

# Daiwa's View

## YCC observations series (2): History and implications of American YCC in the 1940s

- (1) Consistency with future policy interest rates and inflation expectations, (2) dilemma presented by government debt management policy and price stability targets, and (3) stability of financial system when exiting YCC

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Daiwa Securities Co. Ltd.

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The yield curve control (YCC) currently adopted by the Bank of Japan (BOJ) is neither the only case nor even the first case of a central bank implementing an interest rate peg / cap policy. [The US introduced the so-called YCC policy of pegging the short-term interest rate and setting a cap on the long-term interest rate for nine years from the beginning of 1942 to 1951, a period that included World War II.](#)

The Fed reviewed this US version of YCC in June 2003<sup>1</sup>. Here, we will confirm the history and implications of the US version of YCC, focusing on the Fed's analysis and also referring to several other papers.

### ◆ Summary

During the nine years from the beginning of 1942 until 1951 when an accord was signed between the Fed and Treasury Department, the US adopted a YCC policy of pegging the short-term interest rate and setting a cap on the long-term interest rate (25-year bonds). The policy was started for the purpose of supporting the issuance of government bonds by the Treasury Department during the war. During the first half of this period, which took place during wartime, confidence in the interest rate cap was maintained and long-term interest rates remained stable. However, as inflation began to become a problem in 1947, the interest rate cap fell under pressure and the Fed's balance sheet structure changed significantly. The Fed eventually abandoned the peg system after an agreement (accord) was reached with the Treasury Department during a dilemma presented by debt management policy and rising inflation following the start of the Korean War.

As it turns out, market trust in the peg system depends heavily on inflation expectations and future policy interest rate expectations. In other words, if inconsistencies become apparent between expectations for future policy interest rates and target interest rates, the cost of sustaining that framework surfaces in the form of expansion of the balance sheet. Also, the yield curve depends largely not only on the central bank but also on the government's debt management policy. In particular, if the central bank is factored into the debt management policy, there is always the possibility of a dilemma regarding price stability targets. When exiting from YCC, there is a risk of causing conflicts with the fiscal authorities and the emergence of problems related to the stability of the financial system in which capital losses are sustained by government bond holders with the rise in long-term interest rates.

<sup>1</sup> Chaurushiya, Radha, and Ken Kuttner (2003). "Targeting the Yield Curve: The Experience of the Federal Reserve, 1942-51," which was released in April 2016.

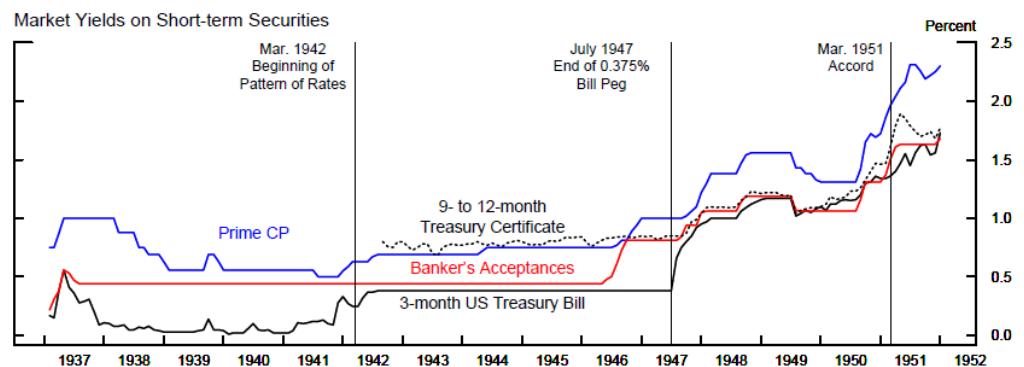
#### ◆ History leading up to YCC

The policy adopted by the Fed was initiated not to support monetary policy purposes, but to support the issuance of government bonds by the Treasury Department during the war. However, involvement in the government bond market by the Fed had already begun before the war. In 1935, in response to a request from the Treasury Department that feared rising interest rates, the Fed purchased long-term Treasury bonds for the first time. Also, in 1939, as pressure on rising interest rates increased with the outbreak of the war in Europe, additional purchases were made for the purpose of “maintaining orderly conditions in the market for United States Government securities.”

However, because the US entered World War II due to the December 1941 attack on Pearl Harbor, a budget deficit and inflation were expected to ensue, and Treasury bond prices fell. Therefore, as a result of discussions and compromises between the Treasury Department and the Fed in March 1942, it was agreed to set a cap of 2.5% for the long-term interest rate (25-year bond), 2% for the 7-9 year interest rates, and 0.875% for the 1-year interest rate. Regarding the corresponding short-term interest rate, the Fed agreed to maintain (peg) the T-bill rate at 0.375%.

It is important to note here that only short-term rates were pegged and long-term rates were capped. And, the agreement on the long-term interest rate cap was not initially announced. This was “perhaps to avoid embarrassment in case the policy proved unsuccessful.”

**Chart: Market Yields on Short-term Securities**



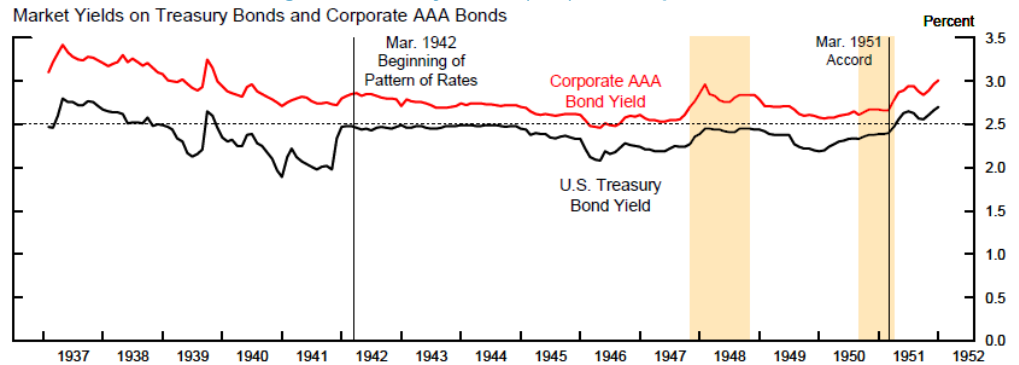
Source: Extract from Fed (2003). "Targeting the Yield Curve: The Experience of the Federal Reserve, 1942-51."

#### ◆ First half of the YCC period (1942-47)

The long-term interest rate rose rapidly from 2% to nearly 2.5% as the US entered the war in the latter half of 1941. However, the Fed did not intervene to protect the cap at this time. During this period, the actions of the Fed and private sector were governed by the short-term interest rate pegged at 0.375%.

During 1942-1943, it was becoming increasingly apparent that the Treasury Department and the Fed had set a cap on the long-term interest rate (2.5%). However, based on market expectations that the policy of pegging short-term interest rates would continue, this level was higher than the theoretical value of the long-term interest rate expected from the term structure of the interest rate (a steep yield curve was not consistent with the market's outlook for short-term interest rates). Low inflation expectations due to experience with deflation during the 1930s and the effects of price control during the war can be pointed out as reasons for these market expectations. Expectations regarding inflation serve as an important factor also in the latter half of this report.

**Chart: Market Yields on Long-term Treasury Bonds (25Y) and Corporate Bonds**

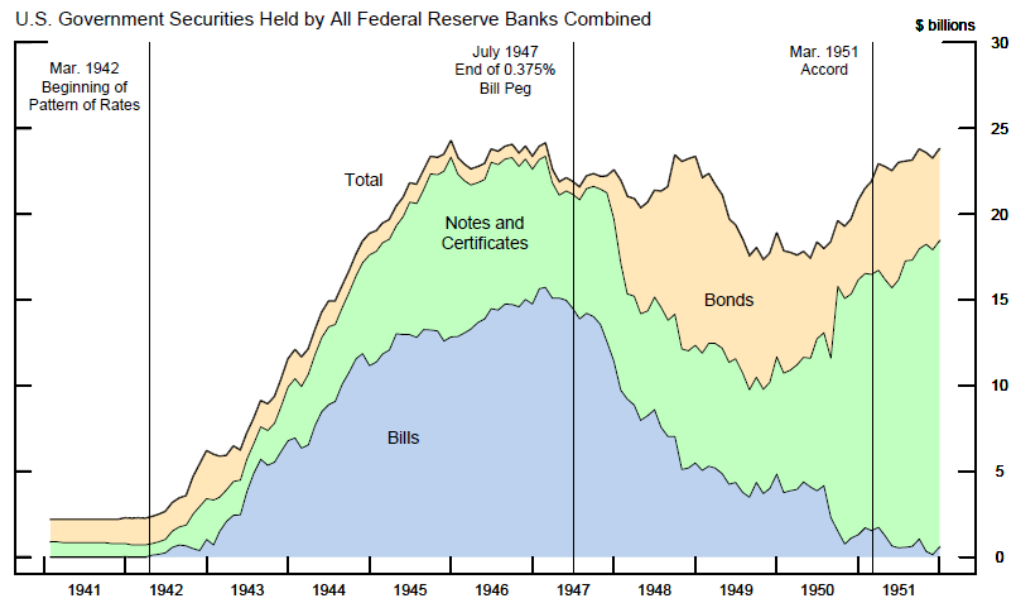


Source: Extract from Fed (2003). "Targeting the Yield Curve: The Experience of the Federal Reserve, 1942-51."

As a result, the private sector shifted its holdings from short-term Treasuries to more undervalued long-term Treasuries. In contrast, the Fed purchased a large number of short-term Treasuries, leading to an increase in the number held. Meanwhile, the holding of long-term government bonds decreased. An important suggestion here is that the 2.5% cap could have been higher than the equilibrium rate of the time without the cap<sup>2</sup>, as shown by the fact that the Fed did not have to act to protect the cap on the long-term interest rate.

Subsequently, the long-term interest rate followed a downward trend after the spring of 1945, as the war came to an end. After all, "expectations of low future nominal short-term interest rates were the major factor keeping long-term rates low during this period, rather than the caps themselves." However, the situation had changed significantly since then. In 1946, wage and price controls were eased, and prices began to rise sharply as demand for US products surged in Europe.

**Chart: Breakdown of Treasury Bonds Held by Fed**



Source: Extract from Fed (2003). "Targeting the Yield Curve: The Experience of the Federal Reserve, 1942-51."

<sup>2</sup> As the fact that the Fed had set an upper limit (cap) on long-term interest rates became known, the downside risk premium embedded in long-term Treasury bond prices declined, and institutional investors such as life insurers bought long-term Treasury bonds to gain profit from the long-term/short-term yield spread. Investors sold T-bills, corresponding to purchases of long-term Treasury bonds. As a result, the Fed conducted opposite operations for such investor transactions.

#### ◆ Latter half of the YCC period (1947-51)

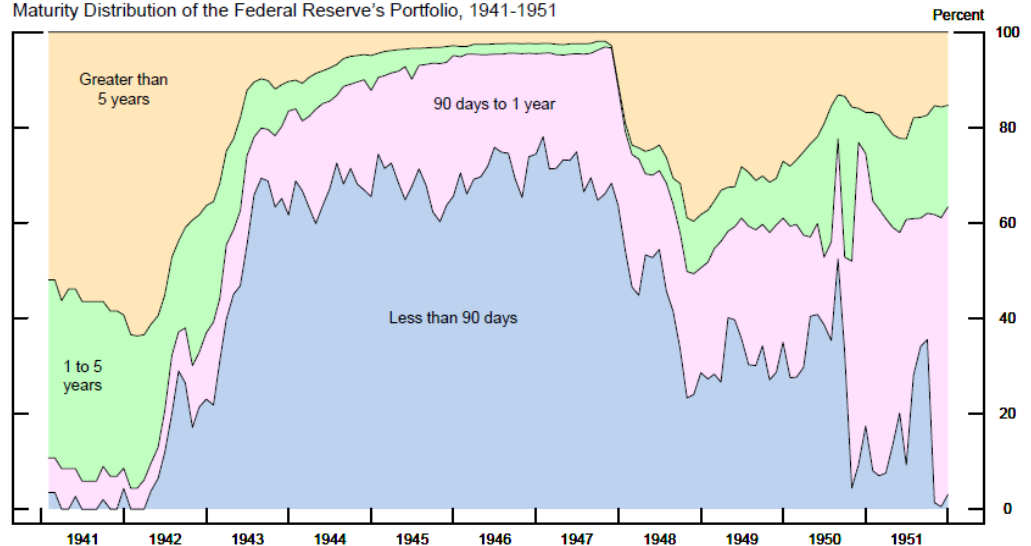
Inflation subsided at one point in the first half of 1947, but then rose again in the second half of the year, rising by 12% annually from June to December. As a result, the Fed raised its short-term interest rate target to 0.875% in July 1947 and then to 1.1% in October 1948, based on an agreement with the Treasury Department.

With such a sharp rise in interest rates, the long-term interest rate level of 2.5% was no longer attractive to investors. Also, the abandonment of the short-term interest rate “peg” may have raised doubts about the reliability of the long-term interest rate “cap.” As a result, the private-sector portfolio shifted significantly from long-term Treasury bonds to short-term Treasury bonds, putting upward pressure on long-term interest rates.

The Fed showed a stance of protecting the upper end of the long-term interest rate by purchasing a large number of Treasury bonds (incl. those worth \$2bn in Nov and Dec 1947 and \$3bn in 1Q 1948). During this period, the purchases of long-term Treasury bonds were covered by the amount of redemptions of short-term Treasury bonds, and the size of the Fed's balance sheet did not change much. However, in the latter half of 1948, a large proportion of Treasury purchases was covered by expansion of the balance sheet. The proportion of long-term Treasury bonds on the Fed's balance sheet also increased significantly.

**Chart: Maturity Distribution of Fed's Portfolio**

Maturity Distribution of the Federal Reserve's Portfolio, 1941-1951



Source: Extract from Fed (2003). "Targeting the Yield Curve: The Experience of the Federal Reserve, 1942-51."

Afterwards, a recession started in November 1948 and long-term interest rates declined, but then the recession ended in October 1949. When the Korean War broke out in June 1950, upward pressure on interest rates began to rise again. With the rise in market interest rates, the Fed's purchases of Treasury bonds increased, and the balance sheet started to expand.

The Treasury Department supported a policy of keeping interest rates low to facilitate funding the war. However, purchases of consumer goods began and people's inflation expectations rapidly increased in anticipation of the possible start of a wartime distribution system. As a result, the Fed wanted to raise the short-term interest rate, but the Treasury Department opposed this, leading to deepening conflict between the two.

<sup>3</sup> The market already regarded short-term interest rate pegs as unrealistic during this period, and market interest rates for instruments such as CP were on the rise. Starting at this time, the target for short-term interest rates was decided at each meeting with the approval of the Treasury Department.

◆ **Accord and bond conversion**

In the end, “it became abundantly clear during this period that the interest rate caps were hampering the Federal Reserve’s ability to achieve its monetary policy objectives, and in particular its efforts to contain rapidly rising inflationary pressures.” In other words, it came to be understood that, during a period of inflation, a dilemma is presented by debt management policy and interest rate adjustments.

As a result, an accord was signed between the Fed and Treasury Department in March 1951, with a statement saying “The Treasury and the Federal Reserve System have reached full accord with respect to debt management and monetary policies to be pursued in furthering their common purpose to assure the successful financing of the Government's requirements and, at the same time, to minimize monetization of the public debt.” In April 1951, the 2.5% long-term interest rate cap target was abolished, and then the Fed's Treasury price support policy came to an end (shifting to a “bills only” policy).

That said, the difficulty associated with the abolition of the long-term interest rate cap target was the generation of capital losses by Treasury holders due to the rise in long-term interest rates. There was a problem regarding the maintenance of the stability of the financial system—i.e., the impact on the solvency of banks and life insurers, which were the major Treasury holders at that time. Therefore, the Treasury Department absorbed most of the losses that came with the removal of the interest rate cap by exchanging marketable Treasury bonds for non-marketable Treasury bonds (bond conversion) and reducing the balance of marketable Treasury bonds<sup>4</sup>.

**Chart: The 1951 "Accord" in US**  
-- 1951 Accord --

"The Treasury and the Federal Reserve System have reached full accord with respect to debt-management and monetary policies to be pursued in furthering their common purpose to assure the successful financing of the Government's requirements and, at the same time, to minimize monetization of the public debt."

Changes in Monetary Policy after the Accord

|                                       | Before Accord   | After Accord  |
|---------------------------------------|---|---|
| Policy Implementation                 | •Maintain the cap of the bond yield   | •Stabilize prices   |
| Involvement in Government Bond Market | •Purchase the short-term government bonds at a specific rate<br>•Maintain the cap of the long-term bond yield | •Bills Only Policy<br>•Interest rate structure is formed by market forces |
| Balance Sheet                         | •Shift from the gold reserve to the government bond holding   | •Keep holding mainly the government bonds at the same amount              |

Source: Extracted from Masayoshi Amamiya (2017) "History and Theories of Yield Curve Control."

◆ **Conclusions (implications) drawn from the US version of YCC**

From history, we can ascertain that the American experience with YCC during 1942-51, in which the yield curve was managed by using an interest rate cap, can be divided into two general periods. The long-term interest rate cap target for the first five years did not face challenges due to the open-ended short-term interest rate peg and restrained inflation expectations. In short, the interest rate cap target of 2.5% was higher than the equilibrium rate in the absence of the cap, due to low expectations for future short-term interest rates.

However, in the last five years, inconsistencies between the interest rate cap target and the monetary policy target for price stability came to the surface. In other words, when short-term interest rates were hiked in line with the rise in inflation and inflation expectations, the Fed's target for the long-term interest rate cap was often threatened, forcing the Fed to buy long-term Treasury bonds, which significantly changed its balance sheet structure. According to a recent paper by the New York Fed<sup>5</sup>, “large-scale open

<sup>4</sup> In the framework, marketable long-term Treasury bonds with 2.5% coupons were exchanged for non-marketable Treasury bonds with 2.75% coupons (with a right to convert to 5-year medium-term Treasury notes with 1.5% coupons). Details of the issues related to the exit from YCC, including bond conversion, will be explained in a separate report.

<sup>5</sup> Kenneth D. Garbade (2020). "Managing the Treasury Yield Curve in the 1940s."

market operations may be required in the course of refixing, from time to time, the shape of the yield curve," which is one lesson from this policy.

In addition, due to the further increase in inflation (expectations) following the outbreak of the Korean War, the cap target was abandoned. As it turns out, market trust in pegs depends heavily on inflation expectations and future policy interest rate expectations. In other words, if inconsistency between expectations regarding future policy interest rates and target interest rates becomes apparent, the cost to sustain that framework surfaces in the form of expansion of the balance sheet.

Moreover, the major factors that brought about inflation and interest rate pressure at the time were the increase in demand due to the war and the increased issuance of Treasury bonds for procuring funds to cover the cost of the war. The Fed's monetary policy was incorporated into debt management policy, similar to how it was originally initiated to support the issuance of government bonds by the Treasury Department during the war. Therefore, there was always the possibility of a dilemma regarding price stability targets.

The yield curve is greatly influenced not only by the central bank, but also by the government's debt management policy. In order for the central bank to carry out YCC, it is necessary to always consider the government's response, and "the shape of the yield curve cannot be fixed independently of the volatility of interest rates and debt management policies" (another lesson stated in the aforementioned paper by the New York Fed).

That said, the major difference between that time and now is that low inflation and low growth (concerns about secular stagnation) have taken root, and there is a strong need for collaboration of fiscal and monetary policies. Policymakers probably need to make use of previous YCC in ongoing policy discussions, while taking account of the differences in preconditions.

In the end, the challenge of YCC lies in the withdrawal strategy. In other words, if the long-term interest rate jumps in the process of abandoning the peg system, banks will incur capital losses, which may threaten the stability of the financial system. This is an important issue when discussing the 'maturity' of government bonds whose yield targets have been set, and it can also be said to be a challenge with regard to Japan's exit from its YCC policy.

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