

# Fed Monitor

## A primer on the Fed's discussions on changing its forward guidance

### Key takeaways

- In this piece, we take a closer look at the Fed's ongoing discussions on how to strengthen its forward guidance, which we identify as the Fed's main concern, from both a theoretical and practical point of view.
- The Fed has two options: time-based (like yield curve control) or outcome-based (like an average inflation target) forward guidance (or a mix).
- We argue that the Fed is considering implementing a cap on 3yr US Treasury yields at 0.25% (the upper end of the Fed's target range), i.e. the Fed can accept the yield trading below but not above the cap.
- While the YCC policy may be successful under some key assumptions, there are also some drawbacks. The Fed may have to buy the whole market if the policy is not credible and interest rates may move higher for both good and bad reasons. In addition, the reaction function already seems well understood by investors with no rate hikes priced in over the coming years.
- In our view, outcome-based forward guidance is stronger and more positive for risk than time-based forward guidance like the 'temporary asymmetric operational inflation target range' discussed at the January meeting. The idea is to accept inflation moving above the 2% target to make up for a period with inflation below 2%.
- Overall, we expect the Fed to implement a mix of yield curve control and an average inflation target at its September meeting. We believe the Fed recognises the drawbacks of a stand-alone yield curve control policy. We consider some sort of average inflation targeting as better for risk than yield curve control policy.

### Contents

Key takeaways .....	1
Our Fed call: Mix of yield curve control and average inflation target is our base case .....	2
The Fed wants to reinforce its forward guidance .....	2
Forward guidance theory: monetary policy works through expectations.....	3
Yield curve control: stronger time-based forward guidance.....	3
Outcome-based forward guidance is more effective than time-based forward guidance .....	6
Fed comments on YCC and AIT .....	7
Historical experiences (BoJ, RBA and the Fed).....	10

#### Senior Analyst

Mikael Olai Milhøj  
+45 45 12 76 07  
milh@danskebank.dk

#### Analyst

Bjorn Tangaa Sillemann  
+45 45 12 82 29  
bjsi@danskebank.dk

#### Assistant Analyst

Anders Köhlert Larsen  
anlars@danskebank.dk

### Yield curve control – pros and cons from the Fed's perspective

#### Yield curve control - pros and cons from Fed's perspective

Main problem: The Fed wants to reinforce its forward guidance

<b>Pros</b>	<ul style="list-style-type: none"> <li>- More explicit forward guidance than the Fed's current wording</li> <li>- If credible the Fed may succeed in lowering longer-term real yields and risk premia even further</li> <li>- If credible the Fed may have to buy less bonds than with traditional QE</li> <li>- In-built exit strategy: the bonds run off the Fed's balance sheet automatically</li> <li>- Research finds that monetary policy flattening the yield curve would have made the recovery after the Great Recession faster and stronger</li> </ul>
<b>Cons</b>	<ul style="list-style-type: none"> <li>- If the policy is not credible, the Fed has to buy the whole market, i.e. 'losing control over the balance sheet'</li> <li>- The Fed's reaction function is already fully understood (no rate hikes priced in over the foreseeable future)</li> <li>- Yields may rise for good (higher expected inflation) as well as bad reasons (higher real rates and/or risk premia)</li> <li>- Monetary policy is a repeated game, i.e. if you target the 3yr yield you cannot raise the policy rate over the next 3 years, as it would make the policy less credible next time</li> <li>- Theory suggests QE works if money supply increases permanently, not temporarily.</li> <li>- Outcome-based forward guidance (like the 'temporary asymmetric operational inflation target range') is stronger than time-based forward guidance</li> <li>- Inflation expectations in Japan have not moved permanently higher after yield curve control was implemented</li> </ul>
<b>Conclusion</b>	While the YCC policy may work, there are also drawbacks and if implemented as a stand-alone policy it would probably not have a big impact.

Source: Danske Bank

## Our Fed call: a mix of yield curve control and average inflation target is our base case

In our view, based on recent Fed comments, we think the Fed is soon about to change its forward guidance. **With a probability of 50%, we expect the Fed to introduce a mix of yield curve control and average inflation targeting at the September meeting.**

As we think the Fed will come to the conclusion that outcome-based forward guidance is a more powerful monetary policy tool, **we think the likelihood of the Fed implementing average inflation targeting as a stand-alone policy is 30%. Due to the possible drawbacks of introducing only yield curve control, we think this probability is 10%.**

**We think the probability of the Fed not changing its forward guidance is 10%.**

### The Fed wants to reinforce its forward guidance

Before we can move on with the discussions on the Fed’s possible options, we must identify the problem the Fed wants to solve. **In our view, the Fed seems concerned about the strength and credibility of its forward guidance and, as a result, how effective monetary policy is.** The Fed may fear, for example, that investors will start to price in a higher probability of Fed tightening monetary policy if the positive macro surprises continue in coming months. This view is supported by a *speech made by Fed governor Lael Brainard* on 21 February 2020. Dallas Fed president Robert Kaplan and SF Fed president Mary C. Daly recently discussed forward guidance. The Fed’s current forward guidance is not very concrete, i.e. it says the target range will be maintained until the Fed *‘is confident that the economy has weathered recent events’*, see table to the right. It is not clear when the Fed think this is the case.

In *‘The New Tools of Monetary Policy’ 2020*, former Fed Chair Ben Bernanke provides an overview of research showing that explicit and strong forward guidance is a powerful monetary policy tool and that the Fed made a mistake in the immediate aftermath of the Great Recession by not making the forward guidance strong enough. This is also an essential part of the Fed’s ongoing review of its monetary policy strategy, which, unfortunately, is not concluded yet. It was for the same reason that Fed chair Powell said that the Fed is *‘not even thinking about thinking about raising rates’* and the Fed at the June meeting stated it will continue its QE buying *‘at least at current pace’* over the coming months, see *Fed Monitor: ‘Not even thinking about thinking about raising rates’*, 10 June. The median Fed dots also showed that the Fed expects to stay on hold through 2022.

**We are of the belief that the Fed wishes to remain on the cautious side by not tightening prematurely, as it wants to be sure that the recovery is robust and self-sustainable.** We believe the Fed learned three important lessons from the financial crisis:

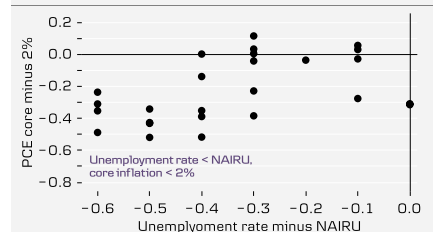
1. When the economy falls into a recession, it is better to react forcefully and quickly (i.e. a ‘better safe than sorry’ approach), see e.g. *‘Review of the Federal Reserve’s Current Framework for Monetary Policy’ (Eberly, Stock and Wright 2019)*. We think the Fed succeeded with this initially.
2. The Fed should not tighten monetary policy too early based on the experience of the ‘taper tantrum’ in 2013 and the first rate hike in December 2015.
3. Low unemployment may not be inflationary (i.e. the Phillips curve is flat) and letting the economy ‘run hot’ may actually increase long-term GDP growth potential (businesses making more capital investments and people coming back to the labour force). A demand shock can have long-lasting effects on the supply side of the

#### Current Fed forward guidance

Current Fed forward guidance	
Rates	"maintain this target range until it is confident that the economy has weathered recent events" "not even thinking about thinking about raising rates" 'dots' show no rate hike through 2020
QE	"over coming months" the Federal Reserve will buy bonds "at least at the current pace"
Overall	"will use its tools and act as appropriate to support the economy"

Source: Federal Reserve

#### The pre-corona US economy: The inflationless expansion



Note: This chart covers January 2018 to February 2020

Sources: BLS, BEA, Macrobond Financial

economy, see e.g. *IMF Working Paper: Hysteresis and Business Cycles*, 29 May. Powell recognised this point in his *speech on 25 November 2019* by saying that the ‘long expansion is now benefitting low- and middle-income communities to a degree that has not been felt for many years’. This also helps explain why the first point is so important.

**While the Fed may be concerned about the strength of its forward guidance, it seems that investors understand the Fed’s intentions.** The Fed has been very clear that it has no intention whatsoever of raising rates prematurely and accordingly investors have not priced in any rate hikes over the coming years. St. Louis Fed President Bullard argues along the same lines see *Bloomberg*. At the same time, the Fed’s unlimited, open-ended and totally flexible QE programme means that the Fed can scale the pace of bond purchasing up and down as it sees fit.

### Forward guidance theory: monetary policy works through expectations

**The theoretical foundation of forward guidance is that monetary policy works primarily through expectations,** see *Eggertson and Woodford 2003*. The current policy rate does not mean much to the real economy but expectations of future policy rates do. By using forward guidance, the Federal Reserve can reduce uncertainty about the future real interest rate level, which means lower real interest rates also further out on the yield curve. Forward guidance is especially useful when the Fed hits the effective lower bound, as it implies that the Fed cannot ease monetary policy as much as it would have done without restrictions, which makes the recovery slower and more gradual.

**By promising to keep the policy rate lower than suggested by e.g. a traditional Taylor rule during the expansion, and if credible, the recovery will be faster and stronger. The key assumption for forward guidance to be effective is that the promise is credible,** or, as Paul Krugman puts it, ‘*the central bank can credibly promise to be irresponsible*’, see *Krugman 1998*. Unfortunately, the classical ‘time inconsistency problem of monetary policy’ arises, as it may not be the case that the central bank actually lives up to its promise. This is why strong forward guidance is supposed to work better than weak forward guidance.

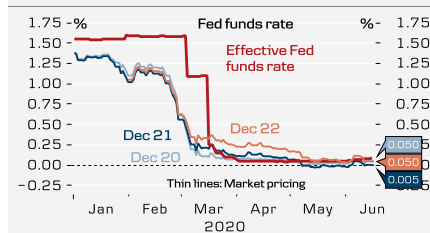
**There are two schools of thought: time-based forward guidance and outcome-based forward guidance.**

### Yield curve control: stronger time-based forward guidance

**The idea: YCC reinforces the Fed’s forward guidance**

Fed Chair Jerome Powell added fuel to the yield curve control (YCC) discussions, when in his prepared remarks at the June Fed press conference he said that ‘*Whether such an approach would usefully complement our main tools remains an open question. We will continue our discussions in upcoming meetings*’, see *transcript*. **The idea is that YCC could make time-based forward guidance more trustworthy.** In that sense, this is very different from why the Bank of Japan introduced YCC back in 2016 (see more on page 10) and more in line with what the Reserve Bank of Australia’s YCC introduced in March 2020 (see more on page 10).

### Investors seem to understand the Fed’s intentions already – no rate hikes priced in for the foreseeable future



Note: Past performance is not a reliable indicator of current or future results.

Sources: Bloomberg, Federal Reserve, Macrobond Financial

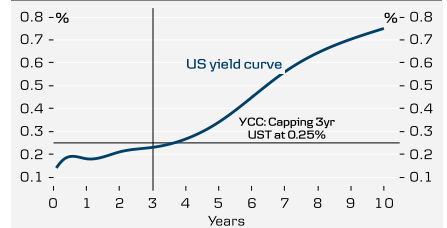
The version of YCC the Fed is likely to implement is setting a cap for medium-term interest rates (i.e. a floor under the bond price), probably for the 2-5yr segment of the yield curve – the specific horizon depends on how long the Fed thinks it will take for the economy to recover. **We believe the Fed is considering implementing a cap for the 3yr US Treasury yield at 0.25%** (see illustration to the right). We do not think the Fed will consider a very fixed interest rate peg, i.e. the Fed will accept interest rates trading below the ceiling but not above. This is different from RBA and the BoJ, which both have specific targets. As we discuss on page 7, there have not been any FOMC members, to our knowledge, out talking about targeting long-term yields, e.g. the 10yr Treasury yield. This makes sense, as the Fed's purpose would be to reinforce forward guidance, not necessarily slow QE purchases, which was why BoJ implemented YCC.

**This would be in line with the proposal put forward by Fed governor Lael Brainard, who is the leading advocate of YCC on the board, in a speech of 21 February 2020.** Brainard's idea is to cap 'rates out the yield curve for a period consistent with its expectation for the duration of the outcome-based forward guidance'. Brainard argues that it reduces uncertainty surrounding the 'traditional' QE programme regarding the scale and timeframe. By lowering medium-term interest rates, longer rates relevant for households and businesses should also fall, thereby stimulating the economy. In 'Review of the Federal Reserve's Current Framework for Monetary Policy' (Eberly, Stock and Wright 2019), the authors have simulated how the US economy would have developed after the Great Recession under different monetary policy responses. **The authors find that the recovery would have been both stronger and faster if the yield had flattened more than it did.**

**The main difference between traditional QE and YCC is that while the former is about the quantity, the latter is about the price.** Former Fed chair Ben Bernanke argues that while QE is about reducing longer-term yields by reducing risk premia, YCC should be considered as a policy signal of its commitment to keep rates low for longer, see *Brookings blog* 24 March 2016. **If the policy is credible, the Fed may not have to buy as many bonds as under QE, as investors start to factor this in when trading bonds (this was the main reason why Bank of Japan introduced YCC in 2016).** In our view, however, the political pressure on the Fed from the Republican Party not to expand the balance sheet too much has diminished under Trump's presidency and the political environment has changed a lot since QE was implemented after the Great Recession. In fact, US President Trump has been criticising the Fed for not buying enough.

**Another attractive characteristic is that YCC has a built-in exit strategy.** When the Federal Reserve fulfils its objectives and the YCC policy expires, the bonds automatically run off. Hence, there will be no discussions about when and how to begin quantitative tightening, which was not an easy task for the Fed, as we outlined in *Research US: Fed's regulatory hurdle for starting quantitative tightening*, 13 March 2017. **This, however, is not in line with the theory suggesting that QE works if it expands the money supply permanently and not only temporarily**, see e.g. *Eggertson and Woodford 2003* and *Krugman 1998*.

#### What a 3yr UST yield cap may look like



Note: Past performance is not a reliable indicator of current or future results.

Sources: Federal Reserve, Macrobond Financial

## Possible drawbacks of YCC

There are also possible drawbacks of the YCC policy, which is also the reason why the Fed has not already implemented it and needs to discuss it further. **One is, as we mentioned on page 3, the Fed's reaction function seems well understood with investors not pricing in any rate hikes in the foreseeable future.** This means that the short-term US Treasury yields are already trading below 0.25%. We have to go out to the 5yr point to find a yield significantly higher than 0.25% (trading at 0.34% at the time of writing). Why change something that already seems to be working?

In his blog post, Bernanke also explains other drawbacks of the YCC policy. **If the policy is not credible (for instance if investors think the programme may be abandoned ahead of schedule), the Fed may have to buy the whole market, as investors will sell their bonds to the Fed for a more favourable price.** Bernanke writes further that the main reason why the Fed did QE and not YCC during the Great Recession under his chairmanship was due to concerns about 'losing control of the balance sheet'. After WW2, the Fed's YCC policy forced the Fed to hold most of the Treasury bills issued, see more on page 10-11.

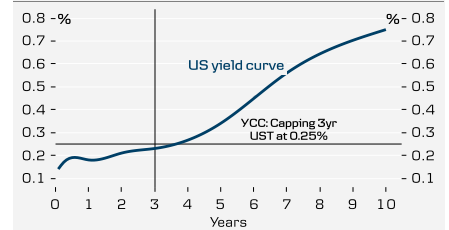
Besides the possibility of having to buy the whole market, **we also see other problems with the YCC policy. One is that interest rates may rise for good reasons as well as bad.** Basically, interest rates consist of three components: 1) real rates, 2) risk premia and 3) expected inflation. While higher real rates and risk premia are bad for the economy, higher expected inflation should be considered a good sign, as it would reflect the Fed is succeeding on its objectives. If inflation expectations rise, the Fed must, according to the YCC policy, push real rates lower, i.e. create even more inflation. This was exactly what happened when the Fed conducted YCC after the WW2, see page 10-11. If the real rate and/or the risk premia increase at the same time as expected inflation declines such that the nominal rate remains unchanged, the Fed will not have to do anything according to the YCC policy, despite monetary policy having *de facto* become more contractionary.

**Another problem is that, in our view, the YCC sends a mixed signal.** While the idea is to strengthen forward guidance, one may also interpret the policy signal more negatively: By setting a ceiling for the 3yr interest rate, the Fed is basically saying that it will take three years to fully recover from the crisis (not more, not less) and that inflation will remain low during that period. Given the high uncertainty about the macro outlook, the Fed simply does not know how long it needs to maintain the current policy stance. In that sense, **the YCC is no different from 'traditional' time-based forward guidance.** The problem with time-based forward guidance is that the Fed may have to continuously push the date further out, which was exactly what happened during the Great Recession. Negatively interpreted, this could be seen as an abandonment as its current 'whatever it takes'/'unlimited' approach.

From a game theory perspective, monetary policy should also be considered a repeated game. This means **there is no way to hike rates over the next e.g. three years even in a positive scenario if you have implemented a cap on 3yr US Treasury yields.** If the Fed hikes within three years, investors would not believe you next time you implement the YCC policy.

**Overall, we believe the Fed recognises the drawbacks of YCC and believe it is unlikely that the Fed will implement YCC as a stand-alone policy (10% probability).**

### Short-term US Treasury yields already trading below 0.25%



Note: Past performance is not a reliable indicator of current or future results.

Sources: Federal Reserve, Macrobond Financial

## Outcome-based forward guidance is more effective than time-based forward guidance

Average inflation targeting was seriously discussed pre-Corona

**In our view, outcome-based forward guidance sends a much stronger signal than time-based forward guidance.** This view is supported by e.g. *Bank of England Staff Working Paper No. 561: Threshold-based forward guidance: hedging the zero bound*, October 2015. The paper argues that outcome-based forward guidance has a built-in hedging strategy: if the recovery comes quicker than anticipated, investors can start pricing in an exit. If the recovery drags out, the forward guidance is automatically extended. This view is shared by Fed governor Mary C. Daly and Dallas Fed president Robert Kaplan, who both said they prefer outcome-based forward guidance over YCC.

**The Fed has for a while been concerned about inflation running persistently below the 2% target.** This is why the still ongoing review of the current policy framework includes many discussions on implementing some sort of ‘average inflation targeting’ (AIT), where the Fed has to make up for inflation undershooting the 2% target by overshooting for a period of time at a later stage. If credible it should lead to higher inflation expectations. One problem with the current 2% inflation target is that if 2% is considered an inflation ceiling, average inflation over the business cycle will be lower than 2%. For instance, if inflation is 1% during the downturn and 2% during the expansion, average inflation (and hence inflation expectations) would be 1.5%. By introducing AIT, bygones are no longer bygones and the Fed would have to make up for a period with too low inflation. If credible this should help anchoring longer-run inflation expectations, which remain subdued compared with the historical average. This could be interpreted as an attempt to make ‘credibly promise to be irresponsible’, as Krugman suggests.

**This is why the Fed’s discussions back in January and February (before the COVID-19 recession) on a so-called ‘temporary asymmetric operational inflation target range’ (TAOITR) are interesting in that regard,** as it is some sort of AIT. We wrote about this in more details back in February, see *Fed Monitor: Fed considers introducing a temporary asymmetric operational inflation target range*, 20 February. The idea is illustrated in the chart to the right. **We have for a long time argued that the Fed would implement some sort of average inflation targeting this year, the question is the exact formulation of it.**

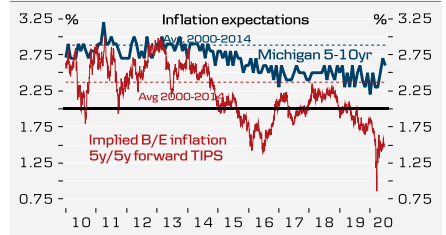
**By introducing a TAOITR, the Fed can tell market participants it will tolerate inflation moving above target without tightening monetary policy, i.e. more outcome-based forward guidance.** We believe there is a real possibility inflation may surprise to the upside due to a combination of a sharp increase in money supply and a possible rebound in money’s velocity and the Fed would like to tell market participants that they will not tighten if this turns out to be the case.

**We think the probability of the Fed implementing TAOITR as a stand-alone policy is 30%.**

Revival of the Evans rule seems unlikely

**Another alternative is a revival of the old ‘Evans rule’ linking the policy rate to the unemployment rate, which, however, we have not heard any policymaker discussing as of today and hence seems unlikely.** In December 2012, the Fed introduced the Evans rule by stating that it would be ‘appropriate’ to keep the target range at 0.00-0.25% ‘at least as long as the unemployment rate remains above 6.5%’. Historically, the Fed has been reacting more to unemployment than inflation, but the drawback is that the natural rate of

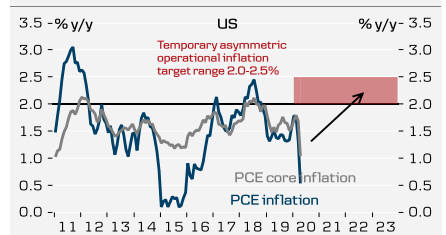
Fed has struggled with low inflation expectations for a long time



Note: Past performance is not a reliable indicator of current or future results.

Sources: Michigan, Bloomberg, Macrobond Financial, Danske Bank

Illustration: what a temporary asymmetric operational inflation target range 2.0-2.5% may look like



Sources: BEA, Macrobond Financial, Danske Bank  
Illustration based on FOMC minutes from the meeting January 2020

unemployment is unobservable in practice and the Fed may set a too high target, which means the Fed risks tightening too early. There is some truth to this. The Fed changed its threshold for the unemployment rate in December 2013, see *Timeline of Policy Actions and Communications: Forward Guidance about the Federal Funds Rate*. The Fed turned out to be tightening monetary policy without any inflationary pressure in the economy. **We would also argue central banks are better suited to target nominal variables than real variables.**

## Fed comments on YCC and AIT

**We have summarised what FOMC members have said about YCC and AIT in the two tables below.**

Not all FOMC members have expressed their views on YCC but many of the most influential members have. **The quotes show that the Fed is seriously considering implementing YCC, as it is a ‘natural complement’ to forward guidance**, as Fed vice chair Clarida puts it. NY Fed President Williams basically says the same thing. The seminal speech by Fed governor Lael Brainard reveals that the Fed considers targeting medium-term yields over the same horizon as the forward guidance. St. Louis Fed president Bullard argues, however, that given medium-term rates are already low, YCC may not have a real impact on the economy. Both Dallas Fed president Kaplan and SF Fed president Mary C. Daly seem against the idea.

**To our knowledge, no FOMC member has argued for targeting long-term rates and hence we do not expect the Fed to implement a yield cap on e.g. 10yr US Treasury yields.** This makes sense, as the Fed’s purpose is fundamentally different from the Bank of Japan, which introduced YCC in order to buy less bonds.

**Looking at comments on AIT, it seems that many FOMC members are on board (or close to it).** Many have expressed the view that inflation has run persistently below the 2% target, which has been a central part of the Fed’s ongoing policy strategy review. Based on the comments, we think it is likely that the Fed will implement outcome-based forward guidance tying the monetary policy stance to the inflation outcome.

**Based on the comments, we expect the Fed to go ahead implementing a mix of YCC and TAOITR at the September meeting. We expect the Fed to cap the 3yr US Treasury yield at 0.25% stating that the Fed will allow inflation to temporarily overshoot 2%.** The reason why we believe the Fed would not make this change already at the next meeting in July is that Fed chair Powell said the discussions will be taking place ‘in upcoming meetings’ (i.e. in plural) at the press conference, see *transcript*. **By making a combination of TAOITR and YCC, the Fed mixes both time- and outcome-based forward guidance.** One could argue, however, that TAOITR, if credible, would make YCC redundant, as markets would not price in tightening until the target has been reached, hence keeping real yields at bay. **If the Fed chooses only to go ahead with one of them, we consider TAOITR more positive than YCC.**

Recent FOMC quotes on yield curve control (YCC)

Hawkish	George	Kansas city	"I don't know"; "All those bring consequences that require a lot more conversation before I would want to advocate for them." (14 Jan 2020)	
	Rosengren	Boston	"I think we have to be open-minded about the tool set that we have, depending on the circumstances" (15 Jan 2020)	
	Mester	Cleveland	"Support for forward guidance"; "A discussion for a future phase"; "yield curve very flat at the short-end so may not be necessary to emphasise that forward guidance", (29 May 2020)	
Neutral	Harker	Philadelphia	"... may not yet be appropriate or best handled by the central bank", (19 March 2020)	
	Barkin	Richmond		
	Quarles	Board		
	Bowman (B)	Board	"Yield curve control a 'natural complement' to some possible Fed tools", (21 May 2020) "... a tool that can complement -- potentially complement -- forward guidance and our other policy actions", (27 May 2020) Fed has plenty of tools to use before tapping yield curve control (15 June) "... could involve some elements of yield curve control", (5 May 2020) "... its effectiveness still an open question.", (10 June 2020) "... forward guidance could be reinforced by interest rate caps on short-term Treasury securities over the same horizon" (21 Feb 2020) Open to discussing yield curve control but has questions, could cause distortions (15 June 2020)	
	Bostic	Atlanta		
	Clarida (B)	Vice Chair		
	Williams	New York		
	Daly	San Francisco		
	Evans	Chicago		
	Powell (B)	Fed Chair		
	Brainard (B)	Board		
	Kaplan	Dallas		
Dovish	Kashkari	Minneapolis		"It's worth analyzing the potential of yield curve control as yet another policy tool", (10 Oct 2019)
	Bullard	St. Louis		"I doubt that it would be real impactful at this stage because rates are low and expected to stay low", (27 May 2020)
Voting member		(B) Board Member		

Sources: Reuters, Bloomberg, YouTube, Yahoo, MNI, Federal Reserve,



Recent FOMC quotes on average inflation targeting (AIT)

Hawkish	George	Kansas city	<p>"My own preference would be an inflation range", commit to achieve above 2% inflation "in good times" (16 April 2019)</p> <p>"I support taking an opportunistic approach to raising inflation to our symmetric goal." (24 Feb 2020)</p>
	Rosengren	Boston	
	Mester	Cleveland	
Neutral	Harker	Philadelphia	We can implement some forms of forward guidance by letting inflation go above 2% (15 Jan 2020)
	Barkin	Richmond	Inflation-target range of 2.0-2.5% might be helpful (20 Feb 2020)
	Quarles	Board	"I would not undergo heroic efforts, including re-thinking our monetary policy framework, at significant monetary policy stimulus, in order to edge 1.8% up to 2%." If inflation sank to 1% "then you would have a different issue" (May 2019)
	Bowman (B)	Board	open to tweaking the Fed's approach to inflation including a target range (3 Feb)
	Bostic	Atlanta	
	Clarida (B)	Vice Chair	"longer-term inflation expectations were, when the downturn began, at the low end of a range that I consider consistent with our 2 percent inflation objective." (21 May)
	Williams	New York	Research paper: "the central bank can mitigate this problem of a downward bias in inflation expectations by following an average-inflation targeting framework that aims for above-target inflation during periods when policy is unconstrained" (Research paper July 2019)
	Daly	San Francisco	"the current low inflation environment expected to continue, we can once again search for the upside potential of our full employment goal." (15 June)
	Evans	Chicago	"Policymakers must recognize this and convey to the public that periods with above-target inflation are essential to achieving the dual mandate goals over the long run" (27 Feb)
	Powell (B)	Fed Chair	"We're not satisfied with inflation running below 2%, particularly at a time such as now where we're a long way into an expansion" (30 Jan)
	Brainard (B)	Board	"I prefer flexible inflation averaging that would aim to achieve inflation outcomes that average 2 percent over time." (21 Feb)
Kaplan	Dallas	"I think the 2% target is a good target" (4 Jan), prefers outcome-based forward guidance (15 June)	
Dovish	Kashkari	Minneapolis	Hints average inflation target may do more harm than good during a sharp downturn, best approach may be to stick to current 2% target but react forcefully when inflation sinks below the target
	Bullard	St. Louis	Something like average inflation targeting would "make a lot of sense" (Jan 2020)
Voting member		(B) Board Member	

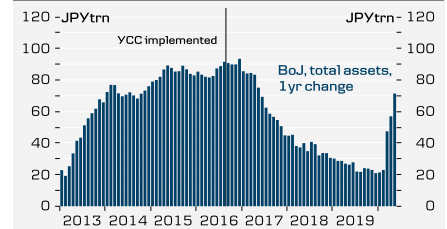
Sources: Reuters, Bloomberg, YouTube, Yahoo, MNI, Federal Reserve,

## Historical experiences (BoJ, RBA and the Fed)

### BoJ is buying fewer bonds but inflation expectations remain low

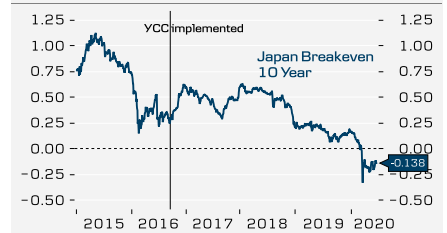
Bank of Japan (BoJ) introduced a 2% inflation target and quantitative and qualitative easing (QQE) with the entry of the new governor Kuroda in April 2013. Monetary easing was one of three pillars in the then newly elected PM Abe's plan to revive the economy. Initially the policy was a success. JPY depreciated significantly and inflation started to move up. The huge decline in oil prices in 2014 was a major setback, though, and the BoJ eventually realised the struggle to reach 2% inflation was going to be a long one. At the pace they were gobbling up JGBs, they had to find a more sustainable way to conduct monetary policy. YCC was primarily introduced out of necessity but with the hopes of realising the combination of interest rate levels appropriate for approaching the 2% inflation target, while also considering the effects on the functioning of financial intermediaries. The new policy framework consisted of two major components: the YCC in which the BoJ would control short-term and long-term interest rates; and an 'inflation-overshooting commitment' in which they committed themselves to expanding the monetary base until inflation was above 2% in a stable manner. At introduction, the BoJ's preferred inflation measure, CPI excluding fresh food, stood at -0.5%. Again, initially the implementation was a success. 10-year yields were fixed at zero and investors moved elsewhere for yield causing JPY to weaken and inflation to increase. The BoJ presented the new policy as a new and inventive tool to reach the inflation target with the title *"New Framework for Strengthening Monetary Easing"*. The annual pace at which the BoJ communicated it expected to pick up JGBs was also kept unchanged at JPY80trn and remained at that level until it was removed in April. In reality, YCC was the beginning of 'stealth tapering' and many fewer purchases have been needed to keep the yield curve in check, which was exactly the intention. In that sense the BoJ has succeeded in guiding market rates with less consequences for its balance sheet. It has never come close to hitting its inflation target, though, and with money growth declining substantially after the introduction of YCC, this is perhaps not a big surprise

### BoJ bought fewer bonds after YCC was implemented



Sources: Bank of Japan, Macrobond Financial

### BoJ has not succeed with lifting inflation expectations permanently during YCC



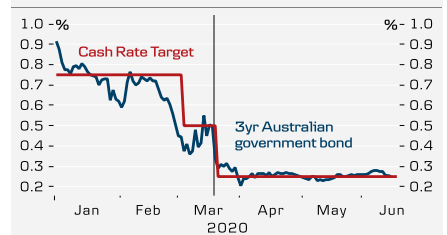
Note: Past performance is not a reliable indicator of current or future results.

Sources: Bank of Japan, Bloomberg, Macrobond Financial

### Reserve Bank of Australia has succeed with flattening the short-end of the curve

The Reserve Bank of Australia (RBA) implemented yield curve control on 19 March 2020 as a response to the corona crisis (cut by another 25bp at the same meeting). The RBA set an explicit target for 3yr Australian government bonds 'around 0.25%', see *statement*. According to the *minutes*, 'such a target would also be consistent with the expectation that the cash rate would remain at a very low level for several years', i.e. a commitment to the forward guidance. According to the minutes, the policy will remain in place until the RBA fulfils its dual mandate and that it would be 'appropriate to remove the yield target before the cash rate itself was raised'. Since the implementation, 3yr Australian government bonds has been trading around the 0.25% target and, in that sense, the RBA has succeeded with its policy.

### 3yr Australian government bond yield has been trading around the 0.25% target since the implementation of YCC



Note: Past performance is not a reliable indicator of current or future results.

Source: Macrobond Financial

### The Fed's experiences with YCC from WW2 and onwards

The Fed adopted YCC in April 1942 to support war financing, as the Fed reached an agreement with the Treasury to cap the Treasury bill yield at 0.375% and the long-term government bond yield at 2.5%, i.e. a low but relatively steep yield curve. The steep yield curve made bonds more attractive than bills from an investor perspective (also since the downside risks to the bond price was low due to the cap on short-term bill yields) and hence the Fed ended up owning a lot of bills but not many bonds. From March 1942 to August

1945, the Fed bought USD20bn worth of Treasury securities (10% of total issued). Of those USD13bn was in Treasury bills (87% of total issued), see *Cleveland Fed article*. In other words, the Fed has once tried to own a large majority of the market to fulfil the YCC policy.

When the war was over and the economy rebounded, inflation did as well. This led to investors selling their bonds to the Fed at a more attractive price, i.e. the Fed had to make monetary policy even more expansionary by pushing real rates further down. This started a conflict between the Fed, which wanted to raise short-term rates to combat high inflation, and the Treasury, which wanted to maintain low Treasury yields. In 1947, the short-term yield cap was raised, which triggered a reversal of preference of investors for bonds over bills leading to higher long-term yields, see *New York Fed*. The Fed had to buy bonds by selling (or running off) bills. The YCC policy was abandoned in February 1951.

One of most important monetary policy lessons is that monetary policy must be independent, and a conclusion from the Fed's experience in the 1940s and 50s is that it shifts power from the Fed to the Treasury, which makes it difficult to exit YYC, as government opposes higher borrowing costs. The Fed has also tried to own a large majority of a certain segment of the US Treasury yield curve. Another concern was financial stability, as banks moved out of the yield curve to get a higher return, i.e. abandoning YCC would affect bank balance sheets.

## Disclosures

This research report has been prepared by Danske Bank A/S ('Danske Bank'). The authors of this research report are Mikael Olai Milhøj, Senior Analyst, Bjørn Tangaa Sillemann, Analyst, and Anders Køhlert Larsen, Assistant Analyst.

### Analyst certification

Each research analyst responsible for the content of this research report certifies that the views expressed in the research report accurately reflect the research analyst's personal view about the financial instruments and issuers covered by the research report. Each responsible research analyst further certifies that no part of the compensation of the research analyst was, is or will be, directly or indirectly, related to the specific recommendations expressed in the research report.

### Regulation

Danske Bank is authorised and subject to regulation by the Danish Financial Supervisory Authority and is subject to the rules and regulation of the relevant regulators in all other jurisdictions where it conducts business. Danske Bank is subject to limited regulation by the Financial Conduct Authority and the Prudential Regulation Authority (UK). Details on the extent of the regulation by the Financial Conduct Authority and the Prudential Regulation Authority are available from Danske Bank on request.

Danske Bank's research reports are prepared in accordance with the recommendations of the Danish Securities Dealers Association.

### Conflicts of interest

Danske Bank has established procedures to prevent conflicts of interest and to ensure the provision of high-quality research based on research objectivity and independence. These procedures are documented in Danske Bank's research policies. Employees within Danske Bank's Research Departments have been instructed that any request that might impair the objectivity and independence of research shall be referred to Research Management and the Compliance Department. Danske Bank's Research Departments are organised independently from, and do not report to, other business areas within Danske Bank.

Research analysts are remunerated in part based on the overall profitability of Danske Bank, which includes investment banking revenues, but do not receive bonuses or other remuneration linked to specific corporate finance or debt capital transactions.

### Financial models and/or methodology used in this research report

Calculations and presentations in this research report are based on standard econometric tools and methodology as well as publicly available statistics for each individual security, issuer and/or country. Documentation can be obtained from the authors on request.

### Risk warning

Major risks connected with recommendations or opinions in this research report, including as sensitivity analysis of relevant assumptions, are stated throughout the text.

### Expected updates

None

### Date of first publication

See the front page of this research report for the date of first publication.

## General disclaimer

This research has been prepared by Danske Bank A/S. It is provided for informational purposes only and should not be considered investment, legal or tax advice. It does not constitute or form part of, and shall under no circumstances be considered as, an offer to sell or a solicitation of an offer to purchase or sell any relevant financial instruments (i.e. financial instruments mentioned herein or other financial instruments of any issuer mentioned herein and/or options, warrants, rights or other interests with respect to any such financial instruments) ('Relevant Financial Instruments').

This research report has been prepared independently and solely on the basis of publicly available information that Danske Bank A/S considers to be reliable but Danske Bank A/S has not independently verified the contents hereof. While reasonable care has been taken to ensure that its contents are not untrue or misleading, no representation or warranty, express or implied, is made as to, and no reliance should be placed on, the fairness, accuracy, completeness or reasonableness of the information, opinions and projections contained in this research report and Danske Bank A/S, its affiliates and subsidiaries accept no liability whatsoever for any direct or consequential loss, including without limitation any loss of profits, arising from reliance on this research report.

The opinions expressed herein are the opinions of the research analysts and reflect their opinion as of the date hereof. These opinions are subject to change and Danske Bank A/S does not undertake to notify any recipient of this research report of any such change nor of any other changes related to the information provided in this research report.

This research report is not intended for, and may not be redistributed to, retail customers in the United Kingdom (see separate disclaimer below) and retail customers in the European Economic Area as defined by Directive 2014/65/EU.

This research report is protected by copyright and is intended solely for the designated addressee. It may not be reproduced or distributed, in whole or in part, by any recipient for any purpose without Danske Bank A/S's prior written consent.

## Disclaimer related to distribution in the United States

This research report was created by Danske Bank A/S and is distributed in the United States by Danske Markets Inc., a U.S. registered broker-dealer and subsidiary of Danske Bank A/S, pursuant to SEC Rule 15a-6 and related interpretations issued by the U.S. Securities and Exchange Commission. The research report is intended for distribution in the United States solely to 'U.S. institutional investors' as defined in SEC Rule 15a-6. Danske Markets Inc. accepts responsibility for this research report in connection with distribution in the United States solely to 'U.S. institutional investors'.

Danske Bank A/S is not subject to U.S. rules with regard to the preparation of research reports and the independence of research analysts. In addition, the research analysts of Danske Bank A/S who have prepared this research report are not registered or qualified as research analysts with the New York Stock Exchange or Financial Industry Regulatory Authority but satisfy the applicable requirements of a non-U.S. jurisdiction.

Any U.S. investor recipient of this research report who wishes to purchase or sell any Relevant Financial Instrument may do so only by contacting Danske Markets Inc. directly and should be aware that investing in non-U.S. financial instruments may entail certain risks. Financial instruments of non-U.S. issuers may not be registered with the U.S. Securities and Exchange Commission and may not be subject to the reporting and auditing standards of the U.S. Securities and Exchange Commission.

## Disclaimer related to distribution in the United Kingdom

In the United Kingdom, this document is for distribution only to (I) persons who have professional experience in matters relating to investments falling within article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the 'Order'); (II) high net worth entities falling within article 49(2)(a) to (d) of the Order; or (III) persons who are an elective professional client or a per se professional client under Chapter 3 of the FCA Conduct of Business Sourcebook (all such persons together being referred to as 'Relevant Persons'). In the United Kingdom, this document is directed only at Relevant Persons, and other persons should not act or rely on this document or any of its contents.

## Disclaimer related to distribution in the European Economic Area

This document is being distributed to and is directed only at persons in member states of the European Economic Area ('EEA') who are 'Qualified Investors' within the meaning of Article 2(e) of the Prospectus Regulation (Regulation (EU) 2017/1129) ('Qualified Investors'). Any person in the EEA who receives this document will be deemed to have represented and agreed that it is a Qualified Investor. Any such recipient will also be deemed to have represented and agreed that it has not received this document on behalf of persons in the EEA other than Qualified Investors or persons in the UK and member states (where equivalent legislation exists) for whom the investor has authority to make decisions on a wholly discretionary basis. Danske Bank A/S will rely on the truth and accuracy of the foregoing representations and agreements. Any person in the EEA who is not a Qualified Investor should not act or rely on this document or any of its contents.

**Report completed:** 16 June 2020, 23:19 CEST

**Report first disseminated:** 17 June 2020, 06:45 CEST