

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 a banner in its beak that reads "E PLURIBUS UNUM".

2019 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule

February 2019



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Errata

The Federal Reserve revised this publication on February 13, 2019, to reflect corrected data. The revision is listed below.

- On p. 10, under Table 1.A, the Q4 2018 Mortgage rate has been revised from 4.6 to 4.8 percent.

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Mail Stop K1-120
Board of Governors of the Federal Reserve System
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(fax) 202-728-5886
(email) Publications-BOG@frb.gov

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Introduction

The Federal Reserve Board conducts supervisory stress tests to help ensure that large bank holding companies operating in the United States will be able to lend to households and businesses even in a severe recession. The tests are known as the Dodd-Frank Act stress test (DFAST) and the Comprehensive Capital Analysis and Review (CCAR).¹

DFAST is a forward-looking assessment of capital adequacy that uses standard assumptions across all firms. CCAR evaluates the capital planning practices

¹ The Board requires U.S. bank holding companies, savings and loan holding companies, and depository institutions with more than \$100 billion in assets and U.S. intermediate holding companies of foreign banking organizations (U.S. IHCs) to comply with its stress test rules. On February 5, 2019, the Board announced that certain less-complex U.S. bank holding companies and U.S. IHCs with less than \$250 billion in assets would not be subject to supervisory stress testing, company-run stress testing, or the Comprehensive Capital Analysis and Review for 2019.

and capital adequacy using the capital actions, such as dividend payments and share repurchases, planned by the firms.

This publication describes the three supervisory scenarios—baseline, adverse, and severely adverse—that the Board will use in its supervisory stress tests this year; that a firm, savings and loan holding company, or state member bank must use in conducting its annual company-run stress test; and that a firm must use to estimate projected revenues, losses, reserves, and pro forma capital levels as part of its 2019 capital plan submission.² This publication also details additional components that the largest and most complex firms 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 2019 and extend through the first quarter of 2022. 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 3-month Treasury bills; the yield for 5-year Treasury notes; the yield for 10-year Treasury notes; the yield for 10-year BBB corporate securities; the interest rate associated with conforming, conventional, 30-year fixed-rate mortgages; and the prime rate.

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

The three variables for each country or country bloc: 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 blocs 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, adverse, and severely adverse scenarios. The variables included in these scenarios are provided in tables at the end of this document. They can also be downloaded (together with the historical time series of the variables) from the Board's website, at <http://www.federalreserve.gov/bankinfo/reg/dfa-stress-tests.htm>. Historical data for the domestic and the international variables are reported in [Table 1.A](#) and [Table 1.B](#), respectively.

Baseline Scenario

The baseline outlook for U.S. real activity, inflation, and interest rates (see [Table 2.A](#)) is similar to the January 2019 consensus projections from *Blue Chip Economic Indicators*.⁴ This scenario does not represent the forecast of the Federal Reserve.

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 (January 2019), *Blue Chip Economic Indicators*, vol. 44, no. 1.

The baseline scenario for the United States is a moderate economic expansion through the scenario period. Real GDP growth averages $2\frac{1}{4}$ percent in 2019, drops slightly to $1\frac{1}{2}$ percent in 2020, and then rises to 2 percent in 2021. The unemployment rate falls to about $3\frac{1}{2}$ percent during 2019, and then increases to about 4 percent by the first half of 2021. CPI inflation averages about $2\frac{1}{4}$ percent each year.

Accompanying the moderate economic expansion, Treasury yields are assumed to rise modestly across the maturity spectrum. Short-term Treasury rates increase from about $2\frac{1}{2}$ percent in the first half 2019 to about $2\frac{3}{4}$ percent in the second half of 2019 and level off thereafter; yields on 10-year Treasury securities rise from 3 percent at the beginning of 2019 to about $3\frac{1}{4}$ percent at the beginning of 2020 and continue rising gradually to about $3\frac{1}{2}$ percent by the end of the scenario period. The prime rate increases in line with short-term Treasury rates, and both corporate bond yields and mortgage rates rise in line with long-term Treasury yields. Equity prices rise about 5 percent on average each year, and equity market volatility falls modestly. Nominal house prices rise about $2\frac{1}{2}$ percent per year through 2020, and about 3 percent per year thereafter. The growth rate of commercial real estate prices averages about 6 percent in 2019, and falls gradually to about 3 percent in 2020.

The baseline paths for the international variables (see [Table 2.B](#)) are similar to the trajectories reported in the January 2019 *Blue Chip Economic Indicators* and the International Monetary Fund's October 2018 *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 blocs under consideration. Real GDP growth in developing Asia averages about 6 percent in 2019, slowing slightly to about $5\frac{3}{4}$ percent per year through the end of the scenario period; real GDP growth in Japan averages a little more than $\frac{3}{4}$ percent in 2019 and slows to slightly more than $\frac{1}{2}$ percent by the end of the scenario period; real GDP growth in the euro area averages about $1\frac{3}{4}$ percent in 2019 and slows to $1\frac{1}{2}$ percent afterwards. Finally, growth in the United Kingdom averages about $1\frac{1}{2}$ percent per year through the scenario period.

⁵ See International Monetary Fund, *World Economic Outlook* (October 2018), <https://www.imf.org/en/Publications/WEO/Issues/2018/09/24/world-economic-outlook-october-2018>.

Severely Adverse Scenario

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

The U.S. unemployment rate climbs to a peak of 10 percent in the third quarter of 2020 (see [Table 4.A](#)). This change in the unemployment rate is consistent with the Board's Policy Statement on the Scenario Design Framework for Stress Testing.⁶ In line with the increase in the unemployment rate, real GDP falls about 8 percent from its pre-recession peak, reaching a trough in the third quarter of 2020. The decline in activity is accompanied by a lower headline CPI inflation, which falls to about $1\frac{1}{4}$ percent at an annual rate in the first quarter of 2019 and then rises gradually to about 2 percent at an annual rate by the second half of 2020.

As a result of the severe decline in real activity, the interest rate for 3-month Treasury bills falls $2\frac{1}{4}$ percentage points and remains near zero through the end of the scenario. The 10-year Treasury yield falls by a somewhat smaller amount, resulting in a mildly steeper yield curve. The 10-year Treasury yield reaches a trough of about $\frac{3}{4}$ percent in the first quarter of 2019 and rises gradually thereafter to $1\frac{1}{2}$ percent by the first quarter of 2021 and $1\frac{3}{4}$ percent by the first quarter of 2022. 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 $5\frac{1}{2}$ percent by the third quarter of 2019, an increase of $3\frac{1}{2}$ percentage points relative to the fourth quarter of 2018. The spread between mortgage rates and 10-year Treasury yields widens to $3\frac{1}{2}$ percentage points over the same time period.

Asset prices drop sharply in this scenario. Equity prices fall 50 percent through the end of 2019, accompanied by a rise in the VIX, which reaches a peak of 70 percent. House prices and commercial real estate prices also experience large declines of about 25 percent and 35 percent, respectively.

⁶ See 12 CFR 252, Appendix A.

The international component of this scenario features severe recessions in the euro area, United Kingdom, and Japan, and a shallow recession in developing Asia. As a result of the sharp contraction in economic activity, all foreign economies included in the scenario experience a decline in consumer prices. 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 the 2019 Severely Adverse Scenario and the 2018 Severely Adverse Scenario

This year's severely adverse scenario features a more severe recession and a greater increase in the unemployment rate in the United States compared to last year's scenario. This increase in severity in those variables reflects the Board's Policy Statement on the Scenario Design Framework for Stress Testing, which calls for a more pronounced economic downturn when current conditions are especially strong. Given a lower unemployment rate at the beginning of this year's scenario compared to last year's, the framework calls for a correspondingly larger increase in the unemployment rate in order to reach a peak of at least 10 percent.

In addition, 10-year Treasury yields fall in this year's scenario. By contrast, last year's severely adverse scenario featured unchanged 10-year Treasury yields, and a sharply steeper yield curve, reflecting a global aversion to long-term fixed income assets, a development not previously featured in a severely adverse scenario. As a result, the declines in some asset prices, such as stock prices, are more aligned with the declines featured in the 2017 severely adverse scenario.

Additional Key Features of the Severely Adverse Scenario

Although the weakness in euro area economic conditions reflects a broad-based contraction in euro area demand, this contraction should be assumed to be more protracted in countries with less room for fiscal policy stabilization. The sharp slowdown in developing Asia is distributed unevenly across countries, with more pronounced decelerations 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. residential and commercial real estate prices should be assumed to be concentrated in regions that have experienced rapid price gains over the past two 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 two years.

Adverse Scenario

The adverse scenario is characterized by weakening economic activity across all of the economies included in the scenario, accompanied by a moderate correction in asset prices and rise in volatility. This is a hypothetical scenario designed to assess the strength of banking organizations and their resilience to adverse economic conditions, and does not represent a forecast of the Federal Reserve.

The macroeconomic and financial developments in this year's adverse scenario are similar to the developments in the severely adverse scenario but are more moderate in magnitude. As a result, the two scenarios together allow for an investigation of the relationship between firm-specific outcomes and the intensity of economic and financial dislocations.

As in the severely adverse scenario, the unemployment rate peaks in the third quarter of 2020 but reaches a lower level of 7 percent rather than 10 percent (Table 3.A). The U.S. economy experiences a recession, with real GDP falling slightly more than 2¾ percent from peak to trough. Reflecting weak economic conditions, short-term interest rates and longer-term Treasury yields fall. In addition, financial conditions tighten and asset prices decline, but less intensely compared to the severely adverse scenario. For example, equity prices reach a trough at the end of 2019 in both scenarios, falling about 20 percent in the adverse scenario and 50 percent in the severely adverse scenario.

Following the recession, U.S. real activity picks up slowly at first and then gains momentum. The growth rate of U.S. real GDP increases from about ¼ of a percent in 2020 to about 3¼ percent in 2021. The unemployment rate declines modestly, to about 6¼ percent by the end of the scenario period. Consumer price inflation remains close to 2 percent through the end of the scenario period. Yields on

10-year Treasury securities rise gradually to slightly less than 2 percent by the end of the scenario period.

Outside of the United States, the adverse scenario features moderate recessions in the euro area and the United Kingdom, a slightly more protracted recession in Japan than elsewhere, and below-trend growth in developing Asia (see [Table 3.B](#)). Weakness in global demand results in slowing inflation in all of the foreign economies under consideration, including a deflationary episode in Japan. Reflecting flight-to-safety capital flows, the U.S. dollar appreciates against the euro, the pound sterling, and the currencies of developing Asia, and depreciates modestly against the yen.

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 and commercial real estate prices should be assumed to be concentrated in regions that have experienced rapid price gains over the past two 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 two years.

Global Market Shock Component for Supervisory Adverse and Severely Adverse Scenarios

The global market shock is a set of hypothetical shocks to a large set of risk factors, such as asset prices, interest rates, and spreads, reflecting general market distress and heightened uncertainty. The risk factor shocks are calibrated to the period of time over which market events would unfold, which varies depending on the anticipated liquidity of different risk types, but are applied to firms' positions on a given as-of date. Firms with significant trading activity will be required to include the global market shock as part of their supervisory adverse and

severely adverse scenarios, and recognize trading and counterparty mark-to-market losses in the first quarter of the planning horizon.⁷ In addition, as discussed below, certain large and highly interconnected firms must apply the same global market shock to project losses under the counterparty default scenario component. The as-of date for the global market shock is November 5, 2018.⁸

2019 Adverse Scenario

The global market shock component for the adverse scenario simulates a marked decline in the economic outlook for developing Asian markets. As a result, sovereign credit spreads widen and currencies generally depreciate significantly in these markets. This shock spreads to other global markets, which results in increases in general risk premiums and credit risk. U.S. interest rates move lower across the term structure. Due to a sharp reduction in demand from developing Asia, most global commodity prices and currencies of commodity exporters decline significantly. Equity markets decline broadly.

The 2019 adverse scenario addresses themes similar to those of the 2018 adverse scenario.

2019 Severely Adverse Scenario

The global market shock component for the severely adverse scenario features a significant weakening in European economic conditions and spillover effects that lead to sell-offs in financial assets more broadly. The European distress leads to global market dislocations, affecting U.S. and developing Asian and other emerging markets. There is a sudden increase in implied volatilities broadly, a large decline in industrial and energy commodity prices, and a significant widening in credit spreads, with an associated decline in market liquidity. Liquidity deterioration is most severe in those asset markets that are typically less liquid, such as corporate debt and private equity markets, and is less pronounced in those

⁷ The global market shock component applies to a firm that is subject to the supervisory stress test and that has aggregate trading assets and liabilities of \$50 billion or more, or aggregate trading assets and liabilities equal to 10 percent or more of total consolidated assets, and is not a large and noncomplex firm under the Board's capital plan rule (12 CFR 225.8).

⁸ A firm 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., November 5–9, 2018). Losses from the global market shock will be assumed to occur in the first quarter of the planning horizon.

markets that are typically more liquid such as publicly traded equity and currency markets. In addition, relationships between the prices of financial assets that would normally be expected to move together come under pressure and are weakened in some cases. As a result, certain hedging strategies are less effective than historical experience would suggest.

Flight-to-quality capital flows push interest rates down across the term structure in the U.S. and certain European countries, while emerging markets and countries that are part of the European periphery experience sharp increases in government yields. Countries that are affected by the flight-to-quality experience currency appreciation, while European and emerging market currencies experience currency depreciation against the U.S. dollar.

The major differences relative to the 2018 severely adverse scenario include a heightened stress to European assets; a decline in the U.S. yield curve; an appreciation of the U.S. dollar relative to most other currencies; and more muted shocks to U.S. based assets, such as U.S. agency and municipal products. These differences are intended to reflect the more Europe-focused nature of the stress and a general flight-to-quality to U.S. markets.

Counterparty Default Component for Supervisory Adverse and Severely Adverse Scenarios

Firms 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 for CCAR 2019.⁹ The counterparty default scenario

⁹ The Board may require a covered company to include one or more additional components in its adverse and severely adverse

component involves the instantaneous and unexpected default of the firm's largest counterparty.¹⁰

In connection with the counterparty default scenario component, these firms 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.

Each firm'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 November 5, 2018—the same date as the global market shock.¹¹

scenarios in the annual stress test based on the company's financial condition, size, complexity, risk profile, scope of operations, or activities, or risks to the U.S. economy. See 12 CFR 252.54(b)(2)(ii).

¹⁰ In selecting its largest counterparty, a firm subject to the counterparty default component will not consider certain sovereign entities (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States) or designated central clearing counterparties.

¹¹ As with the global market shock, a firm subject to the counterparty default component 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., November 5–9, 2018). Losses will be assumed to occur in the first quarter of the planning horizon.

Variables for the Supervisory Scenarios

Table 1.A. Historical data: Domestic variables, Q1:2000–Q4:2018

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	1.5	4.2	7.9	11.5	4.0	4.0	5.5	6.6	6.7	8.2	8.3	8.7	14,296	102	126	27.0
Q2 2000	7.5	10.2	4.5	6.4	3.9	3.2	5.7	6.5	6.4	8.5	8.3	9.2	13,619	105	125	33.5
Q3 2000	0.5	2.8	4.7	7.3	4.0	3.7	6.0	6.1	6.1	8.1	8.0	9.5	13,613	107	138	21.9
Q4 2000	2.5	4.7	1.4	3.7	3.9	2.9	6.0	5.6	5.8	7.9	7.6	9.5	12,176	110	144	31.7
Q1 2001	-1.1	1.3	3.7	6.5	4.2	3.9	4.8	4.9	5.3	7.4	7.0	8.6	10,646	112	143	32.8
Q2 2001	2.4	4.9	-0.7	1.2	4.4	2.8	3.7	4.9	5.5	7.5	7.1	7.3	11,407	114	142	34.7
Q3 2001	-1.6	-0.1	9.6	9.8	4.8	1.1	3.2	4.6	5.3	7.3	7.0	6.6	9,563	116	144	43.7
Q4 2001	1.1	2.4	-5.0	-4.7	5.5	-0.3	1.9	4.2	5.1	7.2	6.8	5.2	10,708	118	139	35.3
Q1 2002	3.5	4.9	9.3	10.1	5.7	1.3	1.7	4.5	5.4	7.6	7.0	4.8	10,776	120	140	26.1
Q2 2002	2.4	3.9	2.7	5.9	5.8	3.2	1.7	4.5	5.4	7.6	6.8	4.8	9,384	124	140	28.4
Q3 2002	1.8	3.7	-0.3	1.6	5.7	2.2	1.6	3.4	4.5	7.3	6.3	4.8	7,774	127	141	45.1
Q4 2002	0.6	2.9	2.4	4.3	5.9	2.4	1.3	3.1	4.3	7.0	6.1	4.5	8,343	129	144	42.6
Q1 2003	2.2	4.1	0.9	3.8	5.9	4.2	1.2	2.9	4.2	6.5	5.8	4.3	8,052	132	151	34.7
Q2 2003	3.5	4.7	5.0	5.1	6.1	-0.7	1.0	2.6	3.8	5.7	5.5	4.2	9,342	135	151	29.1
Q3 2003	7.0	9.3	6.9	9.6	6.1	3.0	0.9	3.1	4.4	6.0	6.0	4.0	9,650	139	149	22.7
Q4 2003	4.7	7.2	1.1	2.9	5.8	1.5	0.9	3.2	4.4	5.8	5.9	4.0	10,800	143	147	21.1
Q1 2004	2.2	5.2	1.9	5.3	5.7	3.4	0.9	3.0	4.1	5.5	5.6	4.0	11,039	148	153	21.6
Q2 2004	3.1	6.5	4.7	7.6	5.6	3.2	1.1	3.7	4.7	6.1	6.1	4.0	11,145	154	163	20.0
Q3 2004	3.8	6.6	2.6	4.7	5.4	2.6	1.5	3.5	4.4	5.8	5.9	4.4	10,894	159	175	19.3
Q4 2004	4.1	7.3	5.1	8.8	5.4	4.4	2.0	3.5	4.3	5.4	5.7	4.9	11,952	165	178	16.6
Q1 2005	4.5	7.9	-4.6	-2.4	5.3	2.0	2.5	3.9	4.4	5.4	5.8	5.4	11,637	172	179	14.7
Q2 2005	1.9	4.7	3.9	6.4	5.1	2.7	2.9	3.9	4.2	5.5	5.7	5.9	11,857	179	185	17.7
Q3 2005	3.6	7.4	1.2	5.6	5.0	6.2	3.4	4.0	4.3	5.5	5.8	6.4	12,283	185	190	14.2
Q4 2005	2.5	5.9	5.2	8.6	5.0	3.8	3.8	4.4	4.6	5.9	6.2	7.0	12,497	191	198	16.5
Q1 2006	5.4	8.4	8.0	10.2	4.7	2.1	4.4	4.6	4.7	6.0	6.2	7.4	13,122	194	203	14.6
Q2 2006	0.9	4.4	1.0	4.3	4.6	3.7	4.7	5.0	5.2	6.5	6.6	7.9	12,809	193	212	23.8
Q3 2006	0.6	3.5	1.0	4.0	4.6	3.8	4.9	4.8	5.0	6.4	6.6	8.3	13,323	192	220	18.6
Q4 2006	3.5	5.0	5.4	4.7	4.4	-1.6	4.9	4.6	4.7	6.1	6.2	8.3	14,216	191	222	12.7
Q1 2007	0.9	5.0	3.4	7.4	4.5	4.0	5.0	4.6	4.8	6.1	6.2	8.3	14,354	189	229	19.6
Q2 2007	2.3	5.0	1.0	4.3	4.5	4.6	4.7	4.7	4.9	6.3	6.4	8.3	15,163	184	239	18.9
Q3 2007	2.2	4.3	0.4	2.6	4.7	2.6	4.3	4.5	4.8	6.5	6.6	8.2	15,318	178	248	30.8
Q4 2007	2.5	4.1	0.3	4.3	4.8	5.0	3.4	3.8	4.4	6.4	6.2	7.5	14,754	172	249	31.1
Q1 2008	-2.3	-0.8	1.1	4.6	5.0	4.4	2.1	2.8	3.9	6.5	5.9	6.2	13,284	165	235	32.2
Q2 2008	2.1	4.3	7.5	12.0	5.3	5.3	1.6	3.2	4.1	6.8	6.1	5.1	13,016	157	224	24.1
Q3 2008	-2.1	0.8	-8.1	-4.3	6.0	6.3	1.5	3.1	4.1	7.2	6.3	5.0	11,826	150	231	46.7
Q4 2008	-8.4	-7.2	3.5	-2.5	6.9	-8.9	0.3	2.2	3.7	9.4	5.9	4.1	9,057	142	219	80.9
Q1 2009	-4.4	-4.5	-1.7	-4.0	8.3	-2.7	0.2	1.9	3.2	9.0	5.1	3.3	8,044	138	209	56.7
Q2 2009	-0.6	-1.2	4.4	6.3	9.3	2.1	0.2	2.3	3.7	8.2	5.0	3.3	9,343	138	180	42.3

(continued)

Table 1.A.—*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	1.5	1.9	-4.4	-1.8	9.6	3.5	0.2	2.5	3.8	6.8	5.2	3.3	10,813	139	160	31.3
Q4 2009	4.5	5.9	-0.1	3.0	9.9	3.2	0.1	2.3	3.7	6.1	4.9	3.3	11,385	139	159	30.7
Q1 2010	1.5	2.6	2.3	3.7	9.8	0.6	0.1	2.4	3.9	5.8	5.0	3.3	12,033	139	153	27.3
Q2 2010	3.7	5.7	6.8	7.2	9.6	-0.1	0.1	2.3	3.6	5.6	4.9	3.3	10,646	138	165	45.8
Q3 2010	3.0	4.2	2.9	3.6	9.5	1.2	0.2	1.6	2.9	5.1	4.4	3.3	11,814	136	167	32.9
Q4 2010	2.0	4.3	2.3	4.8	9.5	3.3	0.1	1.5	3.0	5.0	4.4	3.3	13,132	134	168	23.5
Q1 2011	-1.0	1.2	4.1	7.8	9.0	4.3	0.1	2.1	3.5	5.4	4.8	3.3	13,909	133	171	29.4
Q2 2011	2.9	5.6	-0.9	3.1	9.1	4.6	0.0	1.8	3.3	5.1	4.7	3.3	13,844	133	173	22.7
Q3 2011	-0.1	2.5	1.8	3.7	9.0	2.6	0.0	1.1	2.5	4.9	4.3	3.3	11,677	133	170	48.0
Q4 2011	4.7	5.4	1.2	2.6	8.6	1.8	0.0	1.0	2.1	5.0	4.0	3.3	13,019	133	176	45.5
Q1 2012	3.2	5.8	7.7	10.7	8.3	2.3	0.1	0.9	2.1	4.7	3.9	3.3	14,628	135	179	23.0
Q2 2012	1.7	3.3	3.7	4.7	8.2	0.8	0.1	0.8	1.8	4.5	3.8	3.3	14,100	138	180	26.7
Q3 2012	0.5	2.6	-2.8	-1.7	8.0	1.8	0.1	0.7	1.6	4.2	3.6	3.3	14,895	141	186	20.5
Q4 2012	0.5	2.5	11.5	14.1	7.8	2.7	0.1	0.7	1.7	3.9	3.4	3.3	14,835	144	185	22.7
Q1 2013	3.6	5.3	-15.1	-13.9	7.7	1.6	0.1	0.8	1.9	4.0	3.5	3.3	16,396	147	188	19.0
Q2 2013	0.5	1.7	3.0	3.3	7.5	-0.4	0.1	0.9	2.0	4.1	3.7	3.3	16,771	151	197	20.5
Q3 2013	3.2	5.2	1.7	3.4	7.2	2.2	0.0	1.5	2.7	4.9	4.4	3.3	17,718	155	207	17.0
Q4 2013	3.2	5.7	1.6	3.3	6.9	1.5	0.1	1.4	2.8	4.8	4.3	3.3	19,413	158	212	20.3
Q1 2014	-1.0	0.5	6.2	8.3	6.7	2.5	0.0	1.6	2.8	4.6	4.4	3.3	19,711	160	209	21.4
Q2 2014	5.1	7.8	4.9	7.0	6.2	2.1	0.0	1.7	2.7	4.3	4.2	3.3	20,569	161	216	17.0
Q3 2014	4.9	6.9	4.5	5.7	6.1	1.1	0.0	1.7	2.5	4.2	4.1	3.3	20,459	164	220	17.0
Q4 2014	1.9	2.7	5.0	4.6	5.7	-0.9	0.0	1.6	2.3	4.2	4.0	3.3	21,425	166	229	26.3
Q1 2015	3.3	3.0	5.0	3.2	5.5	-2.6	0.0	1.5	2.0	4.0	3.7	3.3	21,708	168	243	22.4
Q2 2015	3.3	5.7	3.1	5.1	5.4	2.7	0.0	1.5	2.2	4.2	3.8	3.3	21,631	170	245	18.9
Q3 2015	1.0	2.4	3.4	4.7	5.1	1.5	0.0	1.6	2.3	4.5	4.0	3.3	19,959	173	250	40.7
Q4 2015	0.4	0.5	0.9	0.7	5.0	0.1	0.1	1.6	2.2	4.6	3.9	3.3	21,101	175	250	24.4
Q1 2016	1.5	1.2	2.7	3.0	4.9	-0.1	0.3	1.4	2.0	4.6	3.7	3.5	21,179	177	242	28.1
Q2 2016	2.3	5.1	-0.6	1.7	4.9	2.7	0.3	1.3	1.8	4.1	3.6	3.5	21,622	179	245	25.8
Q3 2016	1.9	3.5	1.5	3.3	4.9	1.8	0.3	1.2	1.6	3.7	3.4	3.5	22,469	182	262	18.1
Q4 2016	1.8	3.9	2.7	4.7	4.8	2.7	0.4	1.7	2.2	4.1	3.8	3.5	23,277	185	265	22.5
Q1 2017	1.8	3.9	4.5	6.6	4.6	3.0	0.6	2.0	2.5	4.2	4.2	3.8	24,508	187	260	13.1
Q2 2017	3.0	4.2	2.2	3.0	4.4	0.1	0.9	1.8	2.3	4.0	4.0	4.0	25,125	190	269	16.0
Q3 2017	2.8	4.8	2.2	3.9	4.3	2.1	1.0	1.8	2.3	3.9	3.9	4.3	26,149	193	274	16.0
Q4 2017	2.3	5.1	2.3	5.1	4.1	3.3	1.2	2.1	2.4	3.9	3.9	4.3	27,673	196	283	13.1
Q1 2018	2.2	4.3	4.4	7.0	4.1	3.5	1.6	2.5	2.8	4.2	4.3	4.5	27,383	199	277	37.3
Q2 2018	4.2	7.6	1.8	3.8	3.9	1.7	1.8	2.8	2.9	4.6	4.5	4.8	28,314	202	293	23.6
Q3 2018	3.4	4.9	2.4	4.0	3.8	2.0	2.0	2.8	2.9	4.6	4.6	5.0	30,190	204	286	16.1
Q4 2018	2.7	4.6	2.7	4.4	3.8	1.8	2.3	2.9	3.0	5.0	4.8	5.3	25,725	205	287	36.1

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 1.B. Historical data: International variables, Q1:2000–Q4:2018

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	4.5	2.6	0.957	7.0	1.5	100.0	7.7	-0.5	102.7	3.4	0.5	1.592
Q2 2000	3.7	0.9	0.955	7.1	-0.3	100.7	0.9	-1.1	106.1	2.5	0.4	1.513
Q3 2000	2.1	3.4	0.884	8.1	2.2	101.5	0.3	-0.3	107.9	1.1	1.0	1.479
Q4 2000	3.3	2.8	0.939	3.0	2.4	105.1	4.0	-1.1	114.4	0.7	1.9	1.496
Q1 2001	3.3	1.2	0.879	4.9	1.7	106.0	2.1	0.7	125.5	5.4	0.1	1.419
Q2 2001	0.7	4.0	0.847	5.5	2.1	106.1	-1.8	-2.3	124.7	3.2	3.1	1.408
Q3 2001	0.3	1.4	0.910	4.7	1.3	106.4	-4.0	-0.5	119.2	3.0	1.0	1.469
Q4 2001	0.8	1.7	0.890	8.5	0.0	106.9	-1.2	-1.9	131.0	1.8	0.0	1.454
Q1 2002	0.5	3.1	0.872	7.7	0.5	107.3	0.6	-1.1	132.7	1.9	1.9	1.425
Q2 2002	2.0	2.0	0.986	8.1	1.1	104.8	3.1	0.1	119.9	2.7	0.9	1.525
Q3 2002	1.6	1.6	0.988	7.2	1.5	105.5	1.3	-0.4	121.7	3.1	1.4	1.570
Q4 2002	0.6	2.3	1.049	6.5	0.7	104.5	1.1	-0.8	118.8	3.6	1.9	1.610
Q1 2003	-1.0	3.3	1.090	6.7	3.6	105.5	0.2	0.0	118.1	2.7	1.6	1.579
Q2 2003	0.2	0.5	1.150	2.1	1.1	104.0	2.6	0.3	119.9	3.8	0.3	1.653
Q3 2003	2.0	2.1	1.165	14.3	0.1	102.6	1.6	-0.5	111.4	4.2	1.7	1.662
Q4 2003	3.1	2.3	1.260	13.0	5.5	103.4	4.5	-1.0	107.1	3.3	1.6	1.784
Q1 2004	2.3	2.2	1.229	5.6	4.0	101.4	3.1	0.8	104.2	2.2	1.3	1.840
Q2 2004	2.2	2.6	1.218	6.9	4.1	102.8	-0.3	-0.4	109.4	1.5	1.0	1.813
Q3 2004	1.2	2.0	1.242	8.2	4.1	102.7	2.6	-0.1	110.2	0.7	1.1	1.809
Q4 2004	1.5	2.4	1.354	6.4	0.8	98.9	-0.8	1.9	102.7	1.0	2.4	1.916
Q1 2005	0.6	1.4	1.297	10.5	2.9	98.6	1.9	-1.2	107.2	3.8	2.5	1.889
Q2 2005	2.8	2.2	1.210	8.6	1.5	98.9	2.7	-1.0	110.9	4.5	1.9	1.793
Q3 2005	3.0	3.1	1.206	9.3	2.4	98.6	4.0	-1.0	113.3	4.8	2.7	1.770
Q4 2005	2.5	2.4	1.184	11.7	1.6	98.1	0.7	0.1	117.9	6.1	1.4	1.719
Q1 2006	3.7	1.7	1.214	11.0	2.4	96.8	0.6	1.2	117.5	1.1	1.9	1.739
Q2 2006	4.3	2.5	1.278	7.0	3.2	96.7	1.1	0.4	114.5	0.9	3.0	1.849
Q3 2006	2.6	2.1	1.269	10.3	2.2	96.4	-0.7	0.4	118.0	0.3	3.3	1.872
Q4 2006	4.5	0.9	1.320	11.3	3.6	94.6	5.3	-0.5	119.0	1.4	2.6	1.959
Q1 2007	3.0	2.3	1.337	13.9	3.6	94.0	2.9	-0.7	117.6	4.0	2.6	1.969
Q2 2007	2.6	2.3	1.352	10.5	4.9	91.9	0.6	0.4	123.4	2.9	1.7	2.006
Q3 2007	1.9	2.1	1.422	8.7	7.6	90.6	-2.0	0.3	115.0	3.4	0.2	2.039
Q4 2007	2.1	4.8	1.460	12.8	5.9	89.4	1.9	2.2	111.7	3.4	4.0	1.984
Q1 2008	2.2	4.2	1.581	7.2	8.1	88.0	1.3	1.2	99.9	1.4	3.7	1.986
Q2 2008	-1.5	3.2	1.575	6.0	6.3	88.7	-1.8	1.8	106.2	-2.9	5.7	1.991
Q3 2008	-2.2	3.2	1.408	3.1	3.0	91.5	-4.9	3.4	105.9	-6.4	5.8	1.780
Q4 2008	-6.6	-1.4	1.392	0.3	-1.1	92.2	-9.4	-2.1	90.8	-8.4	0.5	1.462
Q1 2009	-11.4	-1.1	1.326	4.4	-1.4	94.2	-17.8	-3.6	99.2	-6.5	-0.1	1.430
Q2 2009	-1.0	0.0	1.402	15.1	2.3	92.2	8.6	-1.6	96.4	-0.8	2.1	1.645
Q3 2009	1.3	1.1	1.463	12.8	4.1	91.3	0.2	-1.4	89.5	0.6	3.5	1.600
Q4 2009	2.2	1.6	1.433	9.2	5.0	90.6	5.7	-1.5	93.1	1.4	3.0	1.617
Q1 2010	1.6	1.8	1.353	9.8	4.4	89.8	3.4	1.0	93.4	1.8	4.0	1.519
Q2 2010	3.8	2.0	1.229	9.7	3.4	91.0	5.5	-1.4	88.5	3.5	3.2	1.495
Q3 2010	1.9	1.6	1.360	8.8	4.2	88.4	7.6	-1.9	83.5	2.3	2.3	1.573
Q4 2010	2.5	2.6	1.327	9.2	7.5	87.4	-3.2	1.3	81.7	0.5	4.0	1.539
Q1 2011	3.3	3.6	1.418	9.8	6.2	86.4	-5.6	-0.1	82.8	3.0	6.7	1.605
Q2 2011	0.1	3.2	1.452	6.4	5.4	85.3	-2.6	-0.7	80.6	0.6	4.7	1.607
Q3 2011	0.0	1.4	1.345	5.5	5.3	87.3	10.5	0.3	77.0	1.1	3.7	1.562
Q4 2011	-1.1	3.5	1.297	6.7	3.0	87.2	-0.6	-0.6	77.0	0.7	3.3	1.554
Q1 2012	-0.6	2.8	1.333	7.3	3.2	86.2	5.1	2.2	82.4	2.6	2.1	1.599
Q2 2012	-1.4	2.3	1.267	6.0	3.9	88.0	-3.2	-1.5	79.8	-0.2	2.0	1.569

(continued)

Table 1.B.—*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	-0.5	1.6	1.286	6.5	2.2	86.2	-1.4	-1.8	77.9	4.8	2.3	1.613
Q4 2012	-1.7	2.4	1.319	7.3	3.5	85.9	1.0	0.1	86.6	-0.9	4.0	1.626
Q1 2013	-1.4	1.2	1.282	6.5	4.6	86.1	4.7	0.6	94.2	2.6	2.9	1.519
Q2 2013	2.0	0.4	1.301	6.4	2.8	87.1	3.3	0.0	99.2	2.2	1.7	1.521
Q3 2013	1.4	1.3	1.354	7.6	3.5	86.5	3.5	2.7	98.3	3.6	2.1	1.618
Q4 2013	0.9	0.2	1.378	6.8	4.0	85.8	-0.2	2.6	105.3	1.9	1.5	1.657
Q1 2014	1.9	0.8	1.378	5.9	1.4	86.8	3.7	1.0	103.0	3.4	1.9	1.668
Q2 2014	0.8	0.0	1.369	7.4	2.6	86.6	-7.3	8.3	101.3	3.4	1.4	1.711
Q3 2014	1.6	0.3	1.263	6.7	2.4	87.0	0.6	1.8	109.7	2.8	0.8	1.622
Q4 2014	2.0	-0.5	1.210	5.8	1.1	88.1	1.9	-0.8	119.9	2.7	-0.4	1.558
Q1 2015	2.9	-1.0	1.074	6.0	0.9	88.0	5.3	0.4	120.0	1.8	-1.2	1.485
Q2 2015	1.7	1.9	1.115	6.9	2.7	88.4	0.6	0.8	122.1	2.3	0.8	1.573
Q3 2015	1.5	-0.2	1.116	6.5	2.8	91.0	0.1	0.3	119.8	1.7	0.8	1.512
Q4 2015	1.9	-0.2	1.086	5.6	1.3	92.2	-1.8	-0.8	120.3	3.0	0.0	1.475
Q1 2016	2.8	-1.4	1.139	6.5	3.0	91.8	2.8	-0.1	112.4	1.3	-0.1	1.438
Q2 2016	1.1	1.3	1.103	6.7	2.8	94.2	0.1	-0.7	102.8	0.6	0.8	1.324
Q3 2016	1.4	1.3	1.124	6.0	1.3	93.7	1.3	-0.1	101.2	1.9	2.2	1.302
Q4 2016	3.0	1.7	1.055	5.8	1.9	97.5	0.7	2.2	116.8	3.0	2.0	1.234
Q1 2017	2.7	2.7	1.070	6.2	1.1	95.2	3.3	-0.4	111.4	1.7	3.6	1.254
Q2 2017	2.7	0.4	1.141	6.1	2.0	94.6	2.1	-0.1	112.4	1.0	3.2	1.300
Q3 2017	2.7	1.0	1.181	6.8	2.4	93.5	2.7	0.8	112.6	2.1	2.5	1.340
Q4 2017	2.7	1.6	1.202	5.8	3.0	91.0	1.5	2.0	112.7	1.6	2.9	1.353
Q1 2018	1.5	2.1	1.232	7.1	2.2	89.0	-1.3	2.5	106.2	0.3	2.3	1.403
Q2 2018	1.7	2.1	1.168	5.9	1.4	93.5	2.8	-2.7	110.7	1.7	2.0	1.320
Q3 2018	0.6	2.6	1.162	5.1	3.3	97.1	-2.5	3.1	113.5	2.5	2.9	1.305
Q4 2018	1.6	0.9	1.146	5.9	2.6	96.2	0.9	0.7	109.7	1.4	1.9	1.276

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 2.A. Supervisory baseline scenario: Domestic variables, Q1:2019–Q1:2022

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 2019	2.2	4.2	2.8	4.2	3.7	1.5	2.5	2.8	2.9	4.6	4.5	5.5	26,026	207	293	28.3
Q2 2019	2.5	4.8	2.3	4.5	3.6	2.3	2.6	2.9	3.0	4.8	4.6	5.6	26,367	208	296	27.0
Q3 2019	2.2	4.4	2.3	4.4	3.6	2.3	2.7	3.0	3.1	4.9	4.6	5.7	26,687	209	300	25.3
Q4 2019	2.0	4.2	2.2	4.3	3.6	2.3	2.8	3.0	3.2	4.9	4.7	5.8	26,998	210	304	24.5
Q1 2020	1.7	4.0	2.1	4.3	3.6	2.4	2.8	3.0	3.2	4.9	4.7	5.8	27,299	212	308	23.9
Q2 2020	1.6	4.0	2.1	4.0	3.6	2.1	2.8	3.0	3.2	4.9	4.7	5.8	27,603	213	312	23.5
Q3 2020	1.5	3.7	1.9	4.0	3.7	2.2	2.8	3.0	3.2	4.9	4.7	5.8	27,894	214	316	23.7
Q4 2020	1.6	3.8	1.9	3.8	3.8	2.1	2.8	3.1	3.2	4.9	4.7	5.8	28,193	216	320	23.9
Q1 2021	2.2	4.3	2.3	4.4	3.9	2.2	2.8	3.3	3.4	5.2	4.9	5.8	28,529	217	322	24.6
Q2 2021	2.0	4.1	2.2	4.2	4.0	2.2	2.8	3.3	3.5	5.1	5.0	5.8	28,858	219	324	23.8
Q3 2021	2.0	4.1	2.2	4.2	4.0	2.2	2.8	3.4	3.5	5.2	5.0	5.8	29,191	221	327	23.7
Q4 2021	2.0	4.1	2.2	4.2	4.0	2.2	2.8	3.4	3.5	5.2	5.0	5.8	29,527	222	329	23.6
Q1 2022	2.0	4.1	2.2	4.2	4.1	2.2	2.8	3.4	3.6	5.2	5.1	5.8	29,868	224	332	23.6

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 2.B. Supervisory baseline scenario: International variables, Q1:2019–Q1:2022**

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 2019	1.6	1.6	1.155	5.9	2.6	96.6	0.8	1.1	109.9	1.4	2.1	1.294
Q2 2019	1.7	1.6	1.164	5.9	2.5	97.0	0.8	1.1	110.1	1.4	2.1	1.311
Q3 2019	1.7	1.6	1.172	5.9	2.5	97.4	0.8	1.1	110.3	1.5	2.1	1.328
Q4 2019	1.6	1.6	1.181	5.8	2.6	97.7	0.7	1.1	110.4	1.5	2.1	1.345
Q1 2020	1.6	1.6	1.188	5.8	2.7	97.4	0.7	1.1	110.0	1.5	2.0	1.350
Q2 2020	1.5	1.7	1.194	5.7	2.8	97.1	0.7	1.1	109.6	1.5	2.0	1.354
Q3 2020	1.5	1.7	1.200	5.7	2.8	96.8	0.7	1.0	109.2	1.5	2.0	1.358
Q4 2020	1.4	1.7	1.206	5.7	2.9	96.5	0.7	1.0	108.7	1.5	2.0	1.362
Q1 2021	1.4	1.8	1.206	5.7	2.9	96.5	0.7	1.0	108.7	1.5	2.0	1.362
Q2 2021	1.4	1.8	1.206	5.7	2.8	96.5	0.6	1.0	108.7	1.6	2.0	1.362
Q3 2021	1.4	1.9	1.206	5.7	2.8	96.5	0.6	1.0	108.7	1.6	2.0	1.362
Q4 2021	1.3	1.9	1.206	5.6	2.9	96.5	0.6	1.0	108.7	1.6	2.0	1.362
Q1 2022	1.3	1.9	1.206	5.6	2.9	96.5	0.6	1.0	108.7	1.6	2.0	1.362

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 3.A. Supervisory adverse scenario: Domestic variables, Q1:2019–Q1:2022

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 2019	-1.6	0.2	-3.7	-2.6	4.3	1.3	0.3	0.5	0.9	4.1	3.4	3.3	24,068	201	283	44.4
Q2 2019	-4.0	-1.9	-4.1	-2.4	5.1	2.0	0.2	0.7	1.0	4.6	3.6	3.2	21,695	198	280	43.1
Q3 2019	-2.8	-0.9	-2.3	-0.6	5.7	1.9	0.1	0.7	1.1	4.8	3.7	3.1	20,527	194	275	39.2
Q4 2019	-1.6	0.4	-1.1	0.7	6.2	2.0	0.1	0.8	1.2	4.9	3.8	3.1	20,045	190	267	34.9
Q1 2020	-1.0	1.0	-0.6	1.4	6.6	2.2	0.1	0.8	1.3	4.7	3.7	3.1	20,200	185	259	30.5
Q2 2020	0.2	2.4	0.2	1.9	6.8	2.0	0.1	0.9	1.3	4.6	3.7	3.1	20,609	181	252	27.3
Q3 2020	0.9	3.0	0.5	2.5	7.0	2.1	0.1	1.0	1.3	4.4	3.6	3.1	21,024	178	244	25.3
Q4 2020	2.5	4.6	1.5	3.4	7.0	2.1	0.1	1.0	1.4	4.3	3.5	3.1	21,633	176	239	23.5
Q1 2021	2.9	4.9	2.3	4.3	6.9	2.2	0.1	1.1	1.6	4.3	3.6	3.1	22,248	176	237	22.5
Q2 2021	3.1	5.2	1.9	3.9	6.7	2.2	0.1	1.2	1.7	4.2	3.7	3.1	23,033	178	237	21.4
Q3 2021	3.3	5.3	1.9	3.9	6.6	2.1	0.1	1.2	1.8	4.1	3.7	3.1	23,792	179	237	20.8
Q4 2021	3.4	5.4	1.9	3.8	6.4	2.1	0.1	1.3	1.9	4.0	3.6	3.1	24,621	182	238	20.3
Q1 2022	3.4	5.3	1.8	3.7	6.3	2.1	0.1	1.3	1.9	3.8	3.6	3.1	25,537	184	239	20.1

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 3.B. Supervisory adverse scenario: International variables, Q1:2019–Q1:2022**

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 2019	-2.6	1.6	1.117	1.9	1.0	97.9	-2.0	-0.1	108.8	-2.8	1.5	1.286
Q2 2019	-3.3	1.0	1.104	2.1	0.2	99.8	-3.5	-0.5	108.5	-3.4	1.1	1.273
Q3 2019	-2.3	0.5	1.115	3.4	0.1	101.1	-4.2	-0.7	108.8	-2.6	0.7	1.285
Q4 2019	-1.6	0.2	1.129	4.2	0.1	102.0	-4.6	-1.1	108.0	-1.8	0.6	1.297
Q1 2020	-0.6	0.3	1.135	5.5	0.6	101.9	-2.0	-0.6	108.8	-0.7	0.7	1.302
Q2 2020	0.2	0.5	1.140	6.1	0.6	100.9	-1.0	-0.4	108.7	0.2	0.8	1.306
Q3 2020	0.8	0.8	1.146	6.3	0.9	100.0	-0.4	-0.2	108.5	0.9	1.0	1.309
Q4 2020	1.3	1.0	1.152	6.3	1.2	99.2	0.1	0.0	108.5	1.4	1.1	1.312
Q1 2021	1.6	1.1	1.156	6.2	1.4	98.6	0.4	0.2	108.6	1.8	1.2	1.313
Q2 2021	1.7	1.3	1.160	6.1	1.5	98.2	0.7	0.3	108.7	2.0	1.3	1.314
Q3 2021	1.7	1.4	1.164	6.1	1.7	97.8	0.8	0.4	108.8	2.1	1.4	1.316
Q4 2021	1.7	1.5	1.169	6.0	1.9	97.4	0.9	0.5	108.8	2.1	1.5	1.318
Q1 2022	1.6	1.6	1.172	5.9	2.0	97.1	0.9	0.5	108.8	2.1	1.5	1.321

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 4.A. Supervisory severely adverse scenario: Domestic variables, Q1:2019–Q1:2022

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 2019	-5.0	-3.5	-5.1	-4.2	4.7	1.2	0.3	0.3	0.8	5.3	3.9	3.3	17,836	199	280	67.8
Q2 2019	-9.4	-7.7	-7.1	-5.8	6.3	1.6	0.2	0.5	0.9	6.1	4.2	3.2	14,694	193	272	70.0
Q3 2019	-7.2	-5.7	-4.8	-3.4	7.5	1.7	0.1	0.6	1.0	6.5	4.4	3.1	13,317	186	262	61.3
Q4 2019	-5.0	-3.4	-3.2	-1.6	8.4	1.8	0.1	0.6	1.1	6.5	4.5	3.1	12,862	178	247	49.9
Q1 2020	-3.8	-2.1	-2.4	-0.7	9.2	1.9	0.1	0.7	1.2	6.2	4.3	3.1	13,462	170	232	38.4
Q2 2020	-1.5	0.5	-1.2	0.4	9.7	1.8	0.1	0.7	1.2	5.8	4.2	3.1	14,421	163	217	31.2
Q3 2020	-0.3	1.6	-0.6	1.2	10.0	2.0	0.1	0.7	1.2	5.5	4.1	3.1	15,479	156	202	26.9
Q4 2020	2.9	4.8	1.2	3.0	9.9	2.0	0.1	0.7	1.2	5.1	3.9	3.1	16,847	152	192	23.3
Q1 2021	3.6	5.4	2.3	4.3	9.7	2.1	0.1	0.9	1.5	5.0	3.9	3.1	17,788	151	187	22.5
Q2 2021	4.1	5.9	2.2	4.2	9.5	2.1	0.1	1.0	1.6	4.7	3.8	3.1	19,352	153	187	21.4
Q3 2021	4.4	6.2	2.3	4.3	9.2	2.1	0.1	1.1	1.6	4.4	3.8	3.1	21,039	154	187	20.8
Q4 2021	4.6	6.4	2.5	4.3	8.9	2.0	0.1	1.2	1.7	4.0	3.6	3.1	22,940	157	189	20.3
Q1 2022	4.6	6.3	2.4	4.2	8.6	2.0	0.1	1.2	1.8	3.7	3.5	3.1	25,137	160	191	20.1

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 4.B. Supervisory severely adverse scenario: International variables, Q1:2019–Q1:2022**

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 2019	-5.4	1.5	1.092	-0.8	0.0	98.8	-3.9	-0.8	108.1	-5.6	1.0	1.282
Q2 2019	-6.5	0.5	1.067	-0.4	-1.3	101.7	-6.4	-1.5	107.4	-6.6	0.4	1.248
Q3 2019	-4.9	-0.3	1.079	1.7	-1.5	103.6	-7.5	-1.9	107.8	-5.3	-0.2	1.258
Q4 2019	-3.8	-0.8	1.095	3.1	-1.6	104.9	-8.2	-2.5	106.4	-4.0	-0.3	1.266
Q1 2020	-2.1	-0.6	1.100	5.3	-0.8	105.0	-3.8	-1.7	108.1	-2.2	-0.2	1.271
Q2 2020	-0.6	-0.2	1.106	6.4	-0.8	103.5	-2.1	-1.4	108.1	-0.6	0.0	1.275
Q3 2020	0.4	0.1	1.112	6.7	-0.3	102.2	-1.1	-1.0	108.1	0.5	0.3	1.277
Q4 2020	1.2	0.5	1.118	6.6	0.1	101.0	-0.3	-0.7	108.3	1.4	0.5	1.279
Q1 2021	1.6	0.7	1.124	6.5	0.4	100.1	0.3	-0.4	108.5	1.9	0.7	1.281
Q2 2021	1.9	0.9	1.131	6.4	0.7	99.3	0.7	-0.2	108.7	2.3	0.9	1.283
Q3 2021	2.0	1.0	1.138	6.3	0.9	98.6	0.9	0.0	108.9	2.5	1.0	1.286
Q4 2021	1.9	1.2	1.144	6.2	1.2	98.1	1.0	0.1	108.9	2.5	1.1	1.290
Q1 2022	1.9	1.3	1.151	6.2	1.5	97.5	1.1	0.3	108.9	2.5	1.2	1.294

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 2018:Q4 (as released through January 18, 2019). The 2018:Q4 values of variables marked with an asterisk (*) are projected.

***U.S. real GDP growth:** Percent change in real gross domestic product, chained (2009) 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 gross domestic product (current dollars), 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 disposable personal income (current dollars) 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 disposable personal income (current dollars), 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 (series RIFSGFSM03_N.B).

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: Merrill Lynch 10-year BBB corporate bond yield, Z.1 Release (Financial Accounts of the United States), Federal Reserve Board (series FL073163013.Q).

U.S. mortgage rate: 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.

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

U.S. Dow Jones Total Stock Market (Float Cap) Index: End of quarter value via Bloomberg Finance L.P.

***U.S. House Price Index:** Price Index for Owner-Occupied Real Estate, CoreLogic National, Z.1 Release (Financial Accounts of the United States), Federal Reserve Board (series FL075035243.Q).

***U.S. Commercial Real Estate Price Index:** Commercial Real Estate Price Index, Z.1 Release (Financial Accounts of the United States), Federal Reserve Board (series FL075035503.Q divided by 1000).

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

***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 data from Bank of Korea via Haver; National Bureau of Statistics of China via Haver; Indian Central Statistics Office via Haver; Census and Statistics Department of Hong Kong via Haver; and Taiwan Directorate-General of Budget, Accounting and Statistics via Haver.

***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 data from National Bureau of Statistics of China via Haver; Indian Ministry of Statistics and Programme Implementation via Haver; Labour Bureau of India via Haver; National Statistical Office of the Republic of Korea via Haver; Census and Statistics Department of Hong Kong via Haver; and Taiwan Directorate-General of Budget, Accounting and Statistics via Haver.

***Japan real GDP growth:** Percent change in gross domestic product at an annualized rate from 1980 to

present and percent change in gross domestic expenditure at an annualized rate prior to 1980, Cabinet Office of Japan via Haver.

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

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

U.K. inflation: Percent change in the quarterly average of the consumer price index at an annualized rate from 1988 to present and percent change in the quarterly average of the retail prices index prior to 1988, staff calculations based on data from the U.K. Office for National Statistics via Haver.

Exchange rates: End-of-quarter exchange rates, H.10 Release (Foreign Exchange Rates), Federal Reserve Board.

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