Financial Sector

Nonbank financial intermediation, financial sector stability, and policy implications

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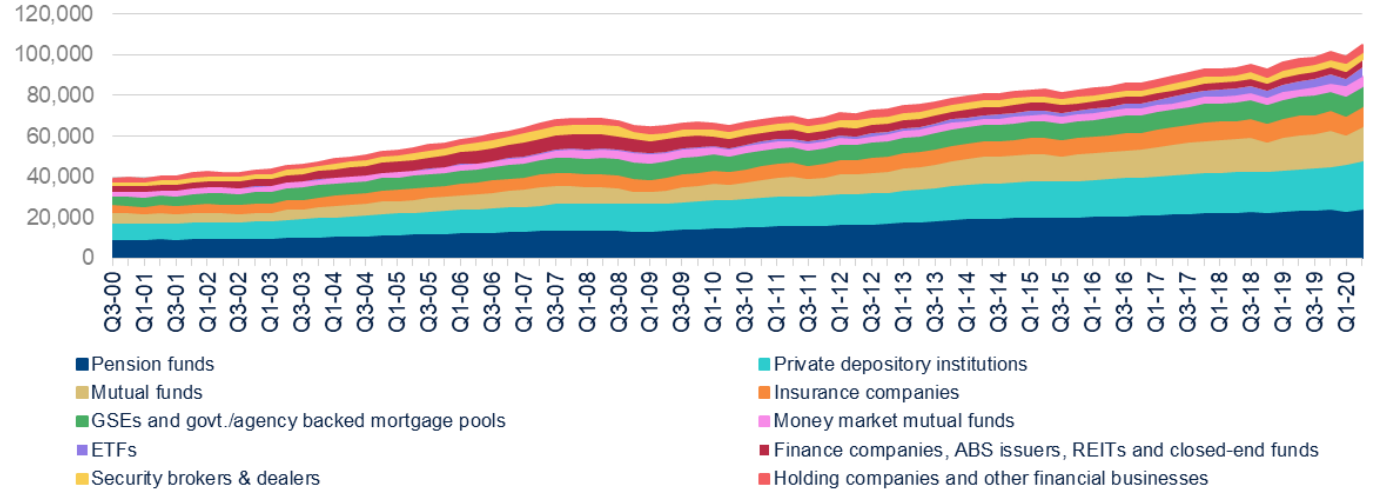
"I don't know what the best policy solution is, but I know we can't just keep doing what we've been doing… As soon as there's a risk that hits, everybody flees and the Federal Reserve has to step in and bail out that market, and that's crazy. And we need to take a hard look at that." Neel Kashkari, President of the Federal Reserve Bank of Minneapolis.[1]

The first thing that comes to mind when thinking about financial intermediation and institutions is commercial banks. Commercial banks and other depository institutions account for about 1/5th of the liabilities of the domestic financial system in the U.S., not accounting for the monetary authority (Figure 1). The monetary authority, i.e. the Federal Reserve System, is the primary agency that regulates and supervises the banks to ensure the safe and optimal functioning of the banking sector. The goal of this regulation and supervision is to ensure prudent credit creation and banking sector stability. As regulation and supervision might not always be enough, the Federal Reserve also has the power to act as a lender of last resort, which it has exercised multiple times over the years[2] to avert bank runs. Banks are susceptible to runs because of the nature of their balance sheets that rely on short-term liquid deposits to support long-term illiquid loans[3] .

Figure 1. **LIABILITIES OF THE U.S. FINANCIAL SECTOR, EXCLUDING THE MONETARY AUTHORITY**



Source: Federal Reserve and BBVA Research

1: Quoted in the FT. *Federal Reserve debates tougher regulation to prevent asset bubbles.* October 17, 2020. https://on.ft.com/34tWN4c
2: See Fischer, S. (2016). *The Lender of Last Resort Function in the United States*. https://bit.ly/3jt92m2
3: See Fischer, S. (2015). *The Importance of the Nonbank Financial Sector.* https://bit.ly/2HsMkx5

However, with the majority of the assets and liabilities of the U.S. financial sector now residing outside of commercial banks and other depository institutions (hereinafter all called banks for simplicity), the Federal Reserve has increasingly, although indirectly, been acting as a lender of last resort to non-bank financial institutions (NBFIs)[4], too. Never had this become more obvious than in March 2020, when the Federal Reserve, in addition to providing massive amounts of liquidity to the financial sector overall and generating a reflationary cycle, also instituted, in cooperation with the U.S. Treasury, facilities that lent to securities firms, money market mutual funds, asset-backed security (ABS) issuers, and even municipal governments, non-financial corporations, and nonprofits.

The 2020 intervention, while completely justified, prudent, and extremely well implemented under unprecedented circumstances, was the second time in recent history that the Federal Reserve decisively reached out of the banking sector domain to ensure financial stability[5], the first time being the Great Financial Crisis[6]. As the Fed's power to regulate and supervise non-bank financial intermediation and NBFIs is limited, this development raises several questions: has the nonbank financial sector become too big to fail so that the Federal Reserve is forced to exercise its lender of last resort powers in economic crises to it as well; does the monetary authority's reaction function give rise to increased moral hazard; can this lead to greater instability going forward; if the Federal Reserve now provides a form of insurance to NBFIs, should it and/or other government institutions also regulate them differently than in the past, and if so, how; and last but not least, is there another way?

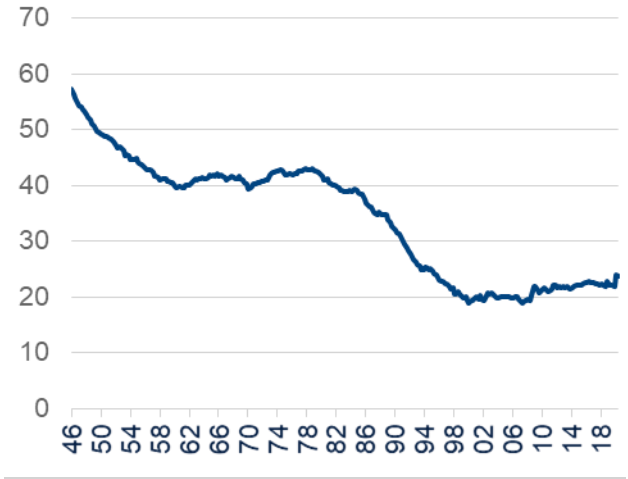
Non-bank financial sector - too big to fail?

As the relative weight of banks and other depository institutions in the total financial sector declined through time (Figure 2), the importance of NBFIs increased. An important driver of this was the highly innovative and sophisticated financial intermediation that NBFIs have been developing over time. This trend, as well as the underlying institutional factors such as legal tradition, have resulted in the U.S. NBFIs having the largest share of the overall financial sector compared to other developed countries, except for Luxembourg[7], which can be thought of as a special case due to its small size and role as a financial hub and access point for international investors to the EU.

One way the increased importance of NBFIs in the U.S. shows is in the share of NBFIs' instruments held by households in their total financial assets. While these instruments accounted for slightly over 30% of total households' financial assets in the 1970s, their share has stood at around 45% since the end of the 1990s (Figure 3). Even though most of these instruments (retirement funds, exchange-traded funds - ETFs, mutual funds, etc.) are widely accepted to be risky investment vehicles that are not insured and could lose value, their valuation is critical to meeting the Federal Reserve's dual mandate - full employment and stable prices. The primary reason is that a collapse in asset prices of these instruments can induce a collapse in consumer confidence, lower consumption and investment, and therefore employment. Conversely, as long as the value of these assets is increasing, the resulting wealth effect supports consumption,[8] the largest component on the GDP expenditure side, therefore stimulating investment and employment.

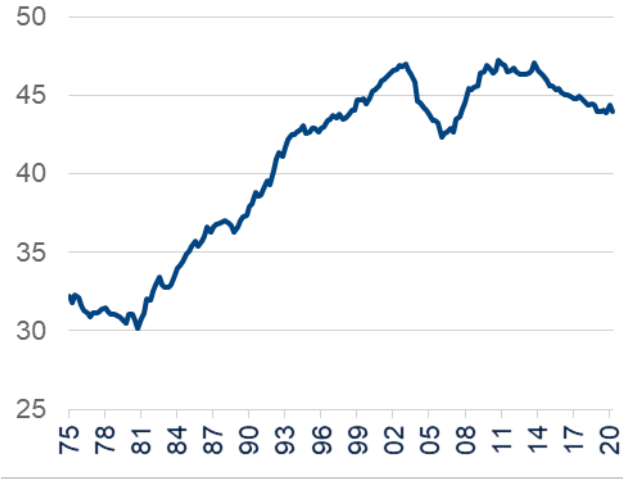
4: In the context of this analysis, NBFIs represent all non-depository financial institutions aside from the monetary authority. NBFIs are all non-depository institutions that are engaging in financial intermediation: pension funds, mutual funds, securities dealers, money market funds, etc. It is important to note that large banks also perform non-depository financial intermediation, especially since the repeal of the Glass-Steagall Act.
5: Before the Great Financial Crisis, there have been occasional small scale implicit interventions aimed at NBFIs, such as the orchestration of the bailout of LTCM
6: See Alvarez, S. and Dudley, W. (2018). *Nonbank Financial Institutions: New Vulnerabilities and Old Tools.* https://brook.gs/31Kp1pE
7: See Hagino, S. and Cavieres, L. (2013). *OECD financial statistics for measuring the structure and size of the shadow banking system.* OECD, IFC Bulletin, No 36. https://bit.ly/323kHlm
8: For a review of the wealth effect on consumption, see Cooper, D. and Dynan K. (2014). *Wealth Effects and Macroeconomic Dynamics.* Journal of Economic Surveys. Vol. 30, No. 1, pp. 34–55.

Figure 2. **DEPOSITORY INSTITUTIONS' LIABILITIES AS A SHARE OF TOTAL FINANCIAL SECTOR LIABILITIES** (%)



Source: Federal Reserve and BBVA Research

Figure 3. **NBFI-ISSUED INSTRUMENTS[9] HELD BY HOUSEHOLDS AS A SHARE OF HOUSEHOLDS' FINANCIAL ASSETS** (%)



Source: Federal Reserve and BBVA Research

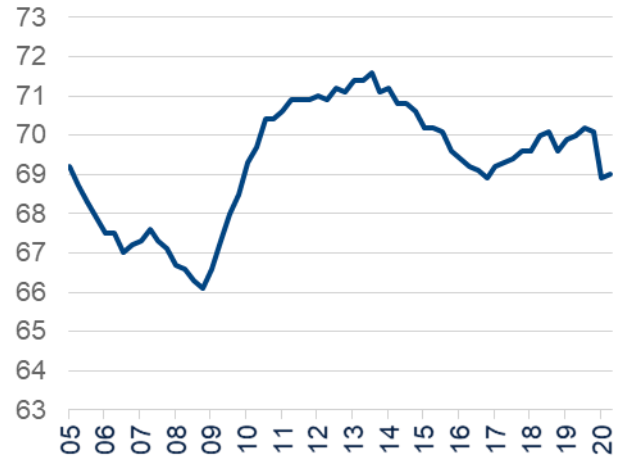
The second important reason why the price support and demand for these instruments is critical is the financing of non-financial businesses. In essence, most of the instruments marketed by NBFIs are based on non-financial sector liabilities. Prime examples of this are the mutual funds, the increasingly popular ETFs, and the different securitized products such as mortgage-backed securities, ABS, and collateralized loan obligations. In fact, non-financial companies rely on NBFIs and NBFI-like activities performed by large banks for funding of over ⅔ of their long-term liabilities plus commercial paper (Figure 4). A decline in demand or liquidity for these products has the potential to significantly constrain the access to credit to corporations, small businesses, and even local governments. Moreover, a run on these instruments can also translate to increased stress in the banking sector, as non-financial businesses draw down on credit lines and face difficulties refinancing and therefore repaying obligations to banks, as well as to other non-financial institutions, creating a positive reinforcement loop that furthermore adversely affects banks.

Additionally, the growth in passive investment over the last decade can present risks on its own, too. As the share of mutual fund and ETF holdings of outstanding securities has increased over the last twenty years (Figure 5), so has the share of passive vehicles in the universe of mutual funds and ETFs. According to a recent analysis by Federal Reserve Bank of Boston researchers: "As of March 2020, passive funds accounted for 41 percent of combined U.S. mutual fund and ETF assets under management (AUM), up from three percent in 1995 and 14 percent in 2005. This shift for mutual funds and ETFs has occurred across asset classes: Passive funds made up 48 percent of the AUM in equity funds and 30 percent for bond funds as of March 2020, whereas both shares were less than five percent in 1995."[10] The migration to passive investing vehicles, a prime example of non-bank financial intermediation, increases volatility risks and asset-management concentration, according to these researchers, despite at the same time decreasing liquidity transformation risks, the last being the case "as long as passive mutual fund flows remain less responsive to fund performance, and growth in the ETF sector is dominated

9: Assets in pension funds, life insurance funds, mutual funds and money market fund shares.
10: Anadu, K. et al. (2020). *The Shift from Active to Passive Investing: Potential Risks to Financial Stability?.* FRB of Boston Working Paper. https://bit.ly/2IjS38K .

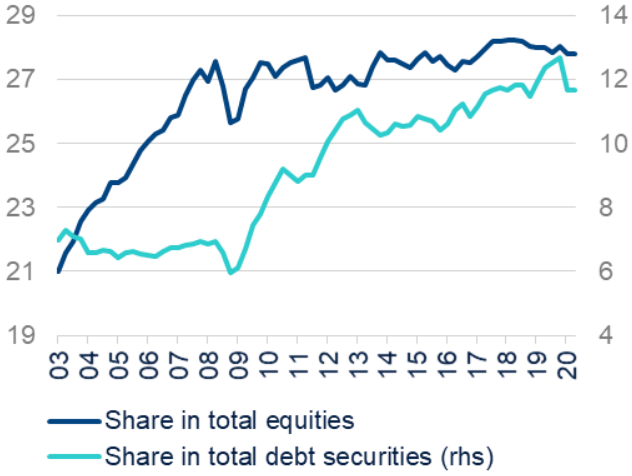
by funds that do not redeem exclusively in cash"[11], trends that cannot be considered to be certain. What is certain is that the rise of passive investing has had an impact on market structure, which inherently changes risk dynamics.

Figure 4. **SHARE OF FINANCING FROM NBFIS IN TOTAL LONG-TERM FINANCING[12] OF NON-FINANCIAL BUSINESSES** (%)



Source: Federal Reserve and BBVA Research

Figure 5. **SHARE OF MUTUAL FUNDS AND ETFS HOLDINGS IN SECURITIES** (%)

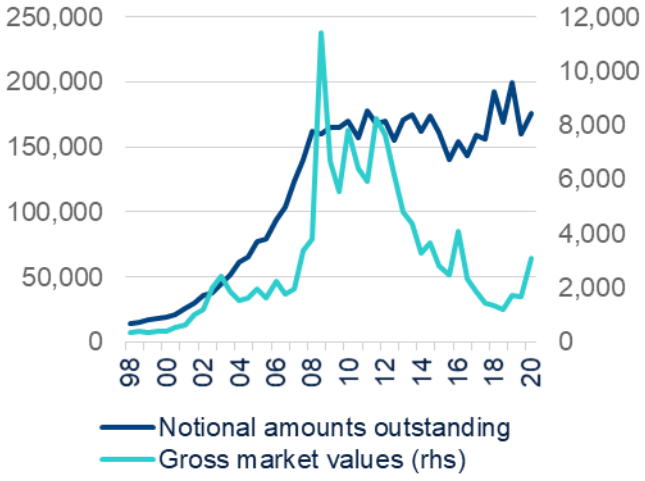


Source: Federal Reserve and BBVA Research

Last but not least, bond, stock, and index fund prices can be significantly affected by developments in derivatives markets. After a long period of growth and increase in complexity, derivatives are now ubiquitous and even regularly traded by retail investors on a daily basis. The notional amount of the outstanding U.S. dollar interest rate derivatives stands at $150tn and gross market value at $3tn, while the notional amount of the outstanding U.S. dollar equity derivatives stands at $3tn and gross market value at close to $300bn (Figures 6 and 7). The widespread use of derivatives, for example, has helped drive a trading strategy called volatility selling. Volatility selling can be done in many different forms, but in all cases, the seller goes short on optionality in return for a predefined payment. These trades work well when volatility is low but can result in the sellers going bankrupt many times over when volatility unexpectedly increases. History is full of examples of firms that have bankrupted using some sort of volatility selling. Some of them have even been implicitly or explicitly deemed systemically important, the prime example of this being Long-Term Capital Management (LTCM). "In the LTCM collapse, the hedge fund was battered by equity-index volatility trades in international markets. The Federal Reserve stepped in to encourage private funding for LTCM so that it could be liquidated in an orderly fashion, avoiding contagion with its many trading counterparties and lenders.[13] Also, "in 1995, trader Nick Leeson at the former Barings Bank generated huge losses traced to volatility trading on Japan's Nikkei as that stock index suddenly plunged in response to the Kobe earthquake. U.K. authorities were able to contain systemic effects of Barings' collapse, arranging its sale to Dutch bank ING Groep NV."[14]

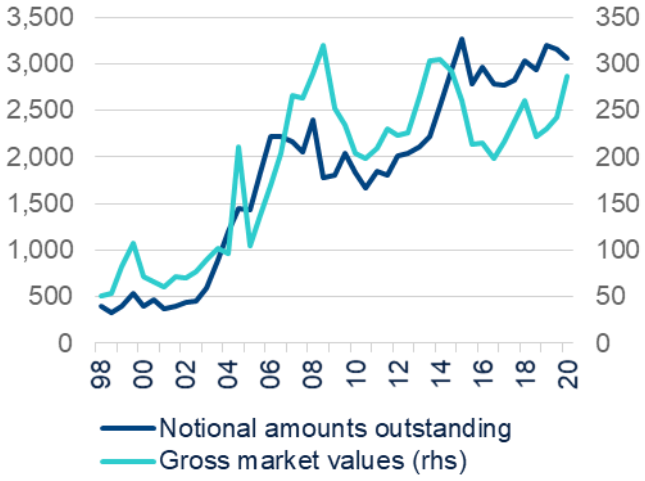
11: Anadu, K et al. (2020).
12: Long-term financing is assumed to consist of all loans and debt securities accounted as liabilities of nonfinancial business and also include some short-term debt such as commercial paper which tends to be rolled over systematically.
13: Chen, J. and Tindall, M. (2013). *Volatility-Selling Strategies Carry Potential Systemic Cost.* FRB of Dallas. Economic Letter Vol. 8, No. 12. https://bit.ly/3ndlfxi
14: Chen, J. and Tindall, M. (2013).

Figure 6. **INTEREST-RATE DERIVATIVES OUTSTANDING, $ DENOMINATED** ($bn)



Source: BIS and BBVA Research

Figure 7. **EQUITY DERIVATIVES OUTSTANDING, $ DENOMINATED** ($bn)



Source: BIS and BBVA Research

The increase in NBFI instruments' importance for households and business financing, new risks from the increase in passive investment and the further proliferation of derivatives, especially at the retail level, as well as strategies such as selling volatility that can potentially spread throughout the financial system, increases the sensitivity of the Fed to developments in NBFI instruments and financial markets more broadly. Its willingness to listen to markets, adjust policy based on market signals and step in with decisive intervention in extraordinary circumstances support some views that it is beholden to financial market dynamics more than it would like to acknowledge.

Mission creep?

There have been several instances over the last 35 years of quick policy reversals during periods of sustained growth of the broader economy resulting from unfavorable developments in the non-bank financial sector and financial markets more broadly. In 1987, the Federal Reserve stepped in with a large liquidity injection to revert a market crisis that could have affected the broader economy if unaddressed and temporarily paused its planned interest rate increases. In 1998, it preemptively cut interest rates and also orchestrated the bailout of LTCM, which was threatening the integrity of the financial system. In early 2019, it completed an unexpected U-turn in policy, despite putting on a brave face throughout 2018 and forecasting at least two more rate hikes and ongoing balance sheet normalization throughout the following year. Short descriptions of the three episodes follow, showing the increasing scope of intervention over the years.

In October 1987, after a very strong and fast appreciation in the first half of the year, the stock market started faltering. On October 19, the Dow Jones Industrial Average declined by close to 23% in a single trading session. While the causes of the stock market decline were a decrease in investor confidence due to the ongoing increase in interest rates and weakening incoming economic data, the magnitude of the drop was likely a result of the increased use of options in the preceding period as part of a new product sold by NBFIs called "portfolio insurance".[15] The Federal Reserve's response to the crash was swift and aggressive, providing liquidity and lowering short-term interest rates, as well as issuing a statement by chairman Greenspan immediately after the

15: See Bernhardt, D. and Eckblad M. (2013). *Stock Market Crash of 1987*. Federal Reserve History. https://bit.ly/34FXFTm

"Black Monday" crash that "the Federal Reserve, consistent with its responsibilities as the Nation's central bank, affirmed ... its readiness to serve as a source of liquidity to support the economic and financial system".[16] The Fed also worked with banks to ensure an extension of credit to securities firms. This was "key to the ability of these firms to meet their clearing and settlement obligations and to continue to operate in these markets."[17] In 1994, Chairman Greenspan confirmed in congressional testimony that "[t]elephone calls placed by officials of the Federal Reserve Bank of New York to senior management of the major New York City banks helped to assure a continuing supply of credit to the clearinghouse members, which enabled those members to make the necessary margin payments."[18]

In 1997 and 98, the U.S. economy was growing at a healthy clip, just as it did in 1987, despite a series of currency crises in emerging countries in Asia, Latin America, as well as Russia. While the labor market slack was minimal, there was very little inflation, partly because the U.S. dollar had appreciated significantly in response to increased financial stress overseas. The Federal Reserve held interest rates roughly unchanged through September 1998, when LTCM approached the New York Fed with information about its problems. The Fed completed an inspection and realized that if LTCM's counterparties tried to exit their positions at the same time, they would create a fire sale, potentially impairing the economy.[19] It quickly coordinated a bailout by persuading large banks, mostly LTCM creditors, to acquire it. Between the end of September and mid-October, the FOMC cut the fed funds rate by 75 basis points, despite the economy continuing to expand at a very strong pace. Some analyses after the fact have suggested that this contributed to the asset price bubble that burst in 2000. The notion of the "Greenspan put" - a belief among market participants that the Federal Reserve would not tolerate large market declines - was widespread as confirmed by multiple surveys.[20] Research has provided some evidence that pricing a "Greenspan put" into market valuation - beliefs in the stabilizing power of the Fed, can raise stock market prices and reduce the implied risk premium. Miller et al. find that "believing the Fed can prevent the market falling by more than 25 percent from its previous peak brings the observed risk premium down from 4.3 percent to about 2.6 percent even though underlying attitudes to risk are unchanged. This calculation is, however, based on the extreme assumption of absolute confidence in the Fed's ability to stabilize the market. If the perceived insurance is only partially credible, we find that the effect on market value is reduced but can still remain substantial."[21]

Like in the late-stage expansion episodes in 1987 and 1998, similar developments occurred again in 2019. After ten years of negative real interest rates, in September of 2018, the Federal Reserve finally brought back the real fed funds rate into positive territory with the third ¼ point rate hike that year (Figure 8). The FOMC raised the fed funds rate one more time three months later, which concluded the tightening cycle of the 2010s. Despite the FOMC having previously forecasted up to four more rate hikes over 2019, and with the economy still expanding, the Fed proceeded to cut interest rates on three occasions in 2019, ended balance sheet normalization, and then resumed asset purchases, while also implementing a large repo intervention after a brief but dramatic stress episode in this important funding market. As this was happening during a period of an expanding economy, the measures were considered to serve as "insurance". The Congressional Research Service could not justify the 2019 easing based on labor market conditions after the fact: "based on the maximum employment mandate, tight labor market conditions did not support the series of rate cuts, considering monetary policy was still slightly stimulative... The unemployment rate has been below 5% since 2015 and is now lower than the rate believed to be consistent with full employment."[22] Moreover, the sudden turn in policy could not be entirely explained by low inflation either, since

16: Carlson, M. (2006). *A Brief History of the 1987 Stock Market Crash with a Discussion of the Federal Reserve Response.* Finance and Economics Discussion Series No. 2007-13 https://bit.ly/38zX34b
17: Carlson, M. (2006).
18: Ibid.
19: Fleming, M. and Liu, W. (2013). *Near Failure of Long-Term Capital Management.* Federal Reserve History. https://bit.ly/2GWeUXG
20: See Miller, M., Weller, P. and Zhang, L. (2002). *Moral Hazard and The US Stock Market: Analysing the 'Greenspan Put'.* The Economic Journal, Volume 112, Issue 478, March 2002.
21: Miller, M. et al (2002).
22: Congressional Research Service (2020). *Monetary Policy and the Federal Reserve: Current Policy and Conditions.* February 6, 2020. https://bit.ly/3mAwuzG

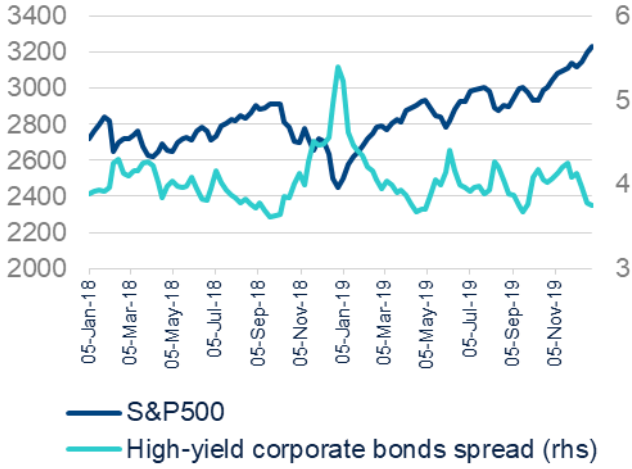
inflation in 2019 was comparable to 2017 when the FOMC raised rates four times. Moreover, the Fed still believed in a sustained expansion being the most likely scenario, which is not consistent with an elevated risk of deflation. What was different, however, were the developments in the financial markets and their effect on NBFIs.

In September 2018, the stock market peaked, and between September 20 and December 24, the S&P 500 index declined by about 20%. At the same time, corporate bond spreads started increasing, peaking at the end of December (Figure 9). Moreover, with the increase in short-term rates being faster than in long-term, the yield curve flattened further, approaching inversion, a sign, based on past instances, that a recession was likely baked in the not so distant future. The U-turn in monetary policy became obvious on January 4, 2019, when chairman Powell said that the Fed was open to pausing interest-rate increases and to greater flexibility on using other monetary policy tools, and that he was "listening carefully to the message that markets are sending".[23] The new tack that the monetary authority took was enough to support a new reflationary cycle in financial markets, which lasted until the Covid-19 crisis in early 2020.

Figure 8. **REAL FEDERAL RESERVE FUNDS RATE** (%)

Source: Federal Reserve and BBVA Research

Figure 9. **FINANCIAL MARKET INDICATORS 2018-2019** (INDEX AND %)



Source: Haver Analytics and BBVA Research

The three instances bear a lot of similarities - they all occurred in late expansion cycles, they all had as a backdrop some kind of international financial market instability, which nevertheless was not strong enough to change the Fed's growth outlook, and they also followed episodes of significant domestic market sentiment turning negative resulting in increased financial stress. Each subsequent intervention has been broader in scope and done with a greater level of determination. And while these three episodes are most stark examples of the sensitivity of monetary policy to market developments, and thus indirectly conditions at NBFIs, and could be considered outliers, evidence also emerges of a more systematic relationship between market conditions and Federal Reserve policy.[24]

23: Smialek, J. and Miller, R. (2019). *Powell Hints Fed Open to Pause, Says Won't Quit If Trump Asks.* Bloomberg, January 4, 2019. https://bloom.bg/37Y6lBo
24: See Cieslak, A. and Vissing-Jorgensen, A. (2020). *The Economics of the Fed Put.* The Review of Financial Studies. October 3, 2020.

Carry trade aspects of the broader market dynamic

Some non-academic, yet in-depth analyses performed by financial market professionals argue that the support that financial markets have been receiving from monetary authorities over the last decades, not only just in the U.S. but also globally, has led to a proliferation of carry-like trades using all kinds of financial instruments. Carry trades in the narrow sense of the term have historically been limited to the foreign exchange (FX) market. These trades were undertaken by investors borrowing in a lower interest rate currency, lending in a higher interest rate currency, and profiting in the process. Since financial markets are not informationally and technically perfect, conditions for profiting from a carry trade can exist for a sustained period and benefit from positive reinforcement loops - for example, carry trades increasing credit availability in the higher interest rate country, economic growth picking up, in turn keeping demand for credit and interest rates elevated, further stimulating the carry trade. However, carry trades of this type are not indefinite and have tended to end in carry crashes, some of which have led to deep currency crises.

While carry trades could traditionally be found in the FX market, they can exist in other markets too. Their main characteristic is the use of funds from one part of the market as well as leverage, to provide liquidity to another part of the market at a profit by incurring risk. In this sense, volatility selling is one form of a carry trade - the market participant that sells volatility is earning a profit as long as volatility remains low but can lose its capital many times over if volatility unexpectedly rises. In this sense, this market participant is leveraged. If that participant is large and does not have a backstop from the Government or the monetary authority, losses of this magnitude could cause liquidity and even solvency problems to other related financial institutions, resulting in systematic risk. This is exactly what happened to LTCM. It's important to note that volatility selling does not have to be done using derivatives, as different investment strategies can produce the same effect, as long as they assume limited or suppressed volatility and use leverage to generate returns.

In absence of close oversight over this kind of activity, as well as financial markets continuously innovating, the monetary authority tends to manage adverse developments by providing ever more accommodation. This in turn could be creating a positive reinforcement loop that is destabilizing. In a sense, suppressed volatility can motivate more volatility selling, which can beget further monetary accommodation. Lee, Lee and Coldiron argue in their book "The Rise of Carry" that "financial markets and the financial system as a whole have been operating in a powerful carry regime at least since the early 1990s"[25] with global financial markets being transformed over time to encourage and accommodate this trade. "Hedge funds have evolved from tiny niche overseers of private wealth to giant institutional asset managers. Sovereign wealth funds have grown into a global force looking after long-duration pools of capital accumulated by government entities. Both types of institutions have incentives to engage in the carry."[26] This regime "suppresses volatility and drives up the market values of financial assets and at least some real assets (such as real estate). Nonmonetary financial assets seem to acquire monetary qualities. Debt that was formerly considered junk appears to be safer."[27] As we know from traditional carry trades, these conditions could be sustained over extended periods, but have the potential to create serious crashes.

25: Lee, T., Lee, J. and Coldiron, K. (2000). *The Rise of Carry - The dangerous consequences of volatility suppression and the new financial order of decaying growth and recurring crisis.* McGraw-Hill, New York. p. 207.
26: Lee, T. et al. (2000).
27: Ibid. p. 209.

Moral hazard and increasing financial sector fragility?

With NBFIs playing a large role in the financial sector, being systematically important for the economy, and engaging in highly complex financial intermediation, the Federal Reserve has acted prudently to provide accommodation on multiple occasions over the last decades. However, the existence of an implicit guarantee of some sort (or even a miscalculated perception of such) is likely providing support for further increase in risk-taking, especially in an environment of low or negative interest rates that limit traditional interest income streams. This raises the question of moral hazard. Moral hazard can be understood as an increase in the incentive to take on more risk when insurance against ruin is in place. Research, for example, has shown that banks across different countries "tend to be more leveraged, funded with capital of lower quality, more heavily invested in risky assets and exposed to more severe liquidity mismatch when they themselves -but also when their competitors- are perceived as being more likely to benefit from government support."[28] There is no question that, if NBFIs believe that the monetary authority will prevent market conditions that could result in their ruin, they will be incentivized to take on more risk.

Increased regulation in return for a broadened safety net, or is there another way?

In the aftermath of the Great Financial crisis, the banking sector, which proved to be less resilient than necessary during the subprime mortgage crisis, was subjected to extensive new regulatory oversight, a lot of it introduced through the Dodd-Frank Act and the resulting implementing regulations. The non-bank financial sector also was subjected to some new rules but remained significantly less regulated than commercial banks. Some large NBFIs were absorbed by commercial banks (Bear Stearns, Merrill Lynch), thus putting their activity under Fed's supervision.

Former high-level Federal Reserve officials Alvarez and Dudley list five lessons learned from the Great Recession: "1: Nonbank financial firms and the funding markets that support their business models are highly vulnerable to the loss of investor confidence and that their distress can pose material risks to the economy... 2: Some current market practices, such as downgrades by the credit rating agencies or margin increases by exchanges and other counterparties, are highly procyclical... 3: Regulators should prepare, and practice, coordinated response plans to reduce the future risk to the financial system and economy from distressed nonbank firms… 4: Putting government capital into private institutions can help prevent serious harm to the economy, but the taxpayer needs to be compensated and the firm that receives assistance must be held to the same standards and business practices as other firms... 5: Finally, it is important to keep the regulatory and supervisory regime, as well as crisis management tools, up to date with the evolving structure of the financial system."[29]

After the Great Recession, while banks increased their equity ratios and improved their liquidity positions, NBFIs made more modest changes in the way they conducted their business. This meant that the seeds of the new crisis were going to find fertile ground in this sector. Not surprisingly, some NBFIs were the most affected financial intermediaries at the start of the Covid-19 crisis. According to the November 2020 Financial Stability Report: "The Covid-19 shock exposed vulnerabilities at nonbank financial firms that contributed to market turmoil and required

28: Mariathasan, M., Merrouche, O. and Werger, C. (2014). *Bailouts and Moral Hazard: How Implicit Government Guarantees Affect Financial Stability.* SSRN Discussion Papers. https://bit.ly/38Pj0wr
29: Alvarez, S. and Dudley, W. (2018).

the Federal Reserve to establish emergency facilities to restore the functioning of markets for short-term funding and corporate bonds", while "banks continue to have high levels of liquid assets and stable funding".[30]

The implicit support that the NBFIs now obviously enjoy needs to be coupled with increased vigilance and even some added oversight from the central bank and other government authorities. The current system of supervision is primarily designed for a bank-dominated financial sector. As new business models and instruments proliferate, continuous improvement of regulatory and supervisory approaches to these institutions is needed. Alvarez and Dudley propose that "policymakers should consider expanding the Fed's authority as lender of last resort to nonbank financial firms, which have become critical participants in funding and capital markets. With appropriate prudential standards in place, access to a lender of last resort at a penalty rate and well-secured by pledged collateral, on a timely basis rather than only when circumstances are judged to be unusual and exigent, may not unduly increase moral hazard risks."[31]

If improved regulation and supervision is not feasible or desirable, the question is what could be used in their place to ensure greater discipline. The primary way this has been done in the past was through orderly bankruptcy, which could be difficult for highly leveraged and interconnected financial organizations. History has proven that when push comes to shove, for practical or political reasons, bailouts have been the preferred way out, meaning that relying on the threat of ruin to discipline large and sophisticated market participants might not be realistic.

Bottom line

Nonbank financial intermediation is crucial to the U.S. economy as it provides valuable and innovative investment vehicles to households and finance alternatives to nonfinancial businesses. However, due to a combination of size, complexity and potential moral hazard because of an implicit guarantee by the Federal Reserve and the Government to provide financial market stability at all costs, it can contribute to increasing financial instability over time. Because of this, a rethink of the regulatory and supervisory approach is required in order to limit moral hazard, while at the same time not impede market functioning and the valuable contributions that NBFIs make to the modern economy.

30: Federal Reserve Board. *Financial Stability Report.* November 2020. https://bit.ly/35rS3g9
31: Alvarez, S. and Dudley, W. (2018).

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