THE RISK MANAGEMENT ASSOCIATION

FOCUS ON THE NEGATIVES:

BANKS' ASSESSMENT OF THE POTENTIAL FOR A U.S. NEGATIVE RATES POLICY – AND THEIR PREPAREDNESS

Executive Summary

Financial firms think negative rates in the U.S. are unlikely; nevertheless, they perceive the risk is high enough to warrant advance preparation. Still, preparedness varies widely and substantial work remains to be done.

The Risk Management Association is proud to present the highlights of its *U.S. Negative Rates Survey* of 47 financial firms, conducted in June and July.

How likely is a negative rates policy in the next two years?

Unlikely:

70% of respondents think the probability of a negative rates policy is below 10%.

But if it did happen…

- Small steps: If the Federal Reserve were to lower its target rate below zero, 65% of respondents believe that the initial move would be incremental, to just below 0%.
- Yield curve: In the event of a negative rates policy, 54% expect a steeper yield curve and 24% a flatter one.
- Credit spreads: Sixty percent expect that a negative rates policy would be accompanied by credit spread widening.
- Unintended consequences: When asked to name the five most likely unintended consequences of a negative rates policy, respondents' top choices were excessive risk-taking and asset bubbles (67%) and adverse impact on the financial sector (62%).
- Cost of liquidity: Sixty-seven percent of respondents expect that the cost of maintaining liquidity will rise under a negative rates policy.

Are firms ready for negative rates?

NO

Just 16% of respondents said that they would be ready to operate in a negative rates environment now, rising to 71% by six months, 91% by one year, and 100% by 18 months out.

Firms need time: Seventy-four percent of respondents said that they expect that the Fed would provide lead time before implementing a negative fed funds rate.

Respondents found it unlikely that there would be a negative rates policy in the U.S. because…

- **The Fed is against it.** Federal Reserve Chairs have consistently stated that negative rates policies are not under consideration.
- **Results in other economies have been mixed.** European and Japanese negative rates policies are perceived to have had a lackluster impact in stoking confidence and aggregate demand.
- **It would decrease banks' interest margins and disincentivize credit creation.** Negative rates are perceived to compress net interest margins because banks are reluctant to pass negative rates to depositors. Reduced earnings would, in turn, decrease lending capacity.
- **It would be difficult for the financial industry to manage.** Operational factors such as systems and legal contracts that do not envisage negative rates would hinder financial firms' ability to manage with rates below zero, at least in the short run.
- **Money Market Funds are too important.** Non-bank financial institutions are more important to the money markets in the U.S. than they are in Japan or Europe and Money Market Funds' par-value "guarantee" is an obstacle to negative rates in the short run.
- **Legislation would be required.** Negative interest rates would require substantial Congressional action, starting with an amendment of the 2006 act that allowed payment of interest on reserves.
- **It could harm the status of the dollar.** Negative interest rates might erode or destabilize the "Safe-Haven Currency" status of the U.S. dollar.

But respondents also said that a negative rates policy cannot be ruled out altogether because…

- **The Fed hasn't said "never."** Fed statements do not rule out negative rates always and everywhere.
- **Other central banks have already adopted negative rates.** Europe and Japan have desensitized managers to crossing the psychological barrier of negative rates.
- **The Fed has introduced negative rates in CCAR.** For the biggest banks, i.e., the "CCAR" banks, stress-testing scenarios have incorporated negative rates since 2016.
- **Obstacles are not permanent.** Current legal and operational impediments could be overcome, given time.
- **The markets sometimes price in negative rates.** Fed Fund Futures have traded at negative-implied rates episodically in 2020.
- **A negative rates policy might address other weaknesses in the monetary policy toolkit.** Some monetary policy thinkers see reasons why negative rates might be superior to quantitative easing over the long run.

The consensus is that a negative rates policy is a low-probability, high-impact risk.

How should firms prepare?

- ✓ **Conduct a formal assessment of readiness for a negative rates environment.**
- ✓ **Ensure that third-party vendors are prepared.**
- ✓ **Establish a remediation plan, where needed.**
- ✓ **Reinforce clear responsibilities for specific areas – and ownership of problems – should rates go negative.**
- ✓ **Identify opportunities for cost-effective preparation work that can be done in advance.**
- ✓ **Refresh or begin negative rates scenario analysis.**

"We asked financial firms to think about the improbable:
negative interest rates in the world's biggest economy and financial system,"
said Fran Garritt, Director, Securities Lending and Global Markets Risk,
The Risk Management Association.

"They told us that it's not likely, but also not impossible. Even a slight chance of such an upheaval makes it **essential for banks to be prepared, but our survey shows that they are not."**

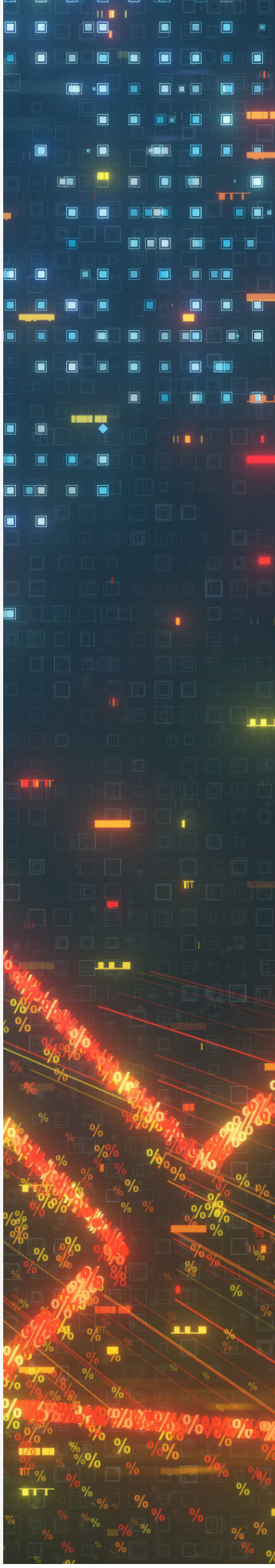
"RMA will continue to work alongside our members to be ready in case the unthinkable becomes the inevitable."

Introduction

The *U.S. Negative Rates Survey* originated in discussions at the RMA Global Markets Risk Council in March 2020 as coronavirus uncertainty dominated the markets and the Federal Open Markets Committee took the Fed Funds Target Rate to the effective zero rate "floor." Council members concluded that a survey covering the potential for a U.S. negative rates policy, the probable industry impact, and financial firms' readiness to operate in a negative rates environment would be valuable to the industry. The primary conclusion of the survey is that the probability of a negative rates policy remains low but is not trivial. Financial firms would therefore do well to consider the implications of negative rates and assess their preparedness to manage in a negative rates environment.

- Section 1 of this paper covers the historical context leading up to the current question of negative interest rates during the coronavirus recession.
- Section 2 covers the structure and content of the RMA U.S. Negative Rates Survey. Firms' assessment of the probability of a U.S. negative rates policy has drawn the most interest in the survey.
- The reason firms consider the possibility of such an outcome unlikely but not trivial were stated in the executive summary and are explored in detail in Section 2.1, which also covers potential impacts on markets and liquidity.
- Section 2.2 covers firms' preparedness and expected management actions.
- Section 2.3 covers firms' modeling and scenarios under assumptions of negative rates.

The takeaway is that financial firms should consider the implications of negative rates and their preparedness to manage in a negative rates environment.



Section 1: Historical Context

In December 2008, with the mortgage crisis at its height, the Federal Open Markets Committee lowered the Federal Funds Target Range (FFTR) to the "zero floor" for the first time in history, adopting a 0-25bp range. That target range rested unperturbed for seven years. For the duration, the Fed disavowed any potential for a negative rates policy, but even the distant prospect presented a necessary and practical question to financial services firms.

In that period, the central banks of Japan, Sweden, Denmark, Switzerland, and the European Union's euro-currency area initiated experiments with negative rates. These were aimed at stoking aggregate demand, mitigating upward pressure on currency values, or both. Meanwhile, in the U.S., despite massive quantitative easing, economic expansion remained relatively slow through mid-decade and made it difficult to dismiss the question of negative rates altogether.

Only when the Fed reduced its expansionary bias, raising the FFTR off the zero floor for the first time in December 2015, did the U.S. negative rates question begin to recede. By year-end 2018, the FFTR was at 2.25-2.50% and the financial industry had all but put the question to bed. (See Chart 1 and Table 1 for the FFTR data for this period.)

CHART 1: US FED FUNDS TARGET RANGE (DECEMBER 2008 TO PRESENT)

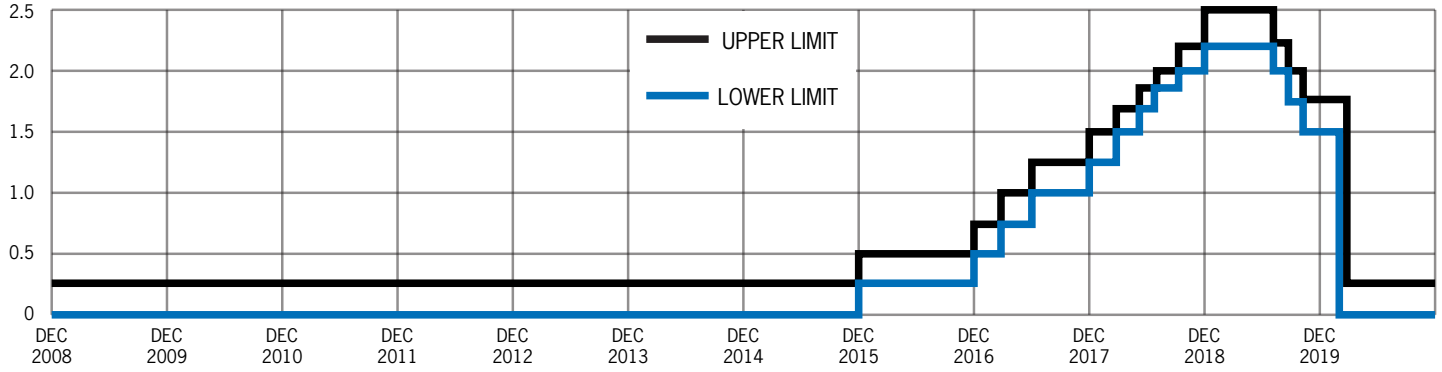


TABLE 1: FOMC FED FUNDS TARGET RANGE ACTIONS (DECEMBER 2008 TO PRESENT)

FOMC Action Date	Action	Lower Limit	Upper Limit
16-Dec-2008	-1.00	0.00	0.25
17-Dec-2015	+0.25	0.25	0.50
15-Dec-2016	+0.25	0.50	0.75
16-Mar-2017	+0.25	0.75	1.00
15-Jun-2017	+0.25	1.00	1.25
14-Dec-2017	+0.25	1.25	1.50
22-Mar-2018	+0.25	1.50	1.75
14-Jun-2018	+0.25	1.75	2.00

FOMC Action Date	Action	Lower Limit	Upper Limit
27-Sep-2018	+0.25	2.00	2.25
20-Dec-2018	+0.25	2.25	2.50
1-Aug-2019	-0.25	2.00	2.25
19-Sep-2019	-0.25	1.75	2.00
31-Oct-2019	-0.25	1.50	1.75
3-Mar-2020	-0.50	1.00	1.25
16-Mar-2020	-1.00	0.00	0.25

The respite was only temporary. By August 2018, GDP growth was faltering and inflation remained persistently below the Fed's 2% target. The FOMC began to cut rates again.

Symbolically, in September 2019, as if poking the negative rates "sleeping giant," the U.S. President publicly tweeted in support of rates cuts and alluded to negative rates.

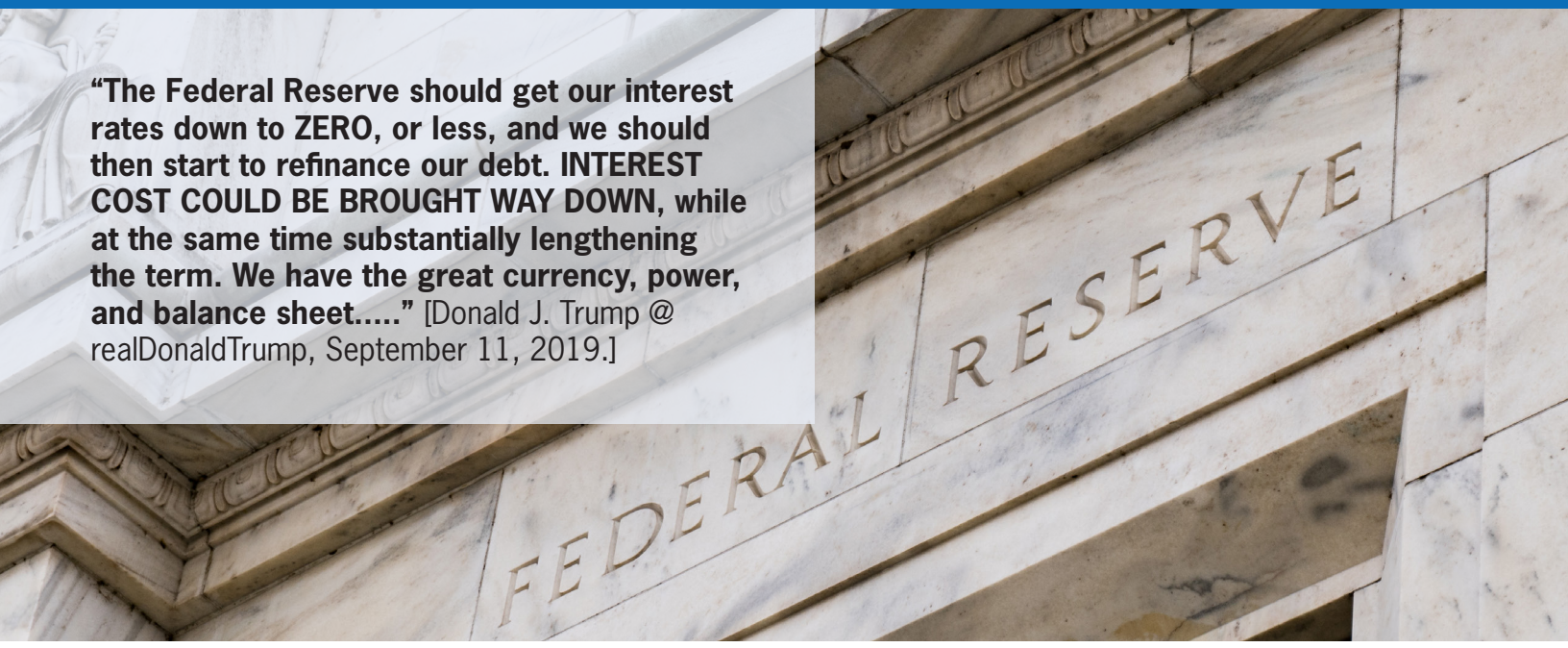
Notwithstanding the president's prodding, the negative rates question only returned in earnest in March 2020. By that time, the coronavirus pandemic's power to disrupt the economy had become clear. On March 3, the FOMC cut the FFTR by 50 basis points (bps) to 1.0-1.25%. The FOMC acted again off-cycle on March 16, cutting by 100bps and returning the target to the effective "floor" of 0.00-0.25bps. With rates pinned at zero and an undeniable recession underway, the question of negative rates was once again a pressing one.

It is true that Fed Chairman Jerome Powell and his predecessors have bluntly and explicitly stated that the Fed does not see the need to implement a negative rates policy. They argue that existing monetary tools are adequate to address current conditions: near-zero rates, aggressive quantitative easing, and expanded use of forward guidance. Moreover, there is evidence from negative rates regimes in Europe and Japan that negative rates policies have been ineffectual and may even be counterproductive. For these and other reasons discussed below, there is a strong industry consensus that the probability of a negative FFTR is very low.

Still, the probability of negative rates is not taken to be trivial. Most industry players think that it is a plausible low-probability, relatively high-severity risk for which financial services firms should be prepared.

In this light, the Risk Management Association launched the present *U.S. Negative Rates Survey*.

"The Federal Reserve should get our interest rates down to ZERO, or less, and we should then start to refinance our debt. INTEREST COST COULD BE BROUGHT WAY DOWN, while at the same time substantially lengthening the term. We have the great currency, power, and balance sheet....." [Donald J. Trump @ realDonaldTrump, September 11, 2019.]



Section 2: The RMA U.S. Negative Rates Survey

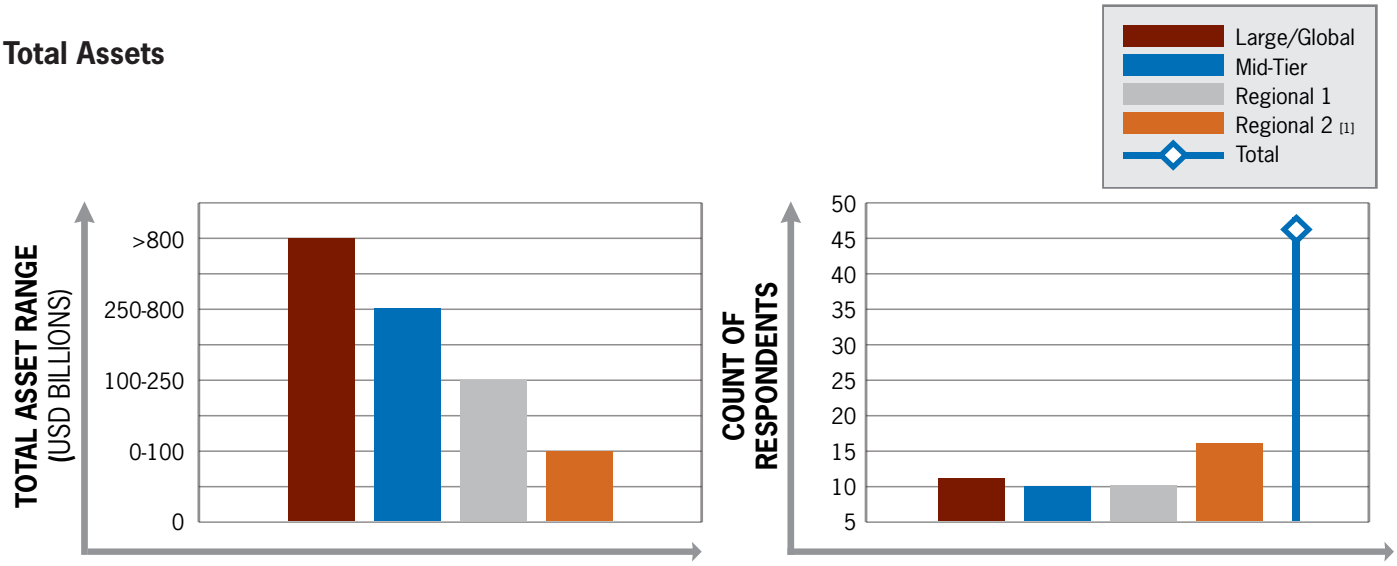
Following on the Global Markets Risk Council's decision to undertake a U.S. Negative Rates Survey, RMA staff set to developing the survey questions with the help of the Council members. They distributed the survey questions to RMA member firms on June 9. Participants responded in writing through the end of July. The RMA team collated the responses in August and held additional discussions with key participants to clarify points made in the survey and to confirm appropriate emphases, themes, and judgments.

The current paper is the result of these efforts. Special thanks go to all 47 member banks who answered promptly and robustly and to those who provided clarifications in August and September.

Respondent Profile

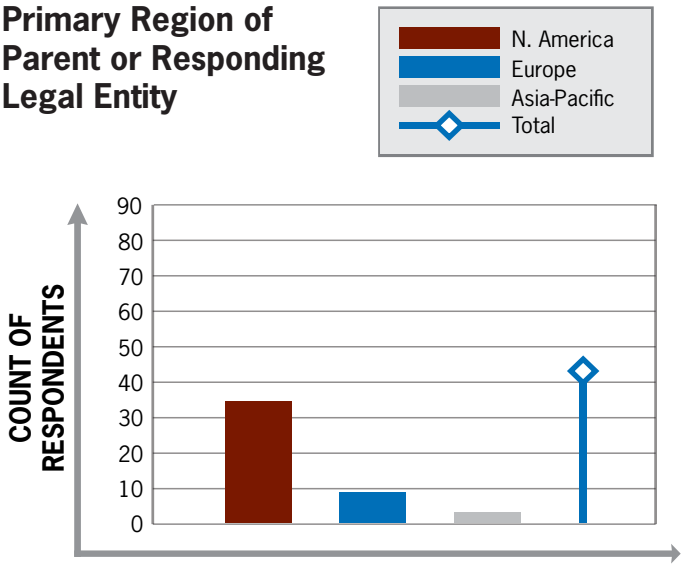
The 47 firms fall into the following classifications by asset size and region of parent's primary domicile.

Total Assets



[1] "Regional 2" denotes Small Regional plus Community Banks.

Primary Region of Parent or Responding Legal Entity



Survey Topics Covered

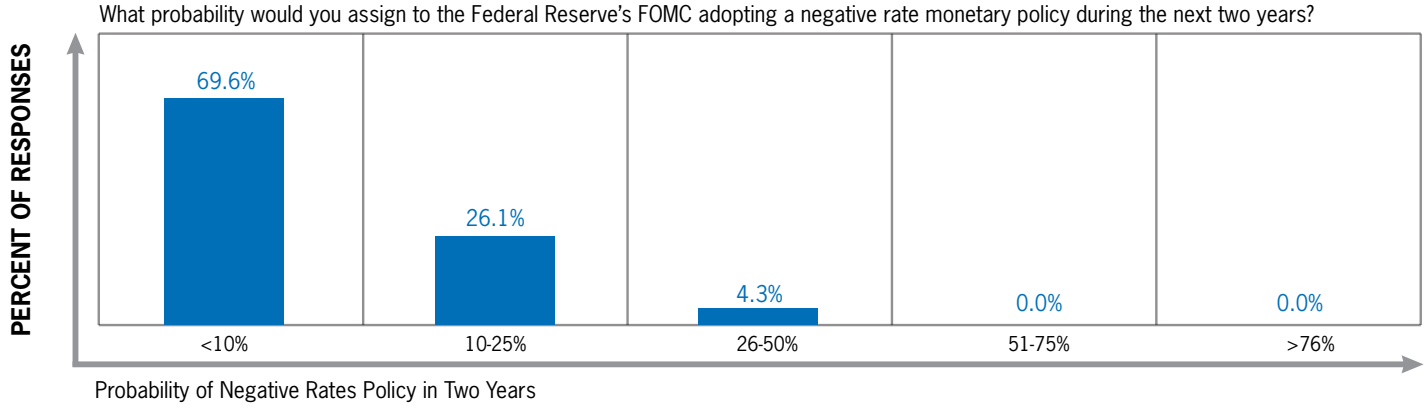
The survey questions address negative rates from three main perspectives:

- Assessments of the Probability of a Negative Rates Policy and Expected Market and Liquidity Impacts (Section 2.1)
- Firms' Preparedness and Expected Management Actions (Section 2.2)
- Firms' Modeling and Scenarios under Assumptions of Negative Rates (Section 2.3)
- The final section covers recommendations for action.

Section 2.1: Assessments of the Probability of a Negative Rates Policy and Expected Market and Liquidity Impacts

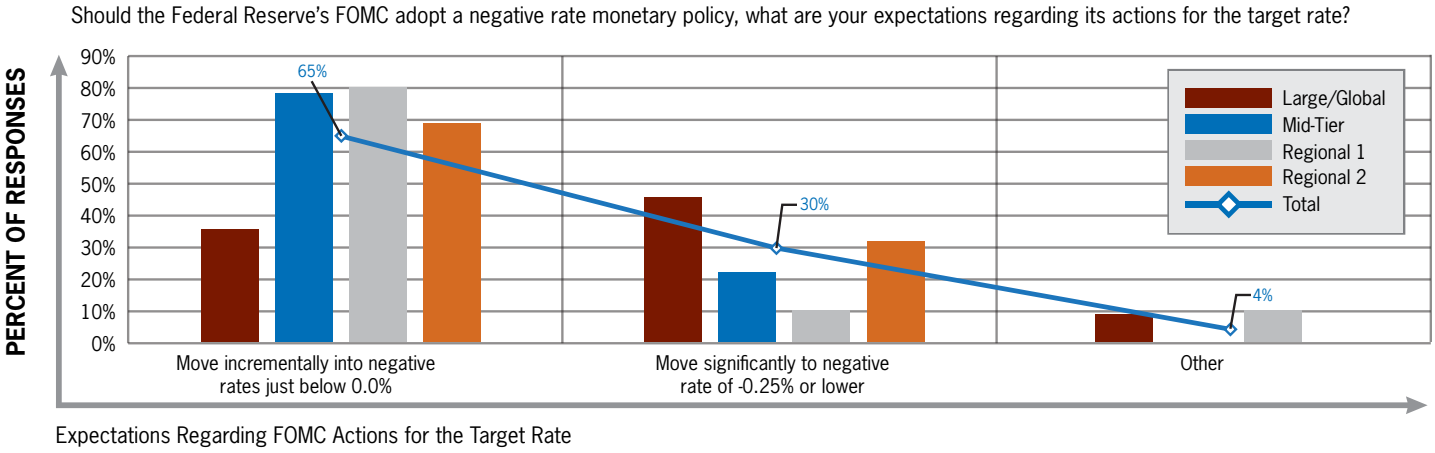
The probability of a negative rates policy is thought to be low. Survey responses reveal a strong consensus that the Federal Reserve is unlikely to pursue a negative rates policy in the next two years. Seventy percent of respondents think the probability of a negative rates policy is below 10%. A further 26% think the probability is between 10% and 25%.

CHART 2: PARTICIPANT ASSESSMENT OF PROBABILITY OF A NEGATIVE RATES POLICY WITHIN TWO YEARS



In addition, the majority of participants expect the Fed to proceed cautiously if it were to decide to take the FFTR below zero. Sixty-five percent of respondents believe that the initial move would be incremental, to just below 0%, versus 30% who say the Fed would move to a rate of -25bps or lower.

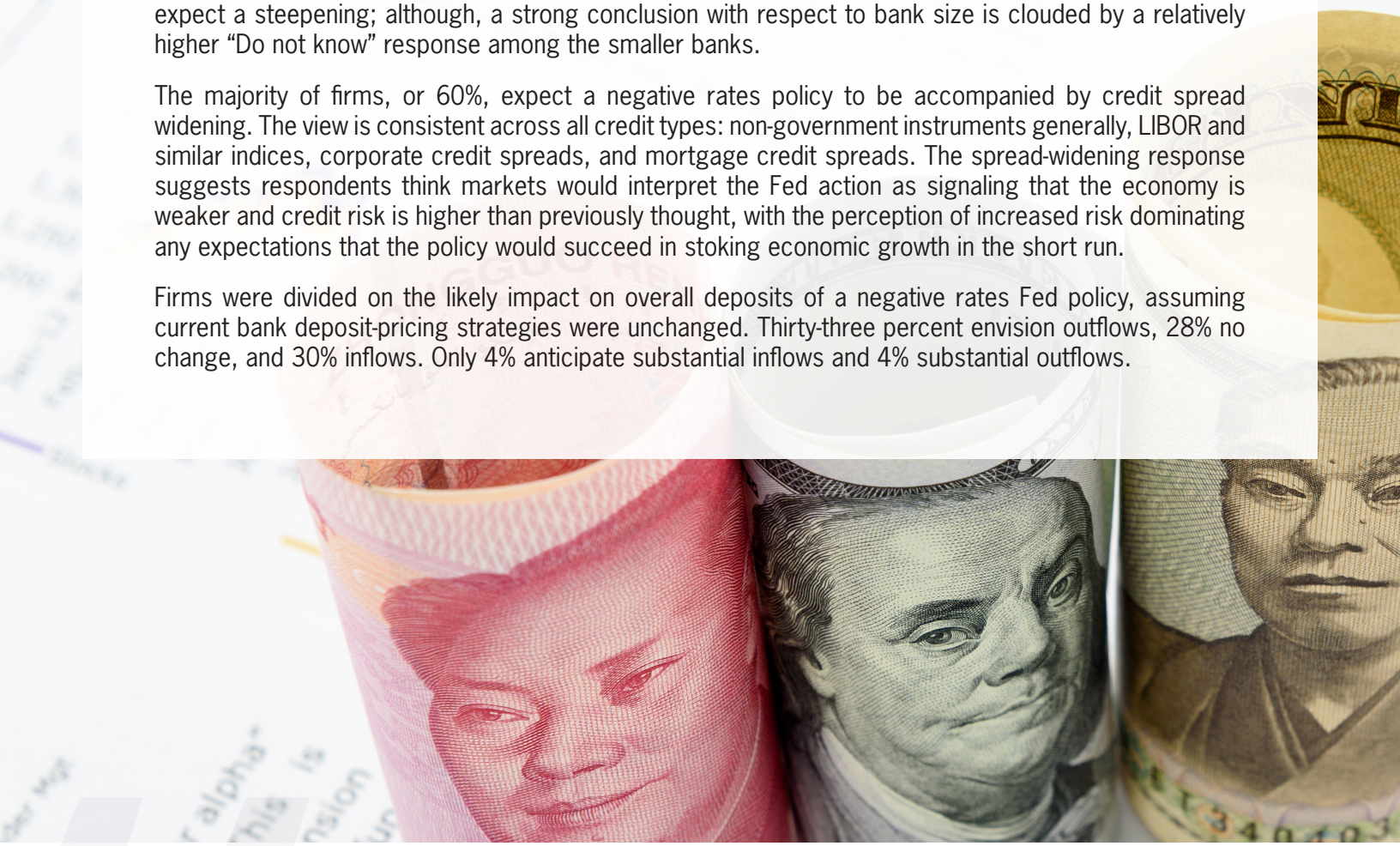
CHART 3: PARTICIPANT EXPECTATIONS OF SIZE OF FED MOVE UPON ADOPTING NEGATIVE RATES POLICY



In the event of a negative rates policy, the majority of respondents, or 54%, expect a steepening of the yield curve. Their reasoning is generally based on the expectation that the Fed policy would be effective in fostering expectations of increased inflation and/or growth. In contrast, 24% expect a flattening. Their reasoning is generally based on the expectation that a negative rates policy would signal that the economy was weaker than the markets expected or that in tandem with a negative rates policy, the Fed might engage in open market operations to keep an adequate term spread to support bank net-interest margins (NIMs), capital accumulation, and credit creation. Proportionally more large and mid-tier Banks expect a steepening; although, a strong conclusion with respect to bank size is clouded by a relatively higher "Do not know" response among the smaller banks.

The majority of firms, or 60%, expect a negative rates policy to be accompanied by credit spread widening. The view is consistent across all credit types: non-government instruments generally, LIBOR and similar indices, corporate credit spreads, and mortgage credit spreads. The spread-widening response suggests respondents think markets would interpret the Fed action as signaling that the economy is weaker and credit risk is higher than previously thought, with the perception of increased risk dominating any expectations that the policy would succeed in stoking economic growth in the short run.

Firms were divided on the likely impact on overall deposits of a negative rates Fed policy, assuming current bank deposit-pricing strategies were unchanged. Thirty-three percent envision outflows, 28% no change, and 30% inflows. Only 4% anticipate substantial inflows and 4% substantial outflows.



"The majority of firms, or **60%**, expect that a **negative rates policy** would be accompanied by credit spread widening."

Top Five Unintended Consequences of a Negative Rates Policy:

Respondents were asked to choose their top five most likely "unintended consequences" of negative rates from a list of 18 possible choices. The top five choices across all responses are the following:

1. Excessive risk-taking, asset bubbles as investors search for yield (67%)
2. Adverse impact on financial sector - reduced profitability, increased solvency risk, contraction of sector (62%)
3. Misallocation of economic resources due to market distortions (49%)
4. Disincentive to correct fiscal imbalances or implement fiscal/structural reforms to foster long-term growth (49%)
5. Increase in inequality as savers are penalized and borrowers are rewarded (47%)

Interpretations of the Assessments Concluding the Probability of Negative Rates Is Low

Before moving on to other findings we pause to explore in additional depth the reasoning that underlies firms' assessment of the probability of negative rates, and that argues against dismissing the risk altogether.

01

Federal Reserve Board Explicit Communications

Chairman Powell has stated explicitly that a negative rates policy is not necessary and that the existing Fed toolkit is adequate to manage the COVID-19 downturn. In his June 16, 2020 Humphrey-Hawkins Testimony to the Senate, he stated, "In the case of negative rates, we've pretty much decided that it's not something we think is attractive for us here in the United States." Powell's statements are consistent with the comments of former FRB Chairs Janet Yellen and Ben Bernanke and are supported by the public statements of other current and past Fed governors.

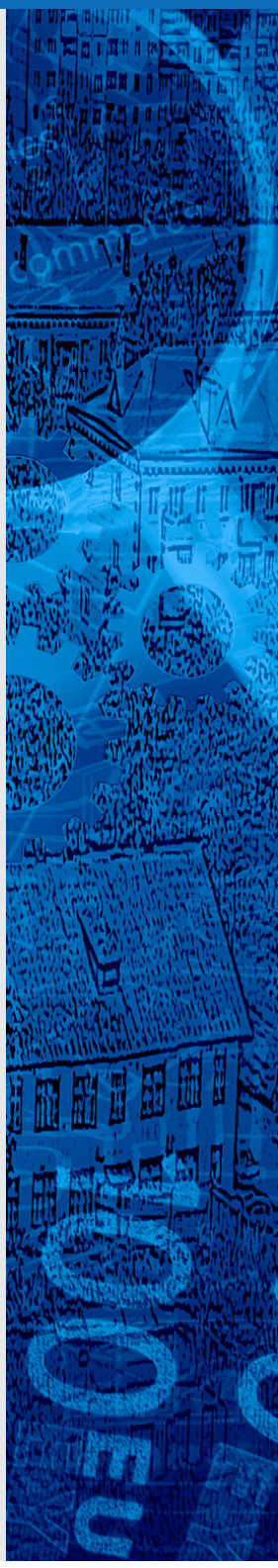
The consistent line of reasoning is that the array of current Fed monetary policy tools is adequate. That array consists of three categories:

(a) prolonged zero/near-zero short-term rates,

(b) quantitative easing (QE), and

(c) longer-term forward guidance on rates and inflation expectations.

The statements are highly credible. The Fed took an aggressive stance with its forward guidance in August 2020 and it is reasonable to expect a relatively long period before the policy's efficacy can be judged. Moreover, sizable room remains under the limits for existing quantitative easing programs, so that there is not even a hint that the current toolkit can be exhausted in the short-to-medium terms. In addition, expansionary fiscal policy remains another preferable option; albeit, in the U.S. Congress's remit, not the Fed's.



02

Lackluster Impact in Europe and Japan from Negative Rates Policies and Perceived Contribution to Financial Institution Instability

The Central Bank of Japan has pursued a negative rates policy since January 2016. The Eurozone has had negative rates since June 2014. Switzerland, Sweden, and Denmark have pursued negative rates as well. Several survey respondents commented that negative rates have had only modest impact on aggregate demand growth in these countries, well below expectations. These commenters suggest that there is a degree of regret in some of the current negative rates regimes particularly because of ongoing challenges to achieve an "orderly exit" from negative rates absent robust growth.[1]

Going further, several commenters posit a causal relationship between lackluster economic performance and negative rates. They argue that crossing the "psychological barrier" of the zero-interest floor destabilized rather than stabilized consumer and business confidence. In this line of thinking, a negative rates policy in the U.S. could be perceived as a signal that the Fed's expectations are below the market's, depressing rather than increasing confidence. For these reasons, the argument runs, the Fed will continue to prefer other, existing monetary policy tools until their efficacy is demonstrably exhausted. A variant of this causal argument is that low- and negative rates policies may be perceived as contributing directly to future financial institution instability, which, in turn, suppresses confidence and prolongs the time to recovery. (See, e.g., Goldberg, et al., 2020).

03

Pressure on Bank Profitability Working against Credit Creation

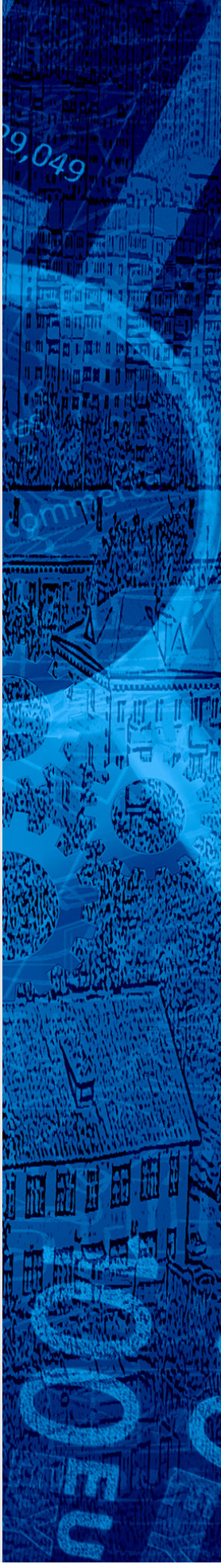
Some respondents highlighted that the Fed will certainly take into consideration that negative rates would suppress banks' net interest margins, particularly if the retail depositors (and some institutional depositors) retain the option to hold cash or notional-guaranteed demand deposits. In the European and Japanese cases, they argue, lower NIM earnings resulted in slower capital accumulation, constraining banks' abilities to extend new credit, directly counteracting the intent of the negative rates policy. A recent Federal Reserve Bank of San Francisco article re-emphasizes this conclusion. (See Beauregard and Spiegel 2020.)

From this perspective, the very viability of negative rates as a tool to stoke aggregate demand is called into question, suggesting a further reason that the Fed would be reluctant to engage in a negative rates experiment of its own.

04

U.S. Bank Operational Impediments

A number of participants think that operational challenges decrease the likelihood the Fed would pursue negative rates. They hold that, at a minimum, these challenges push out any practical timeline for implementation. Operational concerns include systems, quantitative models, contracts, and customer/fiduciary considerations. These challenges are understood to be surmountable with time, but they constitute risks and uncertainties that would increase transitional volatility and work against any potential Fed inclination toward negative rates in the short run.



[1]It is important to distinguish as a separate class those cases where a negative rate policy was adopted primarily to prevent further appreciation in the currency, i.e., in Switzerland, Denmark, and Sweden.

Some participants comment on the particular challenges of the Interbank-Offered-Rate (IBOR) transition. Comments ran nearly 50-50 on whether negative rates would delay IBOR transition. Some commenters pointed out the IBOR transition has increased their bank's self-knowledge and control of systems in the interest-rates space. For example, inventories of rates-sensitive instruments, systems, and models provide a ready-made framework to deal with negative rates in an orderly way. In contrast, some commenters hold that the prospect of SOFR going negative adds a substantial challenge for an already extremely complicated and labor-intensive initiative.

05

Money Fund $1 NAV "Guarantee"

A large non-bank financial services sector distinguishes the U.S. market from Europe and Asia. In particular, Money Market Funds (MMF) play a substantial role in the U.S. short-term funding market as buyers of T-bills and short-dated, high-quality financial and corporate sector instruments. The distinguishing factor of these funds is the return-of-principal "quasi-guarantee." MMFs might be able to navigate short-lived modestly negative rates, i.e., they would keep investors whole and absorb losses temporarily. This is plausible in the short run, as many firms would be motivated to support profitable multi-product relationships or merely to survive short episodes until rates return to normal levels. However, in the event of substantial and sustained negative rates, the $1 Net Asset Value (NAV) promise becomes problematic. In some overseas jurisdictions, MMFs have addressed negative rates by keeping NAV at par and decrementing the number of shares held by each investor via a "reverse distribution mechanism" or RDM.[2] Such practices could be adopted in the U.S., but would require significant legal and operational work that would be complicated by the diversity of state jurisdictions that govern Money Market Funds. Moreover, to the extent that banks did not impose negative rates on deposits, e.g., on retail deposit accounts, Money Market Funds that adopted an RDM would become an unattractive alternative, roiling the money market as we know it.

Sixty-seven percent of respondents expect that the cost of maintaining liquidity will rise under a negative rates policy. More than 60% of survey respondents say that, in the event of a negative rates policy, the likely outcome would be a decline in MMF assets under management. MMFs' disengagement from the primary market and disgorgement of assets would induce higher volatility in the short-term funding market, causing the Fed to increase its own asset purchases. For this reason, many respondents feel that MMFs represent a material factor essentially prohibiting a negative rates policy, unless and until economic conditions were to become dire. Some respondents countenance the possibility of a managed, long-term, and fundamental restructuring of the market should the Fed seriously contemplate negative rates, but that restructuring is thought to be longer term and, therefore, unlikely within the two-year time frame of the survey question.

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[2]Alex Roever, et al, "Short-Term Fixed Income 2H20 Update: Once more unto the breach," JMorgan North America Fixed Income Strategy. 19 June 2020.

06

Federal Reserve, Government Sponsored Entity and U.S. Treasury Legal and Operational Factors

Several participants point out that that a negative rates policy would require Congress to amend existing Federal Reserve-related law. The Financial Services Regulatory Relief Act of 2006 empowered the Federal Reserve to pay interest on reserves, but refers only to depository institutions receiving interest on reserves, not paying it. This has been identified by the Fed and industry players as a legal obstacle to rates going negative. The obstacle is surmountable, but requires Congress to act.

In addition, under current law the Government Sponsored Entities (GSEs), which include Fannie Mae, Freddie Mac, and the 12 Federal Home Loan Banks (FHLBs) do not receive interest on the reserves they place with the Federal Reserve. These entities are, as a group, the largest providers of liquidity to banks in the overnight funds market. If the Fed were to set interest rates below zero on banks' Fed-held reserves, the GSEs' and FHLBs' reserves would be exempt, absent a change in the law. As an alternative to paying negative interest rates on funds lent overnight to banks, the GSEs and FHLBs would be incentivized to place reserves at the Fed. Disregarding whether the payment of interest on GSE and FHLB reserves is a desirable policy, it is notable that to change current practice would require legal, administrative and, possibly, technology changes, all of which require non-negligible effort.[3]

Finally, operational issues at the Fed may also present obstacles. The Fed disclosed during the prior zero-rates experience that existing Fed bank-reserve and Treasury auction systems would require enhancements to accommodate negative rates. (See e.g., Burke, et al., 2010.)

Survey participants who commented on these seven factors tend to see them as blocking a negative rates policy in the short run. Moreover, the fact that the Fed has not taken steps to resolve them (at least publicly) is evidence that U.S. authorities are not yet laying the practical groundwork for negative rates. (Though, it must be conceded that the lack of public discussion might equally be inspired by the desire to avoid signaling any lack of confidence in the current toolkit.)

07

The U.S. Federal Reserve and Treasury May Be Reluctant to Risk Eroding or Destabilizing the "Safe-Haven Currency" Status of the U.S. Dollar

The "Safe-Haven Currency" status of the U.S. dollar complicates the evaluation of a negative rates policy in the U.S. In normal rates environments, when U.S. rates are reduced, all others held equal, the market response is a depreciation of the dollar. Modest depreciation is manageable, and may have positive secondary effects on trade and finance balances. However, to the extent that negative rates were taken as a signal that the economy were in dire straits, or the banks and money market institutions were destabilized due to structural rigidities impeding the adaptation to a negative rates environment, then financial contagion might infect the global economy more broadly. In the long run, the "Safe-Haven" status of the U.S. dollar might well be in question, placing at risk a portion of the cheap-funding benefits and geopolitical leverage that accrue to the reserve currency. While this sequence is not a certain outcome of negative rates, a number of commentators feel that the uncertainty is enough to warrant extreme reluctance on the part of the Fed to experiment with negative rates.

[3]Whether or not it would be a desirable policy to pay interest, positive or negative, on the reserves of the GSEs and FHLBs is a central question but beyond the scope of this survey. The implications are of fundamental significance for the functioning of the short-term funding market. Regardless of the assessment of desireabily, for a negative rates policy to succeed operationally, the magnitude of the GSE and FHLB question implies that a longer-term restructuring of markets and institutions would be required.

Reasons why firms believe the probability of a Negative Rates Policy is NOT trivial

Many comments accompanying the survey responses indicate that firms do not dismiss the possibility of negative rates altogether. The reasons are complex, but fall into these categories: (1) Fed statements do not rule out negative rates always and everywhere, (2) Europe and Japan have blazed the trail, (3) CCAR scenarios already incorporate negative rates and underscore the possibility is real, (4) Current legal and operational impediments are not necessarily permanent but can be resolved with time, effort, and transformation of the markets, (5) Fed Fund Futures have traded at negative implied rates, (6) Some serious monetary policy thinkers see reasons why negative rates might be superior to other existing tools over the long run.

01

The Federal Reserve Has Never Explicitly Ruled Out Negative Rates for All Times and Circumstances.

While *current* conditions do not warrant a negative rates policy, survey participants recognize that the Fed's negative rates aversion is not immutable, but could change with changing conditions.

Consistent with this point, several survey participants expressed the caveat that further severe deterioration in economic conditions could change the Fed's preferences. In subsequent discussions, virtually all participants could foresee some plausible, if unlikely, combination of scenarios that would change the probability of a negative rates policy. For example, the most commonly identified scenario was a combination of a failure to develop a coronavirus vaccine by early 2021 overlain by an additional (currently unforeseen) demand shock, e.g., due to domestic political or geopolitical instability. Participants emphasized that such a scenario is improbable, but not to be dismissed altogether.

02

Europe and Japan Have Set a Precedent

That other major players outside the U.S. have crossed the zero-rate floor admits of the possibility of a negative rates policy in the U.S. as well. The reality of negative rates in Europe and Japan has served to "climatize" financial services professionals to what otherwise might have been a psychological barrier. This desensitization is most at work among managers in large and global institutions whose firms have operated in negative rates environments. Admittedly, the mere existence of negative rates regimes is not a strong argument that the U.S. will follow. As many participants question the efficacy of negative rates in the existing "experiments," analysis is more likely than not to argue against negative rates. Nevertheless, any binary, psychological barrier to negative rates is not as strong now as it once might have been.

03

CCAR Supervisory Scenarios Have Incorporated Negative Rates since 2016.

In 2016 the Federal Reserve introduced the assumption of negative rates into the Comprehensive Capital Adequacy and Review (CCAR) process. Among the macroeconomic variable stresses in the Fed-defined "supervisory severely adverse scenario," short-term U.S. Treasury rates were taken to negative 50bps for the nine-quarter projection period. While CCAR scenarios do not indicate a Fed monetary-policy preference for negative rates, the CCAR process did serve as a step toward "climatizing" the largest banks to the possibility of a negative rates environment sometime in the future. CCAR banks' experience of projecting the impact of sustained negative rates has been instrumental in fostering critical reflection on what negative rates would mean. Of course, too much should not be made of the CCAR influence on the industry at large, since only the very largest banks are subject to it.[4]

04

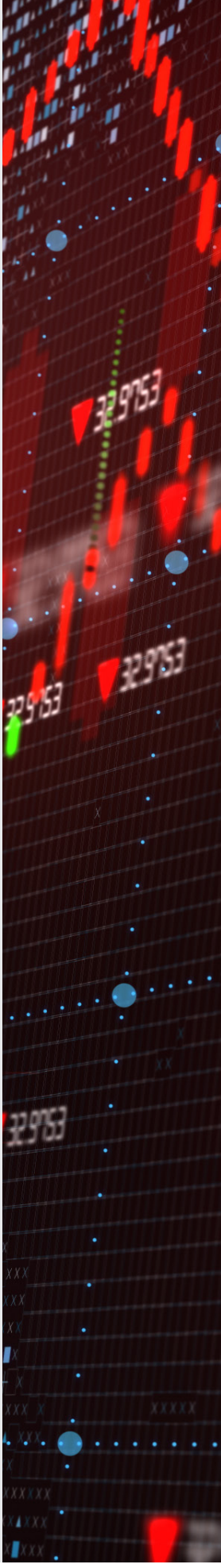
Legal and Operational Impediments Are Not Seen as Permanent but Are "Navigable."

Most survey participants felt that the legal and operational issues are surmountable with reasonable time and effort. It is true that some see these outright obstacles for the short run and a few for the medium term. It is also clear that the issues are of even existential importance for specific players, e.g., Money Market Funds. However, survey participants tend to reason that impediments can be addressed and the market can adapt given enough time. Specifically, as we shall see in subsequent sections, some firms have identified the gaps in their own processes, systems, and client communications and are planning to close those gaps in the future.

05

The Futures Market Has Experienced Recent Episodes of Negative Implied Fed Funds Rates

Since May 2020, CME/CBOT Fed Fund Futures have flashed implied negative rates, on-again, off-again, for 2021 and 2022 settlements. The first foray into negative territory culminated on May 7 when contracts for June and July 2021 settlement closed at negative 3bps. (Chart 4 below.) The low point for the year across all contracts was negative 6.5bps at the end of July for contracts settling in July 2022 and nearby. Some commenters see these empirical, negative-implied Fed Funds Rates as evidence that the probability of future negative rates is not trivial.[5]



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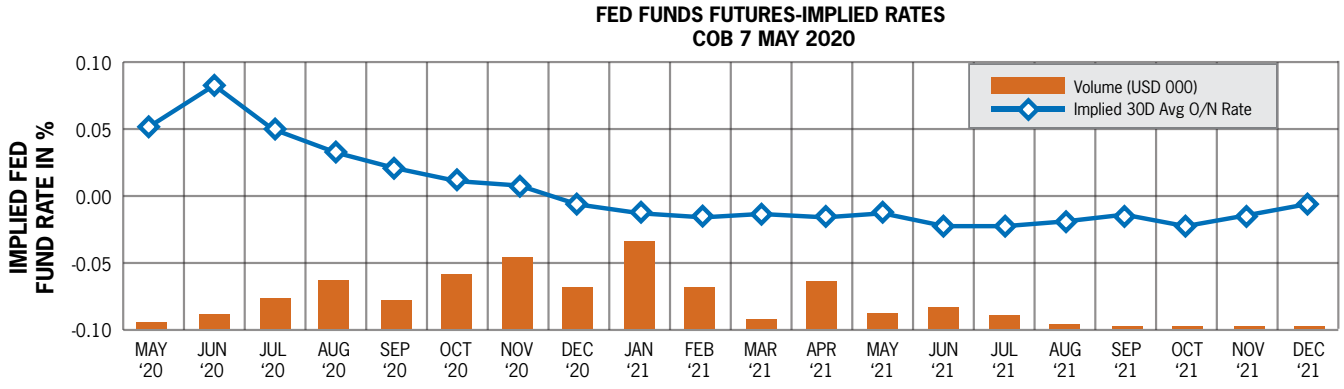
[4]For an interesting analysis of CCAR banks' projections under negative rates CCAR scenarios, see Arseneau (2020).
[5]Caution must be placed on the interpretation of negative forward rates. Contrary to the "Expectations" theory of the yield curve, the "Market Segmentation" and "Liquidity Preference" theories would suggest that such readings are poor measures of expectations but rather may be either temporary increases in the premium to hedge resulting from an imbalance between hedgers (e.g., banks with large floating rate loan portfolios) and hedge suppliers, or the results of technical, speculative trading.

CHART 4: CBOT FUTURES-IMPLIED AVERAGE FED FUND RATES

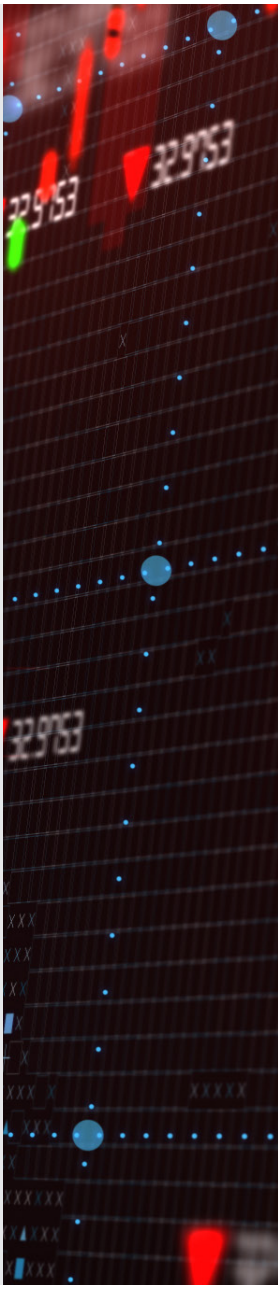


	MAY '20	JUN '20	JUL '20	AUG '20	SEP '20	OCT '20	NOV '20	DEC '20	JAN '21	FEB '21	MAR '21	APR '21	MAY '21	JUN '21	JUL '21	AUG '21	SEP '21	OCT '21	NOV '21	DEC '21
Volume (USD 000)	10.30	23.12	44.51	60.74	32.09	65.47	78.67	45.57	99.82	45.38	13.22	49.49	17.12	22.17	14.29	3.587	1.051	1.625	0.009	0.031
Implied 30D Avg O/N Rate	.052	.075	.045	.030	.020	.015	.010	-.010	-.015	-.020	-.020	-.025	-.025	-.030	-.030	-.025	-.020	-.025	-.020	-.010

06

Certain Theorists Advocate for Negative Rates as Superior to Current Monetary Tools, Especially Federal Reserve Asset Purchases

The operational, legal, and market-structure issues and the interpretation of the efficacy of the European and Japanese experiences are well covered in the body of academic and regulatory research. We have touched on these above. Still, a final point may well animate the negative rates debate in the months and years ahead. Some academic economists advocate for serious preparation of the monetary system and the financial services industry to operate under negative rates in order to increase Federal Reserve options for alternatives to quantitative easing. (See, e.g., Rogoff 2019). This line of thinking emphasizes concern with the continuing expansion of the Federal Reserve balance sheet and warns against the temptation for active credit allocation subject to political interference. The concern was given additional impetus with the introduction of the Primary and Secondary Market Corporate Credit Facilities in March 2020. Under these facilities the Fed is empowered to purchase corporate credit instruments and related exchange traded funds. While the argument will play out over a longer term than the two-year window of the current survey, it may well be the fuel to keep the negative rates debate on the front burner if the post-coronavirus recovery is slow and necessitates ongoing, large-scale quantitative easing.



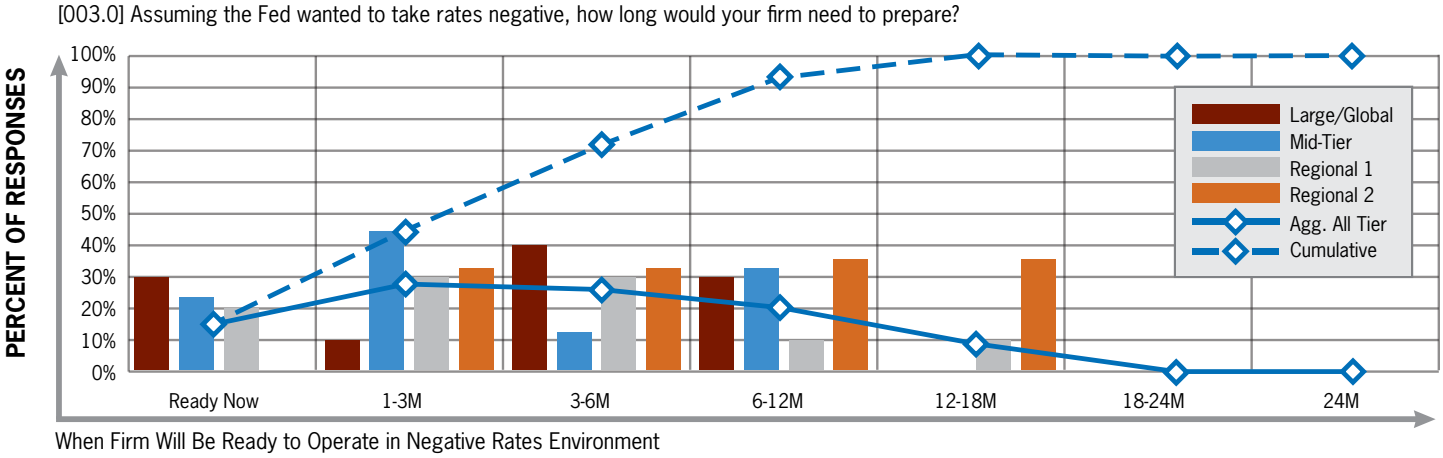
Section 2.2 Firms' Preparedness and Expected Management Actions

The second major group of questions in the U.S. Negative Rates Survey dealt with firms' preparedness for a negative rates environment. Responses show that the degree of preparedness varies widely. No firms feel completely ready and a material number of firms might need to scramble should a negative rates environment be adopted suddenly.

Seventy-four percent of respondents said that they expect that the Federal Reserve would provide lead time prior to implementing a negative Fed Funds Rate or IOER, but estimates of such lead time varied widely and 32% of respondents answered "not sure of timeline."

Sixteen percent of firms said that they would be ready to operate in a negative rates environment now, with an additional 75% ready in under one year. (See Chart 5.)

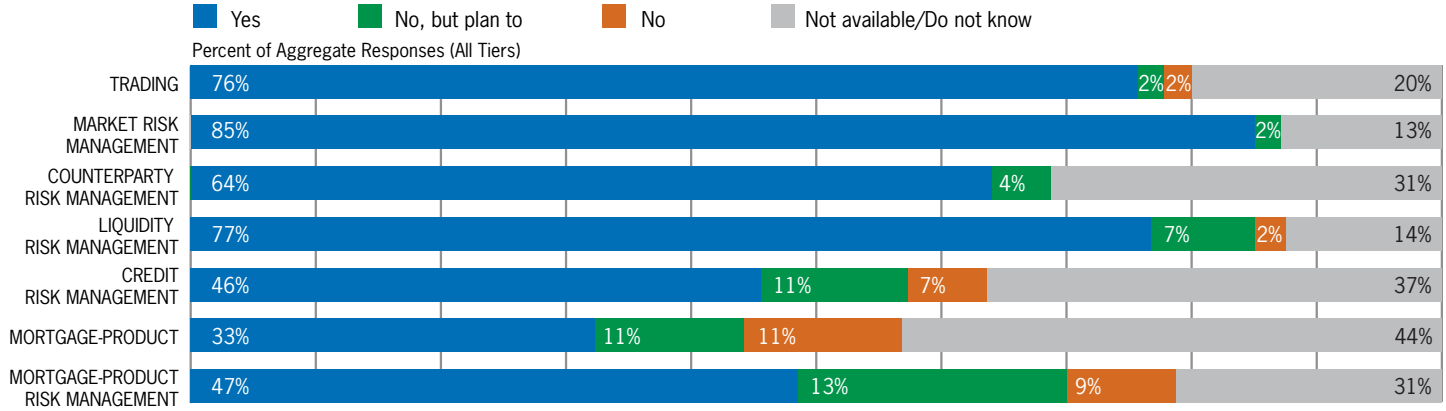
CHART 5: TIME NEEDED TO PREPARE FOR NEGATIVE RATES ENVIRONMENT



Regarding loan systems readiness, 48% of respondents report that their loan systems can handle existing zero index floors on Floating Rate Loans, while 17% say they have plans to address the gap. The remainder responded "No" or "Not available/Do not know."

Regarding other major information systems, Trading, Market and Liquidity Risk, and Counterparty Risk Management systems appear to be best placed for negative rates, while considerable work may be needed in Credit Risk Management and Mortgage Product Systems.

CHART 6: CAPACITY OF SYSTEMS TO ACCOMMODATE NEGATIVE RATES

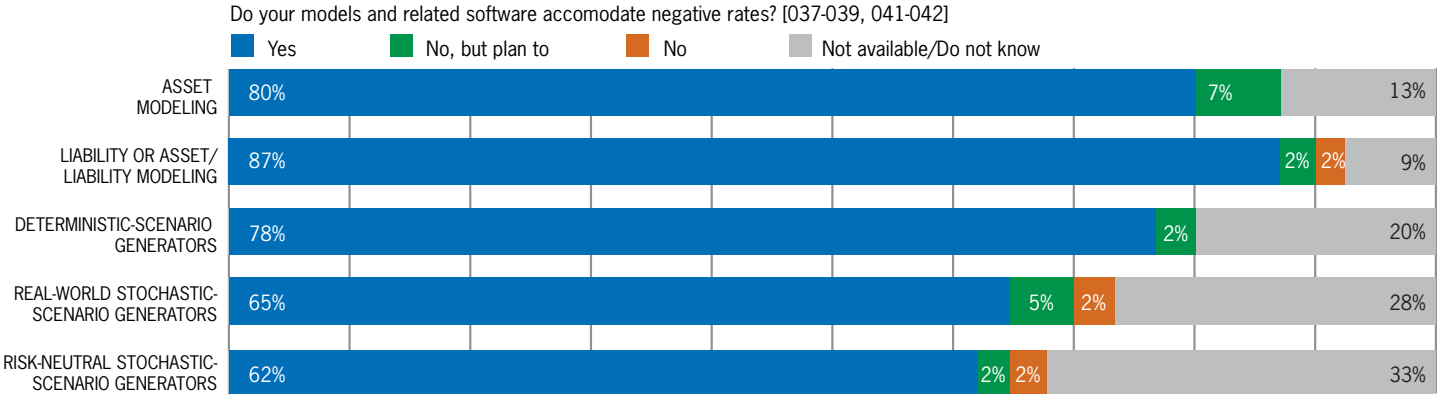


Finally, regarding the comfort level with the degree to which existing legal contracts accommodate negative rates, a plurality of 49% said that "In some instances" their legal contracts cover negative rates adequately. The remaining answers predominantly showed even less confidence. From these results and from follow-up discussions with several participants, it is clear that legal contracts are an area where firms would do well to undertake a systematic assessment and to plan to address gaps. At a minimum, firms face an opportunity to ensure new contracts are well designed to address negative rates. To the greatest extent possible, firms should also consider establishing a forward plan to remediate existing contracts and/or to identify and manage through the associated residual risks.

Section 2.3 Firms' Modeling and Scenarios under Assumptions of Negative Rates

A third part of the U.S. Negative Rates Survey addressed participants' modeling and scenarios. This area appears to be an area of strength for many firms. Sixty-two percent of firms report active current use of negative interest rates in their asset/liability modeling and 69% report having used them in the past year. In addition, survey participants report relatively robust capabilities in the modeling domain, with greater than 60% answering positively with respect to their models' and related software's ability to handle negative rates across five classes of models and scenarios. *(See Chart 7)*

CHART 7: CAPACITY OF MODELS AND MODELING SOFTWARE TO ACCOMMODATE NEGATIVE RATES



Separately, with regard to substantive assumptions about interest rate levels, firms disclosed practices that vary across firms. Generally, 59% of firms report having a floor on how low negative rates can go, when they use negative rates in their scenarios. Quantitatively, floors vary widely, with -100bps the most frequent answer (41%) and -50bps (12%) second.

Regarding negative rates reinvestment assumptions, 36% of respondents stated that their reinvestment assumptions do not prevent or limit the purchase of assets with negative yields. Twenty-three percent said they do, with no plans to change the assumptions. A further 9% said they do not prevent the purchase, but plan to establish restrictions.

Regarding interest paid/received on posted collateral, 38% said they do have floors, 2% said they do not but plan to implement them, and 24% said they do not have floors, with, presumably, no plans to change the assumption.

Regarding the modeling of exchange rates shifts that would be driven by a change to a U.S. negative rates policy, only 16% report modeling such impact and 11% report plans to do so. Participants also note the USD response will be highly dependent on the type of event that was the proximate trigger of the decision to pursue negative rates, on the relative macroeconomic performance of other countries, and on the policy responses of other central banks.

Recommendations for Action

How financial institutions will be affected by a negative rates policy depends on their size and business mix. Nonetheless, RMA concludes that financial firms should actively consider some fundamental points for potential action.

01

Consider a Formal Assessment. Firms should consider establishing a thorough assessment of their readiness for a negative rates environment. The probability of a negative rates policy may be low, but it is not negligible. For many firms it probably ranks above a handful of the risks already being actively managed.

The survey questions herein provide a starting point for a "table of contents," including

a. Deposit and Other Product Pricing Strategy and Tactics

b. Funding and Liquidity Strategy and Tactics

c. Systems Readiness

d. Valuations, Methodologies, Readiness

e. Risk Modeling and Metrics Accuracy and Readiness

f. Stress Testing Accuracy and Readiness

g. Legal Contracts Accommodation

h. Fiduciary Responsibilities, including Customer Disclosure and Education

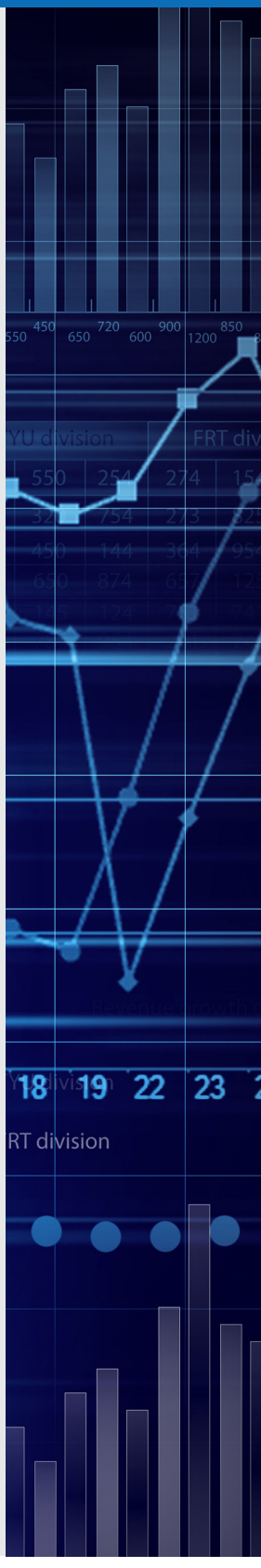
i. Third-party Vendor Preparedness

LIBOR transition projects may provide a useful framework for negative rates preparedness. The inventory of rates-sensitive instruments, valuation engines, systems, etc., are valuable assets in the project management toolkit.

The assessments, of course, should go beyond the present survey and should be adapted to the specifics of your firm.

02

Establish a Remediation Plan, Where Needed. To the extent that the assessment identifies material gaps with reasonable probability of causing pain, a project plan should be established to close those gaps. It is understood that there are competing priorities, particularly addressing risks inherent in the coronavirus pandemic event at large. The plan clearly needs to balance the risks and returns on these competing priorities and to leverage resources already dedicated to related topics.



03

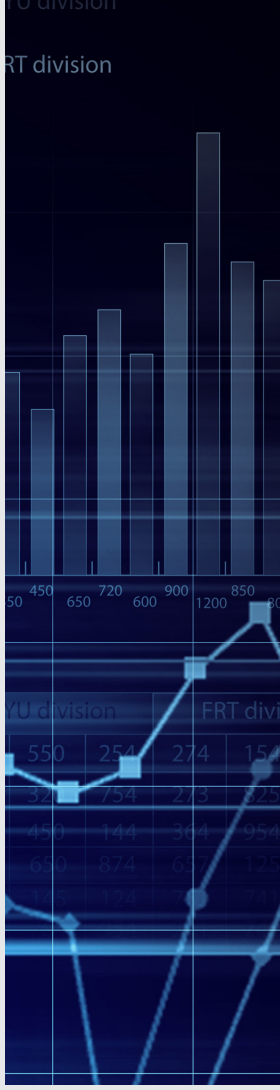
Reinforce Clear Responsibilities for Specific Areas and Ownership of Problems (Seen and Unforeseen) Should Rates Go Negative. The surest way to handle any event badly is to leave responsibilities poorly defined. First, senior managers must provide oversight and effective challenge. Asking the right operatives the right questions now will channel energies more effectively in any event. Second, while firms may choose to do more or less remediation planning at this time, the bare minimum preparation would be to ensure that the right people are aware that they own the risks in their areas and are on notice to manage effectively should rates go negative.

04

Identify Opportunities for Cost-Effective Front Work. Identify the events or intelligence that would trigger the firm to act. Where the probability is high that substantial effort would be required to remediate gaps and the timelines for execution would be compressed, firms should prepare execution plans in advance. For example, several firms commented that fiduciary responsibilities are poorly defined with respect to negative rates. If the probability of a negative rates policy were to increase, firms will probably want to communicate to customers how negative rates would affect them. Firms would do well to explore circumstances under which this is necessary, and develop the messages and communication plans.

05

Refresh or Initiate Negative Rates Scenario Analysis. Ensure that negative rates are incorporated into your scenario analyses. As with any risk, the utility of doing so is two-fold. First, the substantive information regarding the potential size of the risk and the points of strengths and weaknesses is invaluable for management and governance. Second, the very process of compiling scenario analysis is a disciplined approach to intelligence-gathering on process-, system- and model-readiness which, in turn, should feed into risk assessment and remediation planning.



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