**1.4 Scenarios**

**1.4.1 Overview**

This year, SHUSA projected its pro-forma results across four scenarios. Three provided by the Federal Reserve and one internally developed to stress SHUSA's risk profile with particular focus on exposure to the automotive industry and below prime automobile exposures. These scenarios (Baseline, FRB Adverse, FRB Severely Adverse and BHC Stress) are described below. The process and controls used to develop the BHC Stress and operationalize the FRB scenarios are described in detail in Section **6**.

The four scenarios, collectively, capture a wide array of possible outcomes, including the continuation of a benign and moderate improvement in economic conditions and two types of deep recessions focusing on different sectors of the economy. The FRB Severe scenario is particularly stressful to residential real estate while the BHC Stress focuses on automobile markets.

While no single scenario can credibly capture and stress all risks a diversified firm faces without unrealistic assumptions, management is confident that the scenarios presented effectively capture SHUSA's material risks and are sufficient to inform the capital strategies as outline in this Capital Plan.

**1.4.2 Scenario Detail**

**1.4.2.1 Baseline scenario**

For this year's Capital Plan, SHUSA has chosen to use the FRB baseline scenario as its BHC baseline scenario. The CMG has reviewed previous years FRB baseline scenarios against the baselines previously provided by Banco Santander S.A. central economic team and confirmed there is no negative impact in using the FRB baseline. The FRB baseline reflects SHUSA’s expected path for the economy, as demonstrated by similarities between key variable paths in previous exercises. Additionally, the operational efficiencies afford by running one baseline scenario far outweigh any slight difference in expected economic outcomes.

Following is the description of the baseline as presented in the CCAR instructions. The macro variables provided by the FRB have been expanded to include the variables required by SHUSA and are consistent with the scenario as described.

FRB description:

The baseline scenario for the United States is a moderate economic expansion through the projection period. Real GDP grows at an average rate of 2½ percent per year. The unemployment rate declines to 4½ percent in the middle of 2017 and remains near that level through the end of the scenario period. CPI inflation rises to 2½ percent at an annual rate by the middle of 2017 before dropping back to about 2 percent in the first quarter of 2018 and remaining near that level thereafter.

Accompanying the moderate economic expansion, Treasury yields are assumed to rise steadily across the maturity spectrum. Short-term Treasury rates increase from about ½ percent at the beginning of 2016 to about 2¾ percent by the beginning of 2019, while the yields on 10-year Treasury securities rise from 2½ percent to about 3¾ 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 rates. Reflecting strengthening 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 an average of about 4¾ percent per year and equity market volatility is assumed to remain near its historical average level.

Nominal house prices rise an average of 2¾ percent per year and commercial real estate prices rise an average of 4¼ percent per year. The outlook for international variables is similar to that reported in the January 2016 *Blue Chip Economic Indicators* and the International Monetary Fund’s October 2015 *World Economic Outlook*. 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 6 percent per year over the scenario period; real GDP growth in the United Kingdom averages 2¼ percent per year; and real GDP growth in the euro area and Japan averages 1¾ percent per year and 1 percent per year, respectively.

Key SHUSA macro variable expansion:

Accompanying the moderate economic expansion, oil prices begin to normalize in a steady fashion returning to approximately $70/barrel over forecast horizon. Used automobile prices as measured by the Manheim Index continue a steady increase at a pace similar that experienced since Q1 2013 or a 4% increase between Q4 2015 and Q1 2018. Public sector defaults in Puerto Rico continue to apply pressure on the local economy.

Ratings Agency Actions:

- Include SBNA, SC, SHUSA and group assumption

**1.4.2.2 BHC Stress scenario**

The BHC Stress ("BHC Stress") Scenario was designed through a robust process, leveraging the outputs of SHUSA’s Material Risk Program, appropriate macroeconomic expertise, and significant executive management engagement. The BHC Stress Scenario targets SHUSA’s most material risks and greatest vulnerabilities, as identified in the 19 prioritized risks in the Material Risk Inventory. This ensured that the scenario addressed all key macroeconomic drivers, in addition to certain risk events that stemmed from non- macroeconomic factors. The Capital Management Group, support from a third party macroeconomic advisory firm, and the Board Risk Committee’s review and approval of scenarios and key variable paths ensured that the right expertise and executive engagement contributed to the creation of the BHC Stress. This BHC Stress was approved by the SHUSA Risk Committee on December 18, 2015.

The BHC Stress features a U.S. deflationary slump followed by a spike in oil prices that constrain business investment and consumer spending, resulting in depressed real estate values and stress in the auto industry. The impact of the macroeconomic conditions on SHUSA's specific business activities are further amplified by a major Chrysler vehicle recall and devastating cyber-attack on SBNA.

The highly volatile Chinese stock market plunges as the nation’s progress slows. The Chinese government is unable to stem the tide of decline, despite efforts to manipulate currency. Market instability leads to a severe economic downturn that swiftly spreads across Asia and to other developing nations. Facing rising uncertainty and market instability, investors react swiftly by retracting investment in Asia and redeploying capital to traditionally safer economies such as the US. The boost in US investment strengthens the US dollar, making imports less expensive and driving down the price of commodities. The pace of public sector defaults in Puerto Rico continues to accelerate.

Consumers cut back on consumption in the first half of 2016 in response to deflation expectations, uncertainty, and economic malaise. At the same time, saving increases as consumers pay down debt and postpone purchases. The impact of reduced consumption and resulting slowed wage growth exceed the mild stimulation from savings due to the lower prices, creating a deflationary slump.

By the second half of 2016, instability in and between oil exporting countries strained by weak revenues boils over. Conflict between Saudi Arabia and Iran further escalates to military attacks resulting in supply disruption and the glut dries up, rapidly causing oil prices to soar from $40/barrel in the second quarter of 2016 to $120/barrel in the second quarter of 2017. Consequentially, gas prices at the pump rise from $1.57/gallon in the first quarter of 2016 to $4.44/gallon in the second quarter of 2017. This in turn shocks consumers and businesses out of their expectations of deflation. Other commodity prices rise, breaking out of the deflationary slump, but the labor market remains slack, and wages do not keep up with the rapid rise in inflation.

Initially, slowed growth in foreign markets causes demand for US exports to drop, and is exacerbated by expectations of a strong dollar. Businesses scale back investment in response to weak demand and declining profits. As a consequence, US output plummets and unemployment soars as businesses find themselves overstaffed for the declining level of demand. Real GDP begins to fall immediately and is further shocked by the rise in oil prices, declining by approximately 4% in the second quarter of 2017 compared to the first quarter of 2016. In the third quarter of 2017 real GDP begins to recover.

Unemployment soars by more than 5 percentage points from the beginning of the scenario to 10.6% in the last quarter of 2017. At the same time, equity markets plummet by approximately 50% over the course of the scenario, and the S&P 500 reaches 11,000 in the first quarter of 2018.

Throughout the scenario, consumption faces a double dip. First, it slightly dips in the second quarter of 2016, due to deflationary expectations. A second, more severe, drop of 1.5% occurs from the consumption peak in the third quarter of 2016 to the end of 2017 as consumers face rising costs due to the oil shock. The simultaneous declines in investment portfolios and home values further impact buying power. Reduced buying power, in conjunction with rising unemployment rates, drives consumer confidence to a new historical low of 50.2 in the second quarter in 2017, after which it begins to recover. Debt service burdens fall from 10.0% in the first quarter of 2016 to 9.2% in the first quarter of 2018 throughout the scenario as higher savings rates and continued low interest rates overwhelm the fall in disposable income.

The FRS keeps short-term rates near zero and engages in additional quantitative easing, but is unable to successfully combat deflation. Three-month Treasury bills hover near 0.1% throughout the scenario. Long-term treasury rates rise from approximately 2% at the beginning of the scenario to nearly 2.9% in the third quarter of 2017. As concerns of corporate credit quality increase, long-term bond spreads widen and confidence in the private sector wanes, causing further stress in the corporate sector.

Widespread fears of another real-estate bust, triggered by another recession, become a self-fulfilling prophecy. House prices fall as buyers lose faith in houses as a store of value and have weakened purchasing power. Commercial real estate values, having just passed their 2007 highs, suffer the same phenomenon, exacerbated by strain on businesses from the downturn. Commercial real estate values fall by nearly 40% and home prices fall by nearly 10% by the third quarter in 2017, before beginning to recover. Existing home sales decline from 5.3 million units in the second quarter of 2016 to 4.1 million units at the end of 2017.

Initially, deflation and malaise reduce spending on autos. Deflation directly lowers the value of used autos. Dealers see inventories rise, and then correct in subsequent quarters as production falls. When oil prices rise, it dramatically reduces new truck and SUV sales-and consequently, auto manufacturer profits-and also reduces the value of older and less fuel-efficient used vehicles. New auto sales fall from 7.3 million in the second quarter of 2016 to 4.9 million one year later, while used vehicle values drop by 17% in the beginning of 2017, after which they begin to recover.

SBNA Cyber-Attack

A large scale malware intrusion results in fraudsters gaining access to personally identifiable information (“PII”) of SBNA Retail Banking customers. s. The malware enters SBNA’s systems through a seemingly innocuous link that an employee clicked on in an email. The PII gathered by the cyber-ring is substantial. The ring uses the PII of discrete customer accountsto extract funds from other financial institutions by applying for a line of credit and also sells the data on the black market. SBNA must actively monitor internal systems and pay for customer credit monitoring for 24 months after the event. The media learn of the event through customers; the bank confirms the incident and explains the actions it has taken. Initial coverage is generally benign but turns negative. In addition to the direct costs of credit protection and legal support the scenario features secondary impacts which include declines in deposit gathering andincreases in IT infrastructure spending and remediation to address elevated supervisory expectations.

Chrysler Recall

Fiat Chrysler Automobiles (“FCA”), the auto maker for Fiat, Chrysler, Dodge, Jeep, Ram, Alfa Romeo and Maserati, experiences a severe manufacturing issue with the transmission system used in the 2014 Jeep Grand Cherokee and 2014 Ram Trucks.

The malfunctioning transmission system results in a series of accidents that cause fatalities. The casualties caused by the the faulty part is shared by two of FCA’s most popular vehicles creatingadverse headlines negative sentiments towards the specific vehicles involved, as well as the FCA brand. Upon the realization the FCA is losing sales, FCA begins an aggressive campaign to incentivize customers to purchase FCA vehicles. While the incentive program is effective in helping FCA to maintain sales, the rebates result in additional loss in resale for FCA vehicles, as resale value on existing vehicles are directly related to the (lower) sale price on the new vehicles.

Overall, it is estimated that the event would last for 12 months, which is the approximate time seen in similar events for the resale value of vehicles to revert back to “pre-recall” value estimates. During this time, it is assumed that FCA would incur a high level of losses both from the cost to fix the vehicles in addition to fines that may be imposed on FCA, however, these costs are not enough to push FCA into bankruptcy. In addition to the direct impact of declines in value for the Jeep Grand Cherokee and Ram Truck, the scenario also incorporatessecondary impacts including (1) the impact to FCA vehicles not directly affected by the recall event, (2) the impact to future FCA sales volume and (3) the impact on existing vehicles price caused by incentives on new vehicles.

Ratings Agency Actions:

- Include SBNA, SC, SHUSA and group assumption

**1.4.2.3 FRB Supervisory Adverse**

Following is the description of the FRB Supervisory Adverse ("FRB Adverse") as presented in the CCAR instructions. The macro variables provided by the FRB have been expanded to the variables required by SHUSA and are consistent with the scenario as described.

FRB description:

The adverse scenario features a moderate U.S. recession that begins in the first quarter of 2016. Real GDP in the United States falls 1¾ percent from the pre-recession peak in the fourth quarter of 2015 to the recession trough in the first quarter of 2017, while the unemployment rate rises steadily, peaking at 7½ percent in the middle of 2017. The U.S. recession is accompanied by a mild deflationary period, with consumer prices falling about ½ percent over the four quarters of 2016. Reflecting weak economic conditions and deflationary pressures, short-term interest rates in the United States remain near zero over the projection period. The 10-year Treasury yield declines to 1¼ percent in early 2016 before rising gradually thereafter to 3 percent in the first quarter of 2019. Financial conditions tighten for corporations and households during the recession, with spreads between investment-grade corporate bond yields and 10-year Treasury yields and spreads between mortgage rates and 10-year Treasury yields widening through the end of 2016.

Asset prices decline in the adverse scenario. Equity prices fall approximately 25 percent through the fourth quarter of 2016, accompanied by a moderate rise in equity market volatility. Aggregate house prices and commercial real estate prices experience moderate declines; commercial real estate prices fall 12 percent through the third quarter of 2017 and house prices fall 12 percent through the third quarter of 2018.

Following the end of the recession in the United States, real activity picks up slowly at first and then gains speed; real U.S. GDP growth rises from 1¼ percent at an annual rate in the second quarter of 2017 to 3 percent at an annual rate by the middle of 2018. The unemployment rate declines modestly, to about 7 percent by the end of the scenario period. Consumer prices begin to rise slowly in the first quarter of 2017 and inflation remains subdued through the end of the scenario window. Consumer price inflation reaches 1¾ percent at an annual rate in the first quarter of 2019.

Outside of the United States, the adverse scenario features moderate recessions in the euro area, the United Kingdom, and Japan, as well as below-trend growth in developing Asia (see Table 2B). Weakness in global demand results in deflation across all of the foreign economies under consideration as well as a broad-based decline in commodity prices. Headline consumer prices decline modestly through the end of 2016 in the euro area and the United Kingdom, and decline through the middle of 2017 in developing Asia. Japan experiences a sharper and more prolonged deflationary period, with prices falling through the second quarter of 2018. The U.S. dollar appreciates relative to the currencies of the countries and country blocks under consideration, reflecting flight-to-safety capital flows; the dollar appreciates most strongly against the euro and the currencies of developing Asia.

Declines in aggregate U.S. 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.

Key SHUSA macro variable expansion:

Accompanying the moderate U.S. recession, oil prices continue to fall through Q4 2016 hitting a low of $31/barrel and then rebound returning to approximately $52/barrel by the end of the forecast horizon. Used automobile prices as measured by the Manheim Index enter a steep decline of nearly 5% by Q4 2016 and rebound somewhat over forecast horizon ending 2.35% below the Q4 2015 starting point. The pace of public sector defaults in Puerto Rico continues to accelerate.

Ratings Agency Actions:

- Include SBNA, SC, SHUSA and group assumption

**1.4.2.4 FRB Supervisory Severely Adverse**

Following is the description of the FRB Supervisory Severely Adverse ("FRB Severe") as presented in the CCAR instructions. The macro variables provided by the FRB have been expanded to the variables required by SHUSA and are consistent with the scenario as described.

FRB Description:

In this scenario, the level of U.S. real GDP begins to decline in the first quarter of 2016 and reaches a trough in the first quarter of 2017 that is 6¼ percent below the pre-recession peak. The unemployment rate increases by 5 percentage points, to 10 percent, by the middle of 2017 and headline consumer price inflation rises from about ¼ percent at an annual rate in the first quarter of 2016 to about 1¼ percent at an annual rate by the end of the recession.

Asset prices drop sharply in the scenario, consistent with the developments described above. Equity prices fall approximately 50 percent through the end of 2016, accompanied by a surge in equity market volatility, which approaches the levels attained in 2008. House prices and commercial real estate prices also experience considerable declines, with house prices dropping 25 percent through the third quarter of 2018 and commercial real estate prices falling 30 percent through the second quarter of 2018. Corporate financial conditions are stressed severely, reflecting mounting credit losses, heightened investor risk aversion, and strained market liquidity conditions; the spread between yields on investment-grade corporate bonds and yields on long-term Treasury securities increases to 5¾ percent by the end of 2016.

As a result of the severe decline in real activity and subdued inflation, short-term Treasury rates fall to negative ½ percent by mid-2016 and remain at that level through the end of the scenario. For the purposes of this scenario, it is assumed that the adjustment to negative short-term interest rates proceeds with no additional financial market disruptions. The 10-year Treasury yield drops to about ¼ percent in the first quarter of 2016, rising gradually thereafter to reach about ¾ percent by the end of the recession in early 2017 and about 1¾ percent by 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 mild recession in developing Asia. As a result of acute economic weakness, all foreign economies included in the scenario experience a pronounced decline in consumer prices. Reflecting flight-to-safety capital flows during weak economic conditions, the U.S. dollar is assumed to appreciate against the euro, the pound sterling, and the currencies of developing Asia. The dollar is assumed to depreciate modestly against the yen, also in line with flight-to-safety capital flows.

In Europe as well as in emerging markets, the economic downturn heightens investor concerns about credit risk for countries with high levels of public debt. Spreads on credit default swaps for these countries increase by magnitudes in line with those experienced by Italy, Portugal, and Spain during 2011 and by emerging markets in 2008.

Declines in aggregate U.S. commercial and residential 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, particularly where real estate prices have been growing at a fast clip. Domestically, credit losses on commercial real estate loans backing commercial mortgage-backed securities are greater than would be expected given the general economic and financial stress in the scenario, prompting widespread investor pull-back. Spreads on commercial mortgage-backed securities widen to attain the same peaks reached in the 2007-2009 recession.

Key SHUSA macro variable expansion:

Accompanying the severe U.S. recession, oil prices level off falling only slightly to a low of $39/barrel in Q2 2016 and then remain flat through the forecast horizon. Used automobile prices as measured by the Manheim Index enter a steep, although short, decline of nearly 3% by Q2 2016 and rebound quickly ending up nearly 4% over the forecast horizon. The pace of public sector defaults in Puerto Rico continues to accelerate.

Ratings Agency Actions:

- Include SBNA, SC, SHUSA and group assumption

**Comparison of BHC Stress and FRB Severely Adverse Scenarios**

The BHC Stress and FRB Severe both present recessionary environments with a low likelihood of occurrence and do not reflect SHUSA's expected forecast of the economic environment. The two forecasts have a number of material differences:

1) The BHC Stress includes a number of idiosyncratic, non-macro driven events designed to enhance theseverity of strees to SHUSA's specific business activities and portfolios. These include a cyber-attack at SBNA and a Chrysler recall event.

2) The FRB Severe scenario applies significantly more pressure to residential real estate markets both in terms of declines in existing home sales and in lower home prices.

3) The FRB Severe forecast includes negative short-term interest rates which persist through the forecast horizon. In the BHC Stress this dynamic does not manifest as the oil shock eases deflationary pressure. The interest rate environment in FRB Severe is exceptionally low and remains so through the forecast horizon.

4) The BHC Stress applies significant pressure on new and used automobile markets. The oil shock and resulting increases in gas prices negatively impact used auto prices. Oil prices are 3x higher in BHC stress than in the FRB Severe contributing to a decline in the Manheim Index 3.5x greater in BHC Stress.

These differences highlight a inherent trade-off faced by the CGM when developing and expanding the stress scenarios; applying material stress (greater than 25% negative impact) on both used auto values and residential home prices simultaneously was not consistent with sound macroeconomic theory. Specifically, the underlying drivers of these exposures move in opposite directions (are negatively correlated). SHUSA choose to stress the automobile exposures primarily localed in SC given: ongoing discussion of risk, return and strategic direction.