

# **HSBC North America Holdings Inc.**

## 2016 Comprehensive Capital Analysis and Review and Annual Company-Run Dodd-Frank Act Stress Test Results

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# HSBC North America Holdings Inc.

## 2016 CCAR and Annual Company-Run Dodd-Frank Act Stress Test Results

*This document has been prepared pursuant to the disclosure requirements set out in the regulations issued by the Board of Governors of the Federal Reserve System ('Federal Reserve') and the Office of the Comptroller of the Currency ('OCC') under the Dodd-Frank Wall Street Reform and Consumer Protection Act ('Dodd-Frank Act') related to the annual company-run stress testing exercise.*

*References to 'HSBC' are to HSBC North America Holdings Inc. and its subsidiaries.*

*This document makes certain references that are not historical facts, including statements about HSBC's beliefs and expectations, which are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as 'may', 'will', 'should', 'would', 'could', 'appears', 'believe', 'intends', 'expects', 'estimates', 'targeted', 'plans', 'anticipates', 'goal' and similar expressions are intended to identify forward-looking statements but should not be considered as the only means through which these statements may be made. These matters or statements will relate to our future financial condition, economic forecast, results of operations, plans, objectives, performance or business developments and will involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from that which was expressed or implied by such forward-looking statements. The projections disclosed in this document should not be viewed or interpreted as forecasts of expected outcomes or capital adequacy or of the actual financial condition of either HSBC or HSBC Bank USA, N.A. Rather, these projections are based solely on the hypothetical adverse scenarios and other specific conditions required to be assumed by HSBC for the purpose of Dodd-Frank Act stress testing as well as modeling assumptions necessary to project and assess the impact of the various adverse scenarios on HSBC's capital position. Forward-looking statements speak only as of the date of this document. HSBC makes no commitment to revise or update any forward-looking statements to reflect events or circumstances occurring or existing after the date of any forward-looking statements. Factors that could cause HSBC's actual results to differ materially from those described in forward-looking statements can be found in the annual report on Form 10-K for HSBC USA Inc. and HSBC Finance Corporation. Additionally, please refer to the HSBC USA Inc. annual report on Form 10-K for a broader description of our capital planning and risk management processes.*

### 1. Overview of the Comprehensive Capital Analysis and Review and Dodd-Frank Act Stress Tests

Pursuant to the Dodd-Frank Act, the Federal Reserve and the OCC have issued regulations requiring Bank Holding Companies ('BHCs') and national banks, respectively, with average total consolidated assets of US\$50 billion or more to conduct annual company-run stress tests ('Dodd-Frank Act stress test'). HSBC North America Holdings Inc. ('HSBC North America') and HSBC Bank USA, N.A. ('HSBC Bank USA') are required to participate in the Dodd-Frank Act stress tests and provide herein the disclosure of their 2016 stress test exercise, as required under these regulations. In addition, BHCs, including HSBC North America, are required to conduct mid-cycle company-run stress tests. The Federal Reserve is also required to undertake an annual supervisory stress test of BHCs, as defined above.

The company-run stress test is a forward-looking exercise to assess the impact of hypothetical macroeconomic baseline, adverse and severely adverse scenarios provided by the Federal Reserve and the OCC on the financial condition and capital adequacy of a BHC or bank over a nine-quarter planning horizon, beginning, for the current exercise, in the first quarter of 2016. For HSBC North America, the Dodd-Frank Act stress test was conducted in conjunction with the Federal Reserve's annual Comprehensive Capital Analysis and Review ('CCAR'). Under CCAR, the Federal Reserve also undertakes an assessment of a BHC's capital adequacy process and HSBC North America submitted its Capital Plan in compliance with the CCAR requirements.<sup>1</sup> BHCs, such as HSBC North America, are required to receive a 'non-objection' from the Federal Reserve before executing a capital action, other than those capital distributions with respect to which the Federal Reserve has indicated in writing its non-objection.

HSBC North America and HSBC Bank USA are required to disclose the results of their Dodd-Frank Act stress tests under the Federal Reserve and OCC's severely adverse stress scenario (the 'supervisory severely adverse scenario').<sup>2</sup> For the 2016 annual stress testing cycle, the supervisory severely adverse scenario is characterized by a severe global recession, accompanied by a period of heightened corporate financial stress and negative yields for short-term U.S. treasury securities.

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 6.25 percent below the pre-recession peak. The unemployment rate increases by 5 percent, to 10 percent, by the middle of 2017 and headline consumer price inflation rises from about 0.25 percent at an annual rate in the first quarter of 2016 to about 1.25 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 5.75 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 0.5 percent by mid-2016 and remain at that level throughout the forecasting period. 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 0.25 percent in the first quarter of 2016, rising gradually thereafter to reach about 0.75 percent by the end of the recession in early 2017 and about 1.75 percent by the first quarter of 2019.

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<sup>1</sup> See Board of Governors of the Federal Reserve System, 'Comprehensive Capital Analysis and Review 2016 Summary Instructions and Guidance', January 2016, for the CCAR and Dodd-Frank Act stress test instructions.

<sup>2</sup> For the supervisory severely adverse scenario description and macroeconomic variables, see Board of Governors of the Federal Reserve System, '2016 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule', January 28, 2016, available at <https://www.federalreserve.gov/newsevents/press/bcreg/bcreg20160128a2.pdf>.

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It is important to note that the scenarios provided by the Federal Reserve and OCC are not forecasts, but rather hypothetical scenarios to be used to assess the strength and resilience of institutions in baseline and stressed economic and financial market environments. In addition, the stress test results summarized in this report are not comparable to the results of other stress tests performed by HSBC North America and HSBC Bank USA due to a number of factors including the uniqueness of the scenario assumptions used to prepare each stress test, differences in market conditions and differences in the companies' financial positions and exposures at the time each stress test is performed. Differences also arise due to the evolving risk quantification methodologies and regulatory capital frameworks that may be applicable to each stress test.

Six BHCs with large trading operations were required by the Federal Reserve to include a global market shock as part of their supervisory adverse and severely adverse scenarios and to conduct a stress test of their trading books, private equity positions and counterparty exposures. In addition, eight BHCs with substantial trading or custodial operations were required to incorporate a counterparty default scenario component into their supervisory adverse and severely adverse stress scenarios. HSBC North America was not required to perform these exercises.

HSBC North America is the holding company for HSBC Holdings plc's operations in the United States. Those operations are primarily conducted through HSBC Bank USA, HSBC Finance Corporation, a holding company for certain run-off consumer finance businesses, and HSBC Markets (USA) Inc. which is the intermediate holding company of, inter alia, HSBC Securities (USA) Inc., a registered broker-dealer.

HSBC Holdings plc is one of the world's largest banking and financial services organizations. With more than 6,000 offices in both established and emerging markets, it aims to be where growth is, connecting customers to opportunities, enabling businesses to thrive and economies to prosper, and, ultimately helping people to fulfill their hopes and dreams, and realize their ambitions.

The results of HSBC North America and HSBC Bank USA's annual company-run Dodd-Frank Act stress test are shown below in sections 3 and 4, respectively.

### **2. Forecasting Methodologies Utilized for Dodd-Frank Act Stress Testing**

Our stress testing methodologies focus on empirically defining the relationship between macroeconomic variables and business volumes, revenues and losses in order to estimate outcomes that may result from a specific adverse scenario. We use a series of models and estimation methodologies, coupled with management judgment and overlays to modeled results to take account of HSBC North America's specific risk profile, to produce a comprehensive estimate of future business performance. Additional macroeconomic variables are projected to facilitate the forecasting of certain risk- and portfolio-specific factors. These are projected consistent with the trend of variables provided by the Federal Reserve in each scenario. Stress testing methodologies are subject to considerable uncertainties and modeling limitations including uncertainty about the extent to which historical relationships between macroeconomic factors and business outcomes will continue to be relevant in a severely stressed economic environment. We regularly consider these uncertainties and the limitations of our estimates when evaluating stress test results. The methodologies apply accounting practices consistent with HSBC's significant accounting policies, generally accepted accounting principles (GAAP) in the U.S., and the regulatory capital rules in place at the time of the stress test. The forecast methodologies employed by HSBC to quantify the impact of the hypothetical assumptions over the stress testing forecast period, included, but were not limited to, the following:

#### **Pre-Provision Net Revenue**

HSBC's revenue forecast, under the supervisory severely adverse scenario, reflected a detailed process in which business segment projections were developed over the nine-quarter capital planning horizon. These forecasts incorporated the impact on modeled net interest income, as well as non-interest income and non-interest expense, of

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the hypothetical macroeconomic and market environment prescribed under the scenario. The scenario revenue forecast also reflected the level of resources projected to be employed by each business segment over the capital planning horizon, as well as HSBC's expectations of customer behavior and competitive dynamics.

### Balance Sheet

The forecast balance sheet, under each scenario, reflected projected changes over the planning horizon based on assumptions of the macroeconomic environment in the scenarios, business growth and planned activity, changes in carrying values resulting from mark-to-market and other balance sheet impacts, including draws on unfunded commitments and the roll-off of lending and net borrowing or funding.

### Losses

Stress losses from market risk, wholesale and retail credit risk and operational risk exposures across HSBC, under the supervisory severely adverse scenario, were measured utilizing the following methodologies:

*Market Risk:* Market risks included all mark-to-market positions and loans carried at fair value (the latter primarily in HSBC Finance Corporation). The potential impact of market movements on trading positions and mark-to-market losses for fair-value assets not held in the trading book, including loans held for sale or held for investment under the fair-value option, projected in the scenario were incorporated, as appropriate.

Our approach to projecting market risk trading losses in a stress environment was based on implied market movements under a given macroeconomic scenario and estimating their impact on positions with open market risk exposure. The trading stress test results were computed based on revaluation of the portfolio under the stressed market risk factors.

*Credit Risk:* Loans to our customers are a significant component of HSBC's total assets and their related credit risk is among the most significant risks we manage. When estimating loan losses, probability of default, exposure at default, and loss severity assumptions are incorporated into the loan loss estimates. Loss estimates take into consideration the unique characteristics of our wholesale and retail loan portfolios and reflect the run-off nature of the retail loan portfolio in HSBC Finance Corporation.

A variety of models were used to project losses on loans. These models take into consideration many factors, including historical performance, the forecast economic scenarios, current credit characteristics, and credit quality ratings. Where appropriate, we incorporated country-specific, state and local economic variables to reflect geographical concentrations within a given loan portfolio.

Wholesale loss estimates were made based on asset types, specifically commercial and industrial and commercial real estate portfolios. Within each of these, the portfolio was segmented further to capture key portfolio risk characteristics, such as particular industry concentrations, that may react differently under various stress scenarios. Rigorous statistical techniques were used to determine and estimate relationships between probability of default and macroeconomic factors. Probability of default projections are sensitive to and consistent with scenario conditions, resulting in loss rates that are indicative of underlying economic fundamentals. Loss severity was projected using similar techniques.

Losses on retail loans were projected using statistical models that use economic attributes (such as unemployment rate and housing price levels) and portfolio credit characteristics within an expected loss framework. Reserves were forecasted using a coverage ratio based on expected losses, where the losses were stressed quarterly throughout the forecast horizon. Estimated troubled debt restructuring volumes and life of loan reserves, most significant to loans made by HSBC Finance Corporation, were stressed within this framework.

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*Operational Risk:* Operational risk loss estimates are calculated using historical performance, frequency correlation models, scenario analysis and legal matter analysis. Scenario analysis and legal matter analysis contribute materially to estimate of stressed losses. Scenario analysis is performed through scenario workshops with a range of relevant stakeholders and subject-matter experts to estimate HNAH's idiosyncratic risks as identified through HSBC's internal risk identification process. The estimates are based on expert judgment and are supported by factual evidence. Legal matter analysis is performed by the legal team to estimate stressed unfavorable outcomes, including associated legal costs, for matters disclosed in the financial statements.

### **Capital Position**

The capital positions of HSBC North America and HSBC Bank USA were forecast using the projected revenue and loss estimates described above and risk-weighted assets forecast under the supervisory severely adverse scenario. Common equity tier 1, tier 1, total capital and tier 1 leverage ratios were then projected over the nine-quarter stress testing forecast period.

The actual capital ratios as of Q4 2015 and all projected capital ratios were calculated in accordance with the transition provisions set out in the Federal Reserve's revised capital framework implementing Basel III, and using Basel III standardized risk-weighted assets.

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### 3. Company-Run Stress Tests – HSBC North America Holdings Inc.

The results of our 2016 annual Dodd-Frank Act stress test are shown below. For HSBC North America, the forecasts include prescribed assumptions, as required under the Dodd-Frank Act stress testing requirements, in respect of the capital actions projected over the planning horizon. These are: (i) no issuances or redemptions of regulatory capital instruments, (ii) no payment of common stock dividends based on previous year actual experience, and (iii) payments on any other regulatory capital instruments are equal to the stated dividend, interest or principal due on such instrument in the quarter. The estimates should not be seen as forecasts of expected outcomes or capital adequacy or of the actual financial condition of either HSBC North America or HSBC Bank USA. The forecasts for HSBC North America may not necessarily be in alignment with those of other institutions or the Federal Reserve because of differences in modeling techniques, methodologies and assumptions made.

The changes in forecast regulatory capital ratios under the supervisory severely adverse scenario are driven by a pre-provision net loss, principally from a decrease in net interest income, an increase in operational risk losses, and an increase in loan losses. Despite the projected decline in net income, we forecast regulatory capital ratios to be above all regulatory minimum ratios, as shown in Table 1.

The following tables show projected regulatory capital ratios, projected losses, revenues and net income before taxes and projected loan losses by loan type for HSBC North America under the supervisory severely adverse scenario.

**Table 1: HSBC North America projected minimum regulatory capital ratios, Q1 2016 to Q1 2018, and the required regulatory minimum capital ratios for CCAR 2016**

	Required regulatory minimum capital ratios	Actual Q4 2015	Stressed capital ratios <sup>1,2</sup>	
			Q1 2018	Minimum <sup>3</sup>
Common equity tier 1 capital ratio	4.5%	15.7%	8.8%	8.8%
Tier 1 risk-based capital ratio	6.0%	17.3%	10.9%	10.9%
Total risk-based capital ratio	8.0%	22.6%	15.6%	15.6%
Tier 1 leverage ratio	4.0%	10.0%	6.9%	6.9%

1 All projected capital ratios are calculated in accordance with the transition provisions set out in the Federal Reserve's revised capital framework implementing Basel III and using Basel III standardized risk-weighted assets from January 2016.

2 The capital ratios are calculated using capital action assumptions prescribed under the Dodd-Frank Act stress testing requirement.

3 The minimum capital ratios represent the lowest projected ratio in the period Q1 2016 to Q1 2018 which do not necessarily occur in the same quarter.



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**Table 2: HSBC North America projected losses, revenues and net loss before taxes for the nine-quarters**

	Billions of dollars	Percent of average assets <sup>1</sup>
Pre-provision net revenue/(loss) <sup>2</sup>	(3.38)	1.2%
<i>less</i>		
Provisions	6.06	2.2%
Realized losses/gains on securities (AFS/HTM)	0.04	—%
Trading and counterparty losses <sup>3</sup>	—	—%
Other losses/gains	(0.78)	0.3%
<i>equals</i>		
Net loss before taxes	(8.69)	3.2%

1 Average assets is the nine-quarter average of total assets.

2 Pre-provision net revenue includes losses from operational-risk events, mortgage repurchase expenses, unfavorable movements in the lower of amortized cost or fair value adjustments on the fair value of real estate receivables held for sale and other real estate owned ('OREO') costs.

3 Trading and counterparty losses include mark-to-market and credit valuation adjustments ('CVA') and losses arising from the counterparty default scenario component applied to derivatives, securities lending and repurchase agreement activities. HSBC North America was not subject to the global market shock component or counterparty default scenario component of the stress test.

**Table 3: HSBC North America projected loan losses, by loan type for the nine-quarters**

	Billions of dollars	Portfolio loss rates (%) <sup>1</sup>
Loan Losses	3.74	3.9%
First-lien mortgages, domestic	1.11	3.6%
Junior liens and HELOCs, domestic	0.70	21.8%
Commercial and industrial <sup>2</sup>	1.03	2.8%
Commercial real estate, domestic	0.60	5.4%
Credit cards	0.11	14.9%
Other consumer <sup>3</sup>	0.01	3.3%
Other loans <sup>4</sup>	0.18	1.2%

1 Cumulative loss rates calculated over the nine-quarter planning horizon as a percentage of average loan balances (excluding loans held for sale and loans held for investment under the fair-value option).

2 Commercial and industrial loans include small and medium enterprise loans and corporate cards.

3 Other consumer loans include student loans and automobile loans.

4 Other loans include international real estate loans.

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### 4. Company-Run Stress Tests – HSBC Bank USA, N.A.

The following tables show projected regulatory capital ratios, projected losses, revenues and net income before taxes and projected loan losses by loan type for HSBC Bank USA under the supervisory severely adverse scenario.

**Table 4: HSBC Bank USA projected minimum regulatory capital ratios, Q1 2016 to Q1 2018, and the required regulatory minimum capital ratios for CCAR 2016**

	Required regulatory minimum capital ratios	Actual Q4 2015	Stressed capital ratios <sup>1,2</sup>	
			Q1 2018	Minimum <sup>3</sup>
Common equity tier 1 capital ratio	4.5%	13.8%	12.2%	10.9%
Tier 1 risk-based capital ratio	6.0%	15.4%	13.9%	12.3%
Total risk-based capital ratio	8.0%	18.6%	17.1%	15.5%
Tier 1 leverage ratio	4.0%	11.6%	11.3%	10.9%

1 All projected capital ratios are calculated in accordance with the transition provisions set out in the Federal Reserve's revised capital framework implementing Basel III and using Basel III standardized risk-weighted assets from January 2016.

2 The capital ratios are calculated using capital action assumptions prescribed under the Dodd-Frank Act stress testing requirement.

3 The minimum capital ratios represent the lowest projected ratio in the period Q1 2016 to Q1 2018 which do not necessarily occur in the same quarter.

**Table 5: HSBC Bank USA projected losses, revenues and net loss before taxes for the nine-quarters**

	Billions of dollars	Percent of average assets <sup>1</sup>
Pre-provision net revenue/(loss) <sup>2</sup>	(0.08)	—%
<i>less</i>		
Provisions	2.85	1.6%
Realized losses/gains on securities (AFS/HTM)	0.03	—%
Trading and counterparty losses <sup>3</sup>	—	—%
Other losses/gains	(0.56)	0.3%
<i>equals</i>		
Net loss before taxes	(2.40)	1.3%

1 Average assets is the nine-quarter average of total assets.

2 Pre-provision net revenue includes losses from operational-risk events, mortgage repurchase expenses, and OREO costs.

3 Trading and counterparty losses include mark-to-market and credit valuation adjustments ('CVA') and losses arising from the counterparty default scenario component applied to derivatives, securities lending and repurchase agreement activities. HSBC Bank USA was not subject to the global market shock component or counterparty default scenario component of the stress test.

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**Table 6: HSBC Bank USA projected loan losses, by loan type for the nine-quarters**

	Billions of dollars	Portfolio loss rates (%) <sup>1</sup>
Loan Losses	2.14	2.6%
First-lien mortgages, domestic	0.17	0.9%
Junior liens and HELOCs, domestic	0.06	3.4%
Commercial and industrial <sup>2</sup>	1.03	2.8%
Commercial real estate, domestic	0.60	5.4%
Credit cards	0.11	14.9%
Other consumer <sup>3</sup>	0.01	3.3%
Other loans <sup>4</sup>	0.16	1.2%

1 Cumulative loss rates calculated over the nine-quarter planning horizon as a percentage of average loan balances (excluding loans held for sale and loans held for investment under the fair-value option).

2 Commercial and industrial loans include small and medium enterprise loans and corporate cards.

3 Other consumer loans include student loans and automobile loans.

4 Other loans include international real estate loans.