

A faint, sepia-toned background image of the Great Seal of the United States is visible behind the title. It shows an eagle with wings spread, holding a shield on its chest, with the motto "E PLURIBUS UNUM" on a banner below it.

2017 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule

February 10, 2017



2017 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule

February 10, 2017

This and other Federal Reserve Board reports and publications are available online at
www.federalreserve.gov/publications/default.htm.

To order copies of Federal Reserve Board publications offered in print,
see the Board's Publication Order Form (www.federalreserve.gov/pubs/orderform.pdf)
or contact:

Publications Fulfillment
Mail Stop N-127
Board of Governors of the Federal Reserve System
Washington, DC 20551
(ph) 202-452-3245
(fax) 202-728-5886
(e-mail) Publications-BOG@frb.gov

Errata

The Federal Reserve revised this paper on February 10, 2017. The revisions reflect a correction to the historical values for the BBB corporate yield. This correction resulted in adjustments to the paths of the BBB corporate yield in the baseline, adverse, and severely adverse scenarios, which also affect the scenario text and tables. The notes on the sources for certain historical data were also revised. The revisions are listed below.

Revisions to the scenario text:

- On page 4, the original text said that spreads between investment-grade corporate bond yields and 10-year Treasury yields widen to a little above 4 percentage points. That spread has been revised to about $3\frac{3}{4}$ percentage points.
- On page 5, the original text said that the spread between yields on investment-grade corporate bonds and yields on long-term Treasury securities widen to about $5\frac{3}{4}$ percentage points. That spread has been revised to a spread of about $5\frac{1}{2}$ percentage points.

Revisions to the scenario tables:

On page 10, under Table 1.A. Historical data: Domestic variables, Q1:2000–Q4:2016, continued:

- BBB corporate yield, Q1 2016 has been revised from 5.1 to 4.6.
- BBB corporate yield, Q2 2016 has been revised from 4.3 to 4.1.
- BBB corporate yield, Q3 2016 has been revised from 4.4 to 3.7.
- BBB corporate yield, Q4 2016 has been revised from 4.5 to 4.1.

On page 13, under Table 2.A. Supervisory baseline scenario: Domestic variables, Q1:2017–Q1:2020:

- BBB corporate yield, Q1 2017 has been revised from 4.7 to 4.2.
- BBB corporate yield, Q2 2017 has been revised from 4.7 to 4.4.
- BBB corporate yield, Q3 2017 has been revised from 4.8 to 4.5.
- BBB corporate yield, Q4 2017 has been revised from 4.9 to 4.6.

- BBB corporate yield, Q1 2018 has been revised from 4.9 to 4.7.
- BBB corporate yield, Q2 2018 has been revised from 5.0 to 4.8.
- BBB corporate yield, Q3 2018 has been revised from 5.1 to 4.9.
- BBB corporate yield, Q4 2018 has been revised from 5.1 to 5.0.
- BBB corporate yield, Q1 2019 has been revised from 5.2 to 5.1.
- BBB corporate yield, Q2 2019 has been revised from 5.2 to 5.1.
- BBB corporate yield, Q3 2019 has been revised from 5.3 to 5.2.
- BBB corporate yield, Q4 2019 has been revised from 5.3 to 5.2.
- BBB corporate yield, Q1 2020 has been revised from 5.3 to 5.2.

On page 14, under Table 3.A. Supervisory adverse scenario: Domestic variables, Q1:2017–Q1:2020:

- BBB corporate yield, Q1 2017 has been revised from 6.1 to 5.6.
- BBB corporate yield, Q2 2017 has been revised from 6.4 to 5.9.
- BBB corporate yield, Q3 2017 has been revised from 6.5 to 6.1.
- BBB corporate yield, Q4 2017 has been revised from 6.6 to 6.2.
- BBB corporate yield, Q1 2018 has been revised from 6.4 to 6.0.
- BBB corporate yield, Q2 2018 has been revised from 6.3 to 5.8.
- BBB corporate yield, Q3 2018 has been revised from 6.1 to 5.6.
- BBB corporate yield, Q4 2018 has been revised from 5.9 to 5.4.
- BBB corporate yield, Q1 2019 has been revised from 5.6 to 5.2.
- BBB corporate yield, Q2 2019 has been revised from 5.4 to 5.0.
- BBB corporate yield, Q3 2019 has been revised from 5.3 to 4.8.

- BBB corporate yield, Q4 2019 has been revised from 5.1 to 4.7.
- BBB corporate yield, Q1 2020 has been revised from 5.0 to 4.5.

On page 15, under Table 4.A. Supervisory severely adverse scenario: Domestic variables, Q1:2017–Q1:2020:

- BBB corporate yield, Q1 2017 has been revised from 5.9 to 5.5.
- BBB corporate yield, Q2 2017 has been revised from 6.4 to 6.0.
- BBB corporate yield, Q3 2017 has been revised from 6.7 to 6.3.
- BBB corporate yield, Q4 2017 has been revised from 6.9 to 6.4.
- BBB corporate yield, Q1 2018 has been revised from 6.5 to 6.1.
- BBB corporate yield, Q2 2018 has been revised from 6.2 to 5.7.
- BBB corporate yield, Q3 2018 has been revised from 5.8 to 5.4.
- BBB corporate yield, Q4 2018 has been revised from 5.5 to 5.0.
- BBB corporate yield, Q1 2019 has been revised from 5.1 to 4.7.
- BBB corporate yield, Q2 2019 has been revised from 4.7 to 4.3.

- BBB corporate yield, Q3 2019 has been revised from 4.5 to 4.0.
- BBB corporate yield, Q4 2019 has been revised from 4.2 to 3.8.
- BBB corporate yield, Q1 2020 has been revised from 4.0 to 3.6.

Revisions to Notes Regarding Scenario Variables:

- On page 16, the note on U.S. real disposable income growth incorrectly referred to NIPA Table 1.2. It now refers to NIPA Table 2.1.
- On page 16, the note on U.S. nominal disposable income growth incorrectly referred to NIPA Table 1.2. It now refers to NIPA Table 2.1.
- On page 16, the note on U.S. mortgage rate omitted to reference additional staff calculations and other sources.
- On page 17, the note on Japan inflation omitted to reference additional staff calculations.
- On page 17, the note on U.K. inflation omitted to reference additional staff calculations.
- On page 17, the note on the exchange rates incorrectly characterized the transformation from daily to quarterly frequency. The exchange rates are end-of-quarter rates, not quarterly averages of daily rates. The same note incorrectly characterized the source of the exchange rates. The source is the H.10 Release, Foreign Exchange Rates, Federal Reserve Board, not Bloomberg.

Contents

Introduction	1
Supervisory Scenarios	3
Baseline, Adverse, and Severely Adverse Scenarios	3
Global Market Shock Components for Supervisory Adverse and Severely Adverse Scenarios	6
Counterparty Default Component for Supervisory Adverse and Severely Adverse Scenarios	7
Variables for the Supervisory Scenarios	9

Introduction

The Dodd-Frank Wall Street Reform and Consumer Protection Act requires the Board of Governors of the Federal Reserve System (Board) to conduct an annual supervisory stress test of bank holding companies (BHCs) with \$50 billion or greater in total consolidated assets (large BHCs), and to require BHCs and state member banks with total consolidated assets of more than \$10 billion to conduct company-run stress tests at least once a year.¹ This publication describes the three supervisory scenarios—baseline, adverse, and severely adverse—that

¹ 12 U.S.C. 5365(i).

the Board will use in its supervisory stress test for this stress test cycle; that a BHC or state member bank must use in conducting its annual company-run stress test; and that a large BHC must use to estimate projected revenues, losses, reserves, and pro forma capital levels as part of its 2017 capital plan submission.² The publication also details additional components that certain BHCs will be required to incorporate into the supervisory scenarios—the global market shock component and the counterparty default component.

² See 12 CFR 252.14(b), 12 CFR 252.54(b), and 12 CFR 225.8.

Supervisory Scenarios

The adverse and severely adverse scenarios describe hypothetical sets of conditions designed to assess the strength of banking organizations and their resilience to adverse economic environments. The baseline scenario follows a profile similar to the average projections from a survey of economic forecasters. The scenarios are not forecasts of the Federal Reserve.³

The scenarios start in the first quarter of 2017 and extend through the first quarter of 2020. Each scenario includes 28 variables; this set of variables is the same as the set provided in last year's supervisory scenarios. The variables describing economic developments within the United States include:

- **Six measures of economic activity and prices:** percent changes (at an annual rate) in real and nominal gross domestic product (GDP); the unemployment rate of the civilian non-institutional population aged 16 years and over; percent changes (at an annual rate) in real and nominal disposable personal income; and the percent change (at an annual rate) in the consumer price index (CPI);
- **Four aggregate measures of asset prices or financial conditions:** indexes of house prices, commercial real estate prices, equity prices, and U.S. stock market volatility; and
- **Six measures of interest rates:** the rate on the 3-month Treasury bill; the yield on the 5-year Treasury bond; the yield on the 10-year Treasury bond; the yield on a 10-year BBB corporate security; the interest rate associated with a conforming, conventional, 30-year fixed-rate mortgage; and the prime rate.

The variables describing international economic conditions in each scenario include three variables in four countries or country blocks:

- **The three variables for each country or country block:** the percent change (at an annual rate) in real

GDP, the percent change (at an annual rate) in the CPI or local equivalent, and the level of the U.S. dollar exchange rate.

- **The four countries or country blocks included:** the euro area (the 19 European Union member states that have adopted the euro as their common currency), the United Kingdom, developing Asia (the nominal GDP-weighted aggregate of China, India, South Korea, Hong Kong Special Administrative Region, and Taiwan), and Japan.

Baseline, Adverse, and Severely Adverse Scenarios

The following sections describe the baseline scenario, the adverse scenario, and the severely adverse scenario. The variables included in these scenarios are provided in tables at the end of this document. They can also be downloaded as a spreadsheet (together with the historical time series of the variables) from the Board's website, at www.federalreserve.gov/bankinfo/ccar-2017.htm#data. Historical data for the domestic and the international variables are reported in [Tables 1A](#) and [1B](#), respectively.

Baseline Scenario

The baseline outlook for U.S. real activity, inflation, and interest rates (see [Table 2A](#)) is similar to the January 2017 consensus projections from *Blue Chip Economic Indicators*.⁴ This scenario does not represent the forecast of the Federal Reserve.

The baseline scenario for the United States is a moderate economic expansion through the projection period. Real GDP grows on average about 2¼ percent per year, with a slightly faster pace of growth over the first half of the scenario period. The unemployment rate initially declines from around 4¾ percent at the start of the scenario period to slightly

³ For more on the Federal Reserve's framework for designing scenarios for stress testing, see 12 CFR 252, appendix A.

⁴ See Wolters Kluwer Legal and Regulatory Solutions (2017), "Blue Chip Economic Indicators," vol. 42, no. 1 (January 10).

under 4½ percent in the fourth quarter of 2018. It subsequently rises slightly above that level through the rest of the scenario period. CPI inflation moves to a little under 2½ percent at an annual rate by the end of 2018, before dropping back to about 2¼ percent and remaining near that level through the end of the scenario period.

Accompanying the moderate economic expansion, Treasury yields are assumed to rise steadily across the maturity spectrum through the scenario period. Short-term Treasury rates increase from ½ percent at the beginning of 2017 to about 2¼ percent by the beginning of 2019, while yields on 10-year Treasury securities rise from 2¼ percent to a little more than 3¼ percent over the same period. The prime rate increases in line with short-term Treasury rates and mortgage rates rise in line with long-term Treasury yields. Reflecting steady growth and stable economic conditions, spreads between yields on investment-grade corporate bonds and yields on long-term Treasury securities narrow modestly over the scenario period. Equity prices rise by an average of about 5 percent per year and equity market volatility is assumed to remain near its historical average level. Nominal house prices rise by an average of 2¾ percent per year and commercial real estate prices rise by an average of 4¼ percent per year.

The outlook for the international variables (see [Table 2B](#)) is similar to that reported in the January 2017 *Blue Chip Economic Indicators* and the International Monetary Fund's October 2016 *World Economic Outlook*.⁵ The baseline scenario features an expansion in international economic activity, albeit one that proceeds at different rates in the four countries or country blocks under consideration. Real GDP growth in developing Asia averages about 6 percent per year over the scenario period; real GDP growth in both the euro area and the United Kingdom averages about 1½ percent per year; and real GDP growth in Japan averages ¾ percent per year.

Adverse Scenario

The adverse scenario is characterized by weakening economic activity across all of the economies included in the scenario. This economic downturn is accompanied by a global aversion to long-term

fixed-income assets that, despite lower short rates, brings about a near-term rise in long-term rates and steepening yield curves in the United States and the four countries/country blocks in the scenario. It is important to note that this is a hypothetical scenario designed to assess the strength of banking organizations and their resilience to adverse economic conditions. This scenario does not represent a forecast of the Federal Reserve.

In the adverse scenario, the U.S. economy experiences a moderate recession that begins in the first quarter of 2017 (see [Table 3A](#)). Real GDP falls slightly more than 2 percent from the pre-recession peak in the fourth quarter of 2016 to the recession trough in the first quarter of 2018, while the unemployment rate rises steadily, peaking at about 7¼ percent in the third quarter of 2018. The U.S. recession is accompanied by an initial fall in inflation through the third quarter of 2017, with the rate of increase in consumer prices then rising steadily and reaching 2 percent by the middle of 2018.

Reflecting weak economic conditions, short-term interest rates in the United States fall and remain near zero for the rest of the scenario period. With the increase in term premiums, 10-year Treasury yields gradually rise to a little less than 2¾ percent by the second half of 2018. Financial conditions tighten for corporations and households during the recession. Spreads between investment-grade corporate bond yields and 10-year Treasury yields widen to about 3¾ percentage points by the end of 2017, while spreads between mortgage rates and 10-year Treasury yields widen to about 2½ percentage points over the same period.

Asset prices decline in the adverse scenario. Equity prices fall approximately 40 percent through the fourth quarter of 2017, accompanied by a rise in equity market volatility. Aggregate house prices and commercial real estate prices experience less sizable but more sustained declines compared to equity prices; house prices fall 12 percent through the first quarter of 2019 and commercial real estate prices fall 15 percent through the fourth quarter of 2018.

Following the recession in the United States, real activity picks up slowly at first and then gains momentum; growth in real U.S. GDP accelerates from an increase of 1 percent at an annual rate in the second quarter of 2018 to an increase of 3 percent at an annual rate by the middle of 2019. The unemployment rate declines modestly, from its peak of about

⁵ See International Monetary Fund (2016), "World Economic Outlook," www.imf.org/external/pubs/ft/weo/2016/02.

7¼ percent in the third quarter of 2018 to under 7 percent by the end of the scenario period. Consumer price inflation remains at roughly 2 percent from the middle of 2018 through the end of the scenario period. Ten-year Treasury yields show little change after the second half of 2018 and remain around 2¾ percent.

Outside of the United States, the adverse scenario features recessions in the euro area, the United Kingdom, and Japan, as well as below-trend growth in developing Asia (see [Table 3B](#)). The declines in activity in the euro area and the United Kingdom are broadly similar and less pronounced than in Japan. Weakness in global demand results in a slowing in inflation in all of the foreign economies under consideration. Japan experiences outright deflation through the first quarter of 2019. Reflecting flight-to-safety capital flows, the U.S. dollar appreciates against the euro, the pound sterling, and the currencies of developing Asia. The dollar depreciates modestly against the yen, also in line with flight-to-safety capital flows.

Comparison of 2016 Adverse Scenario and 2017 Adverse Scenario

The main difference relative to the 2016 adverse scenario is that this year's adverse scenario features higher long-term rates and a steeper yield curve across all of the economies during the recession. Another difference from last year's scenario is the incidence and extent of deflationary episodes. The 2016 adverse scenario featured wide-spread deflation across all of the economies included in the scenario. In this year's adverse scenario, deflation is regionally concentrated—more pronounced in Japan, less severe in the euro area and developing Asia, and absent in the United Kingdom and United States.

Additional Key Features of the Adverse Scenario

As in last year's adverse scenario, the slowdown in euro area economic activity reflects a broad-based contraction in euro area demand, not a contraction that is concentrated in a few specific economies. Similarly, the slowdown in developing Asia reflects a weakening in economic conditions across emerging market economies, not merely a weakening in Asia-specific conditions. Declines in aggregate U.S. residential real estate prices and commercial real estate prices should be assumed to be concentrated in regions that have experienced rapid price gains over

the past several years. Declines in prices of U.S. housing and commercial real estate should also be assumed to be representative of risks to house prices and commercial real estate prices in foreign regions and economies that have experienced rapid price gains over the past several years.

Severely Adverse Scenario

The severely adverse scenario is characterized by a severe global recession that is accompanied by a period of heightened stress in corporate loan markets and commercial real estate markets. It is important to note that this is a hypothetical scenario designed to assess the strength of banking organizations and their resilience to unfavorable economic conditions. This scenario does not represent a forecast of the Federal Reserve.⁶

In this scenario, the level of U.S. real GDP begins to decline in the first quarter of 2017 and reaches a trough in the second quarter of 2018 that is about 6½ percent below the pre-recession peak (see [Table 4A](#)). The unemployment rate increases by about 5¼ percentage points, to 10 percent, by the third quarter of 2018. Headline consumer price inflation falls to about 1¼ percent at an annual rate by the second quarter of 2017 and then rises to about 1¾ percent at an annual rate by the middle of 2018.

As a result of the severe decline in real activity, short-term Treasury rates fall and remain near zero through the end of the scenario period. The 10-year Treasury yield drops to ¾ percent in the first quarter of 2017, rising gradually thereafter to around 1½ percent by the first quarter of 2019 and to about 1¾ percent by the first quarter of 2020. Financial conditions in corporate and real estate lending markets are stressed severely. The spread between yields on investment-grade corporate bonds and yields on long-term Treasury securities widens to about 5½ percentage points by the end of 2017, an increase of 3½ percentage points relative to the fourth quarter of 2016. The spread between mortgage rates and 10-year Treasury yields widens to over 3½ percentage points over the same time period.

⁶ The set of hypothetical conditions in the severely adverse scenario is distinct from the set of hypothetical conditions in the adverse scenario, unless otherwise noted.

Asset prices drop sharply in this scenario. Equity prices fall by 50 percent through the end of 2017, accompanied by a surge in equity market volatility, which approaches the levels attained in 2008. House prices and commercial real estate prices also experience large declines, with house prices and commercial real estate prices falling by 25 percent and 35 percent, respectively, through the first quarter of 2019.

The international component of this scenario features severe recessions in the euro area, the United Kingdom, and Japan and a marked growth slowdown in developing Asia (see [Table 4B](#)). As a result of the sharp contraction in economic activity, all foreign economies included in the scenario experience a decline in consumer prices. As in this year's adverse scenario, the U.S. dollar appreciates against the euro, the pound sterling, and the currencies of developing Asia but depreciates modestly against the yen because of flight-to-safety capital flows.

Comparison of 2016 Severely Adverse Scenario and 2017 Severely Adverse Scenario

This year's severely adverse scenario features a slightly more severe downturn in the U.S. economy as compared to last year's scenario. Under this framework, the unemployment rate in the severely adverse scenario will reach a peak of at least 10 percent, which leads to a progressively greater increase in the unemployment rate if the starting unemployment rate is below 6 percent. Furthermore, this year's scenario does not feature a path of negative short-term U.S. Treasury rates that was featured in last year's scenario. In addition, this year's severely adverse scenario features a larger decline in commercial real estate prices. The international dimension of the scenarios shows recessionary episodes that, relative to last year's scenario, are more severe in the euro area and United Kingdom but less severe in developing Asia.

Additional Key Features of the Severely Adverse Scenario

As in the adverse scenario, the weakness in euro area economic conditions reflects a broad-based contraction in euro area demand, although this contraction should be assumed to be more protracted in countries with less room for fiscal policy intervention. The sharp slowdown in developing Asia is distributed unevenly across countries, with decelerations more pronounced in the larger economies. Economic

conditions in developing Asia should be assumed to be representative of conditions across emerging market economies.

Declines in aggregate U.S. commercial and residential real estate prices should be assumed to be concentrated in regions and property types that have experienced rapid price gains over the past several years. In particular, given that prices of multifamily properties have risen rapidly in recent years, they should be assumed to decline by more than the CRE index. Declines in prices of U.S. housing and commercial real estate should also be assumed to be representative of risks to house prices and commercial real estate prices in foreign regions and economies, particularly where real estate prices have been growing at a fast pace. Spreads on commercial mortgage-backed securities (CMBS) widen to attain the same peaks reached in the 2007–2009 recession.

Global Market Shock Components for Supervisory Adverse and Severely Adverse Scenarios

The global market shock is a set of instantaneous, hypothetical shocks to a large set of risk factors. Generally, these shocks involve large and sudden changes in asset prices, interest rates, and spreads, reflecting general market distress and heightened uncertainty.⁷ BHCs with significant trading activity will be required to include the global market shock as part of their supervisory adverse and severely adverse scenarios.⁸ In addition, as discussed below, certain large and highly interconnected BHCs must apply the same global market shock to their counterparty exposures to project losses under the counterparty default scenario component. The as-of date for the global market shock is January 3, 2017.⁹

⁷ The global market shock components consist of shocks to a large number of risk factors that include a wide range of financial market variables that affect asset prices, such as a credit spread or the yield on a bond, and also include, in some cases, shocks to the value of the position itself (for example, the market value of private-equity positions).

⁸ For this cycle, six BHCs are subject to the global market shock components: Bank of America Corporation; Citigroup Inc.; The Goldman Sachs Group, Inc.; JPMorgan Chase & Co.; Morgan Stanley; and Wells Fargo & Company. See 12 CFR 252.54(b)(2)(i).

⁹ A BHC may use data as of the date that corresponds to its weekly internal risk reporting cycle as long as it falls during the business week of the as-of date for the global market shock (i.e., January 2, 2017, to January 6, 2017).

2017 Adverse Scenario

The global market shock component for the adverse scenario simulates an extended low-growth environment and muted market volatility across most asset classes and term structures. Generally, domestic government yields and associated volatility move lower, while swap spreads widen. Due to reduced demand, global commodity prices decline moderately, while mortgage-backed securities (MBS) and domestic credit spreads widen moderately. Select currency markets also experience small flight-to-quality moves. Equity markets experience a mild correction with a measured increase in volatility.

The 2017 adverse scenario addresses themes similar to those of the 2016 adverse scenario.

2017 Severely Adverse Scenario

The severely adverse scenario's global market shock is designed around three main elements: a sudden sharp increase in general risk premiums and credit risk; significant market illiquidity; and the distress of one or more large entities that rapidly sell a variety of assets into an already fragile market. Liquidity deterioration is most severe in those asset markets that are typically less liquid, such as non-agency securitized products, corporate debt and private equity, and is less pronounced in those markets that are typically more liquid, such as foreign exchange, publicly traded equity and U.S. Treasury markets. Markets facing a significant deterioration in liquidity experience conditions that are generally comparable to the peak-to-trough changes in asset valuations during the 2007–2009 period. The severity of deterioration reflects the market conditions that could occur in the event of a significant pullback in market liquidity in which market participants are less able to engage in market transactions that could offset or moderate the price dislocations. Worsening liquidity also leads prices of related assets that would ordinarily be expected to move together to diverge markedly. In particular, the valuation of certain cash market securities and their derivative counterparts fail to move together because the normal market mechanics that would ordinarily result in small pricing differentials are impeded by a lack of market liquidity. Notably, option-adjusted spreads on agency MBS increase significantly.

Globally, government bond yield curves undergo shifts in level and shape due to market participants'

increased risk aversion. The flight-to-quality and lack of liquidity in affected markets push risk-free rates down in the United States. The yield curves for government bonds generally rally across advanced economies while volatility increases across the term structure. Emerging market countries with deteriorating economic and fiscal accounts would also experience a sharp increase in sovereign spreads.

The major differences between the 2017 and 2016 severely adverse scenarios include (1) dampened shocks to interest rates and other liquid markets, (2) increased shocks to select commodities and equities basis risks, and (3) a less severe widening in spreads between agency MBS and TBA forwards.

Counterparty Default Component for Supervisory Adverse and Severely Adverse Scenarios

In CCAR 2016, the eight BHCs with substantial trading or custodial operations will be required to incorporate a counterparty default scenario component into their supervisory adverse and severely adverse stress scenarios.¹⁰ The counterparty default scenario component involves the instantaneous and unexpected default of the BHC's largest counterparty.¹¹

In connection with the counterparty default scenario component, these BHCs will be required to estimate and report the potential losses and related effects on capital associated with the instantaneous and unexpected default of the counterparty that would generate the largest losses across their derivatives and securities financing activities, including securities lending, and repurchase or reverse repurchase agreement activities. The counterparty default scenario component is an add-on to the macroeconomic conditions and financial market environment specified in the Federal Reserve's adverse and severely adverse stress scenarios.

¹⁰ The eight BHCs subject to the counterparty default component are as follows: Bank of America Corporation; The Bank of New York Mellon Corp.; Citigroup Inc.; The Goldman Sachs Group, Inc.; JPMorgan Chase & Co.; Morgan Stanley; State Street Corp.; and Wells Fargo & Company. See 12 CFR 252.54(b)(2)(ii).

¹¹ In selecting its largest counterparty, a BHC will not consider certain sovereign entities (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States) or designated central clearing counterparties.

Each BHC's largest counterparty will be determined by net stressed losses; estimated by applying the global market shock to revalue non-cash securities financing activity assets (securities or collateral) posted or received; and for derivatives, to the value of the trade position and non-cash collateral exchanged. The as-of date for the counterparty

default scenario component is January 3, 2017—the same date as the global market shock.¹²

¹² As with the global market shock, a BHC may use data as of the date that corresponds to its weekly internal risk reporting cycle as long as it falls during the business week of the as-of date for the counterparty default scenario component (i.e., January 3 to January 6, 2017).

Variables for the Supervisory Scenarios

Table 1A. Historical data: Domestic variables, Q1:2000–Q4:2016

Percent, unless otherwise indicated.

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Level			
													Dow Jones Total Stock Market Index	House Price Index	Commercial Real Estate Price Index	Market Volatility Index
Q1 2000	1.2	4.3	8.1	11.8	4.0	4.0	5.5	6.6	6.7	8.2	8.3	8.7	14,296	102	125	27.0
Q2 2000	7.8	10.2	4.2	6.1	3.9	3.2	5.7	6.5	6.4	8.5	8.3	9.2	13,619	105	124	33.5
Q3 2000	0.5	3.1	4.8	7.4	4.0	3.7	6.0	6.1	6.1	8.1	8.0	9.5	13,613	107	137	21.9
Q4 2000	2.3	4.5	1.4	3.6	3.9	2.9	6.0	5.6	5.8	7.9	7.6	9.5	12,176	110	141	31.7
Q1 2001	-1.1	1.4	3.5	6.3	4.2	3.9	4.8	4.9	5.3	7.4	7.0	8.6	10,646	112	139	32.8
Q2 2001	2.1	5.1	-0.3	1.6	4.4	2.8	3.7	4.9	5.5	7.5	7.1	7.3	11,407	114	139	34.7
Q3 2001	-1.3	0.0	9.8	10.1	4.8	1.1	3.2	4.6	5.3	7.3	6.9	6.6	9,563	116	141	43.7
Q4 2001	1.1	2.3	-4.9	-4.6	5.5	-0.3	1.9	4.2	5.1	7.2	6.8	5.2	10,708	118	136	35.3
Q1 2002	3.7	5.1	10.1	10.9	5.7	1.3	1.7	4.5	5.4	7.6	7.0	4.8	10,776	120	137	26.1
Q2 2002	2.2	3.8	2.0	5.2	5.8	3.2	1.7	4.5	5.4	7.6	6.8	4.8	9,384	123	136	28.4
Q3 2002	2.0	3.8	-0.5	1.5	5.7	2.2	1.6	3.4	4.5	7.3	6.2	4.8	7,774	126	139	45.1
Q4 2002	0.3	2.4	1.9	3.8	5.9	2.4	1.3	3.1	4.3	7.0	6.1	4.5	8,343	129	142	42.6
Q1 2003	2.1	4.6	1.1	4.0	5.9	4.2	1.2	2.9	4.2	6.5	5.8	4.3	8,052	132	148	34.7
Q2 2003	3.8	5.1	5.9	6.3	6.1	-0.7	1.0	2.6	3.8	5.7	5.5	4.2	9,342	135	149	29.1
Q3 2003	6.9	9.3	6.7	9.3	6.1	3.0	0.9	3.1	4.4	6.0	6.1	4.0	9,650	138	147	22.7
Q4 2003	4.8	6.8	1.6	3.3	5.8	1.5	0.9	3.2	4.4	5.8	5.9	4.0	10,800	143	146	21.1
Q1 2004	2.3	5.9	2.9	6.1	5.7	3.4	0.9	3.0	4.1	5.5	5.6	4.0	11,039	148	153	21.6
Q2 2004	3.0	6.6	4.0	7.0	5.6	3.2	1.1	3.7	4.7	6.1	6.2	4.0	11,145	154	160	20.0
Q3 2004	3.7	6.3	2.1	4.5	5.4	2.6	1.5	3.5	4.4	5.8	5.9	4.4	10,894	159	172	19.3
Q4 2004	3.5	6.4	5.1	8.5	5.4	4.4	2.0	3.5	4.3	5.4	5.7	4.9	11,951	165	176	16.6
Q1 2005	4.3	8.3	-3.8	-1.8	5.3	2.0	2.5	3.9	4.4	5.4	5.8	5.4	11,637	172	176	14.6
Q2 2005	2.1	5.1	3.2	6.0	5.1	2.7	2.9	3.9	4.2	5.5	5.7	5.9	11,857	179	182	17.7
Q3 2005	3.4	7.3	2.1	6.6	5.0	6.2	3.4	4.0	4.3	5.5	5.8	6.4	12,283	185	187	14.2
Q4 2005	2.3	5.4	3.4	6.6	5.0	3.8	3.8	4.4	4.6	5.9	6.2	7.0	12,497	191	195	16.5
Q1 2006	4.9	8.2	9.5	11.5	4.7	2.1	4.4	4.6	4.7	6.0	6.3	7.4	13,122	194	200	14.6
Q2 2006	1.2	4.5	0.6	3.7	4.6	3.7	4.7	5.0	5.2	6.5	6.6	7.9	12,809	193	209	23.8
Q3 2006	0.4	3.2	1.2	4.1	4.6	3.8	4.9	4.8	5.0	6.4	6.5	8.3	13,322	192	219	18.6
Q4 2006	3.2	4.6	5.3	4.6	4.4	-1.6	4.9	4.6	4.7	6.1	6.2	8.3	14,216	191	217	12.7
Q1 2007	0.2	4.8	2.6	6.5	4.5	4.0	5.0	4.6	4.8	6.1	6.2	8.3	14,354	189	227	19.6
Q2 2007	3.1	5.4	0.8	4.0	4.5	4.6	4.7	4.7	4.9	6.3	6.4	8.3	15,163	183	236	18.9
Q3 2007	2.7	4.2	1.1	3.4	4.7	2.6	4.3	4.5	4.8	6.5	6.5	8.2	15,318	178	249	30.8
Q4 2007	1.4	3.2	0.3	4.4	4.8	5.0	3.4	3.8	4.4	6.4	6.2	7.5	14,754	172	251	31.1
Q1 2008	-2.7	-0.5	2.9	6.5	5.0	4.4	2.1	2.8	3.9	6.5	5.9	6.2	13,284	165	240	32.2
Q2 2008	2.0	4.0	8.7	13.3	5.3	5.3	1.6	3.2	4.1	6.8	6.1	5.1	13,016	157	224	24.1
Q3 2008	-1.9	0.8	-8.9	-5.1	6.0	6.3	1.5	3.1	4.1	7.2	6.3	5.0	11,826	149	233	46.7
Q4 2008	-8.2	-7.7	2.6	-3.2	6.9	-8.9	0.3	2.2	3.7	9.4	5.8	4.1	9,057	142	223	80.9
Q1 2009	-5.4	-4.5	-0.8	-3.0	8.3	-2.7	0.2	1.9	3.2	9.0	5.0	3.3	8,044	137	209	56.7
Q2 2009	-0.5	-1.2	2.9	4.7	9.3	2.1	0.2	2.3	3.7	8.2	5.1	3.3	9,343	137	178	42.3

(continued)

Table 1A.—*continued*

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Level			
													Dow Jones Total Stock Market Index	House Price Index	Commercial Real Estate Price Index	Market Volatility Index
Q3 2009	1.3	1.2	-4.3	-1.9	9.6	3.5	0.2	2.5	3.8	6.8	5.1	3.3	10,813	138	154	31.3
Q4 2009	3.9	5.2	-0.5	2.2	9.9	3.2	0.1	2.3	3.7	6.1	4.9	3.3	11,385	138	155	30.7
Q1 2010	1.7	3.2	0.4	1.8	9.8	0.6	0.1	2.4	3.9	5.8	5.0	3.3	12,032	138	150	27.3
Q2 2010	3.9	5.8	5.3	5.8	9.6	-0.1	0.1	2.3	3.6	5.6	4.8	3.3	10,646	137	165	45.8
Q3 2010	2.7	4.6	2.0	3.2	9.5	1.2	0.2	1.6	2.9	5.1	4.4	3.3	11,814	135	167	32.9
Q4 2010	2.5	4.7	2.8	5.0	9.5	3.3	0.1	1.5	3.0	5.0	4.5	3.3	13,131	133	173	23.5
Q1 2011	-1.5	0.2	5.0	8.2	9.0	4.3	0.1	2.1	3.5	5.4	4.9	3.3	13,909	132	180	29.4
Q2 2011	2.9	6.0	-0.6	3.5	9.1	4.6	0.0	1.8	3.3	5.1	4.6	3.3	13,843	132	177	22.7
Q3 2011	0.8	3.3	2.1	4.3	9.0	2.6	0.0	1.1	2.5	4.9	4.2	3.3	11,677	132	177	48.0
Q4 2011	4.6	5.2	0.2	1.6	8.6	1.8	0.0	1.0	2.1	5.0	4.0	3.3	13,019	132	188	45.5
Q1 2012	2.7	4.9	6.7	9.2	8.3	2.4	0.1	0.9	2.1	4.7	3.9	3.3	14,627	134	188	23.0
Q2 2012	1.9	3.8	3.1	4.4	8.2	0.8	0.1	0.8	1.8	4.5	3.8	3.3	14,100	137	189	26.7
Q3 2012	0.5	2.7	-0.2	1.1	8.0	1.6	0.1	0.7	1.6	4.2	3.5	3.3	14,895	140	197	20.5
Q4 2012	0.1	1.7	10.9	13.3	7.8	2.9	0.1	0.7	1.7	3.9	3.4	3.3	14,835	143	198	22.7
Q1 2013	2.8	4.4	-15.7	-14.5	7.7	1.6	0.1	0.8	1.9	4.0	3.5	3.3	16,396	147	202	19.0
Q2 2013	0.8	1.6	2.4	2.5	7.5	-0.5	0.1	0.9	2.0	4.1	3.7	3.3	16,771	151	213	20.5
Q3 2013	3.1	5.1	2.4	3.9	7.3	2.0	0.0	1.5	2.7	4.9	4.4	3.3	17,718	154	224	17.0
Q4 2013	4.0	6.1	0.9	2.6	6.9	1.9	0.1	1.4	2.8	4.8	4.3	3.3	19,413	158	229	20.3
Q1 2014	-1.2	0.6	4.5	6.6	6.7	2.4	0.0	1.6	2.8	4.6	4.4	3.3	19,711	160	229	21.4
Q2 2014	4.0	6.3	5.3	7.3	6.2	1.9	0.0	1.7	2.7	4.3	4.2	3.3	20,569	161	239	17.0
Q3 2014	5.0	6.7	4.1	5.2	6.1	0.9	0.0	1.7	2.5	4.2	4.1	3.3	20,459	163	245	17.0
Q4 2014	2.3	2.8	4.3	4.3	5.7	-0.3	0.0	1.6	2.3	4.2	3.9	3.3	21,425	165	253	26.3
Q1 2015	2.0	2.1	2.0	0.3	5.6	-2.9	0.0	1.5	2.0	4.0	3.7	3.3	21,708	168	262	22.4
Q2 2015	2.6	4.9	3.9	5.8	5.4	2.4	0.0	1.5	2.2	4.2	3.8	3.3	21,631	170	266	18.9
Q3 2015	2.0	3.2	3.3	4.4	5.2	1.4	0.0	1.6	2.3	4.5	3.9	3.3	19,959	172	272	40.7
Q4 2015	0.9	1.8	3.0	3.4	5.0	0.8	0.1	1.6	2.2	4.6	3.9	3.3	21,101	174	277	24.4
Q1 2016	0.8	1.3	2.1	2.4	4.9	-0.3	0.3	1.4	2.0	4.6	3.7	3.5	21,179	177	278	28.1
Q2 2016	1.4	3.7	2.9	5.0	4.9	2.5	0.3	1.3	1.8	4.1	3.6	3.5	21,621	179	283	25.8
Q3 2016	3.5	5.0	2.6	4.1	4.9	1.6	0.3	1.2	1.6	3.7	3.4	3.5	22,469	182	290	18.1
Q4 2016	3.1	6.1	1.6	4.5	4.7	3.4	0.4	1.7	2.2	4.1	3.9	3.5	23,277	183	294	22.5

Note: Refer to [Notes Regarding Scenario Variables](#) for more information on the definitions and sources of historical observations of the variables in the table.

Table 1B. Historical data: International variables, Q1:2000–Q4:2016

Percent, unless otherwise indicated.

Date	Euro area real GDP growth	Euro area inflation	Euro area bilateral dollar exchange rate (USD/euro)	Developing Asia real GDP growth	Developing Asia inflation	Developing Asia bilateral dollar exchange rate (F/USD, index)	Japan real GDP growth	Japan inflation	Japan bilateral dollar exchange rate (yen/USD)	U.K. real GDP growth	U.K. inflation	U.K. bilateral dollar exchange rate (USD/pound)
Q1 2000	4.4	2.6	0.957	7.0	1.5	100.0	7.9	-2.7	102.7	4.1	0.3	1.592
Q2 2000	3.8	0.9	0.955	7.1	-0.2	100.7	0.8	1.2	106.1	2.9	0.5	1.513
Q3 2000	2.2	3.4	0.884	8.1	2.2	101.5	0.1	-1.2	107.9	1.1	1.0	1.479
Q4 2000	3.3	2.8	0.939	2.9	2.5	105.1	4.0	-0.6	114.4	0.6	1.9	1.496
Q1 2001	3.5	1.2	0.879	4.9	1.7	106.0	2.6	-1.2	125.5	5.3	0.0	1.419
Q2 2001	0.4	4.0	0.847	5.5	2.1	106.1	-2.4	-0.3	124.7	2.8	3.2	1.408
Q3 2001	0.3	1.4	0.910	4.7	1.2	106.4	-4.4	-1.1	119.2	2.7	1.0	1.469
Q4 2001	0.7	1.7	0.890	8.5	0.0	106.9	-0.8	-1.4	131.0	1.6	-0.1	1.454
Q1 2002	0.7	3.1	0.872	7.7	0.4	107.3	0.3	-2.7	132.7	1.7	2.0	1.425
Q2 2002	1.9	2.0	0.986	8.1	1.1	104.8	3.2	1.7	119.9	3.0	0.9	1.525
Q3 2002	1.6	1.6	0.988	7.2	1.5	105.5	1.7	-0.7	121.7	3.1	1.3	1.570
Q4 2002	0.4	2.3	1.049	6.5	0.8	104.5	1.5	-0.4	118.8	3.5	1.9	1.610
Q1 2003	-0.8	3.3	1.090	6.7	3.6	105.5	-1.2	-1.6	118.1	3.3	1.7	1.579
Q2 2003	0.2	0.5	1.150	2.1	1.2	104.0	3.8	1.7	119.9	3.7	0.2	1.653
Q3 2003	2.2	2.1	1.165	14.3	0.1	102.6	1.7	-0.7	111.4	4.0	1.7	1.662
Q4 2003	2.9	2.3	1.260	13.0	5.5	103.4	4.3	-0.6	107.1	3.3	1.7	1.784
Q1 2004	2.4	2.2	1.229	5.6	4.1	101.4	3.5	-0.9	104.2	2.3	1.4	1.840
Q2 2004	2.1	2.6	1.218	6.9	4.1	102.8	-0.3	1.1	109.4	1.9	0.8	1.813
Q3 2004	1.3	2.0	1.242	8.3	4.0	102.7	1.9	0.1	110.2	0.8	1.1	1.809
Q4 2004	1.4	2.4	1.354	6.4	0.8	98.9	-1.6	1.7	102.7	2.4	2.4	1.916
Q1 2005	0.8	1.4	1.297	10.6	2.9	98.6	2.2	-2.7	107.2	2.3	2.6	1.889
Q2 2005	2.6	2.2	1.210	8.6	1.5	98.9	3.6	-1.0	110.9	4.4	1.8	1.793
Q3 2005	3.1	3.1	1.206	9.3	2.3	98.6	3.9	-1.0	113.3	4.4	2.8	1.770
Q4 2005	2.5	2.5	1.184	11.7	1.7	98.1	0.7	0.2	117.9	5.5	1.4	1.719
Q1 2006	3.7	1.7	1.214	11.0	2.4	96.8	0.2	1.2	117.5	1.3	1.9	1.739
Q2 2006	4.2	2.5	1.278	7.0	3.2	96.7	1.7	0.4	114.5	0.9	3.0	1.849
Q3 2006	2.6	2.1	1.269	10.3	2.1	96.4	-0.7	0.4	118.0	0.6	3.3	1.872
Q4 2006	4.4	0.9	1.320	11.2	3.7	94.6	4.5	-0.6	119.0	1.4	2.7	1.959
Q1 2007	3.1	2.3	1.337	13.9	3.6	94.0	3.6	-0.7	117.6	4.1	2.5	1.969
Q2 2007	2.5	2.3	1.352	10.5	4.9	91.9	-0.4	0.4	123.4	3.0	1.8	2.006
Q3 2007	1.8	2.1	1.422	8.7	7.5	90.6	-1.2	0.3	115.0	3.1	0.3	2.039
Q4 2007	2.2	4.9	1.460	12.8	6.0	89.4	1.9	2.2	111.7	3.0	4.0	1.984
Q1 2008	2.0	4.3	1.581	7.2	8.1	88.0	1.6	1.3	99.9	0.6	3.4	1.986
Q2 2008	-1.3	3.2	1.575	5.9	6.4	88.7	-2.8	1.8	106.2	-2.6	5.8	1.991
Q3 2008	-2.2	3.2	1.408	3.1	2.8	91.5	-4.8	3.5	105.9	-6.6	5.9	1.780
Q4 2008	-6.8	-1.4	1.392	0.3	-1.0	92.2	-8.3	-2.1	90.8	-8.7	0.4	1.462
Q1 2009	-11.4	-1.1	1.326	4.4	-1.4	94.2	-18.0	-3.6	99.2	-6.4	-0.2	1.430
Q2 2009	-0.9	0.0	1.402	15.1	2.2	92.2	8.2	-1.6	96.4	-0.9	2.3	1.645
Q3 2009	1.2	1.1	1.463	12.8	3.9	91.3	-0.3	-1.4	89.5	0.3	3.6	1.600
Q4 2009	2.1	1.6	1.433	9.2	5.1	90.6	6.1	-1.6	93.1	1.6	2.8	1.617
Q1 2010	1.8	1.8	1.353	9.9	4.4	89.8	4.4	1.1	93.4	2.2	4.2	1.519
Q2 2010	4.0	2.0	1.229	9.7	3.4	91.0	4.0	-1.4	88.5	4.1	3.3	1.495
Q3 2010	1.6	1.6	1.360	8.8	4.0	88.4	7.7	-2.1	83.5	2.3	2.2	1.573
Q4 2010	2.3	2.6	1.327	9.3	7.7	87.4	-2.7	1.4	81.7	0.5	3.9	1.539
Q1 2011	3.2	3.7	1.418	9.8	6.3	86.4	-5.7	0.0	82.8	2.2	7.0	1.605
Q2 2011	0.0	3.2	1.452	6.5	5.4	85.3	-2.0	-0.8	80.6	0.3	4.6	1.607
Q3 2011	0.1	1.3	1.345	5.2	5.1	87.3	9.5	0.3	77.0	1.7	3.5	1.562
Q4 2011	-1.4	3.5	1.297	6.9	3.2	87.2	-0.5	-0.7	77.0	1.0	3.4	1.554
Q1 2012	-0.8	2.8	1.333	7.3	3.3	86.2	4.4	2.5	82.4	1.8	2.3	1.599
Q2 2012	-1.3	2.3	1.267	6.0	3.9	88.0	-1.6	-1.6	79.8	-0.3	1.9	1.569

(continued)

Table 1B.—*continued*

Date	Euro area real GDP growth	Euro area inflation	Euro area bilateral dollar exchange rate (USD/euro)	Developing Asia real GDP growth	Developing Asia inflation	Developing Asia bilateral dollar exchange rate (F/USD, index)	Japan real GDP growth	Japan inflation	Japan bilateral dollar exchange rate (yen/USD)	U.K. real GDP growth	U.K. inflation	U.K. bilateral dollar exchange rate (USD/pound)
Q3 2012	-0.6	1.6	1.286	6.5	2.1	86.3	-1.8	-1.8	77.9	4.7	2.0	1.613
Q4 2012	-1.7	2.4	1.319	7.3	3.6	85.9	0.3	0.3	86.6	-0.9	4.2	1.626
Q1 2013	-1.2	1.3	1.282	6.6	4.3	86.1	5.1	0.6	94.2	2.5	3.0	1.519
Q2 2013	1.8	0.4	1.301	6.5	2.9	87.1	4.3	-0.2	99.2	2.1	1.6	1.521
Q3 2013	1.3	1.2	1.354	7.8	3.7	86.7	2.4	2.4	98.3	3.1	2.0	1.618
Q4 2013	0.8	0.3	1.378	6.4	4.0	85.7	-0.8	3.1	105.3	2.0	1.7	1.657
Q1 2014	1.3	0.9	1.378	6.4	1.4	86.8	4.9	1.3	103.0	3.4	1.9	1.668
Q2 2014	0.7	-0.1	1.369	7.0	2.5	86.7	-7.1	7.7	101.3	3.8	1.5	1.711
Q3 2014	1.4	0.2	1.263	6.9	2.4	87.0	-0.8	1.6	109.7	3.3	0.6	1.622
Q4 2014	1.8	-0.4	1.210	5.6	1.2	88.1	2.1	-0.3	119.9	3.4	-0.4	1.558
Q1 2015	3.3	-0.8	1.074	6.2	0.8	88.1	6.3	0.4	120.0	1.0	-1.2	1.485
Q2 2015	1.5	1.8	1.115	6.6	2.7	88.3	-0.5	0.3	122.1	1.9	0.9	1.573
Q3 2015	1.1	-0.3	1.116	6.6	2.7	90.9	0.8	0.0	119.8	1.1	0.5	1.512
Q4 2015	2.0	0.0	1.086	5.4	1.6	92.2	-1.8	0.1	120.3	2.8	0.0	1.475
Q1 2016	2.0	-1.2	1.139	6.3	2.8	91.7	2.8	-0.1	112.4	1.4	0.1	1.438
Q2 2016	1.2	1.2	1.103	6.4	2.7	94.0	1.8	-1.3	102.8	2.6	0.9	1.324
Q3 2016	1.8	1.1	1.124	6.6	1.2	93.6	1.3	-0.8	101.2	2.3	1.9	1.302
Q4 2016	1.4	1.9	1.055	6.0	2.5	97.4	0.8	0.3	116.8	1.4	2.0	1.234

Note: Refer to [Notes Regarding Scenario Variables](#) for more information on the definitions and sources of historical observations of the variables in the table.

Table 2A. Supervisory baseline scenario: Domestic variables, Q1:2017–Q1:2020

Percent, unless otherwise indicated.

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Level			
													Dow Jones Total Stock Market Index	House Price Index	Commercial Real Estate Price Index	Market Volatility Index
Q1 2017	2.2	4.3	2.2	4.3	4.7	2.4	0.6	1.7	2.5	4.2	4.2	3.8	23,551	184	298	19.0
Q2 2017	2.3	4.3	2.5	4.6	4.6	2.4	0.7	1.9	2.6	4.4	4.3	3.9	23,831	185	301	20.3
Q3 2017	2.4	4.5	2.9	5.0	4.6	2.3	0.9	2.0	2.7	4.5	4.4	4.1	24,123	187	305	19.3
Q4 2017	2.3	4.5	2.7	4.8	4.5	2.3	1.1	2.2	2.9	4.6	4.5	4.3	24,422	188	309	19.4
Q1 2018	2.4	4.6	2.9	4.9	4.5	2.3	1.3	2.3	3.0	4.7	4.6	4.4	24,727	189	313	19.2
Q2 2018	2.4	4.7	2.6	4.7	4.5	2.3	1.5	2.4	3.1	4.8	4.7	4.6	25,042	190	317	19.2
Q3 2018	2.4	4.6	2.6	4.7	4.4	2.3	1.7	2.6	3.2	4.9	4.8	4.8	25,354	191	321	19.3
Q4 2018	2.3	4.5	2.4	4.6	4.4	2.4	1.9	2.7	3.3	5.0	5.0	5.0	25,668	193	325	19.4
Q1 2019	2.0	4.2	2.2	4.3	4.5	2.3	2.2	2.8	3.4	5.1	5.0	5.2	25,968	194	327	19.8
Q2 2019	2.1	4.2	2.3	4.3	4.6	2.3	2.4	2.9	3.4	5.1	5.1	5.5	26,269	195	330	20.0
Q3 2019	2.1	4.1	2.2	4.3	4.6	2.2	2.6	2.9	3.5	5.2	5.1	5.7	26,571	197	332	20.2
Q4 2019	2.0	4.1	2.2	4.2	4.7	2.2	2.8	3.0	3.5	5.2	5.2	5.9	26,874	198	335	20.3
Q1 2020	2.0	4.0	2.1	4.0	4.7	2.1	2.9	3.0	3.5	5.2	5.2	5.9	27,173	200	337	20.2

Note: Refer to [Notes Regarding Scenario Variables](#) for more information on the definitions and sources of historical observations of the variables in the table.**Table 2B. Supervisory baseline scenario: International variables, Q1:2017–Q1:2020**

Percent, unless otherwise indicated.

Date	Euro area real GDP growth	Euro area inflation	Euro area bilateral dollar exchange rate (USD/euro)	Developing Asia real GDP growth	Developing Asia inflation	Developing Asia bilateral dollar exchange rate (F/USD, index)	Japan real GDP growth	Japan inflation	Japan bilateral dollar exchange rate (yen/USD)	U.K. real GDP growth	U.K. inflation	U.K. bilateral dollar exchange rate (USD/pound)
Q1 2017	1.5	1.3	1.050	6.0	2.4	97.9	0.9	0.5	116.4	1.2	1.9	1.228
Q2 2017	1.5	1.4	1.044	5.9	2.5	98.4	0.9	0.6	116.0	1.1	2.0	1.222
Q3 2017	1.6	1.5	1.039	5.9	2.6	98.9	0.9	0.8	115.6	1.0	2.1	1.216
Q4 2017	1.6	1.5	1.034	5.8	2.6	99.4	0.9	0.9	115.2	1.1	2.2	1.210
Q1 2018	1.6	1.5	1.036	5.8	2.6	99.7	0.9	1.1	115.6	1.3	2.2	1.222
Q2 2018	1.6	1.6	1.039	5.7	2.6	100.0	0.8	1.2	116.1	1.4	2.2	1.234
Q3 2018	1.5	1.6	1.041	5.7	2.6	100.3	0.8	1.3	116.5	1.6	2.2	1.245
Q4 2018	1.5	1.6	1.044	5.8	2.7	100.6	0.8	1.3	117.0	1.7	2.1	1.257
Q1 2019	1.5	1.7	1.044	5.8	2.7	100.6	0.8	1.4	117.0	1.8	2.1	1.257
Q2 2019	1.5	1.7	1.044	5.9	2.8	100.6	0.8	1.5	117.0	1.8	2.0	1.257
Q3 2019	1.5	1.7	1.044	5.9	2.9	100.6	0.8	1.5	117.0	1.9	2.0	1.257
Q4 2019	1.5	1.8	1.044	5.8	2.9	100.6	0.8	1.6	117.0	1.9	2.0	1.257
Q1 2020	1.5	1.8	1.044	5.8	3.0	100.6	0.8	1.6	117.0	1.9	1.9	1.257

Note: Refer to [Notes Regarding Scenario Variables](#) for more information on the definitions and sources of historical observations of the variables in the table.

Table 3A. Supervisory adverse scenario: Domestic variables, Q1:2017–Q1:2020

Percent, unless otherwise indicated.

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Level			
													Dow Jones Total Stock Market Index	House Price Index	Commercial Real Estate Price Index	Market Volatility Index
Q1 2017	-1.5	0.9	0.7	2.4	5.2	1.8	0.1	1.7	2.3	5.6	4.7	3.3	15,960	181	291	37.1
Q2 2017	-2.8	-0.7	-0.6	1.1	5.8	1.8	0.1	1.8	2.4	5.9	4.9	3.3	15,042	179	283	32.7
Q3 2017	-2.0	0.0	-0.5	1.1	6.3	1.8	0.1	1.8	2.5	6.1	5.1	3.3	14,290	176	275	34.4
Q4 2017	-1.5	0.5	-0.5	1.2	6.8	1.8	0.1	1.9	2.5	6.2	5.2	3.2	13,982	173	267	32.0
Q1 2018	-0.5	1.4	0.2	1.9	7.1	1.8	0.1	1.9	2.6	6.0	5.2	3.2	14,367	170	259	28.5
Q2 2018	1.0	3.0	0.6	2.4	7.3	2.0	0.1	1.9	2.7	5.8	5.2	3.2	15,001	166	254	25.8
Q3 2018	1.4	3.3	1.0	2.7	7.4	2.0	0.1	2.0	2.7	5.6	5.1	3.2	15,693	163	250	23.6
Q4 2018	2.6	4.4	1.5	3.4	7.3	2.1	0.1	2.0	2.7	5.4	5.1	3.2	16,603	161	249	21.6
Q1 2019	2.6	4.3	1.6	3.5	7.2	2.1	0.1	2.0	2.7	5.2	5.0	3.2	17,519	161	249	20.1
Q2 2019	3.0	4.6	2.1	3.8	7.1	2.0	0.1	2.0	2.7	5.0	4.9	3.2	18,514	161	251	18.7
Q3 2019	3.0	4.5	2.2	3.8	7.0	2.0	0.1	2.0	2.7	4.8	4.8	3.2	19,243	162	255	18.2
Q4 2019	3.0	4.5	2.1	3.8	6.9	1.9	0.1	2.0	2.7	4.7	4.8	3.2	20,025	163	259	17.6
Q1 2020	3.0	4.5	2.0	3.5	6.8	1.8	0.1	2.0	2.7	4.5	4.7	3.2	20,867	164	262	17.3

Note: Refer to [Notes Regarding Scenario Variables](#) for more information on the definitions and sources of historical observations of the variables in the table.**Table 3B. Supervisory adverse scenario: International variables, Q1:2017–Q1:2020**

Percent, unless otherwise indicated.

Date	Euro area real GDP growth	Euro area inflation	Euro area bilateral dollar exchange rate (USD/euro)	Developing Asia real GDP growth	Developing Asia inflation	Developing Asia bilateral dollar exchange rate (F/USD, index)	Japan real GDP growth	Japan inflation	Japan bilateral dollar exchange rate (yen/USD)	U.K. real GDP growth	U.K. inflation	U.K. bilateral dollar exchange rate (USD/pound)
Q1 2017	-3.0	0.7	0.998	1.4	1.7	105.4	-3.2	-2.5	111.4	-2.9	0.5	1.205
Q2 2017	-3.9	0.1	0.977	1.8	0.9	109.1	-6.3	-3.4	108.0	-4.3	0.0	1.189
Q3 2017	-2.7	0.3	0.964	3.5	0.0	108.8	-5.8	-2.7	109.2	-3.7	0.1	1.175
Q4 2017	-1.5	0.3	0.953	5.3	-0.1	109.4	-4.4	-2.7	108.8	-2.7	0.2	1.163
Q1 2018	-0.2	0.4	0.958	6.4	0.0	108.7	-3.1	-2.1	109.2	-1.4	0.4	1.177
Q2 2018	0.7	0.6	0.964	6.7	0.1	108.1	-1.9	-1.5	109.6	-0.2	0.7	1.191
Q3 2018	1.3	0.8	0.970	6.7	0.4	107.5	-0.9	-1.0	110.0	0.7	1.0	1.204
Q4 2018	1.7	1.0	0.975	6.8	0.7	106.9	-0.1	-0.5	110.5	1.5	1.2	1.217
Q1 2019	1.9	1.2	0.979	6.8	1.0	106.2	0.5	-0.2	110.6	2.0	1.3	1.218
Q2 2019	2.0	1.4	0.982	6.9	1.3	105.5	1.0	0.2	110.8	2.4	1.4	1.218
Q3 2019	2.0	1.5	0.986	7.0	1.6	105.0	1.3	0.5	111.1	2.6	1.5	1.218
Q4 2019	1.9	1.6	0.989	7.0	1.9	104.7	1.5	0.7	111.4	2.6	1.6	1.218
Q1 2020	1.9	1.6	0.991	7.0	2.1	104.4	1.6	0.9	111.6	2.7	1.6	1.218

Note: Refer to [Notes Regarding Scenario Variables](#) for more information on the definitions and sources of historical observations of the variables in the table.

Table 4A. Supervisory severely adverse scenario: Domestic variables, Q1:2017–Q1:2020

Percent, unless otherwise indicated.

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Level			
													Dow Jones Total Stock Market Index	House Price Index	Commercial Real Estate Price Index	Market Volatility Index
Q1 2017	-5.1	-2.7	-1.0	0.5	5.6	1.5	0.1	0.3	0.8	5.5	4.0	3.3	15,374	179	288	68.7
Q2 2017	-7.5	-5.5	-4.0	-2.7	6.9	1.3	0.1	0.4	0.8	6.0	4.3	3.3	13,538	174	270	50.9
Q3 2017	-5.9	-4.1	-3.9	-2.6	8.0	1.3	0.1	0.5	0.9	6.3	4.5	3.3	12,295	168	251	57.2
Q4 2017	-5.1	-3.3	-3.7	-2.3	8.9	1.4	0.1	0.6	1.0	6.4	4.6	3.2	11,704	162	234	49.3
Q1 2018	-3.0	-1.4	-2.5	-1.1	9.6	1.5	0.1	0.7	1.1	6.1	4.5	3.2	12,338	156	218	39.1
Q2 2018	0.0	1.6	-1.4	0.2	9.8	1.7	0.1	0.7	1.2	5.7	4.4	3.2	13,325	148	206	31.9
Q3 2018	0.7	2.3	-0.4	1.1	10.0	1.7	0.1	0.8	1.3	5.4	4.4	3.2	14,348	142	196	26.7
Q4 2018	3.0	4.5	0.8	2.4	9.9	1.9	0.1	0.9	1.4	5.0	4.3	3.2	15,625	138	193	22.2
Q1 2019	3.0	4.4	1.4	2.9	9.8	1.8	0.1	1.0	1.5	4.7	4.1	3.2	17,070	137	192	19.3
Q2 2019	3.9	5.1	2.2	3.7	9.6	1.7	0.1	1.1	1.6	4.3	4.0	3.2	18,739	138	194	16.8
Q3 2019	3.9	5.0	2.5	3.8	9.4	1.6	0.1	1.1	1.6	4.0	3.9	3.2	19,909	140	198	16.0
Q4 2019	3.9	4.9	2.6	3.8	9.1	1.6	0.1	1.2	1.7	3.8	3.9	3.2	21,186	142	203	14.9
Q1 2020	3.9	4.8	2.5	3.6	8.9	1.4	0.1	1.2	1.8	3.6	3.8	3.2	22,577	145	207	14.3

Note: Refer to [Notes Regarding Scenario Variables](#) for more information on the definitions and sources of historical observations of the variables in the table.**Table 4B. Supervisory severely adverse scenario: International variables, Q1:2017–Q1:2020**

Percent, unless otherwise indicated.

Date	Euro area real GDP growth	Euro area inflation	Euro area bilateral dollar exchange rate (USD/euro)	Developing Asia real GDP growth	Developing Asia inflation	Developing Asia bilateral dollar exchange rate (F/USD, index)	Japan real GDP growth	Japan inflation	Japan bilateral dollar exchange rate (yen/USD)	U.K. real GDP growth	U.K. inflation	U.K. bilateral dollar exchange rate (USD/pound)
Q1 2017	-6.0	0.6	0.959	-0.1	0.5	107.4	-4.3	-3.1	113.0	-4.7	-0.1	1.179
Q2 2017	-7.0	-0.2	0.928	0.4	-0.5	112.1	-7.8	-4.1	110.4	-6.6	-0.8	1.154
Q3 2017	-5.7	-1.0	0.928	2.2	-1.2	114.3	-9.2	-4.6	109.5	-6.1	-1.1	1.141
Q4 2017	-4.7	-1.5	0.929	3.4	-1.6	115.8	-9.5	-4.9	108.0	-5.0	-1.0	1.126
Q1 2018	-2.9	-1.5	0.949	5.1	-1.6	114.5	-7.7	-4.2	108.1	-3.1	-0.6	1.142
Q2 2018	-1.5	-1.3	0.964	5.9	-1.3	113.2	-5.5	-3.5	108.2	-1.4	-0.1	1.158
Q3 2018	-0.3	-0.9	0.975	6.2	-1.0	112.0	-3.6	-2.8	108.4	0.1	0.2	1.174
Q4 2018	0.6	-0.4	0.981	6.3	-0.6	110.9	-2.1	-2.2	108.7	1.2	0.6	1.188
Q1 2019	1.3	0.1	0.985	6.4	-0.2	109.6	-0.9	-1.6	108.7	2.0	0.8	1.189
Q2 2019	1.8	0.5	0.989	6.5	0.2	108.5	0.0	-1.1	108.7	2.6	1.0	1.190
Q3 2019	2.0	0.7	0.994	6.6	0.6	107.5	0.7	-0.6	108.9	2.9	1.1	1.190
Q4 2019	2.1	0.9	0.999	6.6	0.9	106.7	1.1	-0.3	109.2	3.0	1.3	1.191
Q1 2020	2.1	1.1	1.003	6.7	1.3	106.0	1.4	0.1	109.4	3.0	1.4	1.192

Note: Refer to [Notes Regarding Scenario Variables](#) for more information on the definitions and sources of historical observations of the variables in the table.

Notes Regarding Scenario Variables

Sources for data through 2016:Q4 (as released through 1/18/2017). The 2016:Q4 values of variables marked with an asterisk (*) are projected.

***U.S. real GDP growth:** Percent change in real gross domestic product in chained dollars, expressed at an annualized rate, Bureau of Economic Analysis (NIPA table 1.1.6, line 1).

***U.S. nominal GDP growth:** Percent change in nominal gross domestic product, expressed at an annualized rate, Bureau of Economic Analysis (NIPA table 1.1.5, line 1).

***U.S. real disposable income growth:** Percent change in nominal disposable personal income, divided by the price index for personal consumption expenditures, expressed at an annualized rate, Bureau of Economic Analysis (NIPA table 2.1, line 27, and NIPA table 1.1.4, line 2).

***U.S. nominal disposable income growth:** Percent change in nominal disposable personal income, expressed at an annualized rate, Bureau of Economic Analysis (NIPA table 2.1, line 27).

U.S. unemployment rate: Quarterly average of seasonally-adjusted monthly data for the unemployment rate of the civilian, noninstitutional population of age 16 years and older, Bureau of Labor Statistics (series LNS14000000).

U.S. CPI inflation: Percent change in the quarterly average of seasonally-adjusted monthly data for the consumer price index, expressed at an annualized rate, Bureau of Labor Statistics (series CUSR0000SA0).

U.S. 3-month Treasury rate: Quarterly average of 3-month Treasury bill secondary market rate on a discount basis, H.15 Release, Selected Interest Rates, Federal Reserve Board.

U.S. 5-year Treasury yield: Quarterly average of the yield on 5-year U.S. Treasury bonds, constructed for the FRB/U.S. model by Federal Reserve staff based on the Svensson smoothed term structure model; see Lars E. O. Svensson (1995), “Estimating Forward Interest Rates with the Extended Nelson-Siegel Method,” *Quarterly Review*, no. 3, Sveriges Riksbank, pp. 13–26.

U.S. 10-year Treasury yield: Quarterly average of the yield on 10-year U.S. Treasury bonds, constructed for the FRB/U.S. model by Federal Reserve staff based on the Svensson smoothed term structure model; see id.

U.S. BBB corporate yield: Quarterly average of the yield on 10-year BBB-rated corporate bonds, constructed for the FRB/U.S. model by Federal Reserve staff using a Nelson-Siegel smoothed yield curve model; see Charles R. Nelson and Andrew F. Siegel (1987), “Parsimonious Modeling of Yield Curves,” *Journal of Business*, vol. 60, pp. 473–89). Data prior to 1997 is based on the WARGA database. Data after 1997 is based on the Merrill Lynch database.

U.S. mortgage rate: Staff calculations based on quarterly average of weekly series for the interest rate of a conventional, conforming, 30-year fixed-rate mortgage, obtained from the Primary Mortgage Market Survey of the Federal Home Loan Mortgage Corporation and other sources.

U.S. prime rate: Quarterly average of monthly series, H.15 Release, Selected Interest Rates, Federal Reserve Board.

U.S. Dow Jones Total Stock Market (Float Cap) Index: End of quarter value, Dow Jones.

***U.S. House Price Index:** CoreLogic, index level, seasonally adjusted by Federal Reserve staff.

***U.S. Commercial Real Estate Price Index:** From the Financial Accounts of the United States, Federal Reserve Board (Z.1 release); the series corresponds to the data for price indexes: Commercial Real Estate Price Index (series FL075035503.Q, divided by 1000).

U.S. Market Volatility Index (VIX): Chicago Board Options Exchange, converted to quarterly frequency by using the maximum close-of-day value in any quarter.

***Euro area real GDP growth:** Percent change in real gross domestic product at an annualized rate, staff calculations based on Statistical Office of the European Communities via Haver, extended back using ECB Area Wide Model dataset (ECB Working Paper series no. 42).

Euro area inflation: Percent change in the quarterly average of the harmonized index of consumer prices

at an annualized rate, staff calculations based on Statistical Office of the European Communities via Haver.

***Developing Asia real GDP growth:** Percent change in real gross domestic product at an annualized rate, staff calculations based on Bank of Korea via Haver; Chinese National Bureau of Statistics via CEIC; Indian Central Statistical Organization via CEIC; Census and Statistics Department of Hong Kong via CEIC; and Taiwan Directorate-General of Budget, Accounting, and Statistics via CEIC.

***Developing Asia inflation:** Percent change in the quarterly average of the consumer price index, or local equivalent, at an annualized rate, staff calculations based on Chinese National Bureau of Statistics via CEIC; Indian Ministry of Statistics and Programme Implementation via Haver; Labour Bureau of India via CEIC; National Statistical Office of Korea via CEIC; Census and Statistic Department of Hong Kong via CEIC; and Taiwan Directorate-General of Budget, Accounting, and Statistics via CEIC.

***Japan real GDP growth:** Percent change in gross domestic product at an annualized rate, Cabinet Office via Haver.

***Japan inflation:** Percent change in the quarterly average of the consumer price index at an annualized rate, staff calculations based on Ministry of Internal Affairs and Communications via Haver.

***U.K. real GDP growth:** Percent change in gross domestic product at an annualized rate, Office for National Statistics via Haver.

U.K. inflation: Percent change in the quarterly average of the consumer price index at an annualized rate, staff calculations based on Office for National Statistics via Haver.

Exchange rates: End-of-quarter rates from the H.10 Release, Foreign Exchange Rates, Federal Reserve Board.

www.federalreserve.gov

0217

