ABeam Financial Market Insight

Negative Interest Rate Policy and Sophistication of Risk Control

Introduction of negative interest rate policy which was decided at the monetary policy meeting held in January 29, 2016which commenced from February 16, 2016. Many people have voiced their concerns about possible decrease in the Japanese bank-centered financial institutions' earnings since the decision was made by the policy meeting. While the declined earnings is thought to lead to decrease in the level of risk tolerance, it may act as a trigger for opening a new chapter in risk control practices that major financial institutions have been attempting to sophisticate.

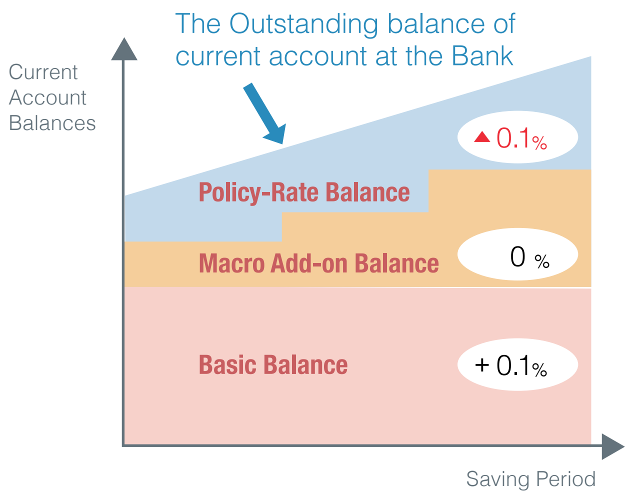
1. Introduction of Negative Interest Rate Policy and Environmental Changes

1-1. Overview of Negative Interest Rate Policy

The Bank of Japan (BOJ) will adopt a three-tier system in which the outstanding balance of each financial institution's current account at the bank will be divided into three tiers, to each of which 1) a positive interest rate, 2) a zero interest rate, or 3) a negative interest rate will be applied, respectively (See Fig. 1 below). This kind of multiple-tier systems have already been adopted in Switzerland, Sweden, and Denmark. Under the system in Japan, the reserves are classified into three; 1) those having a rate of +0.1% called “the Basic Balance”, 2) those having a rate of 0.0% called “the Macro Add-on Balance” and 3) those having a rate of ▲0.1% (minus 0.1%) called “The Policy-Rate Balance”. “The Basic Balance” corresponds to the reserves calculated by applying a rate of 0.1 % to the average balance computed during an one-year reserve maintenance period from January to December in 2015 (the Base Period). “The Macro Add-on Balance” corresponds to the reserves equivalent to the required reserves (considered the sum of the BOJ current account to be added on an aggregated basis), and any amounts exceeding “the Basic Balance” and “the Macro Add-on Balance” will be regarded as “the Policy-Rate Balance”.

According to the supplemental explanation under “Key Points of Today’s Policy Decisions (reference)” issued by the Bank of Japan, the amount of the reserves subject to the application of negative interest rate is estimated about 10 trillion yen at the initial stage and 30 trillion yen in three months’ time. As Japan has never implemented such policy, the news of the policy caused confusion to financial circle in the country. Consequently, the Bank of Japan has been promptly calming down the confusion and smooth the policy implementation by making the Q&A for the negative interest rate policy available to the public.

Fig.1 The Three-tier Negative Interest Rate Policy



Cited from "Key Points of Today's Policy Decisions (reference)" prepared by the Bank of Japan dated on January 29, 2016.

The Japanese banks used to greet the morning on the day in the money position for their funding operations through implementing the overnight procurement. However, as the central bank's quantitative easing policy is put in place, Japanese banks are increasingly becoming of a loan position and reduce the funding from the market in order to avoid the excess reserves at the central bank which operates the negative interest rate policy.

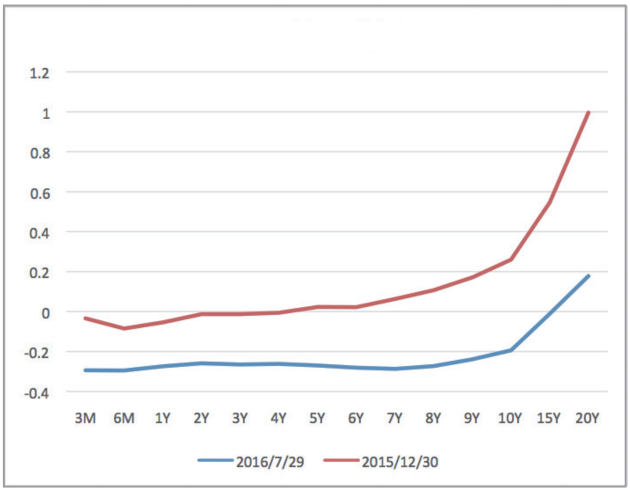
1-2. Recent Market Trendy

While Japanese government bonds' (JGBs') yield curve has been along low interest rates under the influence of the quantitative easing, the 10 year JGB yield level has fallen into the negative interest zone and actually below 0 per cent on August 9 this year, since the negative interest rate policy was introduced.
Temporarily volatile under the Brexit, the global markets have a generally steady recently. The trend of yen has been becoming higher against US dollar because of reflecting very slow increase in the US's interest rates, yet the stock market in Japan takes on a policy-market-like coloration expecting monetary easing effect, partly due to the BOJ having purchased ETF. The policymaking decision meeting in July pushed up the long-term interest rate levels, and since then the rates have stayed relatively high. (Not explained in Fig 2).

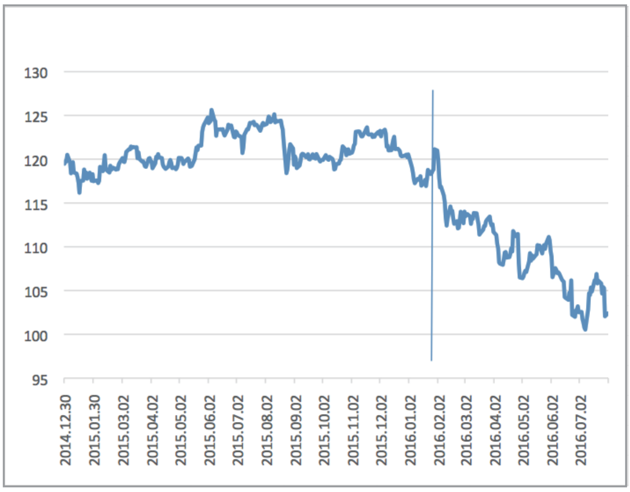
Introduction of such regulations as Basel III has exacerbated market liquidity in the most cases, and pessimistic voices have been heard in repo markets and derivative markets. Therefore, exacerbation of market liquidity seems likely to have helped volatility to rise when market stress occurs. Factors such as expansion of HFT may spur on volatility to rise in stock markets and foreign exchange markets. And daily fluctuation range, when there markets are under stress, seems to be larger than before

Fig 2 Negative Interest rate Policy and Each Market Trend (Using data as of the end of July, 2016)

1. JGB Yield Curve Variation2.

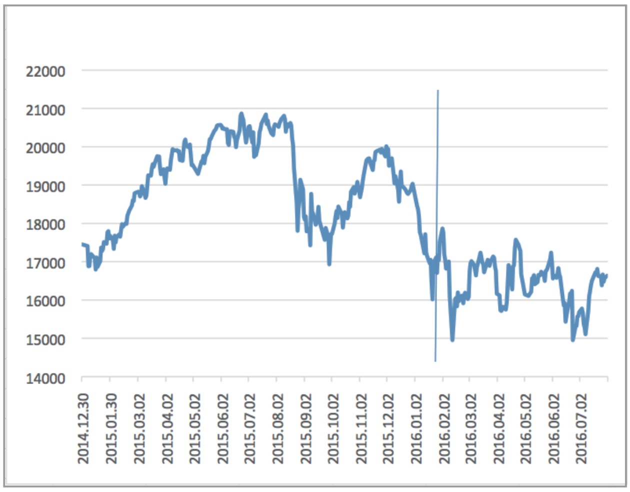


2. Dollar-Yen Exchange Rate Trend



3. i-Traxx Trend

4. Nikkei Average



1-3. Supplemental Information to Loan Rates

Negative interest rate policy presents a challenge to understanding of the lending behavior. Under normal situation, it is not rational to make loans under a negative return. However, even under the negative rate environment, the lenders may secure positive net return as their lending rate is better than their funding rate (even both negative).

When a lending rate is negative, a lender feels the return of the loan is higher than those of other assets and the lender's funding cost must be negative too. When the negative interest rate policy was announced, initial response by many Japanese banks was their review of loan agreements, in order to add 0% as a floor for their lending rates. However, if the loan condition is “a market rate + a credit spread" and is a sufficiently low market rate, all-in-rate might be negative. In other words, "in the lending interest rates, negative interest rates are correct or" has not been organized in various market of Japan, have a totally different price action in each product market.

As recorded at the most recent time (as of August 9), short-term LIBOR, OIS interests with small weighted average rate are within negative range, and TIBOR is within positive range. These benchmark interest rates do not show its consistency.

2. Change in Balance Sheet and Corporate Strategies

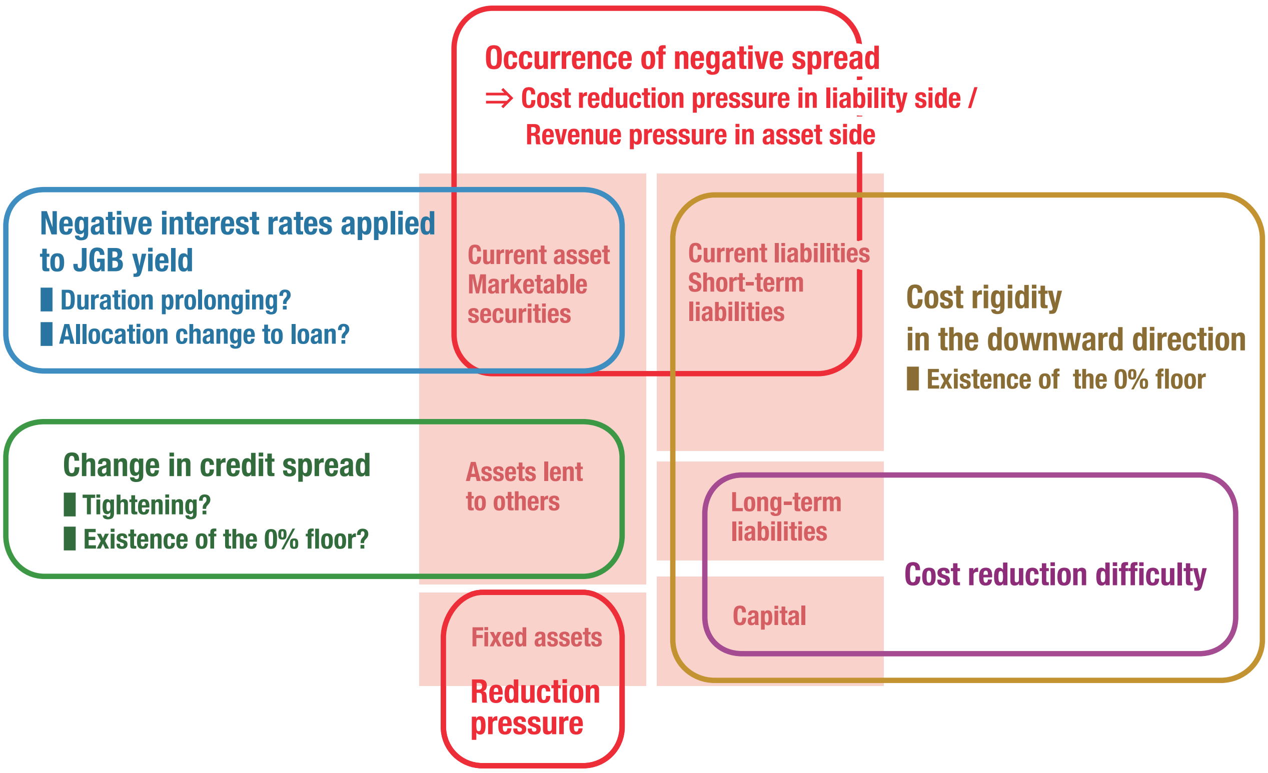
2-1. Balance Sheet Structure

As measures taken by Japanese financial institutions against decrease in their earnings affected by low interest rates, they have changed their portfolio and shifted their business to the position focusing more on foreign bonds. The Japanese banks have been increasing the foreign currency assets to keep the profit in recent years. Since the funding costs have remained high because of the consequences of regulations imposed on capital ratio and leverage ratio, they have to buy the positive yield bond to cover these costs. Negative interest rate policy have been decided when there are difficult situation to reduce their capital costs and funding costs. So, they would have to take into consideration to change their funding strategy in addition to asset portfolio.
As articles made headlines such as “Negative interest rates imposed on Yen deposit with commission”, “Japanese megabanks are focusing on foreign currency deposits” in newspaper reports after the decision of negative interest rate policy was announced, they have been attempting to find out solutions that avoid occurrence of fund surplus made in yen deposit.

Although it is ideal to reduce long-term debts and surplus capital in cost reduction, they have not come up with any equilibrium points to effectively deal with multiple regulations imposed (or will be imposed in near future) at the same time, and even if they found effective equilibrium points, they would concern that reducing such regulation values may lead to a reputational damage. When market rates are positive, banks gain their core source of revenue through mismatch between duration on asset side and duration on the liability side (duration of asset ≧ duration of liability) which is so called “short-term funding and long-term investment”. The mismatch between asset side and liability side is, difference in interests, thus basic concept of ALM operations is that the interest differences are used to cover necessary expenses.

Prior to the introduction of the negative interest rates policy, when they find it difficult to cover the necessary expenses in a situation where a certain level of market rate declines (including flattening of yield curve), they would pay attention to longer term of duration on the asset side and shifting toward other risk assets. On the other hand, they also tried to cover with taking large position with less profit margin in the circumstances where monetary easing were put in place. Under the negative interest rates policy, it is important for Japanese banks to make a quick decision-making, which was aware of the changes in the market environment.

Fig. 2 The Negative Interest rates Policy and Balance Sheet



2-2. Possible Strategies (asset side)

Strategy of covering earnings decline by expansion of balance sheet would affect negatively on leverage ratio (or minimum capital requirements). Also with respect to Interest rate risk in the banking book (IRRBB), in spite of an enhanced Pillar 2 approach will be adopted, many banks will be sensitive to the balance sheet expansion as well. Treasury department (banking account position) have not been good at short-term dealing and position taking of the long-end. So, two strategies considered are explained below.

Measures taken under negative interest rates strategy (asset side)

(A) Allocation change from JGB to high yield bond, equity (including ETF), etc. (Yen currency)

(B) Allocation change from JGB to sovereign bond in other country (foreign currency)

In the strategy of (A) created on a yen currency basis, amount of market risk or credit risk will be increased. Allocation changes to low-rating assets will affect negatively to the own rating. Advanced risk management capability will be required, but the essence lies in the other problems. There is almost no products that meet investor demand in Japan. Investor demand of corporate bonds beyond BBB ratings became stronger after the announcement of the negative interest rate policy.

In the strategy of (B), there is no need to be limited to sovereign assets originally. Although it is possible to shift the loan assets and stock assets, amount of risk assets will be greater than yen assets. This is the strategy which can choose after the confirming of the required capital sufficiency and the capability of the risk management. Japanese banks tend to confirm the profit by yen basis on foreign currency business by dealing with currency swaps. Japanese financial authorities has been concerning about the rising up of the foreign currency funding costs, and it is necessary for Japanese banks to avoid the liquidity risk although the sovereign asset has a problem in profitability. Japanese banks have to sophisticate the cost.

2-3. Possible Strategies (liability side)

Balance adjustment of liabilities for Japanese banks is one of the extremely difficult control. Japanese banks don't have an experience to reduce balance intentionally because they have been thinking that deposit acquisition is the first step of business. Changing the deposit strategy is not only expected intense resistance from the retail sector, the reaction of customers is also unknown. Strategy that is assumed in such are as follows.

Measures taken under negative interest rates strategy (liability side)

(A) Setting the negative interest rate in internal base rate to sales division

(B) Prohibition of new Japanese yen deposits acquisition

(C) Introduce the commission fee to yen deposit account

(D) Induction into foreign currency deposit from yen deposit

In the case of (A), the effect of yen deposit control is small, because bank's strategy is not visible from customer. Also In the case of (B), the effect of yen deposit control is small. Difference is to show the bank's action to customers, but it is difficult to apply to all customers.
In the case (C), as well as (B), it is necessary to determine the scope which carries out the strategy. For the influence of the outflow is invisible to carry out the strategy, bank is not able to apply for all customers from the first, it will be partially strategy to major companies and financial institutions. In situations when the LCR is already started, senior management will be anxious about the outflow which cannot be predicted.
Most senior manager might try to avoid the strategy of (C) from (A), if so, balance adjustment of the yen deposit will be difficult.
While the actual effect is unknown, the case (D) is considered to be easy choice for senior manager. By the effect of the preferential treatment of foreign exchange fee, if many customers shift from yen deposit to foreign currency deposit, by being reduced the currency mismatch between assets and liabilities, bank's ALM become stable. When the bank will predict the effect of inflow and outflow, they have to collect with information about the foreign exchange level at the start/end date and the attributes of customers.

2-4. Possible Strategies (entire ALM)

It is insufficient as a countermeasure against the negative interest policy, if only one of the strategies on asset allocation and liability adjustment will be executed.
Please refer to Table 1 to check the result of combined strategies executed on asset and liability side.

Table 1 Combination of strategies under consideration

		Strategies on asset side	
		(A) Allocation change within Yen	(B) Allocation shift to foreign sovereigns
Strategies on liability side	(1) Suspension of new deposit acceptance	Stable for ALM	Enlarged currency mismatch
	(2) Negative rates with commission	Stable for ALM	Enlarged currency mismatch
	(3) Shift to foreign currency deposit	Diminished currency mismatch	Stable for ALM

Under the condition when the profit is gradually reduced, the bank should have to make the business decision clear whether each strategy should be avoided or not, and it depends on the capability of operation by front office and the risk management by the middle office. If the bank thinks that the risk should avoid the spread of currency mismatch, it is difficult to change their asset allocation to foreign currency. By combining the strategy of the liabilities side that shifting to the foreign currency deposits from yen to foreign currencies, the width of the strategy is spread, and it will stabilize as ALM.

But about the USD funding costs, interest rate spread is tend to expand between USA and Japan, funding cost is likely to rise in future. By foreign currency deposits acquisition strategy, it is possible for the bank to transfer the part of rising cost of foreign currency funding to customers, in addition, it can be expected to earn the foreign exchange commission.

3. Risk Management/Risk Governance Issues

3-1. Issues Found in each Risk Category

(1) Liquidity Risk

Liquidity risk management will be affected directly by the negative interest rate policy. Although there are depending on the funding strategy, stance for foreign currency funding and yen deposit is very important. For Japanese banks have already been taking large currency mismatch between assets and liabilities, burden of the foreign currency funding is large.
The bank that can tolerate the expansion of the balance sheet simply may be carried out foreign currency funding, but if it is not, must be combined also balance the reduction of the yen deposit. In the case of reduction of yen deposit, the foreign currency risk which is held by the bank is transferred to customers, and currency mismatch in ALM is reduced. But Japanese banks don't have sufficient outflow data of foreign currency deposit, they have to accumulate foreign currency outflow data to sophisticate the liquidity risk management.
In the foreign currency deposits accepted such a way, it is necessary to accumulate the exchange rate in addition to the outflow from deposit to analyze the outflow factor. And Japanese banks have to pay attention to cost up of the funding of foreign currency. If a bank makes preferential of the foreign exchange fee, customer action will change depending on the banks stance about the preferential treatment of exchange fee at the maturity date. And if a bank doesn't carry out the preferential treatment of exchange fee at the maturity date, it may lead to reputational risk.

Next case, a bank impose the commission to yen deposit. There are 0% floor on Japanese rule about yen deposit rate. If Japanese banks want to carry out the debt amount control, they should reject the additional deposit, or they set the negative interest rate including of the commission. Because this outflow of which depend on the commission is different from other outflow, there is a need for caution in the analysis of outflow data. But when a customer allow the commission introduced by bank, ALM of the bank is stabilized.

(ii) Market Risk

Regarding the market risk, the important point is the strategy that Japanese banks will choose. There are two strategies, allocation shift to yen-based low-rated assets or foreign sovereign assets.
The biggest problem in the first strategy is the excess demand of investment products, high-grade corporate bonds are in a first-come-first-served situation in Japan. Most Japanese financial institutions has been setting the investment targeting to the investment-grade by their own fair value assessment manual. Japanese banks tend to set the similar rule, and tend to deal the similar products, market price also tend to overshoot in Japan. Market volatility and market liquidity is the significant index to monitor.
In addition, when allocation shift to some of non-investment-grade products will occur, risk management division would have to pay attention to the ability of position management in front office. This issue is not about the market risk, but it is hard to monitor the market liquidity in Japan. Risk management division should talk with front office about market condition and forecast of position management.

In the strategy for the allocation shift to foreign currency assets, there is a need to be aware of the regulatory constraints. Because of most Japanese banks are struggling to foreign currency funding, it is necessary to give full consideration to the foreign currency liquidity (including foreign currency LCR). The negative interest rate policy will cause to expand the interest rate differential between Japan and foreign countries, funding cost of foreign currency will be higher. Since more than necessary foreign currency funding is difficult, investment target products are required to be in sovereign bond or high quality liquidity assets.

On the other hand, also noted with respect to trading style is necessary. Bond department of the banking account is not good at dealing in short term, because their trading style is "buy and hold". In general, comparing the market volatility, US treasury is higher than JGB. If Japanese banks will operate the foreign products in foreign country market from Tokyo, they have two adverse conditions. They don't have sufficient information, and they have to manage high volatility products at midnight. In these days, market volatility sometimes changed rapidly by significant news and high frequency trading. In the market risk management, pricing model risk will not be affected by BOJ's policy change, however it is important to pay attention that the magnitude of the instantaneous market fluctuation range is accelerating gradually.

(iii) Credit Risk

Historically, Japanese banks have made loans available for Japanese companies based on collateral provided. . Lending stance of collateral has been changed to review the business in recent years. But if Japanese banks will increase the lending abroad, the key point is their lending stance. Depending on its stance, there are chances of large losses in case of overseas lending.

Apart from the lending strategy, the first issue about the credit risk is whether to expand the lending in foreign currency base. The data of Japanese banks credit spread in a Japanese yen-based. Major Japanese financial institutions don't have credit spread data in multi-currency basis. Some financial institutions have only in US dollar basis and the euro basis. In addition, they don't have the credit spread data about US dollars-basis in foreign country (except USA) that reflects the condition of the country. By combining a currency swap so far, profits of foreign currency-based loans had been secured in yen-based. If of performing a full-scale overseas loan, Japanese banks need to be able to calculate an appropriate credit spread in multi-currency basis. Of course in foreign currency funding, they also have to calculate of appropriate spread.

When Japanese banks will ensure the appropriate yen-based spread by currency swaps, they need to incorporate a variety of costs, (e.g. collateral cost which is based on credit support annex) to the lending interest rates. But it is not sufficient pricing to cover the collateral cost, review of the pricing method will be required. Trend of loan rates in Japan has been low and stable, but there is a possibility that BOJ will announce the further negative interest rates policy in future. Japanese banks, it may be necessary to verify the validity of the ensuring the yen-based spread in foreign currency lending.

With respect to ensure the foreign currency basis spread, as described above, it is necessary to know the appropriate level of interest rates for loan and funding at first. Capital funding costs of Japanese banks has been grasped by ordinary Japanese yen-based, in order to reflect on capital funding costs in the lending rate, must be the cost of foreign currency basis. Capital funding costs of Japanese banks has been grasped by ordinary Japanese yen-based, in order to reflect on capital funding costs in the lending rate, must be the cost grasp of foreign currency basis. In this case, it need not only the sophistication of the credit risk management, but also construction of the management accounting and foreign currency-based ALM, and then, both of sufficient amount of data and advanced corporate governance should be required.

(iv) Other Risks

By the negative interest rate policy, senior management in Japanese banks will cause to put the pressure to maintain the earnings to front division. So, this chapter will focus on internal misconduct (conduct risk).

Fair value in the case of a new investment, it may not have been defined in the internal fair value assessment manual. In risk management, but usually the front office is never to perform the acquisition of the market value, but if the acquisition of market value is difficult, front office might insist on a little higher price. If there is the insufficiency of the internal fair value assessment manual, risk management division must be confirm the lack of content of its manual, and add the appropriate way of the risk monitoring.
In the evaluation of the internal rating, front office might try to show higher than actual evaluation. It is the same in the collateral evaluation. Risk management division should verify the validity of the evaluation by the front office. This risk become higher if the profit target level for front office is too high, and expected loss might be distorted.

The matters that should be considered other than internal conduct risk is the impact caused by the downgrade of Japan sovereign. If the sovereign credit rating of Japan has been downgraded, foreign banks might cut the credit line for Japanese banks. Some of assets of Japanese banks have already been shifted from Japanese Yen to foreign currency, the impact of downgrade would extend to and fro. In particular, there will be large impact on derivatives activities and foreign currency funding, in some cases may lead to miss business opportunities. Of course, it is needless to say about the possibility of losses in Japanese government bonds.

3-2. Relevance of the Risk Appetite Framework (RAF)

Still RAF in the Japanese financial institutions is an experimental stage, it is also in limited circumstances to D-SIBs class. Japanese banks have a low loan-to-deposit ratio, which is 67.6 percent in the year ended March 31, 2016. The negative interest rate policy would cause to change their allocation, Japanese banks have to sophisticate the way of choosing risk appetite. When negative interest rate policy was announced, system risk and model risk should be checked, but now, Japanese banks have to decide the allocation change to keep the profit, in spite of the condition that risk governance is not sufficient.

This corporate action means new risk appetite, which is included the new risk of own risk governance. By the sudden monetary policy changes, it seems that new position-taking will be preceded than the risk governance sophistication until the sufficient level.

In the policy meeting held in September, they are expected to present comprehensive verification results with regard to the new dimension of monetary easing. After the news announced, long-term interest rates has been rising up, and many traders feel the market sentiment has started to change.

Although we have no idea with regard to what will be presented at the BOJ's meeting, but we hope that they seek various coping strategies in advance, and aim to have prompt actions and quick decision-making, leading to RAF from this day forward.

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