



US Economic Perspectives

Fed's low for longer to fuel financial stability fears but not trigger CCyB

- Some Fed officials have re-emphasized concerns about financial stability risks in recent weeks. These worries could well intensify over the coming year as the Fed commits to a more accommodative policy stance to better anchor inflation expectations around the central bank's 2% inflation target (see "[A less than roaring start to the '20s and a renaissance in Fed policy](#)"). In this environment of a structurally more dovish Fed reaction function, macroprudential measures, such as the countercyclical capital buffer (CCyB), are likely to become more hotly debated instruments in the Fed's toolkit.
- This report provides a status check on US financial stability risks by updating our DB vulnerability index. The index, which quantifies financial stability risks using a methodology similar to an earlier Fed staff paper, generally concurs with the Fed's assessment that broad vulnerabilities are moderate.
- Our framework concludes that it will be difficult to judge financial vulnerabilities as elevated as long as housing risks remain contained, aggregate consumer balance sheets are sturdy and the post-crisis bank regulation regime remains in place. As such, while some officials will continue to call for an increase in the CCyB, we anticipate it will be kept at its minimum level of zero over the next year.

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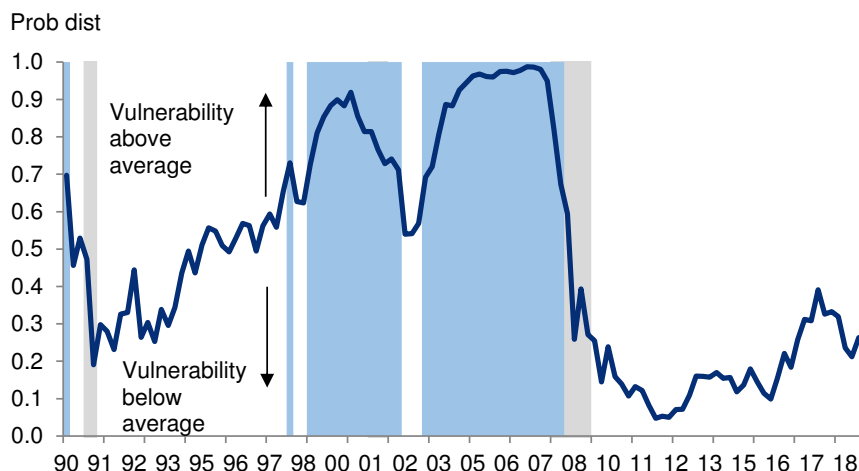
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Figure 1: Financial stability risks moderate according to DB's vulnerability index



Note: Chart shows the historical probability ranking of financial stability risks. The blue shaded areas represent periods when the CCyB could be triggered with the index in the top third of its history. Source: Deutsche Bank



Introduction

Several Fed officials have re-emphasized concerns about financial stability risks in recent weeks. The return of this point of focus has coincided with three developments: a diminution of downside risks to the economic outlook, the continued march higher in risk asset valuations, and the release of the Board's Financial Stability Report.

This backdrop sets up an interesting debate for the Board over the next year. With central bankers wanting to keep monetary policy accommodative to encourage labor market strength that is more broadly distributed and at the same time push inflation and inflation expectations higher, it may be inevitable that concerns will continue to rise about excessive risk taking fueled by low rates. In this environment, macroprudential tools, such as the countercyclical capital buffer (CCyB), may have broader appeal. The minutes to the December FOMC meeting made this point, noting that "A few participants raised the concern that keeping interest rates low over a long period might encourage excessive risk-taking, which could exacerbate imbalances in the financial sector.... They remarked that such policies...could strengthen the case for the active use of macroprudential tools to guard against emerging imbalances." Governor Brainard, who voted to raise the CCyB last year, is likely part of these "few", as is Boston Fed President Rosengren, who dissented to last year's rate cuts in part due to the risks they posed to financial stability.

This report provides a status check on financial stability risks by updating our DB financial vulnerability index that we introduced in 2018 (see "[Countercyclical capital buffer gaining traction](#)"). This index allows for a quantification of financial stability risks, something that is necessary to judge whether the CCyB should be triggered. In what follows, we begin with a brief primer on our approach and then discuss the evolution of financial stability risks in recent quarters. We conclude by translating this metric into implications for the CCyB over the next year.

Quantifying financial stability vulnerabilities

Our quantification of financial stability risks follows earlier work from Fed staff.¹ Similar to the Fed's financial vulnerability monitoring framework, we classified three broad categories of financial stability risks: valuation pressures/risk appetite, nonfinancial imbalances and financial sector vulnerability.² Within each of the broad categories we define more granular subcategories or components – fourteen in all – that are helpful for classifying the variables we consider. For example, within valuation pressures we consider five subcategories including equity valuations and implied volatility, and within financial sector vulnerabilities we define five subcategories including bank leverage, short-term funding and financial sector concentration. A table in the appendix lists all variables included in our analysis.

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- 1 See Aikman, David, Michael T. Kiley, Seung Jung Lee, Michael G. Palumbo, and Missaka N. Warusawitharana (June 24, 2015), "Mapping heat in the US financial system," Finance and Economics Discussion Series 2015-059. Similar work has been conducted at the Bank of England: Aikman, David, Jonathan Bridges, Stephen Burgess, Richard Galletly, Iren Levina, Cian O'Neill and Alexandra Varadi (July 2018), "Measuring risks to UK financial stability." Bank of England Staff Working Paper No. 738.
 - 2 There are some differences in the variables used in our analysis versus the Fed's. The Fed paper uses 44 indicators/sub components whereas we base our construction of the index on 39 variables due to inaccessibility of the data, generally for the financial vulnerabilities broad category. It is difficult to know how this difference in variables current affects the results, but our vulnerability index matches the Fed staff's work reasonably closely during the earlier overlapping periods.

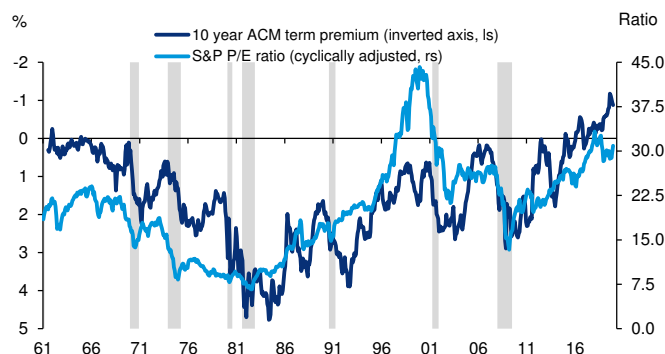


The final output from this approach are three component level indices and an aggregated index from these components, each of which is a Z-score. The interpretation is thus that an index value of zero suggests that financial stability risks are at historical averages, while a value above (below) zero is consistent with vulnerabilities being above (below) historical averages. We refer interested readers to the original publication of this index for a detailed discussion of the methodology (see "[Countercyclical capital buffer gaining traction](#)").

Valuations / risk appetite: Vulnerabilities elevated

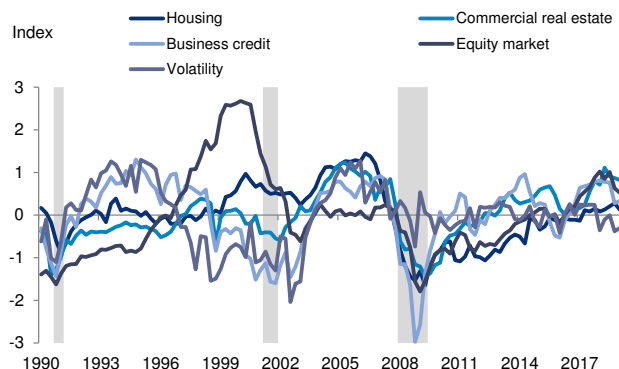
A variety of metrics that gauge risk appetite are elevated from a historical perspective, including relatively high equity multiples, low term premia on longer-term US Treasury notes, and tight credit spreads on corporate bonds (Figure 2). Our approach for quantifying these vulnerabilities related to valuations suggests that four of the five subcategories – equity markets, commercial real estate, housing and business credit – have vulnerabilities above their historical averages (Figure 3). Within these categories, commercial real estate – an area that commonly draws the ire of Fed officials, especially Boston Fed President Rosengren – has the highest vulnerability risks relative to historical experience. Commercial real estate is followed by equity valuations and heightened valuations related to business credit (e.g., tight spreads on corporate debt), two other bugaboos for Fed officials.

Figure 2: Some valuation metrics are near historically high levels



Source : FRBNY, Shiller, Haver Analytics, Deutsche Bank

Figure 3: Almost all categories of valuations above historical averages



Source : OECD, FRB, FRBNY, Shiller, WSJ, Bloomberg Finance LP, Haver Analytics, Deutsche Bank

Combining the signals from these five categories into an aggregate metric related to valuations suggests that risk appetite vulnerabilities are at elevated levels, around 0.8 standard deviations above normal (Figures 4 and 5). While these risks are below the near record readings of a few years ago, they clearly remain elevated from a historical perspective, consistent with the Fed's assessment.

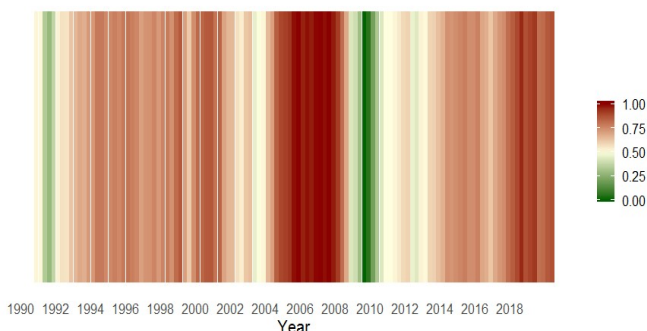


Figure 4: Valuations / risk appetite points to elevated vulnerabilities



Source : Deutsche Bank

Figure 5: Heat map for valuation pressures

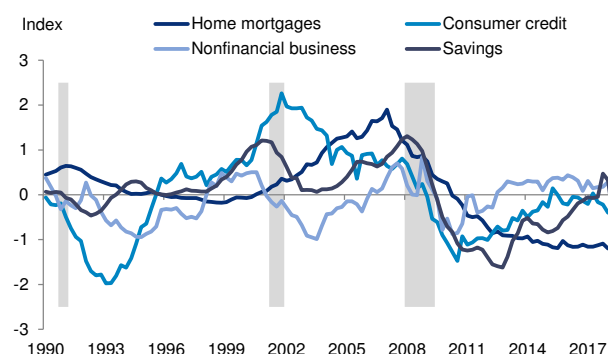


Note: The heat map shows where the indicator is within its historical distribution, with higher numbers, reflected in red shading, consistent with greater vulnerability and lower numbers / green shading consistent with lower vulnerability. Source : Deutsche Bank

Nonfinancial: Solid households offset vulnerable corporates

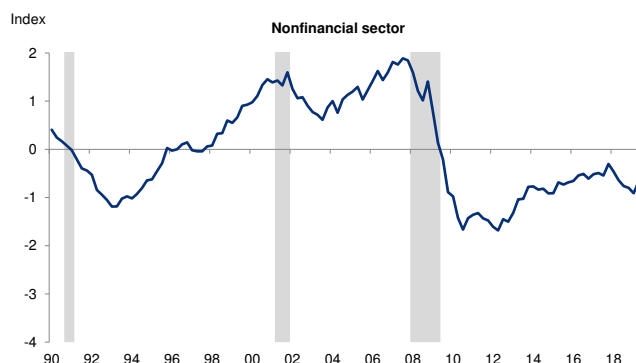
The second subcategory of financial vulnerabilities aggregates the signals from the household and non-financial corporate sectors. Within this group, we consider risks related to home mortgages, consumer credit, nonfinancial business balance sheets, and corporate and household savings. Of these four categories only one – nonfinancial business balance sheets – show elevated financial stability risks (Figure 6). For context on the relative size of the liabilities in these sectors, as of Q3 2019 total household liabilities were \$16.4tn of which \$10.5tn are home mortgages. In contrast, total liabilities for nonfinancial corporate businesses were \$28tn.

Figure 6: Vulnerabilities elevated for nonfinancial businesses



Source : FRBNY/Equifax, FRB, BEA, BLS, S&P, Haver Analytics, Deutsche Bank

Figure 7: Nonfinancial sector vulnerabilities muted despite risks from nonfinancial corporates



Source : Deutsche Bank

Within the nonfinancial corporate category a number of variables point to elevated risks – real debt growth, net leverage of riskier firms, and leveraged loan issuance, among others. The latest Fed Financial Stability Report summarized the risks related to this sector as follows: "Business debt levels are high compared with either business assets or GDP, with the riskiest firms accounting for most of the increase in debt in recent years."³

3 See Federal Reserve Board "[Financial Stability Report](#)", November 2019.

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All four of the remaining categories are consistent with financial stability risks below the historical average, especially the home mortgages category. This breakdown highlights a divergence between a robust household sector in terms of financial stability risks but elevated vulnerabilities related to the nonfinancial business sector. Within the latter, only high yield share of issuance and high yield distress ratios are consistent with below average stability risks.

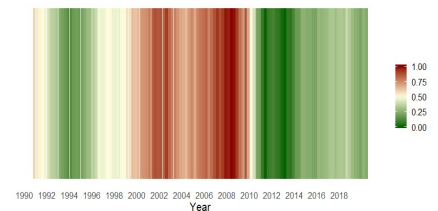
Putting together these divergent signals between solid households but more vulnerable nonfinancial businesses, our aggregate metric for the nonfinancial sector shows financial stability risks well below the historical average (Figure 7). Evident from this analysis is that as long as home mortgage risks are kept in check and, relatedly, household indebtedness is low with high savings, it will be difficult to determine that the nonfinancial sector in aggregate is at risk, at least according to this methodology.

The nonfinancial subindex highlights an important aspect of this methodology adopted from Fed staff research: the indexes are constructed as simple averages of the components. Under this assumption, elevated risks related to nonfinancial businesses can be negated by equivalent resilience in another component. If instead the methodology used to construct the index applied a larger weight to the vulnerabilities in the nonfinancial business sector it would be possible to conclude that nonfinancial sector risks, broadly speaking, are elevated.

Financial: Vulnerabilities remain low

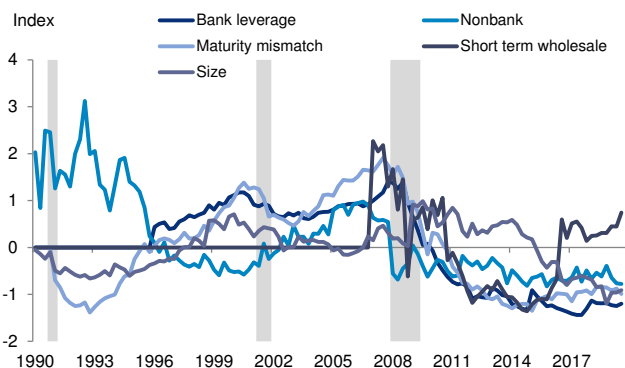
As has been the case for much of the post-crisis period, vulnerabilities related to the financial sector remain low from a historical perspective. While these risks were clearly elevated prior to the financial crisis, our aggregate measure of vulnerabilities in the financial sector is currently around -1.25, consistent with these risks being 1.25 standard deviations below the historical average (Figure 10). Within the subcategories, only wholesale funding remains somewhat elevated from a historical perspective, though it is important to note that we only have data for this metric spanning a few years prior to the financial crisis, given that we subtract a trailing average (Figure 9). Importantly, our ability to capture leverage and vulnerabilities in the non-bank sector is rather limited, though the Fed is likely better able to assess these risks.

Figure 8: Heat map for nonfinancial vulnerabilities



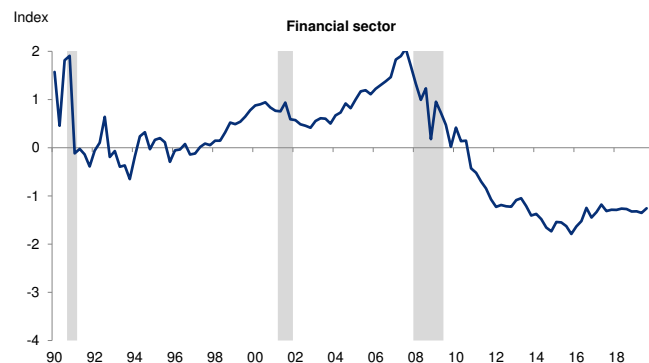
Note: The heat map shows where the indicator is within its historical distribution, with higher numbers, reflected in red shading, consistent with greater vulnerability and lower numbers / green shading consistent with lower vulnerability. Source : Deutsche Bank

Figure 9: Financial sector vulnerabilities broadly limited



Source :FRB, FRBNY, BEA, SIFMA, Haver Analytics, Deutsche Bank

Figure 10: Post-crisis regulation has helped to keep financial sector vulnerabilities well below historical averages



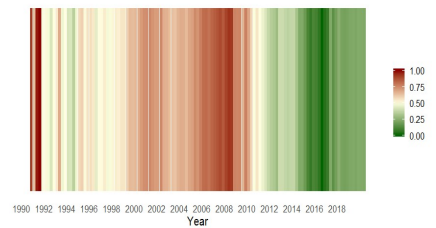
Source :Deutsche Bank



Overall

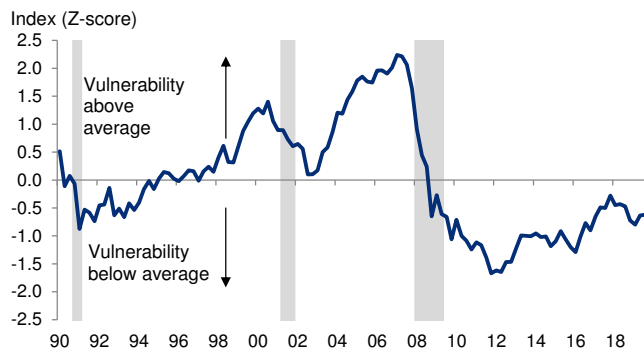
Our overall financial vulnerabilities index is a simple average of the three major subgroups: valuations / risk appetite, nonfinancial sector risks, and financial vulnerabilities. While vulnerabilities appear to be elevated for a few valuations and non-financial corporate balance sheets, with two of the three categories below average in terms of vulnerabilities – namely the household and financial sectors – overall financial risks are judged to be somewhat below the historical average according to this metric. Our DB vulnerability index currently stands around -0.5, which is near its highest level (i.e., highest vulnerability) since the financial crisis but well below previous readings (Figure 12). This assessment is similar to the Fed's judgment that financial stability risks are moderate from a historical perspective.

Figure 11: Heat map for financial sector vulnerabilities



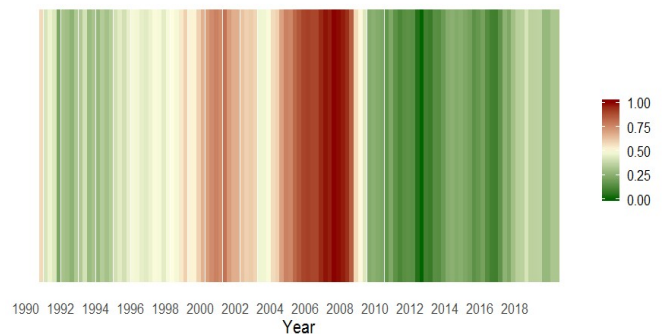
Source : Note: The heat map shows where the indicator is within its historical distribution, with higher numbers, reflected in red shading, consistent with greater vulnerability and lower numbers / green shading consistent with lower vulnerability. Source : Deutsche Bank

Figure 12: Aggregate financial vulnerabilities are a bit below historical average



Source : Deutsche Bank

Figure 13: Heat map for aggregate financial vulnerabilities



Note: The heat map shows where the indicator is within its historical distribution, with higher numbers, reflected in red shading, consistent with greater vulnerability and lower numbers / green shading consistent with lower vulnerability. Source : Deutsche Bank

CCyB Primer: Will 2020 be the year it is triggered?

Our financial vulnerability index has direct implications for how the Fed sets its new macroprudential tool, the countercyclical capital buffer (CCyB). The CCyB is an additional amount of capital that global systemically important banks are required to hold during periods when systemic risks are judged to be "meaningfully above normal". Governor Brainard noted in a speech that this condition could be thought of as consistent with risks in the "upper one-third of their historical distribution."⁴ The CCyB would then be reduced once these risks subside.

The intent of countercyclical tools, such as the CCyB, is to reinforce the resiliency of the financial system by requiring banks to build capital when forward-looking risks to financial stability, and by extension future potential losses for the banking sector, are elevated. Countercyclical tools may also help to smooth out or lean against the business or credit cycles by tightening capital requirements when times are good, and easing regulatory burdens when the cycle turns to help mitigate adverse spillovers from the financial sector to the real economy. In this way, the CCyB could provide an additional tool to supply accommodation with rates structurally closer to the zero lower bound.

Practically, in the US the CCyB is intended to be set at zero during periods when

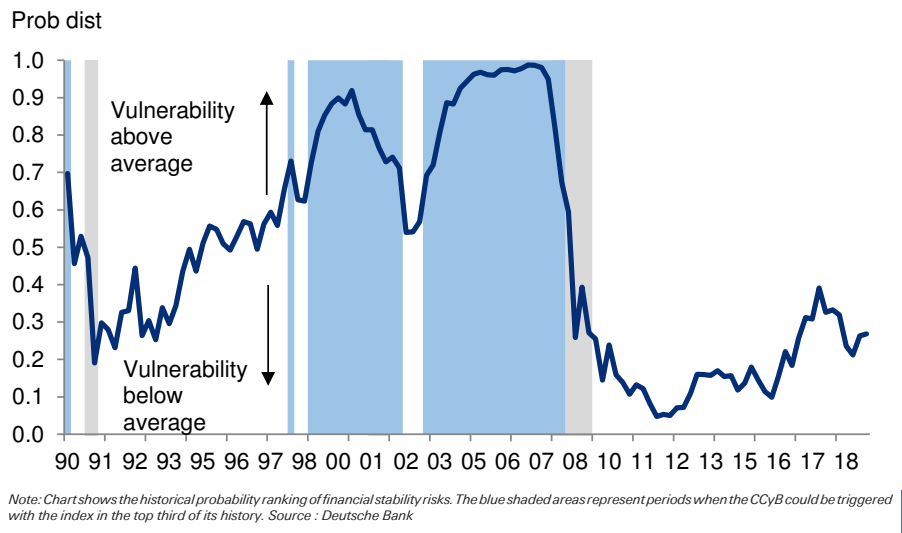
4 See Brainard, Lael (April 3, 2018), "An update on the Federal Reserve's financial stability agenda." Speech at the Center for Global Economy and Business, Stern School of Business.



financial stability risks are not meaningfully above normal. The required additional buffer can be increased up to 2.5% during periods when systemic financial risks are deemed to be sufficiently high. The tool is intended to increase capital burdens only gradually, with a one year grace period given to banks to comply with an increase in the CCyB. This lag time is not symmetric, however, as banks are able to reduce the additional buffer immediately when the CCyB is cut during a downturn.

Translating our financial vulnerabilities index into a percentile rank historically, we find that current vulnerabilities are only around the 30th percentile relative to history. This would fall well short of Governor Brainard's rule of thumb that the CCyB would be positive when vulnerabilities are in the upper third of the historical rank. Figure 14 shows in blue shaded areas the few periods where the CCyB would have been turned on over the past three decades, namely the late 1990s/early 2000s and then again during the housing bubble of the mid-2000s.

Figure 14: Financial vulnerabilities do not meet CCyB's "meaningfully above normal" threshold



Conclusion

Over the next year, it seems likely that at least some Fed officials will become increasingly worried about growing financial stability risks. These concerns are likely to be exacerbated by what we perceive as a structural dovish shift in the Fed's reaction function which now seeks to push inflation and inflation expectations higher in the coming years. A commitment to keep rates lower for longer to achieve dual mandate objectives at a time of elevated asset market valuations could well fuel fears of excessive risk taking. We argued in this note that in this new Fed paradigm macroprudential tools, such as the CCyB, are likely to garner more careful consideration from officials.

An updated look at our DB financial vulnerabilities index concurs with the Fed's assessment that broad stability risks are moderate, though risks related to asset valuations and nonfinancial corporate debt are elevated. Our framework concludes that it will be difficult to judge financial stability risks as elevated as long as housing

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risks remain contained, aggregate consumer balance sheets are sturdy and the post-crisis bank regulation regime remains in place. As such, while some officials will continue to call for an increase in the CCyB, we anticipate it will be kept at its minimum level of zero over the next year.

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Appendix

Figure 15: Indicators for vulnerability index

Broad category/components/sub-components	Time period	Detrending method
(1) Valuation pressures/risk appetite		
Housing		
Price-to-rent ratio	Q1-1990 to Q2-2019	Adjusted by subtracting trailing 10 year moving average
Net share of banks reporting tightening condition for residential mortgages	Q3-1990 to Q4-2019	
Median credit score at mortgage originations	Q2-1999 tp Q3-2019	
Commercial real estate		
Commercial real estate price index	Q1-1990 to Q3-2019	Subtract trailing 10 year moving average
Net share of banks reporting tightening condition for CRE loans	Q4-1990 to Q4-2019	
Business credit		
Spread-Moody's Baa and 10 year yields	Q1-1990 to Q3-2019	log transformation
Spread- High and 10 year yields	Q1-1990 to Q3-2019	log transformation
Net share of banks reporting tightening condition for C&I loans	Q2-1990 to Q4-2019	log transformation
Issuance of riskier corporate credit (HY bonds and leverage loans)	Q1-1997 to Q3-2019	
Equity market		
Price-to-earning ratio adjusted for 10 year treasury yields	Q1-1990 to Q3-2019	log transformation
CAPE (cyclically adjusted S&P price-to-earnings ratio)	Q1-1990 to Q3-2019	
Volatility		
VIX	Q1-1990 to Q3-2019	log transformation
CDS spreads	Q4-2003 to Q1-2019	log transformation
(2) Nonfinancial sector		
Home mortgages		
Total home mortgage debt owned by riskier borrowers (ratio to aggregate DPI)(%)	Q1-2003 to Q2-2019	Subtract trailing 10 year moving average
Incidence of very rapid mortgage borrowing by riskier borrowers (%)	Q1-2003 to Q2-2019	
Home mortgage debt as percent of GDP	Q1-1990 to Q2-2019	
Mortgage Debt Service Ratio	Q1-1990 to Q2-2019	
Consumer credit		
Consumer credit to GDP (%)	Q1-1990 to Q2-2019	Subtract trailing 10 year moving average
Consumer credit debt service ratio to disposable personal income (%)	Q1-1990 to Q2-2019	
Incidence of very rapid borrowing by riskier borrowers	Q1-2004 to Q2-2019	
Nonfinancial business		
Real debt growth	Q1-1990 to Q2-2019	Subtract trailing 10 year moving average
Net leverage of risky firms	Q2-2006 to Q3-2019	
Deep Junk issuance share	Q2-1998 to Q3-2019	
Interest expense	Q2-2006 to Q3-2019	
Debt-to-income ratio	Q1-1990 to Q2-2019	
Leveraged loan issuance	Q1-1997 to Q3-2019	
Debt-EBITDA	Q1-2003 to Q3-2019	
Distress	Q1-1997 to Q3-2019	
Savings		
Business savings (\$bln)	Q1-1990 to Q3-2019	
Personal savings (\$bln)	Q1-1990 to Q3-2019	
(3) Financial sector		
Bank leverage		
Tangible equity to tangible asset ratio	Q1-1996 to Q2-2019	
Tier 1 common ratio at all BHCs	Q1-2001 to Q2-2019	
Total risk-based bank capital ratio (Capital adequacy ratio)	Q1-1996 to Q2-2019	
Nonbank leverage		
Broker-dealer leverage	Q1-1990 to Q2-2019	
Non-agency securitization issuance	Q1-1996 to Q2-2019	
Maturity mismatch		
Loan-to-deposit ratio at BHCs	Q1-1991 to Q2-2019	
Short-term wholesale funding		
Running liabilities in the banking sector	Q1-2012 to Q2-2019	Subtract trailing 5 year moving average
Size / Interconnectedness		
Ratio of financial sector liabilities to GDP	Q1-1990 to Q2-2019	Subtract trailing 10 year moving average
BHCs with assets larger than \$500 bln as share of total banking industry assets	Q1-1991 to Q2-2019	

Source: Deutsche Bank

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Appendix 1

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