profits and Business Fixed Investment: Why are Firms So Cautious about Investment?

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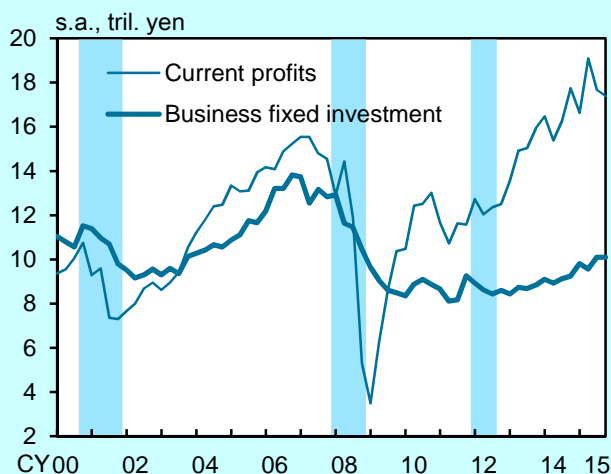
We examine why Japanese firms have been so persistently cautious toward business fixed investment decisions, despite posting record high profits. Specifically, we find that the key factor underlying the expansion in corporate profits in the current economic recovery phase is the improvement in the terms of trade, rather than the increase in sales volume. Next, using simple time-series analysis, we show that, (1) a rise in profitability due to an increase in sales volume has a statistically significant and positive effect on business fixed investment at a relatively early stage, whereas (2) an immediate impact from increased profitability due to price effects (i.e. an improvement in the terms of trade) is insignificant at first, requiring a certain time lag for a statistically significant effect to show up. This result can be interpreted to be that increased sales volume leads to a rise in real growth expectations (intentions to stretch production capacity) through increases in capacity utilization, while the improvement on the part of prices is likely to be regarded, at least initially, as a temporary factor for profit increase.

### Introduction

Looking at the current phase of economic recovery in Japan, corporate profits (all industries and firm sizes) have recently recorded historical highs, exceeding the previous peak in the mid-2000s (Chart 1). On the other hand, business fixed investment, while being on a moderate uptrend, has continued to be relatively

sluggish, especially when compared to the strong corporate profits, and it has been about 70 percent compared to the recent peak observed in the mid-2000s. As a reflection of these movements, the investment-saving balance of the corporate sector turned into a saving surplus since the late 1990s, with the surplus continuing to expand further in recent years (Chart 2).<sup>1</sup> In line with these developments,

[Chart 1] Corporate Profits and Business Fixed Investment

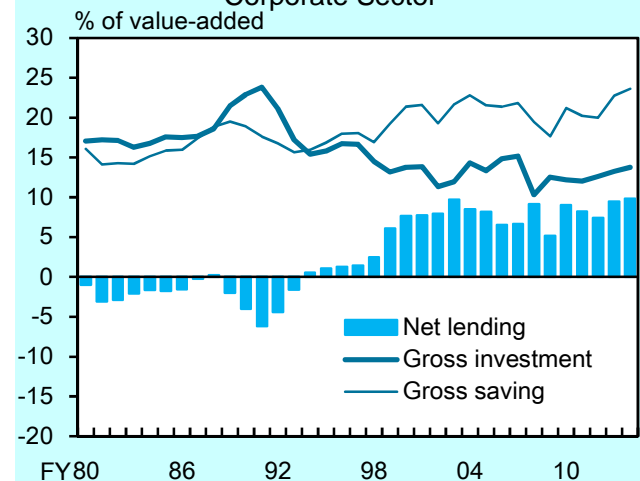


Notes: 1. Based on the "Financial Statements Statistics of Corporations by Industry, Quarterly" (FSSC, hereafter); all industries and firm sizes but excluding the "Finance and Insurance" sector. Business fixed investment excludes software investment. The same applies to following charts.

2. Shaded areas indicate recession periods.

Source: Ministry of Finance.

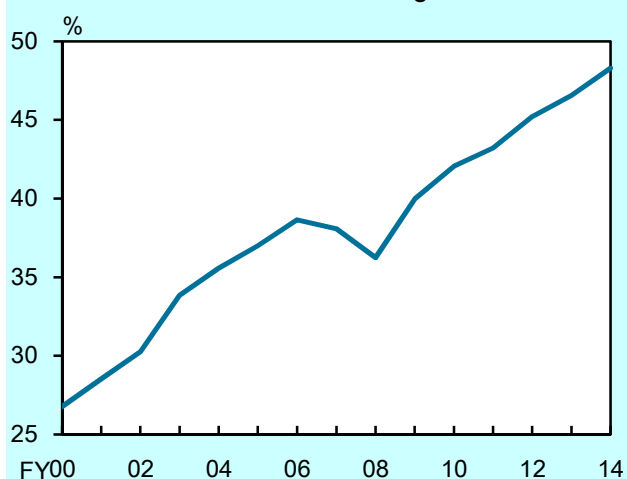
[Chart 2] Investment-Saving Balance of Corporate Sector



Note: Based on the "Financial Statements Statistics of Corporations by Industry, Annually"; all industries and firm sizes but excluding the "Finance and Insurance" sector. Gross investment = business fixed investment; gross saving = current profits - tax - dividends + depreciation expenses; value-added = operating profits + depreciation expenses + labor costs.

Source: Ministry of Finance.

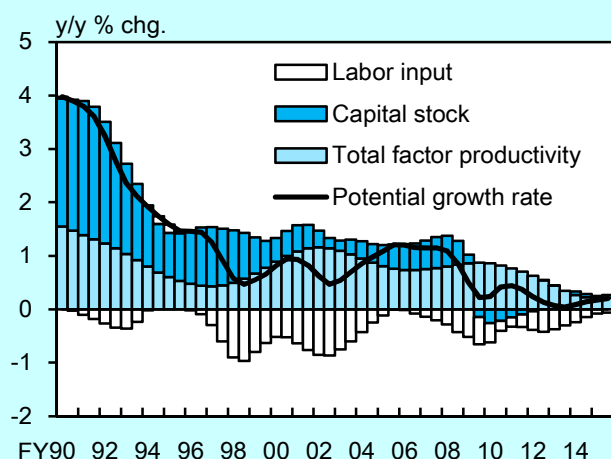
[Chart 3] Proportion of Firms "Without Net External Borrowings"



Note: Firms "without net external borrowings" are defined as firms whose cash, deposits, and cash equivalents exceed their short- and long-term debts. Based on 1,203 firms (excluding financial institutions) listed on the 1st or 2nd section of the Tokyo Stock Exchange, whose business year ends on March 31 and for which data throughout the period are available.

Source: Nikkei Financial QUEST.

[Chart 4] Potential Growth Rate



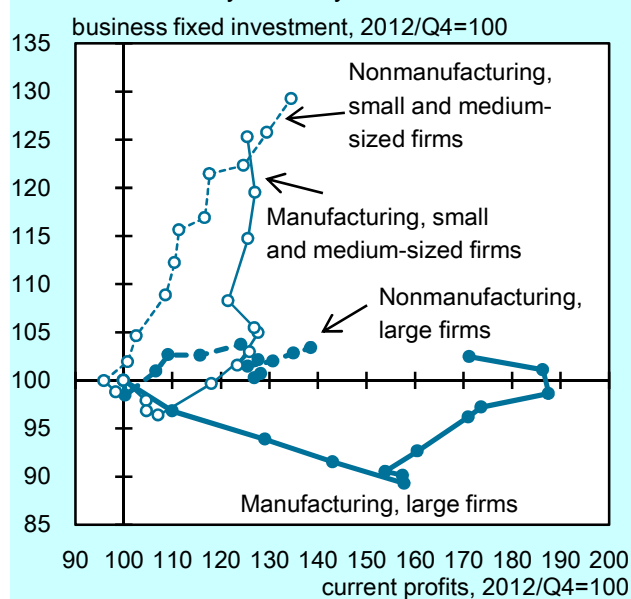
Note: Estimation by the Research and Statistics Department, Bank of Japan. Figures for the second half of fiscal 2015 are those of 2015/Q4.

Sources: Cabinet Office; Bank of Japan; Ministry of Internal Affairs and Communications; Ministry of Health, Labour and Welfare; Ministry of Economy, Trade and Industry; Research Institute of Economy, Trade and Industry.

the proportion of listed firms without net external borrowings – that is, firms whose on-hand liquidity exceeds the amount of interest-bearing debt – has recently risen to roughly 45 percent (Chart 3).

Cautious business fixed investment spending of the corporate sector is regarded to be one of the headwinds restraining the vigor of the economic recovery, in spite of positive income formation at play. Moreover, along with the shrinking working-age population as well as weak total factor productivity

[Chart 5] Business Fixed Investment and Current Profits by Industry and Firm Size



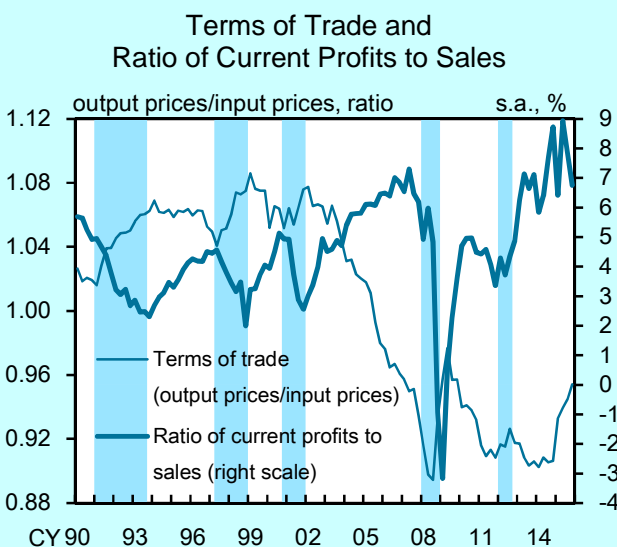
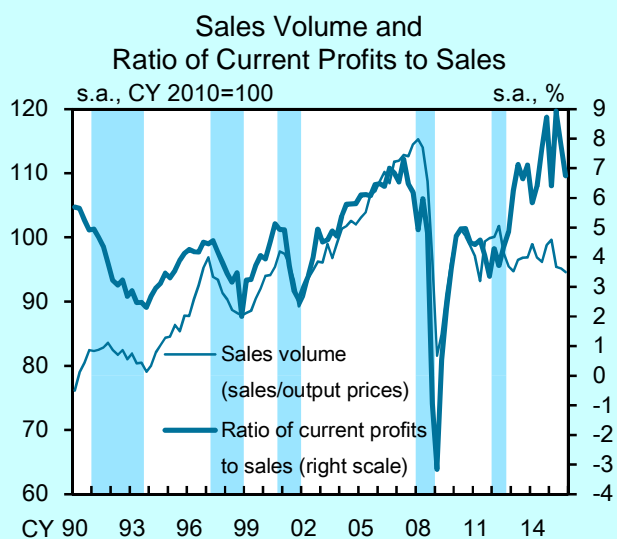
Note: Based on the FSSC. Nonmanufacturing excludes the "Finance and Insurance" and "Goods Rental and Leasing" sectors. Four-quarter moving averages based on seasonally adjusted data.

Source: Ministry of Finance.

(TFP) growth, sluggish capital accumulation due to subdued corporate investment is thought to be one of the underlying forces bearing down on Japan's potential growth rate (Chart 4).

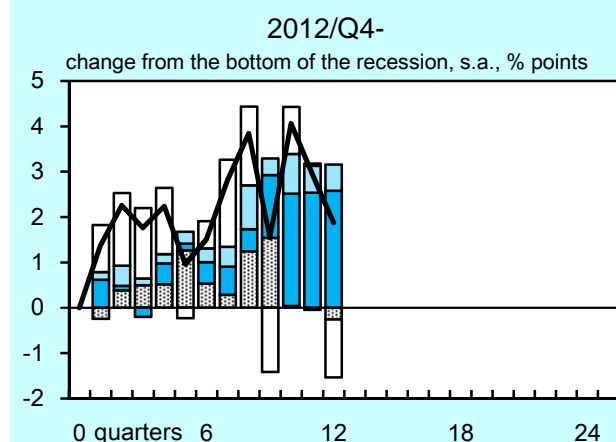
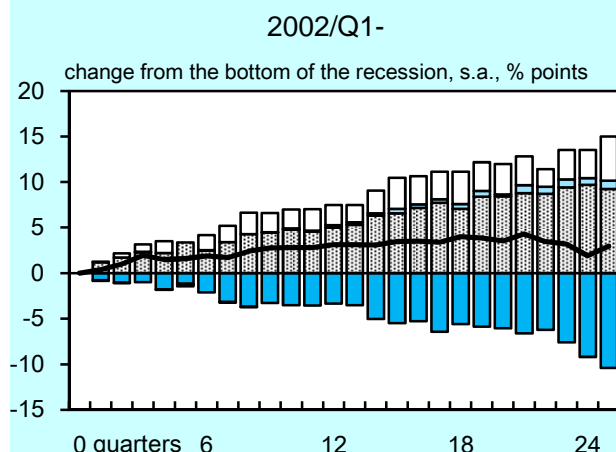
Against this background, the present paper examines the reasons for the sluggishness in business fixed investment decisions by focusing on the factors that have driven corporate profits in recent years. Our analysis indicates that the high corporate profits seen in the current recovery phase are largely attributable to the improvement in the terms of trade rather than the increase in sales volumes. Next, using simple time-series analysis, we show that the response of business fixed investment to profits generated by an increase in sales volume is more evident than that by the price effects (i.e. an improvement in the terms of trade), even though both cases are derived from improved profitability by the same amount. In closing, along with a sum-up of the results obtained by this analysis, we provide some implications on the outlook for business fixed investment.

[Chart 6] Sales Volume, Terms of Trade, and the Ratio of Current Profits to Sales (Large Manufacturing Firms)



Note: Sales and current profits are based on the FSSC. Shaded areas indicate recession periods.  
Sources: Ministry of Finance; Bank of Japan.

[Chart 7] Decomposition of Change in the Ratio of Current Profits to Sales



Contribution of  
 ■ Sales volume  
 ■ Terms of trade  
 ■ Financial profits (interest income, etc.)  
 ■ Other factors  
 — Change in the ratio of current profits to sales

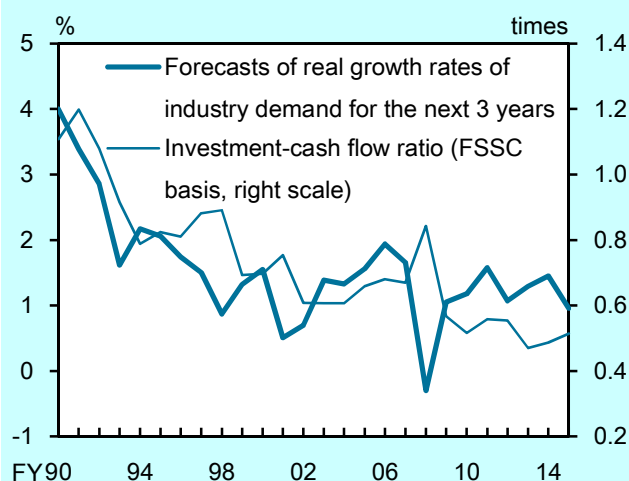
Note: Large manufacturing firms. Decomposition obtained using sales, current profits, labor costs, etc. (from the FSSC) and the "Input-Output Price Index of the Manufacturing Industry by Sector."  
Sources: Ministry of Finance; Bank of Japan.

## Characteristic of Corporate Profits in the Current Recovery

Let us start by examining the factors driving the profits of large manufacturing firms in recent years. The reasons for focusing on large manufacturing firms are as follows: (1) Large manufacturing firms experience substantial cyclical ups and downs due in part to their strong links with overseas economies, so that they are a major contributor to business cycle

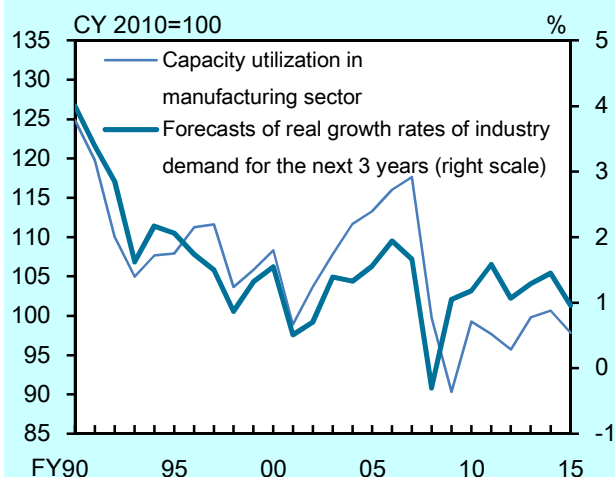
developments in Japan. (2) Relative to their profits, these are the firms that have been most restrained in their investment during the current recovery phase (Chart 5). And (3), in terms of data quality and availability, because this segment is measured by (a) a reliable input-output price index and (b) a near inventory quarterly survey in the Financial Statements Statistics of Corporations by Industry, the data on these firms allow us to conduct a quantitative analysis with relatively high precision.

[Chart 8] Expected Real Growth Rate and Investment-Cash Flow Ratio (Large Manufacturing Firms)



Note: Forecasts of real growth rates of industry demand for the next 3 years are based on the "Annual Survey of Corporate Behavior." Cash flow = current profits/2 + depreciation expenses. The cash flow figure for FY 2015 is the April-December average. Sources: Cabinet Office; Ministry of Finance.

[Chart 9] Expected Growth Rate and Capacity Utilization



Note: The figure for capacity utilization in manufacturing sector for FY 2015 is April-January averages.

Sources: Cabinet Office; Ministry of Economy, Trade and Industry.

time, continued to provide negative impetus on the ratio.

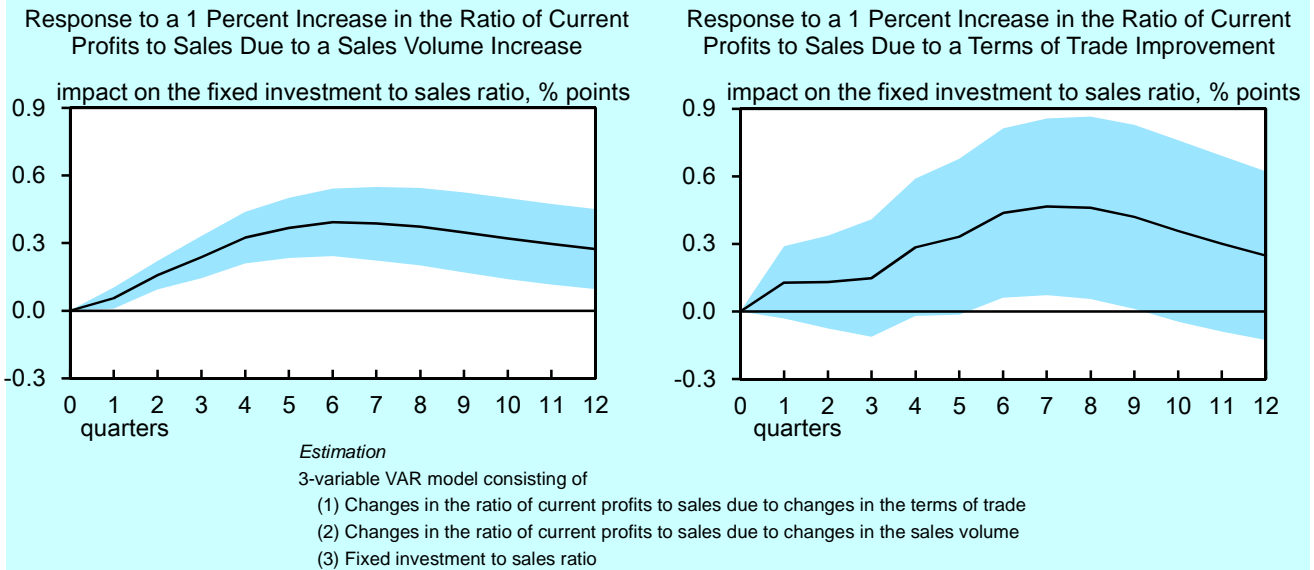
Looking at the ratio of current profits to sales of large manufacturing firms in recent years shows that, following the trough of 2012, the ratio has risen at a relatively strong pace, even compared with past expansionary phases and, after smoothing out the fluctuations of the data, it has recently reached record highs, surpassing the 2007 peak (Chart 6). A striking characteristic of the increase in profitability over the past few years is that the terms of trade (=output prices/input prices) – which in previous expansionary phases generally worked to depress profits – this time exerted substantial upward pressure on corporate profits without an increase in sales volumes (= sales/output prices).

Looking at developments in more detail (Chart 7), the ratio of current profits to sales increased by roughly 3 percentage points from the most recent trough in the fourth quarter of 2012 up until the fourth quarter of 2015, with improvements in the terms of trade – mainly due to the decline in input prices resulting from the downswing in crude oil prices – accounting for over 80 percent of this increase.<sup>2</sup> In contrast, during the 2002-2007 period, which saw Japan's longest post-war economic expansion, the ratio of current profits to sales improved principally reflecting increased sales volumes driven by a rise in exports. It can also be confirmed that the terms of trade, affected by the rise in crude oil prices at that

## Profitability and Business Fixed Investment: A Simple Quantitative Analysis

Next, we examine whether the response of business fixed investment to an improvement in corporate profits differs depending on whether the improvement is brought on by an increase in sales volumes or an improvement in the terms of trade. Here, movements of "real" growth expectations in the medium to long term play a key role in defining firms' decisions on business fixed investment (Chart 8). That is, if corporate profit gains brought on by the rise in sales volumes are more apt to lead to a rise in real growth expectations (intentions to stretch production capacity) through increases in capacity utilization (Chart 9), business fixed investment is projected to advance at a relatively fast pace. On the other hand, in the case of an increase in profits due to improved terms of trade reflecting higher output prices stemming from the depreciation of the yen and lower input prices stemming from the decline in crude oil prices, firms are likely to regard such price changes, at least initially, as temporary windfalls, leaving their growth expectations unchanged, so that the response of business fixed investment is likely to be limited for the time being.

[Chart 10] Impact of Changes in Profits on Business Fixed Investment  
(Impulse Responses Based on the Vector Auto Regression Model)

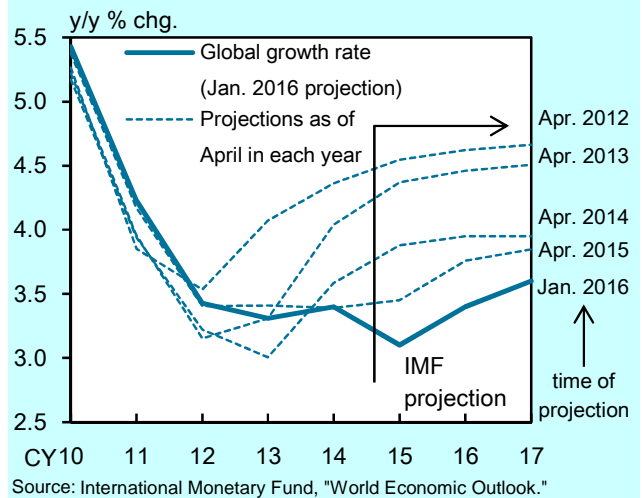


Shock identification is based on Cholesky decomposition in the above order. Variables are calculated based on sales, current profits, labor costs, etc. (according to the FSSC), and "Input-Output Price Index of the Manufacturing Industry by Sector." Data are seasonally adjusted. Observation period: 1980/Q1-2015/Q4. Lags: 4 quarters. Shaded areas indicate two standard error bands.

Sources: Ministry of Finance; Bank of Japan.

In order to examine this hypothesis in a quantitative but indirect manner, we perform an estimation on large manufacturing firms using a simple time-series model (VAR model) consisting of the following three variables: (1) changes in the ratio of current profits to sales due to changes in the terms of trade; (2) changes in the ratio of current profits to sales due to changes in sales volumes; and (3) fixed investment to sales ratio.<sup>3,4</sup> The results of the estimation are presented in Chart 10, which shows the impulse responses of business fixed investment to a 1 percent increase in profitability. As can be seen, the response of business fixed investment due to a sales volume increase is more evident than that due to a terms of trade improvement. Specifically, an improvement in profitability due to an increase in sales volumes has a statistically significant and positive effect on business fixed investment from a relatively early stage. In contrast, an improvement in profitability due to a terms of trade improvement is insignificant at first (the wide error bands for the time being indicates that the response of business fixed investment is dispersed), and becomes statistically significant only with a considerable lag. This finding

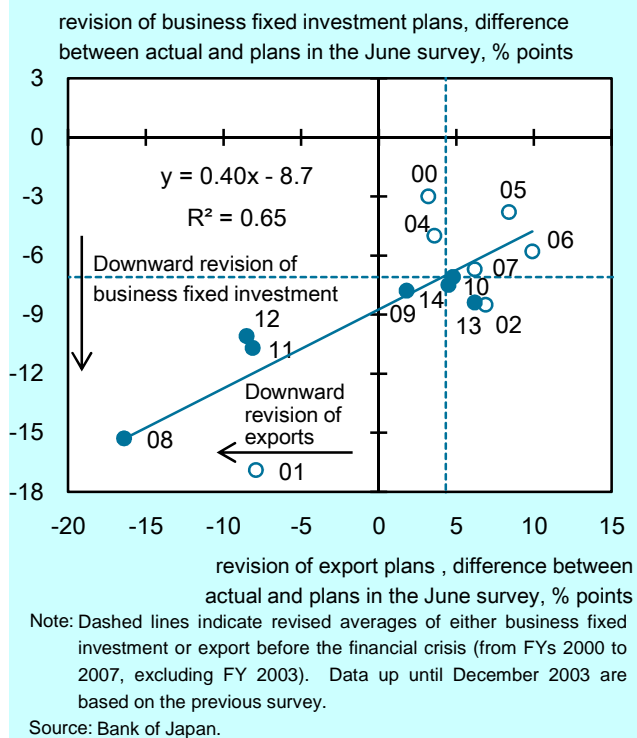
[Chart 11] Revisions of Global Growth Rate Projections



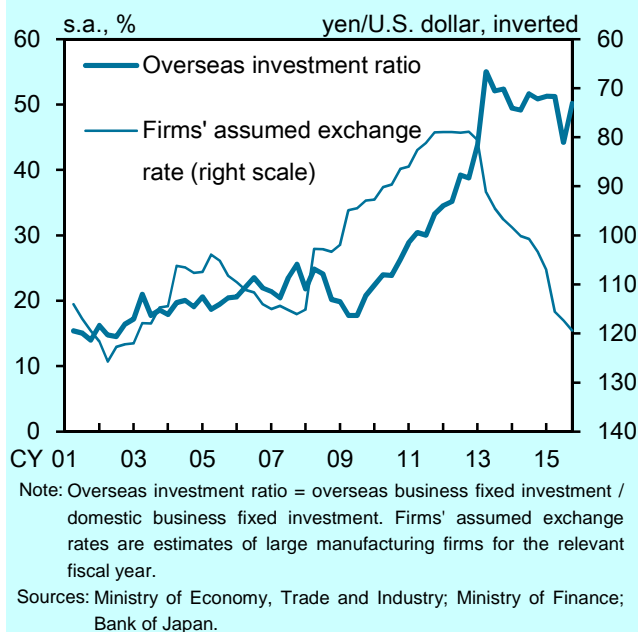
implies that (1) improvement in sales volume is apt to exert upward pressure on real growth expectations through increases in capacity utilization, while (2) the immediate impact on business fixed investment from the improvements on the part of prices, which tends to be regarded as a temporary factor for profit increases, has large uncertainty.



[Chart 12] Revision Patterns of Exports and Investment Plans in the *Tankan* (Large Manufacturing Firms)



[Chart 13] Overseas Investment Ratio and Firms' Assumed Exchange Rate



The findings of the analysis suggest that the main reason why firms have restrained business fixed investment in recent years despite record profits is the sluggish pace of improvement in medium to long term real growth expectations thus far as a reflection of lackluster sales volumes.<sup>5</sup> Indeed, following the global financial crisis, growth projections for the

global economy have been continuously revised downward (Chart 11), and plans for exports and business fixed investment of large manufacturing firms – as opposed to the pre-crisis period – have also followed suit as shown in the *Tankan* survey (Chart 12).

Meanwhile, on the part of prices, despite substantial corrections since 2013 of the excessive appreciation of the yen, assisted in part by the Bank of Japan's "Quantitative and Qualitative Monetary Easing Measures," firms seem to have curtailed their plans to further expand capacity at home where population decline has been in full swing, with trauma looming in the corporate psyche as a result of the Lehman shock when firms were exposed to the yen's rapid appreciation (Chart 13). Moreover, because the crude oil price decline since the second half of 2014 appears excessive, it has taken a fair amount of time for firms to figure out how long this downswing of late will feed into higher profits.

## Conclusion

In this paper, we examined what has driven the increase in corporate profits in recent years – changes in sales volumes or the terms of trade – and looked at why firms' investment has remained relatively subdued despite record profits. We showed that in the current recovery, the increase in corporate profits largely owes to the improvement in the terms of trade rather than increases in the sales volumes. Our analysis suggested that the upward pressure on business fixed investment as a result of increased growth expectations was not as strong relative to previous recoveries. A host of factors have been mooted as the main causes of the sluggishness of business fixed investment in the aftermath of the global financial crisis.<sup>6</sup> However, the analysis in this paper suggested that this sluggishness is essentially attributable to weak growth expectations reflecting sluggish movements in sales volumes.

That being said, the results of the quantitative analysis (Chart 10) indicated that although it takes time for an increase in profits based on terms of trade improvement, mainly due to soft crude oil prices and the depreciation of the yen, to have a positive impact on investment, such positive effects can eventually be observed, given that the improvement is in place. Indeed, combined with corrections made to the rapid appreciation of the yen since the Lehman shock onward, industries such as transport equipment and

chemicals industries (cosmetics and daily items) have started to ramp up business fixed investment at home by, for example, moving back overseas production bases to domestic sites. In addition, the downswing in crude oil prices since the second half of 2014 – taking account that it is more or less affected by technological innovations on the production side, namely, increased shale oil production in the United States – is expected to take hold for quite some time and is projected to continue underpinning profits and business fixed investment of domestic firms which are dependent on crude oil imports.

<sup>1</sup> Such a corporate sector saving surplus, or "corporate saving glut," is not unique to Japan but a phenomenon widely seen across major advanced economies in the aftermath of the global financial crisis. For further details, see:

Gruber, Joseph W., and Steven B. Kamin (2015), "The Corporate Saving Glut in the Aftermath of the Global Financial Crisis," *International Finance Discussion Papers*, 1150, Board of Governors of the Federal Reserve System.

<sup>2</sup> Since a depreciation of the yen pushes both yen-denominated export and import prices upward, it is not immediately clear whether the depreciation of the yen has contributed to the improvement in the terms of trade. However, for firms which have a large export ratio, it is likely that, in the short run, the depreciation of the yen resulted in an improvement in the terms of trade. Reasons include that (1) at least in the short run, prices in the contract currency tend to remain unchanged, and (2) this tendency is most evident in the current phase among export-oriented firms (firms tend to maintain prices denominated in local currency as a substitute for an export drive).

In addition, in the current recovery phase, the depreciation of the yen has apparently made a positive contribution to "financial profits" which includes dividends and interest income received from overseas subsidiaries, etc. As shown in Chart 7, "financial profits" has exerted upward pressure on profitability, a secondary factor following the terms of trade, largely since Japanese firms: (1) have taken steps to bolster their overseas operations in recent years and (2) have also seen increased dividends and profit income from abroad due to a rise in yen-denominated valuations reflecting earlier depreciations of the yen.

<sup>3</sup> Strictly speaking, firms' growth expectations should also be included as variables in the analysis, but they are omitted here due to limited sample availability in the annual data.

<sup>4</sup> Concretely, the model to decompose changes in the ratio of current profits to sales is specified as follows.

$\pi$ : current profits,  $p$ : prices,  $q$ : volume, subscript O: output, subscript I: input,  $C$ : fixed costs and,  $\pi = p_O q_O - p_I q_I - C$ . The difference in current profits,  $d(\pi)$ , is then decomposed using the following specification:

$$d(\pi) = p_O q_O \left( \frac{d(p_O)}{p_O} - \frac{p_I q_I}{p_O q_O} \frac{d(p_I)}{p_I} \right) + (p_O q_O - p_I q_I) \frac{d(q_O)}{q_O} + p_I q_I \left( \frac{d(q_O)}{q_O} - \frac{d(q_I)}{q_I} \right) - d(C)$$

The first term on the right hand side represents the contribution of changes in the terms of trade, while the second term represents the contribution of changes in sales volumes. In our VAR analysis, all terms are standardized by dividing by sales.

<sup>5</sup> Banerjee, Kearns, and Lombardi (2015) estimated an

investment function using macroeconomic data for seven leading economies including Japan. Based on their estimation results, they argue that the sluggishness in business fixed investment observed in these economies following the wake of the global financial crisis can be largely explained by weak growth expectations and uncertainty regarding future growth rates (which they measure using the dispersion of Consensus Economics GDP forecasts).

Banerjee, Ryan, Jonathan Kearns, and Marco Lombardi (2015), "(Why) Is Investment Weak?" *BIS Quarterly Review*, March 2015.

<sup>6</sup> It has been suggested, for example, that firms may have low risk appetite reflecting past experiences such as the drying up of both demand and liquidity at the time of the Lehman shock. Another possible explanation given is the increased uncertainty regarding overseas economies and international financial markets.

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