



2015 Report Cycle  
Dodd-Frank Stress Tests  
Summary Instructions and Guidance

December 1, 2014

Accompanying Order Nos.

*2014-OR-B-3, 2014-OR-FNMA-2, and 2014-OR-FHLMC-2*

---

Federal Housing Finance Agency

## Contents

Introduction .....	3
Stress Test Scenarios .....	3
Reporting Format and Timing .....	6
Stress Test Governance.....	6
Use of Stress Test Results.....	6
Incomplete Data .....	7
Evaluation of Stress Test Processes .....	7
Appendix 1: Regulatory Expectations for a Stress Testing Process .....	8
Appendix 2: FHFA DFA Reporting Schedules - Enterprises.....	14
Appendix 3: FHFA DFA Reporting Schedules - FHLBanks .....	67
Appendix 4: Baseline Scenario - Domestic.....	113
Appendix 5: Baseline Scenario - International.....	115
Appendix 6: Adverse Scenario - Domestic.....	117
Appendix 7: Adverse Scenario - International.....	119
Appendix 8: Severely Adverse Scenario - Domestic.....	121
Appendix 9: Severely Adverse Scenario - International.....	123
Appendix 10: Global Market Shock - Adverse.....	125
Appendix 11: Global Market Shock - Severely Adverse.....	147
Appendix 12: Data Notes.....	169

# Introduction

Section 165(i)(2) of the Dodd-Frank Act requires certain financial companies with total consolidated assets of more than \$10 billion, and which are regulated by a primary federal financial regulatory agency, to conduct annual stress tests to determine whether the companies have the capital necessary to absorb losses as a result of adverse economic conditions. The Federal Housing Finance Agency (FHFA) is the primary federal financial regulator of Fannie Mae, Freddie Mac, and the twelve Federal Home Loan Banks (Banks) referred to herein as each of the Banks (any of the Banks singularly, Bank; Fannie Mae and Freddie Mac collectively, the Enterprises; the Enterprises and the Banks collectively, regulated entities; any of the regulated entities singularly, regulated entity).

Each regulated entity has total consolidated assets of more than \$10 billion, and therefore, is required to conduct the annual stress test. The Enterprises' capital positions, supported and restricted by the Senior Preferred Stock Purchase Agreements with the Department of the Treasury are unique. Nonetheless, the Enterprises incorporate capital into their business decision making processes. FHFA expects the Enterprises to have processes and procedures for managing their businesses notwithstanding Treasury's support. Therefore, FHFA's rule on Stress Testing of Regulated Entities, 12 C.F.R. pt. 1238, and these instructions and guidance apply equally to the Enterprises and the Banks.

FHFA's stress testing rule establishes the basic requirements for each regulated entity to conduct Dodd-Frank Stress Tests and report the results. This summary instructions and guidance document supplements the rule. FHFA expects each regulated entity to follow the instructions and guidance in conducting stress tests and reporting and publishing results under the rule. FHFA may communicate specific instructions to address particular issues relevant only to some of the regulated entities' completion of the stress tests. Each regulated entity is also expected to adhere to such individualized instructions.

General instructions and guidance are provided relating to:

- Scenario assumptions
- Reporting and timing
- Stress test process governance
- Use of stress test results
- Incomplete data
- Evaluation of stress test processes
- Correspondence related to stress tests

## Stress Test Scenarios

The stress tests are based on portfolios as of September 30, 2014. The planning horizon for the stress test is nine quarters starting with the fourth quarter of 2014 and extending through the fourth quarter of 2016. The regulated entities are required to submit the results of stress tests based on three scenarios: Baseline, Adverse, and Severely Adverse. Assumptions for the

variables in each scenario may be found in Appendices 4 through 9.

FHFA expects each regulated entity to use those variables that are relevant to the entity's line of business and that are consumed by the entity's models. However, FHFA expects each regulated entity to apply all of the relevant global market shocks provided. Regulated entities are expected to indicate which variables are included in their stress tests in their reports to FHFA and the Federal Reserve Board of Governors (Board). FHFA also expects each regulated entity to extrapolate any of the aforementioned variables beyond the projection date as required. A year of scenario assumptions beyond the nine-quarter planning horizon will be provided and may be utilized, if needed. Historical data is provided in the event that models require that information.

It is important to note that the scenarios and assumptions provided are not forecasts, but rather hypothetical scenarios and assumptions to be used to assess the financial strength of the regulated entities.

### **Global Market Shock Assumptions**

The global market assumptions provided by FHFA are to be applied to the regulated entities' trading securities, available-for-sale securities and other fair value assets as of September 30, 2014, for the Adverse and Severely Adverse scenarios.

The result of the global market shock is to be taken as an instantaneous loss and reduction of capital in the first quarter of the planning horizon. The global market shock should be treated as an add-on that is exogenous to the macroeconomic and financial market environment specified in the supervisory

stress scenarios. The regulated entities should assume no recoveries of the losses generated by the global market shock over the nine quarters. The capital impact of the global market shock is carried over the planning horizon.

The regulated entities should assume that the combined losses from the global market shock and the macroeconomic scenario do not exceed the losses resulting from the greater of the global market shock losses or the macroeconomic losses.

### **Counterparty Default Scenario Component**

The counterparty default scenario component of the global market shocks should be treated as an add-on to the macroeconomic and financial market scenarios specified in the Adverse and Severely Adverse scenarios. The counterparty default scenario component involves an instantaneous and unexpected default of a regulated entity's largest counterparty across the regulated entity's secured and unsecured lending, securities lending, repurchase/reverse repurchase agreements (collectively Securities Financing Transactions or SFTs) and derivative exposures, and the potential losses and effects on capital associated with such a default. The regulated entity should identify their largest counterparty by the counterparty that represents the largest total net stressed loss if the counterparty defaulted on its obligations. Net stressed losses for the counterparty are calculated after applying the instantaneous market shock to any non-cash SFT assets (securities/collateral) posted or received, and, for derivatives, to the value of the trade

position and non-cash collateral exchanged<sup>1</sup>. The as-of-date for the counterparty default scenario component is September 30, 2014 – the same date as the global market shock. All estimated losses from the counterparty default scenario component should be assumed to occur instantaneously and should be reported in the initial quarter of the planning horizon.

More detailed instructions for implementing certain assumptions and calculating other-than-temporary-impairments follow:

### **House Prices**

The House Price Index assumptions provided by FHFA will describe the path of national house prices. FHFA expects each regulated entity to extrapolate the national house price path beyond the projection date as needed. FHFA also expects each regulated entity to translate the national house price path in each scenario to regional house price paths as appropriate for each regulated entity's models and to interpolate the house price paths to accommodate the frequency of data required by their models.

### **Missing Variables**

The regulated entities should use their own assumptions for variables that their models consume but that FHFA does not provide.

### **Balance Sheet Evolution**

The regulated entities should also make the necessary assumptions for rolling their balance sheets forward through the nine-quarter projection period. Each entity's assumptions should reflect its reasonable

expectations for future business and should conform to its strategic plans. Additionally, the Enterprises should ensure that the size and composition of their books of business during the stress test are consistent with the goals in FHFA's Conservatorship Scorecard.

### **Capital Actions**

For capital actions, the Banks should take into account their actual capital actions as of the end of the calendar quarter preceding the first quarter of the nine-quarter planning horizon. For each succeeding quarter, they should either assume payment of stock dividends equal to those paid in the year ending at the end of the first quarter of the planning horizon or follow any established rules they have for dividends payments.

The Banks should either assume that they do not redeem or repurchase any capital instrument over the planning horizon or that their capital actions will accord with their established capital plans.

They should also assume that they will redeem all mandatorily redeemable capital stock per their usual practice unless restricted from doing so by FHFA actions.

Finally, they should assume that they will cease dividend payments, capital redemptions, or repurchases (as applicable) when retained earnings fall to zero.

The Enterprises should comply with the terms of the Senior Preferred Stock Purchase Agreements, as amended, to determine the level of dividends to pay over the planning horizon.

### **Other-than-temporary-impairments and Estimated Acquired Member Assets (AMA) Losses**

---

<sup>1</sup> In selecting its largest counterparty, a regulated entity will not consider certain sovereign entities (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States) or designated central clearing counterparties.

FHFA expects the Banks to use the common platform for estimating other-than-temporary impairments on Private Label Securities in each stress test scenario. For estimating AMA losses, the Banks are expected to use their existing modeling processes and may use the common platform.

### **Operational Risk Losses**

Operational risk losses are those losses that arise from external events or from inadequate internal processes, people, or systems. The regulated entities shall estimate operational risk losses for each scenario and submit the results to the FHFA.

### **Reporting Format and Timing**

The Enterprises must submit results of the Baseline, Adverse, and Severely Adverse scenarios to FHFA and the Board by February 5 (30 days after required reporting dates for financial institutions with \$50 billion or more of assets) and publish results of only the Severely Adverse scenario between April 15 and April 30. The Banks are to report results of the Baseline, Adverse, and Severely Adverse scenarios to FHFA and the Board by April 30 (30 days after required reporting dates for financial institutions with less than \$50 billion of assets) and publish results of only the Severely Adverse scenario between July 15 and July 30.

The results of a regulated entity's analysis for each scenario should encompass all potential losses and other impacts to net income and capital that the regulated entity might experience under the scenarios. In all cases, regulated entities should substantiate that their results are consistent with the specified macroeconomic and financial

environment and that the components of their results are internally consistent within each scenario.

The regulated entities are required to report the results using the Dodd Frank Act (DFA) schedules provided in Appendices 2 and 3.

The regulated entities also are required to submit qualitative information describing the methodologies, including any simplifying or other assumptions used to produce the estimates, as well as any other information necessary to fully support the reasonableness of the stress test results.

Each regulated entity must submit its results and any supporting information to FHFA through a secure site. The Enterprises must use the secure server. The Banks must use the secure bank portal.

### **Stress Test Governance**

The board of directors of each regulated entity or a designated committee thereof is responsible for reviewing and approving policies and procedures established to comply with the rule. The board should also receive and review the results of the stress tests for compliance with the rule and established policies and procedures. Senior management of each regulated entity is responsible for establishing and testing controls. Senior management and each member of the board of directors are to receive a summary of the stress test results.

### **Use of Stress Test Results**

The rule requires that each regulated entity take the results of the annual stress test into account in making any changes, as appropriate, to its capital structure (including the level and composition of

capital); its exposures, concentrations, and risk positions; any plans for recovery and resolution; and to improve overall risk management. Consultation with FHFA staff is expected in making such improvements. If a regulated entity is under FHFA conservatorship, any post-assessment actions would require FHFA's prior approval.

Results should include effects on capital as required under the DFA stress testing rule. Specifically, and in accordance with the rule, each regulated entity must calculate how each of the following is affected during each quarter of the stress test planning horizon, for each scenario:

- Potential losses, pre-provision net revenues, allowance for loan losses, and capital positions over the planning horizon; and
- Capital levels and capital ratios, including regulatory capital and net worth, each Bank's leverage and permanent capital ratios, and any other capital ratios, as specified by FHFA.

### **Incomplete Data**

All regulated entities are required to report all data elements in the attached FHFA DFA schedules. Failure to submit complete data to FHFA in a timely manner may result in any remedy or penalty authorized under the

Federal Housing Enterprises Financial Safety and Soundness Act of 1992, as amended (12 U.S.C. 4501 et seq.) (Safety and Soundness Act) and the Federal Home Loan Bank Act, as amended (12 U.S.C. 1421 through 1449) (Bank Act).

### **Evaluation of Stress Test Processes and Results**

FHFA will focus particular attention on the processes surrounding the implementation of the scenarios to ensure that these processes are robust and that they capture and stress key vulnerabilities and idiosyncratic risks facing the firm; and that the translation of the scenario into loss, revenue, and capital projections is conceptually sound and implemented in a well-controlled manner. FHFA will evaluate the extent to which stress testing processes at the regulated entities adhere to the regulatory principles outlined in Appendix 1. FHFA will also review the stress results for reasonableness.

FHFA will review those assumptions for reasonableness and consistency with the assumptions used by other regulated entities. In all cases, FHFA may require a regulated entity to adjust assumptions or resubmit results where it deems the stress test results, assumptions, or processes are unacceptable.

## Appendix 1: Regulatory Expectations for a Stress Testing Process

A regulated entity's stress testing process should adhere to the following principles:

**Principle 1:** The regulated entity has a sound risk measurement and management infrastructure that supports the identification, measurement, assessment, and control of all material risks arising from its exposures and business activities.

- A satisfactory stress testing process requires (1) a comprehensive risk identification process, and (2) complete and accurate measurement and assessment of all material risks.
- A regulated entity should measure or assess the full spectrum of risks that face the regulated entity, using both quantitative and qualitative methods, where applicable.
- The regulated entity should have data capture and retention systems that allow for the input, use, and storage of information required for sound risk identification and measurement and to produce reliable inputs for assessments of capital adequacy.
- Quantitative processes for measuring risks should meet supervisory expectations for model effectiveness and be supported by robust model development, documentation, validation, and overall model governance practices.

Both qualitative and quantitative processes for assessing risk should be transparent, repeatable, and reviewable by an independent party.

- Any identified weaknesses in risk measures used as inputs to the stress testing process should be documented and reported to relevant parties, with an assessment of the potential impact of risk-measurement weaknesses on the reliability of the stress test results.

**Principle 2:** The regulated entity has effective processes for translating risk measures into estimates of potential losses over a range of stressful scenarios and environments and for aggregating those estimated losses across the regulated entity.

- Stress tests should include methodologies that generate estimates of potential losses for all material risk exposures, one of which should be an enterprise-wide stress test using scenario analysis. Methodologies should be complementary, not suffer from common limitations, and minimize reliance on common assumptions.
- Using the loss estimation methodologies for its various risk exposures, a regulated entity should develop consistent and repeatable processes to aggregate its loss estimates on an enterprise-wide basis.
- A regulated entity should demonstrate that its loss estimation tools are developed

using sound modeling approaches, appropriate for the manner in which they are being employed, and that the most relevant limitations are clearly identified, well documented, and appropriately communicated.

- A regulated entity should recognize that its loss projections are estimates and should have a good understanding of the uncertainty around those estimates, including the potential margin of error and the sensitivity of the estimates to changes in inputs and key assumptions.

**Principle 3:** The regulated entity has a clear definition of available capital resources and an effective process for estimating available capital resources (including any projected revenues) over the same range of stressful scenarios and environments used for estimating losses.

- Management and the Board of directors should understand the loss-absorption capabilities of the components of the regulated entity's capital base, and maintain projection methodologies for each of the capital components included in relevant capital adequacy metrics.
- In estimating available capital resources, a regulated entity will need to consider not only its current positions and mix of capital instruments, but also how its capital resources may evolve over time under varying circumstances and stress scenarios.
- As part of a comprehensive enterprise-wide stress testing program, projections of pre-provision net revenue (PPNR) should

be consistent with balance sheet and other exposure assumptions used for related loss estimation. Projections should estimate all key elements of PPNR, including net interest income, non-interest income, and non-interest expense at a level of granularity consistent with material revenue and expense components.

- A regulated entity should demonstrate that its capital resource estimation tools are developed using sound modeling approaches, appropriate for the manner in which they are being employed, and that the most relevant limitations are clearly identified, well documented, and appropriately communicated.

- A regulated entity should recognize that its projections of capital resources are estimates and should have a good understanding of the uncertainty around those estimates, including the potential margin of error and the sensitivity of the estimates to changes in inputs and key assumptions.

**Principle 4:** The regulated entity has processes for bringing together estimates of losses and capital resources to assess the combined impact on capital adequacy in relation to the regulated entity's stated goals for the level and composition of capital.

- A regulated entity should have a comprehensive and consistently executed process for combining loss, resource, and balance sheet estimates to assess the

baseline and post-stress impact of those estimates on capital measures.

- A regulated entity should calculate and use several capital measures that represent both leverage and risk at specified time horizons under both baseline and stressful conditions, consistent with its capital policy framework. Measures should include quarterly estimates for the impact on capital and leverage ratios as well as other capital and risk measures useful in assessing overall capital adequacy.
- The processes for bringing together estimates of losses and capital resources should ensure that appropriately stressful conditions over the regulated entity's planning horizon have been incorporated to properly address the institution's unique vulnerabilities.
- The processes should provide for the presentation of any information that may have material bearing on the regulated entity's capital adequacy assessment, including all relevant risks and strategic factors, as well as key uncertainties and process limitations.

**Principle 5:** The regulated entity has a comprehensive capital policy and robust capital planning practices for establishing capital goals, determining appropriate capital levels and composition of capital, making decisions about capital actions, and maintaining capital contingency plans.

#### *Capital Policy*

- A capital policy is defined as a regulated entity's written assessment of the

principles and guidelines used for capital planning, capital issuance, and usage and distributions, including internal capital goals, the quantitative or qualitative guidelines for dividend and stock repurchase decisions, the strategies for addressing potential capital shortfalls, and the internal governance procedures around capital policy principles and guidelines.

- A regulated entity should establish capital goals aligned with its risk appetite and risk profile as well as expectations of stakeholders, providing specific targets for the level and composition of capital. The regulated entity should ensure that maintaining its internal capital goals will allow it to continue its operations under stressful conditions.
- The capital policy should describe the decision making processes regarding capital goals, the level and composition of capital, capital actions, and capital contingency plans, including an explanation of the roles and responsibilities of key decision makers and information and analysis used to make decisions.
- The regulated entity should outline in its policy specific capital contingency actions it would consider to remedy any current or prospective deficiencies in its capital position, including any triggers and escalation procedures. The policy should also include a detailed explanation of the circumstances in which it will reduce or suspend a dividend or repurchase program, or will not execute a previously planned capital action.
- A regulated entity should establish a minimum frequency with which its capital

plan is reevaluated (at least annually). In addition, a regulated entity should review its capital policy at least annually to ensure it remains relevant and current.

### *Capital Planning Practices*

- At regular intervals, a regulated entity should compare the estimates of baseline and post-stress capital measures (see Principle 4) to the capital goals established in the capital policy for purposes of informing capital decisions.
- For capital decisions, consideration should be given to any information that may have material bearing on the regulated entity's capital adequacy assessment, including all relevant risks and strategic factors, key uncertainties, and limitations of the stress test.
- Assessments of capital adequacy and decisions about capital should be supported by high-quality data and information, informed by current and relevant analysis, and subject to challenge by senior management and the Board of directors.
- Periodically, the regulated entity should conduct a thorough assessment of its capital contingency strategies, including their feasibility under stress, impact, timing, and potential stakeholder reactions.
- A regulated entity should administer its capital planning activities and capital decision processes in conformance with its policy framework, documenting and justifying any divergence from policy.

**Principle 6:** The regulated entity has robust internal controls governing capital adequacy process components, including

policies and procedures, change control, model validation and independent review, comprehensive documentation, and review by internal audit.

- The internal control framework should encompass the entire stress test, including the risk measurement and management systems used to produce input data, the models and other techniques used to estimate loss and resource estimates, the process for making capital adequacy decisions, and the aggregation and reporting framework used to produce management and board reporting. The set of control functions in place should provide confirmation that all aspects of the stress test are functioning as intended.
- Policies and procedures should ensure a consistent and repeatable process and provide transparency to third parties for their understanding of a regulated entity's stress test processes and practices. Policies and procedures should be comprehensive, relevant to their use in the stress test, periodically updated and approved, and cover the entire stress test and all of its components.
- Specific to the stress test, a regulated entity should have internal controls that ensure the integrity of reported results and that all material changes to the stress test and its components are appropriately documented, reviewed, and approved. A regulated entity should have controls to ensure that management information systems are robust enough to support stress tests with sufficient flexibility to run ad hoc analysis as needed.

- Expectations for validation and independent review for components of the stress test are consistent with existing supervisory guidance on model risk management. Models should be independently validated or otherwise reviewed in line with model risk management and model governance expectations.
- A regulated entity should have clear and comprehensive documentation for all aspects of its stress test, including its risk measurement and management infrastructure, loss- and resource-estimation methodologies, the process for making capital decisions, and efficacy of control and governance functions.
- A regulated entity's internal audit should play a strong role in evaluating the stress test and its components. A full review of the capital adequacy process component should be done by audit periodically to ensure that as a whole the stress test is functioning as expected and in accordance with the regulated entity's policies and procedures. Internal audit should review the manner in which stress test deficiencies are identified, tracked, and remediated.

**Principle 7:** The regulated entity has effective board and senior management oversight of the stress test, including periodic review of the regulated entity's risk infrastructure and loss and resource estimation methodologies; evaluation of capital goals, assessment of the appropriateness of stressful scenarios considered, regular review of any limitations and uncertainties in all aspects of the stress test, and approval of capital decisions.

- The Board of directors should make informed decisions on capital adequacy for its regulated entity by receiving sufficient information detailing the risks the regulated entity faces, its exposures and activities, and the impact that loss and resource estimates may have on its capital position.
- Information provided to the board about capital adequacy should be framed against the capital goals established by the regulated entity and by obligations to external stakeholders, and consider capital adequacy for the regulated entity with respect to the current circumstances as well as on a pro forma, post-stress basis.
- The information the board of directors reviews should include a representation of key limitations, assumptions, and uncertainties within the stress test, enabling the board to have the perspective to effectively understand and challenge reported results. The board should take action when weaknesses in the stress test are identified, giving full consideration to the impact of those weaknesses in their capital decisions.
- Senior management should ensure that all weaknesses in the stress test are identified, as well as key assumptions, limitations, and uncertainties, and evaluate them for materiality (both individually and collectively). Senior management also should have remediation plans for any weaknesses affecting stress test reliability or results.
- Using appropriate information, senior management should make informed recommendations to the Board of

directors about the regulated entity's capital, including capital goals and distribution decisions. Senior management should include supporting information to highlight key assumptions, limitations, and uncertainties in the stress test that may affect capital decisions.

- A regulated entity should appropriately document the key decisions about capital adequacy – including capital actions – made by the Board of directors and senior management, and describe the information used to make those decisions.

## Appendix 2: FHFA DFA Reporting Schedules - Enterprises

### Scenario Schedule Cover Sheet

Each regulated entity is expected to provide input data for all the tabs in this spreadsheet.

**Institution Name:**

**Date of Data Submission:**

**Institution Contact Name:**

**Institution Contact Phone Number:**

**Institution Contact Email Address:**

## Supplied Scenario Variables

(Please indicate which scenarios were used in your model by checking the appropriate box:)

### Domestic Variables

- Real GDP Growth
- Nominal GDP Growth
- Real Disposable Income Growth
- Nominal Disposable Income Growth
- Unemployment Rate
- CPI Inflation Rate
- 3-month Treasury Yield
- 5-year Treasury Yield
- 10-year Treasury Yield
- BBB Corporate Yield
- Mortgage Rate
- Prime Rate
- Dow Jones Total Stock Market Index
- House Price Index
- Commercial Real Estate Price Index
- Market Volatility Index (VIX)
- Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed Securities (CMBS) and other collateral
- Agency Securities Option-Adjusted Spreads (OAS)
- Municipal Securities
- Counterparty Default Risk

### International Variables

- Euro Area Real GDP Growth
- Euro Area Inflation
- Euro Area Bilateral Dollar Exchange Rate (\$/euro)
- Developing Asia Real GDP Growth
- Developing Asia Inflation
- Developing Asia Bilateral Dollar Exchange Rate (F/USD, indes, base = 2000,Q1)
- 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)

For variables not used, please provide a brief explanation below as to why it was not used:

Variable Name	Explanation
---------------	-------------

- 1
- 2
- 3
- 4
- 5

## Scenario Variables Beyond Those Supplied

---

***Baseline Scenario (additional variables used beyond those supplied)***

---

Variable Number	Variable Name	Variable Definition
1		
2		
3		
4		
5		

---

***Adverse Scenario (additional variables used beyond those supplied)***

---

Variable Number	Variable Name	Variable Definition
1		
2		
3		
4		
5		

---

***Severely Adverse Scenario (additional variables used beyond those supplied)***

---

Variable Number	Variable Name	Variable Definition
1		
2		
3		
4		
5		

## Baseline

### Spread Assumptions

#### Spread to Benchmark

Category	Benchmark	Actual			Projected							
		3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	
Example: Advance	3-Month LIBOR	10.0	10.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0

### Variables Used Beyond Those Supplied

Variable Name	Actual			Projected						
	3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9

### Forward Curve

Maturity	Actual			Projected						
	3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
3-Month Treasury	0	0.1	0.1	0.3	0.6	0.9	1.4	1.8	2.1	2.4
6-Month										
1 year										
2 year										
5 year Treasury	1.7	1.9	2.0	2.3	2.5	2.7	3.0	3.2	3.4	3.6
10 year Treasury	2.5	2.7	2.9	3.1	3.3	3.5	3.6	3.7	3.9	4.0
15 year										
30 year										

### House Price Index

*(NOTE: For printing purposes dates only goes to Jul-15. However, the underlying excel spreadsheet collects 30 years of data.)*

Region	Actual			Projected							
	3Q 2014	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15
Region 1											
Region 2											
.											
.											
.											
.											
.											

## Adverse

### Spread Assumptions

Category	Benchmark	Spread to Benchmark									
		Actual			Projected						
		3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Example: Advance	3-Month LIBOR	10.0	10.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0

### Variables Used Beyond Those Supplied

Variable Name	Actual			Projected						
	3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9

### Forward Curve

Maturity	Actual			Projected							
	3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	
3-Month Treasury	0.0	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.0	4.4	
6-Month											
1 year											
2 year											
5 year Treasury	1.7	2.6	2.9	3.3	3.7	4.0	4.3	4.5	4.8	5.0	
10 year Treasury	2.5	3.3	3.7	4.0	4.3	4.6	4.8	5.0	5.2	5.4	
15 year											
30 year											

### House Price Index

*(NOTE: For printing purposes dates only goes to Jul-15. However, the underlying excel spreadsheet collects 30 years of data.)*

Region	Actual				Projected							
	3Q 2014	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	
Region 1												
Region 2												
.												
.												
.												
.												
.												



### **Stress Test Template Instructions**

1. All numbers should be reported in millions to two decimal places
2. Reported numbers should reflect the 9/30/2014 start date.

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b><u>Income Statement (BASELINE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
1 Net interest income (excluding management and guaranty fee income)											
2 Management and guaranty fee income <sup>1</sup>											
<b>3 Total net interest income</b>											
4 Other income											
<b>5 Total revenue</b>											
6 REO (foreclosed property expense)											
7 SOP 03-3 losses, net											
8 Security impairments											
9 Operational risk losses											
10 Administrative expenses											
11 Other expenses											
<b>12 Pre-provision net revenue</b>											
13 (Provision) benefit for credit losses											
14 Derivatives gains (losses)											
15 Trading gains (losses)											
16 Other gains (losses)											
<b>17 Pre-Tax income (loss)</b>											
18 Provision (benefit) for federal income taxes											
19 Extraordinary gains (losses), net of tax effect											
<b>20 Net income (loss)</b>											
21 Other comprehensive income											
<b>22 Comprehensive income (loss)</b>											

<sup>1</sup> Includes guaranty fees received for managing credit risk on mortgage loans of consolidated trusts/PCs

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b>Balance Sheet (BASELINE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>ASSETS</b>										
1 Cash and cash equivalents										
2 Investments in securities										
3 Available-for-sale, at fair value										
4 Trading, at fair value										
5 Mortgage loans, excluding loss allowance										
6 Allowance for loan losses										
7 Deferred tax assets, net of allowance										
8 Other assets										
<b>9 Total assets</b>										
<b>LIABILITIES</b>										
10 Short-term debt										
11 Long-term debt										
12 Debt of consolidated trusts/PCs										
13 Guarantee fee obligation										
14 Reserve for guaranty losses										
15 Other liabilities										
<b>16 Total liabilities</b>										
17 Minority interest										
<b>CAPITAL</b>										
18 Senior preferred stock										
19 Preferred stock										
20 Common stock										
21 Retained earnings (deficit)										
22 Accumulated other comprehensive income (loss)										
23 Treasury stock										
24 Total stockholders' equity (deficit)										
<b>25 Total capital (deficit)</b>										
<b>26 Total liabilities, minority interest and capital</b>										

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b>Capital Roll Forward (BASELINE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
<b>CAPITAL</b>											
1 Beginning capital											
2 Senior preferred Treasury draw (prior period)											
3 Net income											
4 Less: Dividends											
5 Other capital actions											
6 Change in AOCI											
7 Change in non-controlling/minority interest											
8 Other											
<b>9 Ending capital</b>											
10 Beginning PSPA funding commitment available											
11 Treasury draw required											
<b>12 Remaining PSPA funding commitment available</b>											

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b><u>Portfolio Balances (BASELINE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
RETAINED PORTFOLIO										
1 Agency securities										
2 Non-Agency securities										
3 Whole loans										
<b>4 Total retained portfolio</b>										
<b>5 Single-family guaranty book of business</b>										

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

### Single-Family Credit Overview - Cumulative Results (BASELINE)

	Provision for Credit Losses	Credit Losses			Loan Loss Reserve		
		Foreclosed Property Expense	Net Charge-offs	Total	Beginning	Ending	Change
(\$s in millions)							
1 Current Book (as of 9/30/14)							
2 New Business							
3 Total Portfolio							
Memo:							
4 FAS 5 Loan Loss Reserve							
5 FAS114 Loan Loss Reserve							
6 Concessions in FAS 114 Loan Loss Reserve <sup>(1)</sup>							

(1) - amount includes the impact of all troubled debt restructuring (TDR) related impairments.

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

<b>Single-Family Credit Overview - Quarterly (BASELINE)</b>	Most Recent									Nine Quarter	
	Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Cumulative Total
<b>TOTAL PORTFOLIO</b>											
CREDIT EXPENSES (\$s in millions)											
1											
2											
3											
4											
5											
<b>6</b>											
LOAN LOSS RESERVE (\$s in millions)											
7											
8											
9											
10											
<b>11</b>											
Memo:											
12											
13											
14											
15											
<b>CURRENT BOOK (as of 9/30/14)</b>											
CREDIT EXPENSES (\$s in millions)											
16											
17											
18											
19											
20											
<b>21</b>											
LOAN LOSS RESERVE (\$s in millions)											
22											
23											
24											
25											
<b>26</b>											
27											
<b>NEW BUSINESS</b>											
CREDIT EXPENSES (\$s in millions)											
28											
29											
30											
31											
32											
<b>33</b>											
LOAN LOSS RESERVE (\$s in millions)											
34											
35											
36											
37											
<b>38</b>											
39											

(1) - amount depicts the summation of foreclosed property expense, provision for credit losses, and SOP 03-3 losses.

(2) - amount includes the impact of all troubled debt restructuring (TDR) related impairments.

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

**Single-Family Credit Overview - Quarterly (BASELINE)**

	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>SERIOUSLY DELINQUENT LOAN ACTIVITY (count in '000s)</b>										
1	Beginning seriously delinquent loans									
2	Seriously delinquent inflows									
3	Seriously delinquent cured by modification									
4	Seriously delinquent - self cured									
5	Seriously delinquent to default									
6	Seriously delinquent to payoff									
<b>7</b>	<b>Ending Seriously Delinquent Loans</b>									
<b>SERIOUSLY DELINQUENT LOAN ACTIVITY (continued)</b>										
8	Ending seriously delinquent rate (%)									
9	Aggregate UPB of seriously delinquent loans (\$ in millions)									
<b>LOAN MODIFICATIONS</b>										
10	Loan modifications (count in 000s)									
<b>PAYMENTS FROM PRIVATE MORTGAGE INSURERS (after haircut) (\$ in millions)</b>										
11	Mortgage Guaranty Insurance Corporation									
12	Triad Guaranty Insurance Corporation									
13	Radian Guaranty Inc.									
14	United Guaranty Residential Insurance Co.									
15	Genworth Mortgage Insurance Corporation									
16	PMI Mortgage Insurance Co.									
17	Republic Mortgage Insurance Company									
18	Essent Guaranty, Inc.									
19	Arch Mortgage Insurance Company									
20	Other									

NOTE: Seriously delinquent loans are 90 days or more delinquent, or in the process of foreclosure.

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

**Single-Family Credit Summary (BASELINE)**

**Delinquency Status - CURRENT BOOK**

(\$s in millions)		End of Quarter Unpaid Principal Balance (UPB)								
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>MODIFIED LOANS</b>										
1	Current									
2	Less than 90 days delinquent									
3	Seriously delinquent (90 days or more delinquent or in the process of foreclosure)									
4	Total									
<b>NON-MODIFIED LOANS</b>										
5	Current									
6	Less than 90 days delinquent									
7	Seriously delinquent (90 days or more delinquent or in the process of foreclosure)									
8	Total									

(\$s in millions)		Loan Loss Reserve								
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>MODIFIED LOANS</b>										
9	Current									
10	Less than 90 days delinquent									
11	Seriously delinquent (90 days or more delinquent or in the process of foreclosure)									
12	Total									
<b>NON-MODIFIED LOANS</b>										
13	Current									
14	Less than 90 days delinquent									
15	Seriously delinquent (90 days or more delinquent or in the process of foreclosure)									
16	Total									

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

**Single-Family Credit Summary (BASELINE)**

**Mark-to-Market Loan to Value - CURRENT BOOK**

(\$s in millions)		End of Quarter Unpaid Principal Balance (UPB)								
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
1 <=80%										
2 >80% - 100%										
3 >100%										
4 Total										

(\$s in millions)		Loan Loss Reserve								
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
5 <=80%										
6 >80% - 100%										
7 >100%										
8 Total										

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

**Single-Family Credit Summary (BASELINE)**

Vintage Status - CURRENT BOOK

(\$s in millions)

		End of Quarter Unpaid Principal Balance (UPB)								
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
1	2004 and prior									
2	2005									
3	2006									
4	2007									
5	2008									
6	2009									
7	2010									
8	2011									
9	2012									
10	2013									
11	2014									

(\$s in millions)

		Loan Loss Reserve								
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
12	2004 and prior									
13	2005									
14	2006									
15	2007									
16	2008									
17	2009									
18	2010									
19	2011									
20	2012									
21	2013									
22	2014									

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

**Single-Family Credit Summary (BASELINE)**

**Mark-to-Market Loan to Value - CURRENT BOOK**

(\$s in millions)

End of Quarter Projected Charge-Offs (Undiscounted \$s)

Loan Status	Most Recent Quarter	End of Quarter Projected Charge-Offs (Undiscounted \$s)									Nine Quarter Cumulative Total
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	
1 <=80%											
2 >80% - 100%											
3 >100%											

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

**Single-Family Credit Summary (BASELINE)**

**Vintage Table - CURRENT BOOK**

(\$s in millions)

End of Quarter Projected Charge-Offs (Undiscounted \$s)

Loan Status		Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
1	2004 and prior											
2	2005											
3	2006											
4	2007											
5	2008											
6	2009											
7	2010											
8	2011											
9	2012											
10	2013											
11	2014											

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b>Income Statement (ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
1 Net interest income (excluding management and guaranty fee income)											
2 Management and guaranty fee income <sup>1</sup>											
<b>3 Total net interest income</b>											
4 Other income											
<b>5 Total revenue</b>											
6 REO (foreclosed property expense)											
7 SOP 03-3 losses, net											
8 Security impairments											
9 Operational risk losses											
10 Administrative expenses											
11 Other expenses											
<b>12 Pre-provision net revenue</b>											
13 (Provision) benefit for credit losses											
14 Derivatives gains (losses)											
15 Trading gains (losses)											
16 Other gains (losses)											
17 Global market shock impact on trading securities											
18 Counterparty default losses											
<b>19 Pre-Tax income (loss)</b>											
20 Provision (benefit) for federal income taxes											
21 Extraordinary gains (losses), net of tax effect											
<b>22 Net income (loss)</b>											
23 Global market shock impact on available-for-sale securities											
24 Other comprehensive income											
<b>25 Comprehensive income (loss)</b>											

<sup>1</sup> Includes guaranty fees received for managing credit risk on mortgage loans of consolidated trusts/PCs

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b>Balance Sheet (ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
	<b>ASSETS</b>									
1 Cash and cash equivalents										
2 Investments in securities										
3 Available-for-sale, at fair value										
4 Trading, at fair value										
5 Mortgage loans, excluding loss allowance										
6 Allowance for loan losses										
7 Deferred tax assets, net of allowance										
8 Other assets										
<b>9 Total assets</b>										
<b>LIABILITIES</b>										
10 Short-term debt										
11 Long-term debt										
12 Debt of consolidated trusts/PCs										
13 Guarantee fee obligation										
14 Reserve for guaranty losses										
15 Other liabilities										
<b>16 Total liabilities</b>										
17 Minority interest										
<b>CAPITAL</b>										
18 Senior preferred stock										
19 Preferred stock										
20 Common stock										
21 Retained earnings (deficit)										
22 Accumulated other comprehensive income (loss)										
23 Treasury stock										
24 Total stockholders' equity (deficit)										
<b>25 Total capital (deficit)</b>										
<b>26 Total liabilities, minority interest and capital</b>										

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b>Capital Roll Forward (ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
<b>CAPITAL</b>											
1 Beginning capital											
2 Senior preferred Treasury draw (prior period)											
3 Net income											
4 Less: Dividends											
5 Other capital actions											
6 Change in AOCI											
7 Change in non-controlling/minority interest											
8 Other											
<b>9 Ending capital</b>											
10 Beginning PSPA funding commitment available											
11 Treasury draw required											
<b>12 Remaining PSPA funding commitment available</b>											

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b><u>Portfolio Balances (ADVERSE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
RETAINED PORTFOLIO										
1 Agency securities										
2 Non-Agency securities										
3 Whole loans										
<b>4 Total retained portfolio</b>										
<b>5 Single-family guaranty book of business</b>										

# Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

## **Global Market Shock (ADVERSE)**

Q1 Loss

Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-

- 1 backed Securities (CMBS) and other collateral
- 2 Agency Securities Option-Adjusted Spread
- 3 Municipal Securities
- 4 Counterparty Default Risk\*

\* Please provide the name and type (eg: derivatives, repo, etc.) of the largest counterparty below:

Counterparty Name	Counterparty Type
-------------------	-------------------

# Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

## **Global Market Shock (ADVERSE)**

Q1 Loss

---

### TRADING SECURITIES

Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed

- 1 Securities (CMBS) and other collateral
- 2 Agency Securities Option-Adjusted Spread
- 3 Municipal Securities

### AVAILABLE-FOR-SALE SECURITIES

Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed

- 4 Securities (CMBS) and other collateral
- 5 Agency Securities Option-Adjusted Spread
- 6 Municipal Securities

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\*Credit ratings should be as of September 30, 2014)

MV* (\$MM)	RMBS															RMBS SubTotal	
	Grand Total	Non- Agency Prime	Sub- prime	Option ARMS	Other AltA	Unspec Non- Prime	HELOC	RMBS CDO	RMBS CDS	Credit Basket	PrimeX	ABX / TABX	Prime Whole Loans	Non-Prime Whole Loans	European RMBS		Other / Unspecified
<b>AAA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>AA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>A Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>BBB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>BB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>-B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>NR Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Profit/Loss (\$MM)</b>																	
<b>AAA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>AA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>A Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>BBB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>BB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>-B Total</b>	\$																







# Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

**Trading & Other Fair Value Assets Schedule**  
Agencies (Adverse)

	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Widening (AFS)	Profit/Loss from OAS Widening (Trading Secs)
<b>US Residential Agency Products</b>				
IOs				
POs				
Other CMOs				
Pass-Throughs				
Agency Debt/Debentures				
IOS Index				
POS Index				
MBX Index				
Other Agency Derivatives				
TBA's				
Reverse Mortgages				
Residential Other / Unspecified				
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>US Commercial Agency Products</b>				
Cash Agency CMBS				
Agency CMBS Derivatives				
Commercial Other / Unspecified				
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Non-US Agency Products</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b>Income Statement (SEVERELY ADVERSE) (without re-establishing DTA)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
1 Net interest income (excluding management and guaranty fee income)											
2 Management and guaranty fee income <sup>1</sup>											
<b>3 Total net interest income</b>											
4 Other income											
<b>5 Total revenue</b>											
6 REO (foreclosed property expense)											
7 SOP 03-3 losses, net											
8 Security impairments											
9 Operational risk losses											
10 Administrative expenses											
11 Other expenses											
<b>12 Pre-provision net revenue</b>											
13 (Provision) benefit for credit losses											
14 Derivatives gains (losses)											
15 Trading gains (losses)											
16 Other gains (losses)											
17 Global market shock impact on trading securities											
18 Counterparty default losses											
<b>19 Pre-Tax income (loss)</b>											
20 Provision (benefit) for federal income taxes											
21 Extraordinary gains (losses), net of tax effect											
<b>22 Net income (loss)</b>											
23 Global market shock impact on available-for-sale securities											
24 Other comprehensive income											
<b>25 Comprehensive income (loss)</b>											

<sup>1</sup> Includes guaranty fees received for managing credit risk on mortgage loans of consolidated trusts/PCs

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b>Income Statement (SEVERELY ADVERSE) (with re-establishing DTA)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
1 Net interest income (excluding management and guaranty fee income)											
2 Management and guaranty fee income <sup>1</sup>											
<b>3 Total net interest income</b>											
4 Other income											
<b>5 Total revenue</b>											
6 REO (foreclosed property exp.)											
7 SOP 03-3 losses, net											
8 Security impairments											
9 Operational risk losses											
10 Administrative expenses											
11 Other expenses											
<b>12 Pre-provision net revenue</b>											
13 (Provision) benefit for credit losses											
14 Derivatives gains (losses)											
15 Trading gains (losses)											
16 Other gains (losses)											
17 Global market shock impact on trading securities											
18 Counterparty default losses											
<b>19 Pre-Tax income (loss)</b>											
20 Provision (benefit) for federal income taxes											
21 Extraordinary gains (losses), net of tax effect											
<b>22 Net income (loss)</b>											
23 Global market shock impact on available-for-sale securities											
24 Other comprehensive income											
<b>25 Comprehensive income (loss)</b>											

<sup>1</sup> Includes guaranty fees received for managing credit risk on mortgage loans of consolidated trusts/PCs

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

### **Balance Sheet (SEVERELY ADVERSE)** **(without re-establishing DTA)**

	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>ASSETS</b>										
1										
2										
3										
4										
5										
6										
7										
8										
<b>9</b>	<b>Total assets</b>									
<b>LIABILITIES</b>										
10	Short-term debt									
11	Long-term debt									
12	Debt of consolidated trusts/PCs									
13	Guarantee fee obligation									
14	Reserve for guaranty losses									
15	Other liabilities									
<b>16</b>	<b>Total liabilities</b>									
17	Minority interest									
<b>CAPITAL</b>										
18	Senior preferred stock									
19	Preferred stock									
20	Common stock									
21	Retained earnings (deficit)									
22	Accumulated other comprehensive income (loss)									
23	Treasury stock									
24	Total stockholders' equity (deficit)									
<b>25</b>	<b>Total capital (deficit)</b>									
<b>26</b>	<b>Total liabilities, minority interest and capital</b>									

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

### **Balance Sheet (SEVERELY ADVERSE)** **(with re-establishing DTA)**

	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>ASSETS</b>										
1	Cash and cash equivalents									
2	Investments in securities									
3	Available-for-sale, at fair value									
4	Trading, at fair value									
5	Mortgage loans, excluding loss allowance									
6	Allowance for loan losses									
7	Deferred tax assets, net of allowance									
8	Other assets									
<b>9</b>	<b>Total assets</b>									
<b>LIABILITIES</b>										
10	Short-term debt									
11	Long-term debt									
12	Debt of consolidated trusts/PCs									
13	Guarantee fee obligation									
14	Reserve for guaranty losses									
15	Other liabilities									
<b>16</b>	<b>Total liabilities</b>									
17	Minority interest									
<b>CAPITAL</b>										
18	Senior preferred stock									
19	Preferred stock									
20	Common stock									
21	Retained earnings (deficit)									
22	Accumulated other comprehensive income (loss)									
23	Treasury stock									
24	Total stockholders' equity (deficit)									
<b>25</b>	<b>Total capital (deficit)</b>									
<b>26</b>	<b>Total liabilities, minority interest and capital</b>									

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b><u>Capital Roll Forward (SEVERELY ADVERSE)</u></b> <b><u>(without re-establishing DTA)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
<b>CAPITAL</b>											
1 Beginning capital											
2 Senior preferred Treasury draw (prior period)											
3 Net income											
4 Less: Dividends											
5 Other capital actions											
6 Change in AOCI											
7 Change in non-controlling/minority interest											
8 Other											
<b>9 Ending capital</b>											
10 Beginning PSPA funding commitment available											
11 Treasury draw required											
<b>12 Remaining PSPA funding commitment available</b>											

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b><u>Capital Roll Forward (SEVERELY ADVERSE)</u></b> <b><u>(with re-establishing DTA)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
<b>CAPITAL</b>											
1 Beginning capital											
2 Senior preferred Treasury draw (prior period)											
3 Net income											
4 Less: Dividends											
5 Other capital actions											
6 Change in AOCI											
7 Change in non-controlling/minority interest											
8 Other											
<b>9 Ending capital</b>											
10 Beginning PSPA funding commitment available											
11 Treasury draw required											
<b>12 Remaining PSPA funding commitment available</b>											

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\$s in millions)

<b><u>Portfolio Balances (SEVERELY ADVERSE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
RETAINED PORTFOLIO										
1 Agency securities										
2 Non-Agency securities										
3 Whole loans										
<b>4 Total retained portfolio</b>										
<b>5 Single-family guaranty book of business</b>										

# Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

## **Global Market Shock (SEVERELY ADVERSE)**

Q1 Loss

- Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed Securities (CMBS) and other collateral
- 1 backed Securities (CMBS) and other collateral
  - 2 Agency Securities Option-Adjusted Spread
  - 3 Municipal Securities
  - 4 Counterparty Default Risk\*

\* Please provide the name and type (eg: derivatives, repo, etc.) of the largest counterparty below:

Counterparty Name	Counterparty Type
-------------------	-------------------

# Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

## **Global Market Shock (SEVERELY ADVERSE)**

Q1 Loss

### TRADING SECURITIES

Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed

- 1 Securities (CMBS) and other collateral
- 2 Agency Securities Option-Adjusted Spread
- 3 Municipal Securities

### AVAILABLE-FOR-SALE SECURITIES

Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed

- 4 Securities (CMBS) and other collateral
- 5 Agency Securities Option-Adjusted Spread
- 6 Municipal Securities

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\*Credit ratings should be as of September 30, 2014)

MV* (\$MM)	Grand Total	RMBS														RMBS SubTotal	
		Non-Agency Prime	Sub-prime	Option ARMS	Other AltA	Unspec Non-Prime	HELOC	RMBS CDO	RMBS CDS	Credit Basket	PrimeX	ABX / TABX	Prime Whole Loans	Non-Prime Whole Loans	European RMBS		Other / Unspecified
<b>AAA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>AA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>A Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>BBB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>BB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>&lt;B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>NR Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Profit/Loss (\$MM)</b>																	
<b>AAA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>AA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>A Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>BBB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>BB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>&lt;B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>NR Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																
2006	\$0																
2007	\$0																
Post 2007	\$0																
Unspecified Vintage	\$0																
<b>Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0



# Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

**Trading and Other Fair Value Assets**  
Munis (Severely Adverse)

	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Widening (AFS)	Profit/Loss from OAS Widening (Trading Secs)
<b>Bonds</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Bonds Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>Bonds Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Loans</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Loans Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>Loans Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>CDS</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>CDS Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>CDS Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>



# Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

**Trading & Other Fair Value Assets Schedule**  
Agencies (Severely Adverse)

	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Widening (AFS)	Profit/Loss from OAS Widening (Trading Secs)
<b>US Residential Agency Products</b>				
IOs				
POs				
Other CMOs				
Pass-Throughs				
Agency Debt/Debentures				
IOS Index				
POS Index				
MBX Index				
Other Agency Derivatives				
TBA's				
Reverse Mortgages				
Residential Other / Unspecified				
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>US Commercial Agency Products</b>				
Cash Agency CMBS				
Agency CMBS Derivatives				
Commercial Other / Unspecified				
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Non-US Agency Products</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

## Enterprise Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

### Single-Family Credit Overview - Cumulative Results (SEVERELY ADVERSE)

	Provision for Credit Losses	Credit Losses			Loan Loss Reserve		
		Foreclosed Property Expense	Net Charge-offs	Total	Beginning	Ending	Change
(\$s in millions)							
1 Current Book (as of 9/30/14)							
2 New Business							
3 Total Portfolio							
Memo:							
4 FAS 5 Loan Loss Reserve							
5 FAS114 Loan Loss Reserve							
6 Concessions in FAS 114 Loan Loss Reserve <sup>(1)</sup>							

(1) - amount includes the impact of all troubled debt restructuring (TDR) related impairments.

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

<b>Single-Family Credit Overview - Quarterly (SEVERELY ADVERSE)</b>	Most Recent Quarter									Nine Quarter Cumulative Total
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	
<b>TOTAL PORTFOLIO</b>										
CREDIT EXPENSES (\$s in millions)										
1										
2										
3										
4										
5										
<b>6 Credit Expenses<sup>(1)</sup></b>										
LOAN LOSS RESERVE (\$s in millions)										
7										
8										
9										
10										
<b>11 Ending Total Loan Loss Reserve</b>										
Memo:										
12										
13										
14										
15										
<b>CURRENT BOOK (as of 9/30/14)</b>										
CREDIT EXPENSES (\$s in millions)										
16										
17										
18										
19										
20										
<b>21 Credit Expenses<sup>(1)</sup></b>										
LOAN LOSS RESERVE (\$s in millions)										
22										
23										
24										
25										
<b>26 Ending Loan Loss Reserve - Current Book</b>										
27										
<b>NEW BUSINESS</b>										
CREDIT EXPENSES (\$s in millions)										
28										
29										
30										
31										
32										
<b>33 Credit Expenses<sup>(1)</sup></b>										
LOAN LOSS RESERVE (\$s in millions)										
34										
35										
36										
37										
<b>38 Ending Loan Loss Reserve - New Business</b>										
39										

(1) - amount depicts the summation of foreclosed property expense, provision for credit losses, and SOP 03-3 losses.  
(2) - amount includes the impact of all troubled debt restructuring (TDR) related impairments.

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

<b>Single-Family Credit Overview - Quarterly (SEVERELY ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
	<b>SERIOUSLY DELINQUENT LOAN ACTIVITY (count in '000s)</b>									
1	Beginning seriously delinquent loans									
2	Seriously delinquent inflows									
3	Seriously delinquent cured by modification									
4	Seriously delinquent - self cured									
5	Seriously delinquent to default									
6	Seriously delinquent to payoff									
<b>7</b>	<b>Ending Seriously Delinquent Loans</b>									
<b>SERIOUSLY DELINQUENT LOAN ACTIVITY (continued)</b>										
8	Ending seriously delinquent rate (%)									
9	Aggregate UPB of seriously delinquent loans (\$ in millions)									
<b>LOAN MODIFICATIONS</b>										
10	Loan modifications (count in 000s)									
<b>PAYMENTS FROM PRIVATE MORTGAGE INSURERS (after haircut) (\$ in millions)</b>										
11	Mortgage Guaranty Insurance Corporation									
12	Triad Guaranty Insurance Corporation									
13	Radian Guaranty Inc.									
14	United Guaranty Residential Insurance Co.									
15	Genworth Mortgage Insurance Corporation									
16	PMI Mortgage Insurance Co.									
17	Republic Mortgage Insurance Company									
18	Essent Guaranty, Inc.									
19	Arch Mortgage Insurance Company									
20	Other									
NOTE: Seriously delinquent loans are 90 days or more delinquent, or in the process of foreclosure.										

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

**Single-Family Credit Summary (SEVERELY ADVERSE)**

**Delinquency Status - CURRENT BOOK**

(\$s in millions)

End of Quarter Unpaid Principal Balance (UPB)

Loan Status	Most Recent Quarter	End of Quarter Unpaid Principal Balance (UPB)								
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>MODIFIED LOANS</b>										
1 Current										
2 Less than 90 days delinquent										
3 Seriously delinquent (90 days or more delinquent or in the process of foreclosure)										
4 Total										
<b>NON-MODIFIED LOANS</b>										
5 Current										
6 Less than 90 days delinquent										
7 Seriously delinquent (90 days or more delinquent or in the process of foreclosure)										
8 Total										

(\$s in millions)

Loan Loss Reserve

Loan Status	Most Recent Quarter	Loan Loss Reserve								
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>MODIFIED LOANS</b>										
9 Current										
10 Less than 90 days delinquent										
11 Seriously delinquent (90 days or more delinquent or in the process of foreclosure)										
12 Total										
<b>NON-MODIFIED LOANS</b>										
13 Current										
14 Less than 90 days delinquent										
15 Seriously delinquent (90 days or more delinquent or in the process of foreclosure)										
16 Total										

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

**Single-Family Credit Summary (SEVERELY ADVERSE)**

**Mark-to-Market Loan to Value - CURRENT BOOK**

(\$s in millions)		End of Quarter Unpaid Principal Balance (UPB)								
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
1 <=80%										
2 >80% - 100%										
3 >100%										
4 Total										

(\$s in millions)		Loan Loss Reserve								
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
5 <=80%										
6 >80% - 100%										
7 >100%										
8 Total										

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

**Single-Family Credit Summary (SEVERELY ADVERSE)**

**Vintage Status - CURRENT BOOK**

(\$s in millions)

		End of Quarter Unpaid Principal Balance (UPB)								
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
1	2004 and prior									
2	2005									
3	2006									
4	2007									
5	2008									
6	2009									
7	2010									
8	2011									
9	2012									
10	2013									
11	2014									

(\$s in millions)

		Loan Loss Reserve								
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
12	2004 and prior									
13	2005									
14	2006									
15	2007									
16	2008									
17	2009									
18	2010									
19	2011									
20	2012									
21	2013									
22	2014									

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

**Single-Family Credit Summary (SEVERELY ADVERSE)**

**Mark-to-Market Loan to Value - CURRENT BOOK**

(\$s in millions)

End of Quarter Projected Charge-Offs (Undiscounted \$s)

Loan Status	Most Recent Quarter	End of Quarter Projected Charge-Offs (Undiscounted \$s)									Nine Quarter Cumulative Total
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	
1 <=80%											
2 >80% - 100%											
3 >100%											

**Enterprise Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

**Single-Family Credit Summary (SEVERELY ADVERSE)**

**Vintage Table - CURRENT BOOK**

(\$s in millions)

End of Quarter Projected Charge-Offs (Undiscounted \$s)

Loan Status		Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
1	2004 and prior											
2	2005											
3	2006											
4	2007											
5	2008											
6	2009											
7	2010											
8	2011											
9	2012											
10	2013											
11	2014											

## Enterprise Dodd-Frank Stress Test Template - SEVERELY ADVERSE (Disclosure to the Public)

### Cumulative Projected Financial Metrics (Q4 2014 - Q4 2016)

(\$s in billions)	Results without re-establishing valuation allowance on deferred tax assets	Impact of re-establishing valuation allowance on deferred tax assets	Results with re-establishing valuation allowance on deferred tax assets
1 Pre-provision net revenue <sup>1</sup>			
2 (Provision) benefit for credit losses			
3 Mark-to-market gains (losses) <sup>2</sup>			
4 Global market shock impact on trading securities and counterparty			
5 Net income before taxes			
6 (Provision) benefit for taxes			
7 Other comprehensive income (loss) <sup>3</sup>			
8 Total comprehensive income (loss)			
9 Dividends paid			
10 PSPA funding commitment as of September 30, 2014			
11 Treasury draws required			
12 Remaining PSPA funding commitment			
13 Credit losses <sup>4</sup>			
14 Credit losses (% of average portfolio balance)			

1. Includes net interest income, security impairments, operational risk losses, foreclosed property income (expense), and other non-interest income/expenses

2. Includes fair value gains (losses) on derivative and trading securities, and other gains (losses) on investment securities.

3. Includes global market shock impact on available -for-sale securities

4. Credit losses are defined as charge-offs, net plus foreclosed property expenses

## Appendix 3: FHFA DFA Reporting Schedules - FHLBanks

### Stress Test Template Instructions

1. All numbers should be report in millions to two decimal places
2. Reported numbers should reflect the 9/30/2014 start date.

**Scenario Schedule Cover Sheet**

Each regulated entity is expected to provide input data for all the tabs in this spreadsheet.

**Institution Name:**

**Date of Data Submission:**

**Institution Contact Name:**

**Institution Contact Phone Number:**

**Institution Contact Email Address:**

## Supplied Scenario Variables

(Please indicate which scenarios were used in your model by checking the appropriate box:)

### Domestic Variables

- Real GDP Growth
- Nominal GDP Growth
- Real Disposable Income Growth
- Nominal Disposable Income Growth
- Unemployment Rate
- CPI Inflation Rate
- 3-month Treasury Yield
- 5-year Treasury Yield
- 10-year Treasury Yield
- BBB Corporate Yield
- Mortgage Rate
- Prime Rate
- Dow Jones Total Stock Market Index
- House Price Index
- Commercial Real Estate Price Index
- Market Volatility Index (VIX)
- Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed Securities (CMBS) and other collateral
- Agency Securities Option-Adjusted Spreads (OAS)
- Municipal Securities
- Counterparty Default Risk

### International Variables

- Euro Area Real GDP Growth
- Euro Area Inflation
- Euro Area Bilateral Dollar Exchange Rate (\$/euro)
- Developing Asia Real GDP Growth
- Developing Asia Inflation
- Developing Asia Bilateral Dollar Exchange Rate (F/USD, index, base = 2000, Q1)
- 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)

For variables not used, please provide a brief explanation below as to why it was not used:

Variable Name	Explanation
---------------	-------------

- 1
- 2
- 3
- 4
- 5

## Scenario Variables Beyond Those Supplied

---

### *Baseline Scenario (additional variables used beyond those supplied)*

---

Variable Number	Variable Name	Variable Definition
1		
2		
3		
4		
5		

---

### *Adverse Scenario (additional variables used beyond those supplied)*

---

Variable Number	Variable Name	Variable Definition
1		
2		
3		
4		
5		

---

### *Severely Adverse Scenario (additional variables used beyond those supplied)*

---

Variable Number	Variable Name	Variable Definition
1		
2		
3		
4		
5		

## Baseline

### Spread Assumptions

Category	Benchmark	Spread to Benchmark									
		Actual			Projected						
		3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Example: Advance	3-Month LIBOR	10.0	10.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0

### Variables Used Beyond Those Supplied

Variable Name	Actual			Projected						
	3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9

### Forward Curve

Maturity	Actual			Projected							
	3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	
3-Month Treasury	0	0.1	0.1	0.3	0.6	0.9	1.4	1.8	2.1	2.4	
6-Month											
1 year											
2 year											
5 year Treasury	1.7	1.9	2	2.3	2.5	2.7	3	3.2	3.4	3.6	
10 year Treasury	2.5	2.7	2.9	3.1	3.3	3.5	3.6	3.7	3.9	4	
15 year											
30 year											

### House Price Index

*(NOTE: For printing purposes dates only goes to Jul-15. However, the underlying excel spreadsheet collects 30 years of data.)*

Region	Actual				Projected							
	3Q 2014	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	
Region 1												
Region 2												
.												
.												
.												
.												
.												

## Adverse

### Spread Assumptions

#### Spread to Benchmark

Category	Benchmark	Actual			Projected							
		3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	
Example: Advance	3-Month LIBOR	10.0	10.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0

### Variables Used Beyond Those Supplied

Variable Name	Actual			Projected						
	3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9

### Forward Curve

Maturity	Actual			Projected						
	3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
3-Month Treasury	0.0	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.0	4.4
6-Month										
1 year										
2 year										
5 year Treasury	1.7	2.6	2.9	3.3	3.7	4.0	4.3	4.5	4.8	5.0
10 year Treasury	2.5	3.3	3.7	4.0	4.3	4.6	4.8	5.0	5.2	5.4
15 year										
30 year										

### House Price Index

*(NOTE: For printing purposes dates only goes to Jul-15. However, the underlying excel spreadsheet collects 30 years of data.)*

Region	Actual			Projected							
	3Q 2014	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15
Region 1											
Region 2											
.											
.											
.											
.											
.											
.											

## Severely Adverse

### Spread Assumptions

Category	Benchmark	Actual			Spread to Benchmark						
		3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Example: Advance	3-Month LIBOR	10.0	10.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0

### Variables Used Beyond Those Supplied

Variable Name	Actual				Projected						
	3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	

### Forward Curve

Maturity	Actual				Projected						
	3Q 2014	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	
3-Month Treasury	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
6-Month											
1 year											
2 year											
5 year Treasury	1.7	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.8	0.9	
10 year Treasury	2.5	0.9	1	1.2	1.3	1.5	1.5	1.6	1.8	1.9	
15 year											
30 year											

### House Price Index

*(NOTE: For printing purposes dates only go to Jul-15. However, the underlying excel spreadsheet collects 30 years of data.)*

Region	Actual			Projected								
	3Q 2014	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	
Region 1												
Region 2												

Region 1  
Region 2  
.  
.  
.  
.  
.  
.

# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b><u>Income Statement - Aggregate (BASE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Interest Income:										
1 Advances										
2 Whole loans held for portfolio										
3 Investment Securities										
4 Fed Funds										
5 Other Interest Income										
6 Total Interest Income										
Interest Expense:										
7 CO Bonds										
8 Discount Notes										
9 Member Deposits										
10 Other Interest Expense										
11 Total Interest Expense										
<b>12 Net interest income</b>										
13 Provision (reversal) for credit losses on mortgage loans										
<b>14 Net Interest Income after mortgage loan loss provision</b>										
15 Derivatives gains (losses)										
16 Gains (losses) on securities										
17 Total net gain (loss) on changes in fair value										
18 Total OTTI credit charge										
19 Other gains (losses)										
20 Operating expenses										
21 Other expenses										
<b>22 Income (loss) before assessments</b>										
23 Total assessments										
<b>24 Net Income (Loss)</b>										

# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b><u>Income Statement - Existing (BASE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Interest Income:										
1 Advances										
2 Whole loans held for portfolio										
3 Investment Securities										
4 Fed Funds										
5 Other Interest Income										
6 Total Interest Income										
Interest Expense:										
7 CO Bonds										
8 Discount Notes										
9 Member Deposits										
10 Other Interest Expense										
11 Total Interest Expense										
<b>12 Net interest income</b>										
13 Provision (reversal) for credit losses on mortgage loans										
<b>14 Net Interest Income after mortgage loan loss provision</b>										
15 Derivatives gains (losses)										
16 Gains (losses) on securities										
17 Total net gain (loss) on changes in fair value										
18 Total OTTI credit charge										
19 Other gains (losses)										
20 Operating expenses										
21 Other expenses										
<b>22 Income (loss) before assessments</b>										
23 Total assessments										
<b>24 Net Income (Loss)</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b>Income Statement - Replacement (BASE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Interest Income:										
1 Advances										
2 Whole loans held for portfolio										
3 Investment Securities										
4 Fed Funds										
5 Other Interest Income										
6 Total Interest Income										
Interest Expense:										
7 CO Bonds										
8 Discount Notes										
9 Member Deposits										
10 Other Interest Expense										
11 Total Interest Expense										
<b>12 Net interest income</b>										
13 Provision (reversal) for credit losses on mortgage loans										
<b>14 Net Interest Income after mortgage loan loss provision</b>										
15 Derivatives gains (losses)										
16 Gains (losses) on securities										
17 Total net gain (loss) on changes in fair value										
18 Total OTTI credit charge										
19 Other gains (losses)										
20 Operating expenses										
21 Other expenses										
<b>22 Income (loss) before assessments</b>										
23 Total assessments										
<b>24 Net Income (Loss)</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b><u>Balance Sheet - Aggregate (BASE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>ASSETS</b>										
1 Advances										
2 Investment Securities										
3 Mortgage Loans										
4 Allowance for loan losses										
5 Fed Funds										
6 Other assets										
<b>7 Total assets</b>										
<b>LIABILITIES</b>										
8 CO bonds										
9 Discount notes										
10 Member deposits										
11 Other liabilities										
<b>12 Total liabilities</b>										
<b>CAPITAL</b>										
13 Class B capital stock										
14 Class A capital stock										
15 Capital stock pre-conversion										
16 Retained earnings (unrestricted)										
17 Retained earnings (restricted)										
18 Accumulated other comprehensive income (loss)										
<b>19 Total capital</b>										
<b>20 Total liabilities and capital</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b><u>Balance Sheet - Existing (BASE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>ASSETS</b>										
1	Advances									
2	Investment Securities									
3	Mortgage Loans									
4	Allowance for loan losses									
5	Fed Funds									
6	Other assets									
<b>7</b>	<b>Total assets</b>									
<b>LIABILITIES</b>										
8	CO bonds									
9	Discount notes									
10	Member deposits									
11	Other liabilities									
<b>12</b>	<b>Total liabilities</b>									
<b>CAPITAL</b>										
13	Class B capital stock									
14	Class A capital stock									
15	Capital stock pre-conversion									
16	Retained earnings (unrestricted)									
17	Retained earnings (restricted)									
18	Accumulated other comprehensive income (loss)									
<b>19</b>	<b>Total capital</b>									
<b>20</b>	<b>Total liabilities and capital</b>									

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b>Balance Sheet - Replacement (BASE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>ASSETS</b>										
1 Advances										
2 Investment Securities										
3 Mortgage Loans										
4 Allowance for loan losses										
5 Fed Funds										
6 Other assets										
<b>7 Total assets</b>										
<b>LIABILITIES</b>										
8 CO bonds										
9 Discount notes										
10 Member deposits										
11 Other liabilities										
<b>12 Total liabilities</b>										
<b>CAPITAL</b>										
13 Class B capital stock										
14 Class A capital stock										
15 Capital stock pre-conversion										
16 Retained earnings (unrestricted)										
17 Retained earnings (restricted)										
18 Accumulated other comprehensive income (loss)										
<b>19 Total capital</b>										
<b>20 Total liabilities and capital</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b><u>Capital Roll Forward (BASE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>CAPITAL</b>										
1	Beginning Capital									
2	Net Income									
3	Less: Dividends									
4	Other Capital Actions									
5	Change in AOCI									
6	Other									
<b>7</b>	<b>Ending Capital</b>									
8	Regulatory Capital									
<b><u>Capital Ratios</u></b>										
9	Regulatory Capital									
10	Leverage Capital									
11	Permanent Capital									

# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b><u>Credit (BASE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>CREDIT EXPENSES</b>										
1	Provision for credit losses									
<b>PLS CREDIT QUALITY</b>										
2	Principal									
3	Principal writedown									
4	Balance									
5	Credit support									
<b>COUNTERPARTY CREDIT</b>										
6	<b>Net Exposure</b>									
7	Secured Credit									
8	Unsecured Credit									
9	Unsecured derivative counterparty exposure									
10	Payment from private mortgage insurers									

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b>Income Statement - Aggregate (ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Interest Income:										
1 Advances										
2 Whole loans held for portfolio										
3 Investment Securities										
4 Fed Funds										
5 Other Interest Income										
6 Total Interest Income										
Interest Expense:										
7 CO Bonds										
8 Discount Notes										
9 Member Deposits										
10 Other Interest Expense										
11 Total Interest Expense										
<b>12 Net interest income</b>										
13 Provision (reversal) for credit losses on mortgage loans										
<b>14 Net Interest Income after mortgage loan loss provision</b>										
15 Derivatives gains (losses)										
16 Gains (losses) on securities										
17 Total net gain (loss) on changes in fair value										
18 Total OTTI credit charge										
19 Other gains (losses)										
20 Operating expenses										
21 Other expenses										
<b>22 Income (loss) before assessments</b>										
23 Total assessments										
<b>24 Net Income (Loss)</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b>Income Statement - Existing (ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Interest Income:										
1 Advances										
2 Whole loans held for portfolio										
3 Investment Securities										
4 Fed Funds										
5 Other Interest Income										
6 Total Interest Income										
Interest Expense:										
7 CO Bonds										
8 Discount Notes										
9 Member Deposits										
10 Other Interest Expense										
11 Total Interest Expense										
<b>12 Net interest income</b>										
13 Provision (reversal) for credit losses on mortgage loans										
<b>14 Net Interest Income after mortgage loan loss provision</b>										
15 Derivatives gains (losses)										
16 Gains (losses) on securities										
17 Total net gain (loss) on changes in fair value										
18 Total OTTI credit charge										
19 Other gains (losses)										
20 Operating expenses										
21 Other expenses										
<b>22 Income (loss) before assessments</b>										
23 Total assessments										
<b>24 Net Income (Loss)</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b>Income Statement - Replacement (ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Interest Income:										
1 Advances										
2 Whole loans held for portfolio										
3 Investment Securities										
4 Fed Funds										
5 Other Interest Income										
6 Total Interest Income										
Interest Expense:										
7 CO Bonds										
8 Discount Notes										
9 Member Deposits										
10 Other Interest Expense										
11 Total Interest Expense										
<b>12 Net interest income</b>										
13 Provision (reversal) for credit losses on mortgage loans										
<b>14 Net Interest Income after mortgage loan loss provision</b>										
15 Derivatives gains (losses)										
16 Gains (losses) on securities										
17 Total net gain (loss) on changes in fair value										
18 Total OTTI credit charge										
19 Other gains (losses)										
20 Operating expenses										
21 Other expenses										
<b>22 Income (loss) before assessments</b>										
23 Total assessments										
<b>24 Net Income (Loss)</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b>Balance Sheet-Aggregate (ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>ASSETS</b>										
1 Advances										
2 Investment Securities										
3 Mortgage Loans										
4 Allowance for loan losses										
5 Fed Funds										
6 Other assets										
<b>7 Total assets</b>										
<b>LIABILITIES</b>										
8 CO bonds										
9 Discount notes										
10 Member deposits										
11 Other liabilities										
<b>12 Total liabilities</b>										
<b>CAPITAL</b>										
13 Class B capital stock										
14 Class A capital stock										
15 Capital stock pre-conversion										
16 Retained earnings (unrestricted)										
17 Retained earnings (restricted)										
18 Accumulated other comprehensive income (loss)										
<b>19 Total capital</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b>Balance Sheet - Existing (ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>ASSETS</b>										
1 Advances										
2 Investment Securities										
3 Mortgage Loans										
4 Allowance for loan losses										
5 Fed Funds										
6 Other assets										
<b>7 Total assets</b>										
<b>LIABILITIES</b>										
8 CO bonds										
9 Discount notes										
10 Member deposits										
11 Other liabilities										
<b>12 Total liabilities</b>										
<b>CAPITAL</b>										
13 Class B capital stock										
14 Class A capital stock										
15 Capital stock pre-conversion										
16 Retained earnings (unrestricted)										
17 Retained earnings (restricted)										
18 Accumulated other comprehensive income (loss)										
<b>19 Total capital</b>										
<b>20 Total liabilities and capital</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b>Balance Sheet - Replacement (ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>ASSETS</b>										
1 Advances										
2 Investment Securities										
3 Mortgage Loans										
4 Allowance for loan losses										
5 Fed Funds										
6 Other assets										
<b>7 Total assets</b>										
<b>LIABILITIES</b>										
8 CO bonds										
9 Discount notes										
10 Member deposits										
11 Other liabilities										
<b>12 Total liabilities</b>										
<b>CAPITAL</b>										
13 Class B capital stock										
14 Class A capital stock										
15 Capital stock pre-conversion										
16 Retained earnings (unrestricted)										
17 Retained earnings (restricted)										
18 Accumulated other comprehensive income (loss)										
<b>19 Total capital</b>										
<b>20 Total liabilities and capital</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b><u>Capital Roll Forward (ADVERSE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>CAPITAL</b>										
1	Beginning Capital									
2	Net Income									
3	Less: Dividends									
4	Other Capital Actions									
5	Change in AOCI									
6	Other									
<b>7</b>	<b>Ending Capital</b>									
8	Regulatory Capital									
<b><u>Capital Ratios</u></b>										
9	Regulatory Capital									
10	Leverage Capital									
11	Permanent Capital									

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

### **Credit (ADVERSE)**

	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>CREDIT EXPENSES</b>										
1	Provision for credit losses									
<b>PLS CREDIT QUALITY</b>										
2	Principal									
3	Principal writedown									
4	Balance									
5	Credit support									
<b>COUNTERPARTY CREDIT</b>										
6	Unsecured credit									
7	Unsecured derivative counterparty exposure									
8	Payment from private mortgage insurers									

# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

## Global Market Shock (ADVERSE)

Q1 Loss

- Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed Securities (CMBS) and other collateral
- 1 backed Securities (CMBS) and other collateral
  - 2 Agency Securities Option-Adjusted Spread
  - 3 Municipal Securities
  - 4 Counterparty Default Risk\*

\* Please provide the name and type (eg: derivatives, repo, etc.) of the largest counterparty below:

Counterparty Name	Counterparty Type
-------------------	-------------------

# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

## **Global Market Shock (ADVERSE)**

Q1 Loss

---

### TRADING SECURITIES

Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed

- 1 Securities (CMBS) and other collateral
- 2 Agency Securities Option-Adjusted Spread
- 3 Municipal Securities

### AVAILABLE-FOR-SALE SECURITIES

Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed

- 4 Securities (CMBS) and other collateral
- 5 Agency Securities Option-Adjusted Spread
- 6 Municipal Securities

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\*Credit ratings should be as of September 30, 2014)

	Grand Total	RMBS														RMBS SubTotal		
		Non-Agency Prime	Sub-prime	Option ARMS	Other AltA	Unspec Non-Prime	HELOC	RMBS CDO	RMBS CDS	Credit Basket	PrimeX	ABX / TABX	Prime Whole Loans	Non-Prime Whole Loans	European RMBS		Other / Unspecified	
<b>MV* (\$MM)</b>																		
<b>AAA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>AA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>A Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>BBB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>BB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>&lt;B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>NR Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Profit/Loss (\$MM)</b>																		
<b>AAA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>AA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>A Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>BBB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>BB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>&lt;B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>NR Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																	\$0
2006	\$0																	\$0
2007	\$0																	\$0
Post 2007	\$0																	\$0
Unspecified Vintage	\$0																	\$0
<b>Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

### FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\*Credit ratings should be as of September 30, 2014)

	ABS								CMBS								Corporate CDO / CLO			Warehouse			
	Autos	Credit Cards	Student Loans	ABS CDS	Credit Basket	Index Tranches	Other / Unspecified	ABS SubTotal	Cash Non-Agency CMBS	CMBS CDS	CMBS CDO	Credit Basket	Index Tranches	Whole Loans	Other / Unspecified	CMBS SubTotal	CLO	Other / Unspecified	Corporate CDO/CLO SubTotal	Total Size	Total Protection	Other / Unspecified	
<b>MV* (\$MM)</b>																							
<b>AAA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>AA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>A Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>BBB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>BB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>&lt;B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>NR Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
<b>Profit/Loss (\$MM)</b>																							
<b>AAA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>AA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>A Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>BBB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>BB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>&lt;B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>NR Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pre 2006																							
2006																							
2007																							
Post 2007																							
Unspecified Vintage																							
<b>Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	

# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

**Trading and Other Fair Value Assets**  
Munis (Adverse)

	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Widening (AFS)	Profit/Loss from OAS Widening (Trading Secs)
<b>Bonds</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Bonds Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>Bonds Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

<b>Loans</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Loans Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>Loans Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

<b>CDS</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>CDS Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>CDS Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

**Trading and Other Fair Value Assets**  
Munis (Adverse)

	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Widening (AFS)	Profit/Loss from OAS Widening (Trading Secs)
<b>Indices</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Indices Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>Indices Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Other / Unspecified Munis</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Other / Unspecified Munis Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>Other / Unspecified Munis Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Grand Total</b>				
AAA	\$0	\$0	\$0	\$0
AA	\$0	\$0	\$0	\$0
A	\$0	\$0	\$0	\$0
BBB	\$0	\$0	\$0	\$0
BB	\$0	\$0	\$0	\$0
B	\$0	\$0	\$0	\$0
<B	\$0	\$0	\$0	\$0
NR	\$0	\$0	\$0	\$0
<b>Grand Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M	\$0	\$0	\$0	\$0
3M	\$0	\$0	\$0	\$0
6M	\$0	\$0	\$0	\$0
9M	\$0	\$0	\$0	\$0
1Y	\$0	\$0	\$0	\$0
2Y	\$0	\$0	\$0	\$0
3Y	\$0	\$0	\$0	\$0
5Y	\$0	\$0	\$0	\$0
7Y	\$0	\$0	\$0	\$0
10Y	\$0	\$0	\$0	\$0
15Y	\$0	\$0	\$0	\$0
20Y	\$0	\$0	\$0	\$0
30Y	\$0	\$0	\$0	\$0
<b>Grand Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

**Trading & Other Fair Value Assets Schedule**  
Agencies (Adverse)

	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Widening (AFS)	Profit/Loss from OAS Widening (Trading Secs)
<b>US Residential Agency Products</b>				
IOs				
POs				
Other CMOs				
Pass-Throughs				
Agency Debt/Debentures				
IOS Index				
POS Index				
MBX Index				
Other Agency Derivatives				
TBA's				
Reverse Mortgages				
Residential Other / Unspecified				
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>US Commercial Agency Products</b>				
Cash Agency CMBS				
Agency CMBS Derivatives				
Commercial Other / Unspecified				
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Non-US Agency Products</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b>Income Statement-Aggregate (SEVERELY ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Interest Income:										
1 Advances										
2 Whole loans held for portfolio										
3 Investment Securities										
4 Fed Funds										
5 Other Interest Income										
6 Total Interest Income										
Interest Expense:										
7 CO Bonds										
8 Discount Notes										
9 Member Deposits										
10 Other Interest Expense										
11 Total Interest Expense										
<b>12 Net interest income</b>										
13 Provision (reversal) for credit losses on mortgage loans										
<b>14 Net Interest Income after mortgage loan loss provision</b>										
15 Derivatives gains (losses)										
16 Gains (losses) on securities										
17 Total net gain (loss) on changes in fair value										
18 Total OTTI credit charge										
19 Other gains (losses)										
20 Operating expenses										
21 Other expenses										
<b>22 Income (loss) before assessments</b>										
23 Total assessments										
<b>24 Net Income (Loss)</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b><u>Income Statement - Existing (SEVERELY ADVERSE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Interest Income:										
1 Advances										
2 Whole loans held for portfolio										
3 Investment Securities										
4 Fed Funds										
5 Other Interest Income										
6 Total Interest Income										
Interest Expense:										
7 CO Bonds										
8 Discount Notes										
9 Member Deposits										
10 Other Interest Expense										
11 Total Interest Expense										
<b>12 Net interest income</b>										
13 Provision (reversal) for credit losses on mortgage loans										
<b>14 Net Interest Income after mortgage loan loss provision</b>										
15 Derivatives gains (losses)										
16 Gains (losses) on securities										
17 Total net gain (loss) on changes in fair value										
18 Total OTTI credit charge										
19 Other gains (losses)										
20 Operating expenses										
21 Other expenses										
<b>22 Income (loss) before assessments</b>										
23 Total assessments										
<b>24 Net Income (Loss)</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b>Income Statement - Replacement (SEVERELY ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Interest Income:										
1 Advances										
2 Whole loans held for portfolio										
3 Investment Securities										
4 Fed Funds										
5 Other Interest Income										
6 Total Interest Income										
Interest Expense:										
7 CO Bonds										
8 Discount Notes										
9 Member Deposits										
10 Other Interest Expense										
11 Total Interest Expense										
<b>12 Net interest income</b>										
13 Provision (reversal) for credit losses on mortgage loans										
<b>14 Net Interest Income after mortgage loan loss provision</b>										
15 Derivatives gains (losses)										
16 Gains (losses) on securities										
17 Total net gain (loss) on changes in fair value										
18 Total OTTI credit charge										
19 Other gains (losses)										
20 Operating expenses										
21 Other expenses										
<b>22 Income (loss) before assessments</b>										
23 Total assessments										
<b>24 Net Income (Loss)</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b><u>Balance Sheet-Aggregate (SEVERELY ADVERSE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>ASSETS</b>										
1 Advances										
2 Investment Securities										
3 Mortgage Loans										
4 Allowance for loan losses										
5 Fed Funds										
6 Other assets										
<b>7 Total assets</b>										
<b>LIABILITIES</b>										
8 CO bonds										
9 Discount notes										
10 Member deposits										
11 Other liabilities										
<b>12 Total liabilities</b>										
<b>CAPITAL</b>										
13 Class B capital stock										
14 Class A capital stock										
15 Capital stock pre-conversion										
16 Retained earnings (unrestricted)										
17 Retained earnings (restricted)										
18 Accumulated other comprehensive income (loss)										
<b>19 Total capital</b>										
<b>20 Total liabilities and capital</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b><u>Balance Sheet - Existing (SEVERELY ADVERSE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>ASSETS</b>										
1 Advances										
2 Investment Securities										
3 Mortgage Loans										
4 Allowance for loan losses										
5 Fed Funds										
6 Other assets										
<b>7 Total assets</b>										
<b>LIABILITIES</b>										
8 CO bonds										
9 Discount notes										
10 Member deposits										
11 Other liabilities										
<b>12 Total liabilities</b>										
<b>CAPITAL</b>										
13 Class B capital stock										
14 Class A capital stock										
15 Capital stock pre-conversion										
16 Retained earnings (unrestricted)										
17 Retained earnings (restricted)										
18 Accumulated other comprehensive income (loss)										
<b>19 Total capital</b>										
<b>20 Total liabilities and capital</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b>Balance Sheet - Replacement (SEVERELY ADVERSE)</b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>ASSETS</b>										
1 Advances										
2 Investment Securities										
3 Mortgage Loans										
4 Allowance for loan losses										
5 Fed Funds										
6 Other assets										
<b>7 Total assets</b>										
<b>LIABILITIES</b>										
8 CO bonds										
9 Discount notes										
10 Member deposits										
11 Other liabilities										
<b>12 Total liabilities</b>										
<b>CAPITAL</b>										
13 Class B capital stock										
14 Class A capital stock										
15 Capital stock pre-conversion										
16 Retained earnings (unrestricted)										
17 Retained earnings (restricted)										
18 Accumulated other comprehensive income (loss)										
<b>19 Total capital</b>										
<b>20 Total liabilities and capital</b>										

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

<b><u>Capital Roll Forward (SEVERELY ADVERSE)</u></b>	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<b>CAPITAL</b>										
1	Beginning Capital									
2	Net Income									
3	Less: Dividends									
4	Other Capital Actions									
5	Change in AOCI									
6	Other									
<b>7</b>	<b>Ending Capital</b>									
8	Regulatory Capital									
<b><u>Capital Ratios</u></b>										
9	Regulatory Capital									
10	Leverage Capital									
11	Permanent Capital									

**FHLBank Dodd-Frank Stress Test Template  
(Disclosure to FHFA ONLY)**

**Credit (SEVERELY ADVERSE)**

Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
---------------------	----	----	----	----	----	----	----	----	----

CREDIT EXPENSES  
1 Provision for credit losses

PLS CREDIT QUALITY  
2 Principal  
3 Principal writedown  
4 Balance  
5 Credit support

COUNTERPARTY CREDIT  
6 Unsecured credit  
7 Unsecured derivative counterparty exposure  
8 Payment from private mortgage insurers

# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

## Global Market Shock (SEVERELY ADVERSE)

Q1 Loss

- Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed Securities (CMBS) and other collateral
- 1 backed Securities (CMBS) and other collateral
  - 2 Agency Securities Option-Adjusted Spread
  - 3 Municipal Securities
  - 4 Counterparty Default Risk\*

\* Please provide the name and type (eg: derivatives, repo, etc.) of the largest counterparty below:

Counterparty Name	Counterparty Type
-------------------	-------------------

# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

## **Global Market Shock (SEVERELY ADVERSE)**

Q1 Loss

---

### TRADING SECURITIES

Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed

- 1 Securities (CMBS) and other collateral
- 2 Agency Securities Option-Adjusted Spread
- 3 Municipal Securities

### AVAILABLE-FOR-SALE SECURITIES

Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS), Asset-based Securities (ABS), Commercial Mortgage-backed

- 4 Securities (CMBS) and other collateral
- 5 Agency Securities Option-Adjusted Spread
- 6 Municipal Securities

## FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

(\*Credit ratings should be as of September 30, 2014)

Grand Total	RMBS											Prime Whole Loans	Non-Prime Whole Loans	European RMBS	Other / Unspecified	RMBS SubTotal	
	Non-Agency Prime	Sub-prime	Option ARMS	Other AltA	Unspec Non-Prime	HELOC	RMBS CDO	RMBS CDS	Credt Basket	PrimeX	ABX / TABX						
<b>MV* (SMM)</b>																	
<b>AAA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>AA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>A Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>BBB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>BB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>&lt;B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>NR Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Profit/Loss (SMM)</b>																	
<b>AAA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>AA Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>A Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>BBB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>BB Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>&lt;B Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>NR Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pre 2006	\$0																\$0
2006	\$0																\$0
2007	\$0																\$0
Post 2007	\$0																\$0
Unspecified Vintage	\$0																\$0
<b>Total</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0



# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

**Trading and Other Fair Value Assets**  
Munis (Severely Adverse)

	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Widening (AFS)	Profit/Loss from OAS Widening (Trading Secs)
<b>Bonds</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Bonds Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>Bonds Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Loans</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Loans Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>Loans Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>CDS</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>CDS Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>CDS Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

**Trading and Other Fair Value Assets**  
Munis (Severely Adverse)

	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Widening (AFS)	Profit/Loss from OAS Widening (Trading Secs)
<b>Indices</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Indices Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>Indices Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Other / Unspecified Munis</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Other / Unspecified Munis Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
<b>Other / Unspecified Munis Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Grand Total</b>				
AAA	\$0	\$0	\$0	\$0
AA	\$0	\$0	\$0	\$0
A	\$0	\$0	\$0	\$0
BBB	\$0	\$0	\$0	\$0
BB	\$0	\$0	\$0	\$0
B	\$0	\$0	\$0	\$0
<B	\$0	\$0	\$0	\$0
NR	\$0	\$0	\$0	\$0
<b>Grand Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
1M	\$0	\$0	\$0	\$0
3M	\$0	\$0	\$0	\$0
6M	\$0	\$0	\$0	\$0
9M	\$0	\$0	\$0	\$0
1Y	\$0	\$0	\$0	\$0
2Y	\$0	\$0	\$0	\$0
3Y	\$0	\$0	\$0	\$0
5Y	\$0	\$0	\$0	\$0
7Y	\$0	\$0	\$0	\$0
10Y	\$0	\$0	\$0	\$0
15Y	\$0	\$0	\$0	\$0
20Y	\$0	\$0	\$0	\$0
30Y	\$0	\$0	\$0	\$0
<b>Grand Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

# FHLBank Dodd-Frank Stress Test Template (Disclosure to FHFA ONLY)

**Trading & Other Fair Value Assets Schedule**  
Agencies (Severely Adverse)

	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Widening (AFS)	Profit/Loss from OAS Widening (Trading Secs)
<b>US Residential Agency Products</b>				
IOs				
POs				
Other CMOs				
Pass-Throughs				
Agency Debt/Debentures				
IOS Index				
POS Index				
MBX Index				
Other Agency Derivatives				
TBA's				
Reverse Mortgages				
Residential Other / Unspecified				
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>US Commercial Agency Products</b>				
Cash Agency CMBS				
Agency CMBS Derivatives				
Commercial Other / Unspecified				
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Non-US Agency Products</b>				
AAA				
AA				
A				
BBB				
BB				
B				
<B				
NR				
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

## FHLBank Dodd-Frank Stress Test Template - SEVERELY ADVERSE (Disclosure to the Public)

	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
1 Net interest income + other non-interest income										
2 Provision (reversal) for credit losses on mortgage loans										
3 Net income (loss) before assessments										
4 Total capital										

## Appendix 4: Baseline Scenarios - Domestic

OBS	Real GDP	Nominal GDP	Real	Nominal	Unemployment	CPI inflation	3-month	5-year	10-year	BBB corporate	Mortgage rate	Prime rate	Dow Jones	House Price	Commercial	Market
	growth	growth	disposable	disposable									Total Stock	Index	Real Estate	Volatility
			income	income	rate	rate	Treasury yield	Treasury yield	Treasury yield	yield			Market Index	Index	Price Index	Index (VIX)
	growth	growth	growth	growth												
Q1 2001	-1.1	1.4	3.5	6.3	4.2	3.9	4.8	4.9	5.3	7.4	7.0	8.6	10645.9	113.2	139.5	32.8
Q2 2001	2.1	5.1	-0.3	1.6	4.4	2.8	3.7	4.9	5.5	7.5	7.1	7.3	11407.2	115.2	138.6	34.7
Q3 2001	-1.3	0.0	9.8	10.1	4.8	1.1	3.2	4.6	5.3	7.3	7.0	6.6	9563.0	117.5	141.0	43.7
Q4 2001	1.1	2.3	-4.9	-4.6	5.5	-0.3	1.9	4.2	5.1	7.2	6.8	5.2	10707.7	119.8	135.6	35.3
Q1 2002	3.7	5.1	10.1	10.9	5.7	1.3	1.7	4.5	5.4	7.6	7.0	4.8	10775.7	122.1	137.4	26.1
Q2 2002	2.2	3.8	2.0	5.2	5.8	3.2	1.7	4.5	5.4	7.6	6.8	4.8	9384.0	125.4	135.8	28.4
Q3 2002	2.0	3.8	-0.5	1.5	5.7	2.2	1.6	3.4	4.5	7.3	6.3	4.8	7773.6	128.7	138.7	45.1
Q4 2002	0.3	2.4	1.9	3.8	5.9	2.4	1.3	3.1	4.3	7.0	6.1	4.5	8343.2	131.3	142.5	42.6
Q1 2003	2.1	4.6	1.1	4.0	5.9	4.2	1.2	2.9	4.2	6.5	5.8	4.3	8051.9	134.1	147.9	34.7
Q2 2003	3.8	5.1	5.9	6.3	6.1	-0.7	1.0	2.6	3.8	5.7	5.5	4.2	9342.4	137.0	149.2	29.1
Q3 2003	6.9	9.3	6.7	9.3	6.1	3.0	0.9	3.1	4.4	6.0	6.0	4.0	9649.7	141.1	147.3	22.7
Q4 2003	4.8	6.8	1.6	3.3	5.8	1.5	0.9	3.2	4.4	5.8	5.9	4.0	10799.6	146.0	145.7	21.1
Q1 2004	2.3	5.9	2.9	6.1	5.7	3.4	0.9	3.0	4.1	5.5	5.6	4.0	11039.4	151.8	152.9	21.6
Q2 2004	3.0	6.6	4.0	7.0	5.6	3.2	1.1	3.7	4.7	6.1	6.2	4.0	11144.6	158.0	160.4	20.0
Q3 2004	3.7	6.3	2.1	4.5	5.4	2.6	1.5	3.5	4.4	5.8	5.9	4.4	10893.8	163.4	171.8	19.3
Q4 2004	3.5	6.4	5.1	8.5	5.4	4.4	2.0	3.5	4.3	5.4	5.7	4.9	11951.5	169.4	175.8	16.6
Q1 2005	4.3	8.3	-3.8	-1.8	5.3	2.0	2.5	3.9	4.4	5.4	5.8	5.4	11637.3	177.6	175.8	14.6
Q2 2005	2.1	5.1	3.2	6.0	5.1	2.7	2.9	3.9	4.2	5.5	5.7	5.9	11856.7	185.0	182.3	17.7
Q3 2005	3.4	7.3	2.1	6.6	5.0	6.2	3.4	4.0	4.3	5.5	5.8	6.4	12282.9	190.8	187.1	14.2
Q4 2005	2.3	5.4	3.4	6.6	5.0	3.8	3.8	4.4	4.6	5.9	6.2	7.0	12497.2	195.5	195.4	16.5
Q1 2006	4.9	8.2	9.5	11.5	4.7	2.1	4.4	4.6	4.7	6.0	6.2	7.4	13121.6	198.7	200.0	14.6
Q2 2006	1.2	4.5	0.6	3.7	4.6	3.7	4.7	5.0	5.2	6.5	6.6	7.9	12808.9	197.8	209.0	23.8
Q3 2006	0.4	3.2	1.2	4.1	4.6	3.8	4.9	4.8	5.0	6.4	6.6	8.3	13322.5	196.5	218.6	18.6
Q4 2006	3.2	4.6	5.3	4.6	4.4	-1.6	4.9	4.6	4.7	6.1	6.2	8.3	14215.8	196.5	217.3	12.7
Q1 2007	0.2	4.8	2.6	6.5	4.5	4.0	5.0	4.6	4.8	6.1	6.2	8.3	14354.0	194.0	227.1	19.6
Q2 2007	3.1	5.4	0.8	4.0	4.5	4.6	4.7	4.7	4.9	6.3	6.4	8.3	15163.1	189.1	236.4	18.9
Q3 2007	2.7	4.2	1.1	3.4	4.7	2.6	4.3	4.5	4.8	6.5	6.6	8.2	15317.8	183.6	249.1	30.8
Q4 2007	1.4	3.2	0.3	4.4	4.8	5.0	3.4	3.8	4.4	6.4	6.2	7.5	14753.6	178.1	251.5	31.1
Q1 2008	-2.7	-0.5	2.9	6.5	5.0	4.4	2.1	2.8	3.9	6.5	5.9	6.2	13284.1	171.2	239.9	32.2
Q2 2008	2.0	4.0	8.7	13.3	5.3	5.3	1.6	3.2	4.1	6.8	6.1	5.1	13016.4	163.9	223.9	24.1
Q3 2008	-1.9	0.8	-8.9	-5.1	6.0	6.3	1.5	3.1	4.1	7.2	6.3	5.0	11826.0	157.3	233.4	46.7
Q4 2008	-8.2	-7.7	2.6	-3.2	6.9	-8.9	0.3	2.2	3.7	9.4	5.8	4.1	9056.7	149.2	222.5	80.9

## Appendix 4: Baseline Scenarios - Domestic (Cont.)

<u>OBS</u>	<u>Real GDP growth</u>	<u>Nominal GDP growth</u>	<u>Real disposable income growth</u>	<u>Nominal disposable income growth</u>	<u>Unemployment rate</u>	<u>CPI inflation rate</u>	<u>3-month Treasury yield</u>	<u>5-year Treasury yield</u>	<u>10-year Treasury yield</u>	<u>BBB corporate yield</u>	<u>Mortgage rate</u>	<u>Prime rate</u>	<u>Dow Jones Total Stock Market Index</u>	<u>House Price Index</u>	<u>Commercial Real Estate Price Index</u>	<u>Market Volatility Index (VIX)</u>
Q1 2009	-5.4	-4.5	-0.8	-3.0	8.3	-2.7	0.2	1.9	3.2	9.0	5.1	3.3	8044.2	143.1	208.9	56.7
Q2 2009	-0.5	-1.2	2.9	4.7	9.3	2.1	0.2	2.3	3.7	8.2	5.0	3.3	9342.8	142.9	178.5	42.3
Q3 2009	1.3	1.2	-4.3	-1.9	9.6	3.5	0.2	2.5	3.8	6.8	5.1	3.3	10812.8	144.1	154.0	31.3
Q4 2009	3.9	5.2	-0.5	2.2	9.9	3.2	0.1	2.3	3.7	6.1	4.9	3.3	11385.1	145.0	155.2	30.7
Q1 2010	1.7	3.2	0.4	1.8	9.8	0.6	0.1	2.4	3.9	5.8	5.0	3.3	12032.5	145.5	149.8	27.3
Q2 2010	3.9	5.8	5.3	5.8	9.6	0.0	0.1	2.3	3.6	5.6	4.9	3.3	10645.8	144.4	164.5	45.8
Q3 2010	2.7	4.6	2.0	3.2	9.5	1.2	0.2	1.6	2.9	5.1	4.4	3.3	11814.0	141.3	166.9	32.9
Q4 2010	2.5	4.7	2.8	5.0	9.6	3.1	0.1	1.5	3.0	5.0	4.4	3.3	13131.5	140.0	172.7	23.5
Q1 2011	-1.5	0.2	5.0	8.2	9.0	4.2	0.1	2.1	3.5	5.4	4.8	3.3	13908.5	138.1	179.6	29.4
Q2 2011	2.9	6.0	-0.6	3.5	9.1	5.0	0.0	1.8	3.3	5.1	4.7	3.3	13843.5	137.3	177.0	22.7
Q3 2011	0.8	3.3	2.1	4.3	9.0	2.6	0.0	1.1	2.5	4.9	4.3	3.3	11676.5	137.3	177.0	48.0
Q4 2011	4.6	5.2	0.2	1.6	8.6	1.6	0.0	1.0	2.1	5.0	4.0	3.3	13019.3	137.1	188.4	45.5
Q1 2012	2.3	4.4	6.8	9.1	8.2	2.1	0.1	0.9	2.1	4.7	3.9	3.3	14627.5	139.3	188.2	23.0
Q2 2012	1.6	3.5	2.3	3.7	8.2	1.4	0.1	0.8	1.8	4.5	3.8	3.3	14100.2	142.5	189.4	26.7
Q3 2012	2.5	4.4	-0.4	0.9	8.0	1.7	0.1	0.7	1.6	4.2	3.6	3.3	14894.7	145.4	196.6	20.5
Q4 2012	0.1	1.6	11.8	13.8	7.8	2.4	0.1	0.7	1.7	3.9	3.4	3.3	14834.9	148.9	198.3	22.7
Q1 2013	2.7	4.2	-12.6	-11.7	7.7	1.2	0.1	0.8	1.9	4.0	3.5	3.3	16396.2	153.8	203.2	19.0
Q2 2013	1.8	2.9	3.8	4.3	7.5	0.4	0.1	0.9	2.0	4.1	3.7	3.3	16771.3	158.7	212.4	20.5
Q3 2013	4.5	6.2	2.0	3.7	7.2	2.2	0.0	1.5	2.7	4.9	4.4	3.3	17718.3	162.6	222.8	17.0
Q4 2013	3.5	5.0	0.2	1.2	7.0	1.1	0.1	1.4	2.8	4.8	4.3	3.3	19413.2	166.4	229.2	20.3
Q1 2014	-2.1	-0.8	3.4	4.8	6.7	1.9	0.0	1.6	2.8	4.6	4.4	3.3	19711.2	169.7	227.6	21.4
Q2 2014	4.6	6.8	4.4	6.8	6.2	3.0	0.0	1.7	2.7	4.3	4.2	3.3	20568.7	170.8	233.0	17.0
Q3 2014	3.1	3.8	2.7	3.6	6.1	1.1	0.0	1.7	2.5	4.2	4.1	3.3	20458.8	172.1	236.0	17.0
Q4 2014	3.0	3.9	2.7	3.8	5.9	1.6	0.1	1.9	2.7	4.3	4.3	3.3	20683.7	173.2	238.9	18.1
Q1 2015	2.9	4.2	2.9	4.4	5.8	1.9	0.1	2.0	2.9	4.6	4.5	3.3	20926.1	174.3	241.9	18.6
Q2 2015	2.9	4.5	2.7	4.3	5.7	2.0	0.3	2.3	3.1	4.8	4.7	3.4	21186.1	175.3	245.0	19.2
Q3 2015	2.9	4.7	2.7	4.4	5.6	2.1	0.6	2.5	3.3	5.0	4.9	3.7	21457.4	176.4	248.1	19.6
Q4 2015	2.9	4.9	2.8	4.6	5.4	2.1	0.9	2.7	3.5	5.1	5.1	4.0	21739.5	177.6	251.2	19.5
Q1 2016	2.9	4.7	2.9	4.7	5.4	2.1	1.4	3.0	3.6	5.3	5.2	4.5	22015.5	178.9	253.1	20.9
Q2 2016	2.9	4.8	2.9	4.7	5.4	2.2	1.8	3.2	3.7	5.4	5.4	4.9	22304.2	180.2	255.0	20.7
Q3 2016	2.9	4.9	2.9	4.8	5.3	2.2	2.1	3.4	3.9	5.5	5.5	5.2	22598.2	181.6	256.9	21.2
Q4 2016	2.9	4.9	2.9	4.8	5.3	2.3	2.4	3.6	4.0	5.6	5.6	5.4	22898.0	183.0	258.8	21.3
Q1 2017	2.7	4.8	3.1	5.1	5.3	2.3	2.6	3.7	4.1	5.8	5.7	5.7	23196.2	184.3	260.8	21.7
Q2 2017	2.7	4.8	2.8	4.9	5.3	2.3	2.8	3.8	4.2	5.8	5.8	5.9	23497.5	185.7	262.7	21.7
Q3 2017	2.6	4.8	2.8	4.8	5.3	2.4	3.0	3.9	4.2	5.9	5.9	6.1	23801.1	187.1	264.7	21.9
Q4 2017	2.6	4.7	2.7	4.8	5.3	2.4	3.2	4.0	4.3	6.0	6.0	6.2	24107.6	188.5	266.7	22.0

## Appendix 5: Baseline Scenarios - International

<b>OBS</b>	<b>Euro Area Real GDP Growth</b>	<b>Euro Area Inflation</b>	<b>Euro Area Bilateral Dollar Exchange Rate (USD/Euro)</b>	<b>Developing Asia Real GDP Growth</b>	<b>Developing Asia Inflation</b>	<b>Developing Asia Bilateral Dollar Exchange Rate (F/USD, Index)</b>	<b>Japan Real GDP Growth</b>	<b>Japan Inflation</b>	<b>Japan Bilateral Dollar Exchange Rate (Yen/USD)</b>	<b>UK Real GDP Growth</b>	<b>UK Inflation</b>	<b>UK Bilateral Dollar Exchange Rate (USD/Pound)</b>
Q1 2001	3.7	1.1	0.879	4.0	1.6	106.0	2.6	-1.2	125.5	4.6	0.1	1.419
Q2 2001	0.3	4.1	0.847	5.9	2.0	106.1	-0.7	-0.3	124.7	3.1	3.1	1.408
Q3 2001	0.3	1.4	0.910	4.9	1.2	106.4	-4.3	-1.1	119.2	2.1	1.0	1.469
Q4 2001	0.6	1.7	0.890	7.7	0.1	106.8	-0.5	-1.4	131.0	1.3	0.0	1.454
Q1 2002	0.7	3.0	0.872	6.8	0.3	107.3	-0.9	-2.7	132.7	1.8	1.9	1.425
Q2 2002	2.1	2.0	0.986	9.0	1.1	104.7	4.3	1.7	119.9	3.3	0.9	1.525
Q3 2002	1.4	1.6	0.988	5.5	1.4	105.5	2.6	-0.7	121.7	3.6	1.4	1.570
Q4 2002	0.3	2.4	1.049	6.2	0.9	104.4	1.5	-0.4	118.8	3.7	1.9	1.610
Q1 2003	-0.9	3.3	1.090	7.0	3.5	105.5	-2.2	-1.6	118.1	3.9	1.6	1.579
Q2 2003	0.3	0.3	1.150	2.6	1.1	104.0	5.2	1.7	119.9	5.7	0.3	1.653
Q3 2003	2.1	2.2	1.165	13.4	0.0	102.6	1.7	-0.7	111.4	5.2	1.7	1.662
Q4 2003	3.1	2.2	1.260	11.8	5.7	103.3	4.2	-0.6	107.1	4.1	1.7	1.784
Q1 2004	1.9	2.3	1.229	5.1	4.0	101.4	3.8	-0.9	104.2	1.3	1.3	1.840
Q2 2004	2.2	2.4	1.218	6.1	4.1	102.7	0.3	1.1	109.4	1.2	1.0	1.813
Q3 2004	1.4	2.0	1.242	8.6	4.0	102.7	0.6	0.1	110.2	0.5	1.1	1.809
Q4 2004	1.5	2.4	1.354	7.9	0.8	98.9	-1.1	1.7	102.7	1.6	2.4	1.916
Q1 2005	0.4	1.5	1.297	7.9	2.9	98.6	0.8	-2.7	107.2	2.9	2.6	1.889
Q2 2005	2.8	2.2	1.210	7.6	1.5	98.9	5.3	-1.2	110.9	4.2	1.9	1.793
Q3 2005	2.9	3.2	1.206	9.5	2.3	98.5	1.4	-1.3	113.3	4.2	2.7	1.770
Q4 2005	2.5	2.5	1.184	10.5	1.8	98.1	0.7	0.7	117.9	5.5	1.4	1.719
Q1 2006	3.4	1.7	1.214	12.2	2.3	96.7	1.8	1.3	117.5	2.4	1.9	1.739
Q2 2006	4.8	2.5	1.278	7.8	3.2	96.6	1.7	-0.1	114.5	2.0	3.0	1.849
Q3 2006	2.5	2.0	1.269	8.8	2.1	96.2	-0.3	0.5	118.0	0.7	3.3	1.872
Q4 2006	4.4	0.9	1.320	10.7	3.7	94.5	5.2	-0.4	119.0	3.0	2.6	1.959
Q1 2007	3.2	2.2	1.337	14.8	3.6	93.9	4.1	-0.2	117.6	3.1	2.6	1.969
Q2 2007	2.3	2.3	1.352	10.1	4.9	91.9	0.5	0.0	123.4	2.4	1.6	2.006
Q3 2007	2.0	2.1	1.422	8.8	7.5	90.6	-1.5	0.1	115.0	3.4	0.3	2.039
Q4 2007	1.9	4.9	1.460	10.8	6.1	89.4	3.5	2.2	111.7	1.9	4.0	1.984
Q1 2008	2.7	4.2	1.581	8.2	8.1	88.0	2.7	1.3	99.9	1.3	3.7	1.986
Q2 2008	-1.6	3.2	1.575	7.6	6.3	88.6	-4.7	1.6	106.2	-0.9	5.6	1.991
Q3 2008	-2.3	3.2	1.408	4.2	2.9	91.4	-4.1	3.6	105.9	-6.5	5.9	1.780
Q4 2008	-7.1	-1.4	1.392	0.7	-0.9	92.2	-12.5	-2.2	90.8	-8.6	0.6	1.462

## Appendix 5: Baseline Scenarios – International (Cont.)

<b>OBS</b>	<b>Euro Area Real GDP Growth</b>	<b>Euro Area Inflation</b>	<b>Euro Area Bilateral Dollar Exchange Rate (USD/Euro)</b>	<b>Developing Asia Real GDP Growth</b>	<b>Developing Asia Inflation</b>	<b>Developing Asia Bilateral Dollar Exchange Rate (F/USD, Index)</b>	<b>Japan Real GDP Growth</b>	<b>Japan Inflation</b>	<b>Japan Bilateral Dollar Exchange Rate (Yen/USD)</b>	<b>UK Real GDP Growth</b>	<b>UK Inflation</b>	<b>UK Bilateral Dollar Exchange Rate (USD/Pound)</b>
Q1 2009	-10.8	-1.1	1.326	3.3	-1.6	94.4	-15.0	-3.6	99.2	-7.0	-0.1	1.430
Q2 2009	-1.1	0.0	1.402	15.4	2.3	92.3	7.1	-1.7	96.4	-1.0	2.0	1.645
Q3 2009	1.3	1.1	1.463	12.5	4.0	91.3	0.2	-1.2	89.5	0.8	3.7	1.600
Q4 2009	1.8	1.6	1.433	8.3	5.2	90.7	7.1	-1.6	93.1	1.6	3.1	1.617
Q1 2010	2.0	1.7	1.353	9.2	4.3	89.8	6.1	0.8	93.4	2.1	4.0	1.519
Q2 2010	4.1	2.0	1.229	9.3	3.4	91.0	4.4	-1.0	88.5	4.0	3.0	1.495
Q3 2010	1.3	1.7	1.360	8.7	3.9	88.4	5.8	-1.9	83.5	2.6	2.5	1.573
Q4 2010	2.1	2.6	1.327	8.4	7.8	87.4	-2.2	1.1	81.7	0.1	4.0	1.539
Q1 2011	3.7	3.6	1.418	9.2	6.5	86.4	-6.9	-0.4	82.8	2.2	6.6	1.605
Q2 2011	0.1	3.2	1.452	7.1	5.8	85.3	-2.7	-0.4	80.6	0.9	4.5	1.607
Q3 2011	0.0	1.5	1.345	6.9	5.7	87.4	10.8	0.4	77.0	2.8	4.0	1.562
Q4 2011	-1.1	3.4	1.297	6.3	3.0	87.2	0.6	-0.8	77.0	-0.1	3.3	1.554
Q1 2012	-0.4	2.6	1.333	5.8	3.0	86.3	4.1	1.8	82.4	0.3	1.9	1.599
Q2 2012	-1.0	2.4	1.267	6.0	3.9	88.0	-2.2	-0.7	79.8	-0.7	1.9	1.569
Q3 2012	-0.4	1.8	1.286	6.5	2.3	86.2	-2.7	-1.7	77.9	3.4	2.7	1.613
Q4 2012	-1.9	2.3	1.319	7.5	3.7	85.9	-0.5	-0.1	86.6	-1.3	3.9	1.626
Q1 2013	-1.3	0.8	1.282	5.4	4.1	86.2	5.1	0.0	94.2	2.1	2.5	1.519
Q2 2013	1.3	0.7	1.301	6.1	3.0	87.1	3.4	0.8	99.2	2.7	1.8	1.521
Q3 2013	0.6	1.6	1.354	7.7	3.5	86.5	1.8	3.0	98.3	3.5	2.7	1.618
Q4 2013	1.0	0.1	1.378	6.9	4.0	85.6	-0.5	1.9	105.3	2.5	1.3	1.657
Q1 2014	1.2	0.2	1.378	5.1	1.4	86.7	6.0	0.4	103.0	3.0	1.2	1.668
Q2 2014	0.3	0.4	1.369	6.9	2.8	86.4	-7.1	9.4	101.3	3.7	1.8	1.711
Q3 2014	1.0	0.6	1.263	6.5	3.1	86.9	1.0	1.6	109.7	2.9	1.6	1.622
Q4 2014	1.2	1.0	1.271	6.5	3.2	86.8	1.2	2.2	107.6	2.8	1.9	1.630
Q1 2015	1.4	1.1	1.262	6.4	3.2	86.7	1.3	2.0	107.6	2.7	1.9	1.628
Q2 2015	1.5	1.1	1.247	6.3	3.2	86.7	1.3	2.0	108.3	2.5	1.9	1.620
Q3 2015	1.6	1.2	1.230	6.3	3.2	86.6	1.3	2.1	109.5	2.5	1.9	1.610
Q4 2015	1.7	1.3	1.213	6.3	3.3	86.5	1.3	2.2	110.6	2.4	2.0	1.599
Q1 2016	1.7	1.3	1.212	6.3	3.4	85.6	1.2	2.4	110.7	2.3	2.1	1.596
Q2 2016	1.7	1.4	1.214	6.3	3.5	84.6	1.2	2.5	110.5	2.3	2.1	1.594
Q3 2016	1.8	1.4	1.218	6.3	3.5	83.7	1.2	2.4	110.2	2.3	2.2	1.594
Q4 2016	1.7	1.5	1.222	6.3	3.5	82.8	1.2	2.2	109.8	2.3	2.1	1.594
Q1 2017	1.7	1.5	1.228	6.2	3.4	82.5	1.2	1.9	109.2	2.3	2.1	1.597
Q2 2017	1.7	1.5	1.234	6.1	3.4	82.2	1.2	1.7	108.7	2.3	2.1	1.600
Q3 2017	1.7	1.5	1.239	6.1	3.3	82.0	1.2	1.6	108.2	2.3	2.0	1.604
Q4 2017	1.7	1.5	1.244	6.1	3.4	81.8	1.2	1.7	107.8	2.3	2.1	1.607

## Appendix 6: Adverse Scenarios - Domestic

<b>OBS</b>	<b>Real GDP growth</b>	<b>Nominal GDP growth</b>	<b>Real disposable income growth</b>	<b>Nominal disposable income growth</b>	<b>Unemployment rate</b>	<b>CPI inflation rate</b>	<b>3-month Treasury yield</b>	<b>5-year Treasury yield</b>	<b>10-year Treasury yield</b>	<b>BBB corporate yield</b>	<b>Mortgage rate</b>	<b>Prime rate</b>	<b>Dow Jones Total Stock Market Index</b>	<b>House Price Index</b>	<b>Commercial Real Estate Price Index</b>	<b>Market Volatility Index (VIX)</b>
Q1 2001	-1.1	1.4	3.5	6.3	4.2	3.9	4.8	4.9	5.3	7.4	7.0	8.6	10645.9	113.2	139.5	32.8
Q2 2001	2.1	5.1	-0.3	1.6	4.4	2.8	3.7	4.9	5.5	7.5	7.1	7.3	11407.2	115.2	138.6	34.7
Q3 2001	-1.3	0.0	9.8	10.1	4.8	1.1	3.2	4.6	5.3	7.3	7.0	6.6	9563.0	117.5	141.0	43.7
Q4 2001	1.1	2.3	-4.9	-4.6	5.5	-0.3	1.9	4.2	5.1	7.2	6.8	5.2	10707.7	119.8	135.6	35.3
Q1 2002	3.7	5.1	10.1	10.9	5.7	1.3	1.7	4.5	5.4	7.6	7.0	4.8	10775.7	122.1	137.4	26.1
Q2 2002	2.2	3.8	2.0	5.2	5.8	3.2	1.7	4.5	5.4	7.6	6.8	4.8	9384.0	125.4	135.8	28.4
Q3 2002	2.0	3.8	-0.5	1.5	5.7	2.2	1.6	3.4	4.5	7.3	6.3	4.8	7773.6	128.7	138.7	45.1
Q4 2002	0.3	2.4	1.9	3.8	5.9	2.4	1.3	3.1	4.3	7.0	6.1	4.5	8343.2	131.3	142.5	42.6
Q1 2003	2.1	4.6	1.1	4.0	5.9	4.2	1.2	2.9	4.2	6.5	5.8	4.3	8051.9	134.1	147.9	34.7
Q2 2003	3.8	5.1	5.9	6.3	6.1	-0.7	1.0	2.6	3.8	5.7	5.5	4.2	9342.4	137.0	149.2	29.1
Q3 2003	6.9	9.3	6.7	9.3	6.1	3.0	0.9	3.1	4.4	6.0	6.0	4.0	9649.7	141.1	147.3	22.7
Q4 2003	4.8	6.8	1.6	3.3	5.8	1.5	0.9	3.2	4.4	5.8	5.9	4.0	10799.6	146.0	145.7	21.1
Q1 2004	2.3	5.9	2.9	6.1	5.7	3.4	0.9	3.0	4.1	5.5	5.6	4.0	11039.4	151.8	152.9	21.6
Q2 2004	3.0	6.6	4.0	7.0	5.6	3.2	1.1	3.7	4.7	6.1	6.2	4.0	11144.6	158.0	160.4	20.0
Q3 2004	3.7	6.3	2.1	4.5	5.4	2.6	1.5	3.5	4.4	5.8	5.9	4.4	10893.8	163.4	171.8	19.3
Q4 2004	3.5	6.4	5.1	8.5	5.4	4.4	2.0	3.5	4.3	5.4	5.7	4.9	11951.5	169.4	175.8	16.6
Q1 2005	4.3	8.3	-3.8	-1.8	5.3	2.0	2.5	3.9	4.4	5.4	5.8	5.4	11637.3	177.6	175.8	14.6
Q2 2005	2.1	5.1	3.2	6.0	5.1	2.7	2.9	3.9	4.2	5.5	5.7	5.9	11856.7	185.0	182.3	17.7
Q3 2005	3.4	7.3	2.1	6.6	5.0	6.2	3.4	4.0	4.3	5.5	5.8	6.4	12282.9	190.8	187.1	14.2
Q4 2005	2.3	5.4	3.4	6.6	5.0	3.8	3.8	4.4	4.6	5.9	6.2	7.0	12497.2	195.5	195.4	16.5
Q1 2006	4.9	8.2	9.5	11.5	4.7	2.1	4.4	4.6	4.7	6.0	6.2	7.4	13121.6	198.7	200.0	14.6
Q2 2006	1.2	4.5	0.6	3.7	4.6	3.7	4.7	5.0	5.2	6.5	6.6	7.9	12808.9	197.8	209.0	23.8
Q3 2006	0.4	3.2	1.2	4.1	4.6	3.8	4.9	4.8	5.0	6.4	6.6	8.3	13322.5	196.5	218.6	18.6
Q4 2006	3.2	4.6	5.3	4.6	4.4	-1.6	4.9	4.6	4.7	6.1	6.2	8.3	14215.8	196.5	217.3	12.7
Q1 2007	0.2	4.8	2.6	6.5	4.5	4.0	5.0	4.6	4.8	6.1	6.2	8.3	14354.0	194.0	227.1	19.6
Q2 2007	3.1	5.4	0.8	4.0	4.5	4.6	4.7	4.7	4.9	6.3	6.4	8.3	15163.1	189.1	236.4	18.9
Q3 2007	2.7	4.2	1.1	3.4	4.7	2.6	4.3	4.5	4.8	6.5	6.6	8.2	15317.8	183.6	249.1	30.8
Q4 2007	1.4	3.2	0.3	4.4	4.8	5.0	3.4	3.8	4.4	6.4	6.2	7.5	14753.6	178.1	251.5	31.1
Q1 2008	-2.7	-0.5	2.9	6.5	5.0	4.4	2.1	2.8	3.9	6.5	5.9	6.2	13284.1	171.2	239.9	32.2
Q2 2008	2.0	4.0	8.7	13.3	5.3	5.3	1.6	3.2	4.1	6.8	6.1	5.1	13016.4	163.9	223.9	24.1
Q3 2008	-1.9	0.8	-8.9	-5.1	6.0	6.3	1.5	3.1	4.1	7.2	6.3	5.0	11826.0	157.3	233.4	46.7
Q4 2008	-8.2	-7.7	2.6	-3.2	6.9	-8.9	0.3	2.2	3.7	9.4	5.8	4.1	9056.7	149.2	222.5	80.9

## Appendix 6: Adverse Scenarios - Domestic (Cont.)

<b>OBS</b>	<b>Real GDP growth</b>	<b>Nominal GDP growth</b>	<b>Real disposable income growth</b>	<b>Nominal disposable income growth</b>	<b>Unemployment rate</b>	<b>CPI inflation rate</b>	<b>3-month Treasury yield</b>	<b>5-year Treasury yield</b>	<b>10-year Treasury yield</b>	<b>BBB corporate yield</b>	<b>Mortgage rate</b>	<b>Prime rate</b>	<b>Dow Jones Total Stock Market Index</b>	<b>House Price Index</b>	<b>Commercial Real Estate Price Index</b>	<b>Market Volatility Index (VIX)</b>
Q1 2009	-5.4	-4.5	-0.8	-3.0	8.3	-2.7	0.2	1.9	3.2	9.0	5.1	3.3	8044.2	143.1	208.9	56.7
Q2 2009	-0.5	-1.2	2.9	4.7	9.3	2.1	0.2	2.3	3.7	8.2	5.0	3.3	9342.8	142.9	178.5	42.3
Q3 2009	1.3	1.2	-4.3	-1.9	9.6	3.5	0.2	2.5	3.8	6.8	5.1	3.3	10812.8	144.1	154.0	31.3
Q4 2009	3.9	5.2	-0.5	2.2	9.9	3.2	0.1	2.3	3.7	6.1	4.9	3.3	11385.1	145.0	155.2	30.7
Q1 2010	1.7	3.2	0.4	1.8	9.8	0.6	0.1	2.4	3.9	5.8	5.0	3.3	12032.5	145.5	149.8	27.3
Q2 2010	3.9	5.8	5.3	5.8	9.6	0.0	0.1	2.3	3.6	5.6	4.9	3.3	10645.8	144.4	164.5	45.8
Q3 2010	2.7	4.6	2.0	3.2	9.5	1.2	0.2	1.6	2.9	5.1	4.4	3.3	11814.0	141.3	166.9	32.9
Q4 2010	2.5	4.7	2.8	5.0	9.6	3.1	0.1	1.5	3.0	5.0	4.4	3.3	13131.5	140.0	172.7	23.5
Q1 2011	-1.5	0.2	5.0	8.2	9.0	4.2	0.1	2.1	3.5	5.4	4.8	3.3	13908.5	138.1	179.6	29.4
Q2 2011	2.9	6.0	-0.6	3.5	9.1	5.0	0.0	1.8	3.3	5.1	4.7	3.3	13843.5	137.3	177.0	22.7
Q3 2011	0.8	3.3	2.1	4.3	9.0	2.6	0.0	1.1	2.5	4.9	4.3	3.3	11676.5	137.3	177.0	48.0
Q4 2011	4.6	5.2	0.2	1.6	8.6	1.6	0.0	1.0	2.1	5.0	4.0	3.3	13019.3	137.1	188.4	45.5
Q1 2012	2.3	4.4	6.8	9.1	8.2	2.1	0.1	0.9	2.1	4.7	3.9	3.3	14627.5	139.3	188.2	23.0
Q2 2012	1.6	3.5	2.3	3.7	8.2	1.4	0.1	0.8	1.8	4.5	3.8	3.3	14100.2	142.5	189.4	26.7
Q3 2012	2.5	4.4	-0.4	0.9	8.0	1.7	0.1	0.7	1.6	4.2	3.6	3.3	14894.7	145.4	196.6	20.5
Q4 2012	0.1	1.6	11.8	13.8	7.8	2.4	0.1	0.7	1.7	3.9	3.4	3.3	14834.9	148.9	198.3	22.7
Q1 2013	2.7	4.2	-12.6	-11.7	7.7	1.2	0.1	0.8	1.9	4.0	3.5	3.3	16396.2	153.8	203.2	19.0
Q2 2013	1.8	2.9	3.8	4.3	7.5	0.4	0.1	0.9	2.0	4.1	3.7	3.3	16771.3	158.7	212.4	20.5
Q3 2013	4.5	6.2	2.0	3.7	7.2	2.2	0.0	1.5	2.7	4.9	4.4	3.3	17718.3	162.6	222.8	17.0
Q4 2013	3.5	5.0	0.2	1.2	7.0	1.1	0.1	1.4	2.8	4.8	4.3	3.3	19413.2	166.4	229.2	20.3
Q1 2014	-2.1	-0.8	3.4	4.8	6.7	1.9	0.0	1.6	2.8	4.6	4.4	3.3	19711.2	169.7	227.6	21.4
Q2 2014	4.6	6.8	4.4	6.8	6.2	3.0	0.0	1.7	2.7	4.3	4.2	3.3	20568.7	170.8	233.0	17.0
Q3 2014	3.1	3.8	2.7	3.6	6.1	1.1	0.0	1.7	2.5	4.2	4.1	3.3	20458.8	172.1	236.0	17.0
Q4 2014	-0.6	1.1	0.0	2.0	6.4	2.5	0.7	2.6	3.3	5.7	5.1	3.9	19418.4	170.8	238.9	28.9
Q1 2015	-1.3	0.9	-0.4	2.2	6.9	3.0	1.2	2.9	3.7	6.5	5.7	4.3	18508.7	168.0	235.3	32.9
Q2 2015	-0.2	2.8	-0.3	2.7	7.2	3.5	1.6	3.3	4.0	6.9	6.1	4.7	17689.2	164.8	228.1	33.2
Q3 2015	0.2	3.8	-0.1	3.5	7.4	4.0	2.1	3.7	4.3	7.0	6.3	5.2	16983.8	161.2	220.8	27.3
Q4 2015	0.3	4.1	0.0	3.6	7.6	4.0	2.6	4.0	4.6	7.1	6.6	5.7	16257.8	157.7	214.8	24.9
Q1 2016	0.8	4.3	1.0	4.7	7.8	4.0	3.1	4.3	4.8	7.4	6.8	6.2	15737.3	154.5	207.7	24.6
Q2 2016	1.2	4.9	1.1	4.8	7.9	4.0	3.6	4.5	5.0	7.5	7.0	6.7	15430.8	151.7	202.9	22.8
Q3 2016	1.7	5.4	1.4	5.1	7.9	4.0	4.0	4.8	5.2	7.5	7.1	7.1	15188.2	150.0	199.6	21.4
Q4 2016	1.8	5.4	1.5	5.2	8.0	4.0	4.4	5.0	5.4	7.6	7.3	7.5	14992.3	148.9	197.7	20.5
Q1 2017	1.8	5.4	1.8	5.5	8.0	4.0	4.7	5.2	5.5	7.6	7.4	7.8	14866.4	148.6	196.6	19.8
Q2 2017	1.9	5.5	1.6	5.2	8.0	3.9	5.0	5.3	5.7	7.7	7.5	8.0	14791.4	148.9	196.5	19.4
Q3 2017	2.0	5.5	1.6	5.1	8.0	3.8	5.2	5.5	5.8	7.7	7.6	8.2	14807.1	149.5	196.6	19.1
Q4 2017	2.2	5.5	1.7	5.1	8.0	3.6	5.3	5.5	5.8	7.7	7.6	8.4	15005.9	150.3	197.1	19.2

## Appendix 7: Adverse Scenarios - International

<u>OBS</u>	<u>Euro Area Real GDP Growth</u>	<u>Euro Area Inflation</u>	<u>Euro Area Bilateral Dollar Exchange Rate (USD/Euro)</u>	<u>Developing Asia Real GDP Growth</u>	<u>Developing Asia Inflation</u>	<u>Developing Asia Bilateral Dollar Exchange Rate (F/USD, Index)</u>	<u>Japan Real GDP Growth</u>	<u>Japan Inflation</u>	<u>Japan Bilateral Dollar Exchange Rate (Yen/USD)</u>	<u>UK Real GDP Growth</u>	<u>UK Inflation</u>	<u>UK Bilateral Dollar Exchange Rate (USD/Pound)</u>
Q1 2001	3.7	1.1	0.879	4.0	1.6	106.0	2.6	-1.2	125.5	4.6	0.1	1.419
Q2 2001	0.3	4.1	0.847	5.9	2.0	106.1	-0.7	-0.3	124.7	3.1	3.1	1.408
Q3 2001	0.3	1.4	0.910	4.9	1.2	106.4	-4.3	-1.1	119.2	2.1	1.0	1.469
Q4 2001	0.6	1.7	0.890	7.7	0.1	106.8	-0.5	-1.4	131.0	1.3	0.0	1.454
Q1 2002	0.7	3.0	0.872	6.8	0.3	107.3	-0.9	-2.7	132.7	1.8	1.9	1.425
Q2 2002	2.1	2.0	0.986	9.0	1.1	104.7	4.3	1.7	119.9	3.3	0.9	1.525
Q3 2002	1.4	1.6	0.988	5.5	1.4	105.5	2.6	-0.7	121.7	3.6	1.4	1.570
Q4 2002	0.3	2.4	1.049	6.2	0.9	104.4	1.5	-0.4	118.8	3.7	1.9	1.610
Q1 2003	-0.9	3.3	1.090	7.0	3.5	105.5	-2.2	-1.6	118.1	3.9	1.6	1.579
Q2 2003	0.3	0.3	1.150	2.6	1.1	104.0	5.2	1.7	119.9	5.7	0.3	1.653
Q3 2003	2.1	2.2	1.165	13.4	0.0	102.6	1.7	-0.7	111.4	5.2	1.7	1.662
Q4 2003	3.1	2.2	1.260	11.8	5.7	103.3	4.2	-0.6	107.1	4.1	1.7	1.784
Q1 2004	1.9	2.3	1.229	5.1	4.0	101.4	3.8	-0.9	104.2	1.3	1.3	1.840
Q2 2004	2.2	2.4	1.218	6.1	4.1	102.7	0.3	1.1	109.4	1.2	1.0	1.813
Q3 2004	1.4	2.0	1.242	8.6	4.0	102.7	0.6	0.1	110.2	0.5	1.1	1.809
Q4 2004	1.5	2.4	1.354	7.9	0.8	98.9	-1.1	1.7	102.7	1.6	2.4	1.916
Q1 2005	0.4	1.5	1.297	7.9	2.9	98.6	0.8	-2.7	107.2	2.9	2.6	1.889
Q2 2005	2.8	2.2	1.210	7.6	1.5	98.9	5.3	-1.2	110.9	4.2	1.9	1.793
Q3 2005	2.9	3.2	1.206	9.5	2.3	98.5	1.4	-1.3	113.3	4.2	2.7	1.770
Q4 2005	2.5	2.5	1.184	10.5	1.8	98.1	0.7	0.7	117.9	5.5	1.4	1.719
Q1 2006	3.4	1.7	1.214	12.2	2.3	96.7	1.8	1.3	117.5	2.4	1.9	1.739
Q2 2006	4.8	2.5	1.278	7.8	3.2	96.6	1.7	-0.1	114.5	2.0	3.0	1.849
Q3 2006	2.5	2.0	1.269	8.8	2.1	96.2	-0.3	0.5	118.0	0.7	3.3	1.872
Q4 2006	4.4	0.9	1.320	10.7	3.7	94.5	5.2	-0.4	119.0	3.0	2.6	1.959
Q1 2007	3.2	2.2	1.337	14.8	3.6	93.9	4.1	-0.2	117.6	3.1	2.6	1.969
Q2 2007	2.3	2.3	1.352	10.1	4.9	91.9	0.5	0.0	123.4	2.4	1.6	2.006
Q3 2007	2.0	2.1	1.422	8.8	7.5	90.6	-1.5	0.1	115.0	3.4	0.3	2.039
Q4 2007	1.9	4.9	1.460	10.8	6.1	89.4	3.5	2.2	111.7	1.9	4.0	1.984
Q1 2008	2.7	4.2	1.581	8.2	8.1	88.0	2.7	1.3	99.9	1.3	3.7	1.986
Q2 2008	-1.6	3.2	1.575	7.6	6.3	88.6	-4.7	1.6	106.2	-0.9	5.6	1.991
Q3 2008	-2.3	3.2	1.408	4.2	2.9	91.4	-4.1	3.6	105.9	-6.5	5.9	1.780
Q4 2008	-7.1	-1.4	1.392	0.7	-0.9	92.2	-12.5	-2.2	90.8	-8.6	0.6	1.462

## Appendix 7: Adverse Scenarios - International (Cont.)

OBS	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)	UK Real GDP Growth	UK Inflation	UK Bilateral Dollar Exchange Rate (USD/Pound)
Q1 2009	-10.8	-1.1	1.326	3.3	-1.6	94.4	-15.0	-3.6	99.2	-7.0	-0.1	1.430
Q2 2009	-1.1	0.0	1.402	15.4	2.3	92.3	7.1	-1.7	96.4	-1.0	2.0	1.645
Q3 2009	1.3	1.1	1.463	12.5	4.0	91.3	0.2	-1.2	89.5	0.8	3.7	1.600
Q4 2009	1.8	1.6	1.433	8.3	5.2	90.7	7.1	-1.6	93.1	1.6	3.1	1.617
Q1 2010	2.0	1.7	1.353	9.2	4.3	89.8	6.1	0.8	93.4	2.1	4.0	1.519
Q2 2010	4.1	2.0	1.229	9.3	3.4	91.0	4.4	-1.0	88.5	4.0	3.0	1.495
Q3 2010	1.3	1.7	1.360	8.7	3.9	88.4	5.8	-1.9	83.5	2.6	2.5	1.573
Q4 2010	2.1	2.6	1.327	8.4	7.8	87.4	-2.2	1.1	81.7	0.1	4.0	1.539
Q1 2011	3.7	3.6	1.418	9.2	6.5	86.4	-6.9	-0.4	82.8	2.2	6.6	1.605
Q2 2011	0.1	3.2	1.452	7.1	5.8	85.3	-2.7	-0.4	80.6	0.9	4.5	1.607
Q3 2011	0.0	1.5	1.345	6.9	5.7	87.4	10.8	0.4	77.0	2.8	4.0	1.562
Q4 2011	-1.1	3.4	1.297	6.3	3.0	87.2	0.6	-0.8	77.0	-0.1	3.3	1.554
Q1 2012	-0.4	2.6	1.333	5.8	3.0	86.3	4.1	1.8	82.4	0.3	1.9	1.599
Q2 2012	-1.0	2.4	1.267	6.0	3.9	88.0	-2.2	-0.7	79.8	-0.7	1.9	1.569
Q3 2012	-0.4	1.8	1.286	6.5	2.3	86.2	-2.7	-1.7	77.9	3.4	2.7	1.613
Q4 2012	-1.9	2.3	1.319	7.5	3.7	85.9	-0.5	-0.1	86.6	-1.3	3.9	1.626
Q1 2013	-1.3	0.8	1.282	5.4	4.1	86.2	5.1	0.0	94.2	2.1	2.5	1.519
Q2 2013	1.3	0.7	1.301	6.1	3.0	87.1	3.4	0.8	99.2	2.7	1.8	1.521
Q3 2013	0.6	1.6	1.354	7.7	3.5	86.5	1.8	3.0	98.3	3.5	2.7	1.618
Q4 2013	1.0	0.1	1.378	6.9	4.0	85.6	-0.5	1.9	105.3	2.5	1.3	1.657
Q1 2014	1.2	0.2	1.378	5.1	1.4	86.7	6.0	0.4	103.0	3.0	1.2	1.668
Q2 2014	0.3	0.4	1.369	6.9	2.8	86.4	-7.1	9.4	101.3	3.7	1.8	1.711
Q3 2014	1.0	0.6	1.263	6.5	3.1	86.9	1.0	1.6	109.7	2.9	1.6	1.622
Q4 2014	-4.1	-0.4	1.265	2.0	1.6	89.3	-4.6	-1.6	97.6	-1.6	0.1	1.680
Q1 2015	-3.3	-0.4	1.257	3.9	1.3	89.3	-6.0	-1.4	97.7	-1.7	0.1	1.676
Q2 2015	-1.7	-0.4	1.243	5.3	1.1	89.0	-5.0	-1.6	98.4	-0.9	0.1	1.668
Q3 2015	-0.5	-0.1	1.226	6.1	1.1	88.7	-3.7	-1.2	99.5	-0.1	0.3	1.656
Q4 2015	0.4	0.1	1.210	6.4	1.4	88.2	-2.5	-0.7	100.5	0.6	0.6	1.645
Q1 2016	1.1	0.4	1.209	6.5	1.6	86.8	-1.4	-0.2	100.7	1.2	0.9	1.641
Q2 2016	1.6	0.6	1.212	6.5	1.9	85.5	-0.5	0.3	100.6	1.7	1.2	1.638
Q3 2016	1.9	0.8	1.217	6.5	2.1	84.2	0.2	0.5	100.3	2.2	1.4	1.636
Q4 2016	2.1	0.9	1.222	6.5	2.2	82.9	0.7	0.6	100.2	2.5	1.6	1.633
Q1 2017	2.1	1.0	1.229	6.5	2.3	82.4	1.2	0.5	99.9	2.7	1.6	1.634
Q2 2017	2.1	1.1	1.236	6.5	2.4	81.9	1.4	0.6	99.6	2.8	1.7	1.634
Q3 2017	2.0	1.1	1.242	6.5	2.5	81.6	1.6	0.7	99.5	2.8	1.8	1.634
Q4 2017	2.0	1.2	1.248	6.6	2.6	81.3	1.7	0.9	99.3	2.8	1.8	1.635

## Appendix 8: Severely Adverse Scenarios – Domestic

OBS	Real GDP	Nominal GDP	Real	Nominal	Unemployment	CPI inflation	3-month	5-year	10-year	BBB corporate	Mortgage rate	Prime rate	Dow Jones	House Price	Commercial	Market
	growth	growth	disposable income growth	disposable income growth	rate	rate	Treasury yield	Treasury yield	Treasury yield	yield			Total Stock Market Index	Index	Real Estate Price Index	Volatility Index (VIX)
Q1 2001	-1.1	1.4	3.5	6.3	4.2	3.9	4.8	4.9	5.3	7.4	7.0	8.6	10645.9	113.2	139.5	32.8
Q2 2001	2.1	5.1	-0.3	1.6	4.4	2.8	3.7	4.9	5.5	7.5	7.1	7.3	11407.2	115.2	138.6	34.7
Q3 2001	-1.3	0.0	9.8	10.1	4.8	1.1	3.2	4.6	5.3	7.3	7.0	6.6	9563.0	117.5	141.0	43.7
Q4 2001	1.1	2.3	-4.9	-4.6	5.5	-0.3	1.9	4.2	5.1	7.2	6.8	5.2	10707.7	119.8	135.6	35.3
Q1 2002	3.7	5.1	10.1	10.9	5.7	1.3	1.7	4.5	5.4	7.6	7.0	4.8	10775.7	122.1	137.4	26.1
Q2 2002	2.2	3.8	2.0	5.2	5.8	3.2	1.7	4.5	5.4	7.6	6.8	4.8	9384.0	125.4	135.8	28.4
Q3 2002	2.0	3.8	-0.5	1.5	5.7	2.2	1.6	3.4	4.5	7.3	6.3	4.8	7773.6	128.7	138.7	45.1
Q4 2002	0.3	2.4	1.9	3.8	5.9	2.4	1.3	3.1	4.3	7.0	6.1	4.5	8343.2	131.3	142.5	42.6
Q1 2003	2.1	4.6	1.1	4.0	5.9	4.2	1.2	2.9	4.2	6.5	5.8	4.3	8051.9	134.1	147.9	34.7
Q2 2003	3.8	5.1	5.9	6.3	6.1	-0.7	1.0	2.6	3.8	5.7	5.5	4.2	9342.4	137.0	149.2	29.1
Q3 2003	6.9	9.3	6.7	9.3	6.1	3.0	0.9	3.1	4.4	6.0	6.0	4.0	9649.7	141.1	147.3	22.7
Q4 2003	4.8	6.8	1.6	3.3	5.8	1.5	0.9	3.2	4.4	5.8	5.9	4.0	10799.6	146.0	145.7	21.1
Q1 2004	2.3	5.9	2.9	6.1	5.7	3.4	0.9	3.0	4.1	5.5	5.6	4.0	11039.4	151.8	152.9	21.6
Q2 2004	3.0	6.6	4.0	7.0	5.6	3.2	1.1	3.7	4.7	6.1	6.2	4.0	11144.6	158.0	160.4	20.0
Q3 2004	3.7	6.3	2.1	4.5	5.4	2.6	1.5	3.5	4.4	5.8	5.9	4.4	10893.8	163.4	171.8	19.3
Q4 2004	3.5	6.4	5.1	8.5	5.4	4.4	2.0	3.5	4.3	5.4	5.7	4.9	11951.5	169.4	175.8	16.6
Q1 2005	4.3	8.3	-3.8	-1.8	5.3	2.0	2.5	3.9	4.4	5.4	5.8	5.4	11637.3	177.6	175.8	14.6
Q2 2005	2.1	5.1	3.2	6.0	5.1	2.7	2.9	3.9	4.2	5.5	5.7	5.9	11856.7	185.0	182.3	17.7
Q3 2005	3.4	7.3	2.1	6.6	5.0	6.2	3.4	4.0	4.3	5.5	5.8	6.4	12282.9	190.8	187.1	14.2
Q4 2005	2.3	5.4	3.4	6.6	5.0	3.8	3.8	4.4	4.6	5.9	6.2	7.0	12497.2	195.5	195.4	16.5
Q1 2006	4.9	8.2	9.5	11.5	4.7	2.1	4.4	4.6	4.7	6.0	6.2	7.4	13121.6	198.7	200.0	14.6
Q2 2006	1.2	4.5	0.6	3.7	4.6	3.7	4.7	5.0	5.2	6.5	6.6	7.9	12808.9	197.8	209.0	23.8
Q3 2006	0.4	3.2	1.2	4.1	4.6	3.8	4.9	4.8	5.0	6.4	6.6	8.3	13322.5	196.5	218.6	18.6
Q4 2006	3.2	4.6	5.3	4.6	4.4	-1.6	4.9	4.6	4.7	6.1	6.2	8.3	14215.8	196.5	217.3	12.7
Q1 2007	0.2	4.8	2.6	6.5	4.5	4.0	5.0	4.6	4.8	6.1	6.2	8.3	14354.0	194.0	227.1	19.6
Q2 2007	3.1	5.4	0.8	4.0	4.5	4.6	4.7	4.7	4.9	6.3	6.4	8.3	15163.1	189.1	236.4	18.9
Q3 2007	2.7	4.2	1.1	3.4	4.7	2.6	4.3	4.5	4.8	6.5	6.6	8.2	15317.8	183.6	249.1	30.8
Q4 2007	1.4	3.2	0.3	4.4	4.8	5.0	3.4	3.8	4.4	6.4	6.2	7.5	14753.6	178.1	251.5	31.1
Q1 2008	-2.7	-0.5	2.9	6.5	5.0	4.4	2.1	2.8	3.9	6.5	5.9	6.2	13284.1	171.2	239.9	32.2
Q2 2008	2.0	4.0	8.7	13.3	5.3	5.3	1.6	3.2	4.1	6.8	6.1	5.1	13016.4	163.9	223.9	24.1
Q3 2008	-1.9	0.8	-8.9	-5.1	6.0	6.3	1.5	3.1	4.1	7.2	6.3	5.0	11826.0	157.3	233.4	46.7
Q4 2008	-8.2	-7.7	2.6	-3.2	6.9	-8.9	0.3	2.2	3.7	9.4	5.8	4.1	9056.7	149.2	222.5	80.9

## Appendix 8: Severely Adverse Scenarios - Domestic (Cont.)

<u>OBS</u>	<u>Real GDP growth</u>	<u>Nominal GDP growth</u>	<u>Real disposable income growth</u>	<u>Nominal disposable income growth</u>	<u>Unemployment rate</u>	<u>CPI inflation rate</u>	<u>3-month Treasury yield</u>	<u>5-year Treasury yield</u>	<u>10-year Treasury yield</u>	<u>BBB corporate yield</u>	<u>Mortgage rate</u>	<u>Prime rate</u>	<u>Dow Jones Total Stock Market Index</u>	<u>House Price Index</u>	<u>Commercial Real Estate Price Index</u>	<u>Market Volatility Index (VIX)</u>
Q1 2009	-5.4	-4.5	-0.8	-3.0	8.3	-2.7	0.2	1.9	3.2	9.0	5.1	3.3	8044.2	143.1	208.9	56.7
Q2 2009	-0.5	-1.2	2.9	4.7	9.3	2.1	0.2	2.3	3.7	8.2	5.0	3.3	9342.8	142.9	178.5	42.3
Q3 2009	1.3	1.2	-4.3	-1.9	9.6	3.5	0.2	2.5	3.8	6.8	5.1	3.3	10812.8	144.1	154.0	31.3
Q4 2009	3.9	5.2	-0.5	2.2	9.9	3.2	0.1	2.3	3.7	6.1	4.9	3.3	11385.1	145.0	155.2	30.7
Q1 2010	1.7	3.2	0.4	1.8	9.8	0.6	0.1	2.4	3.9	5.8	5.0	3.3	12032.5	145.5	149.8	27.3
Q2 2010	3.9	5.8	5.3	5.8	9.6	0.0	0.1	2.3	3.6	5.6	4.9	3.3	10645.8	144.4	164.5	45.8
Q3 2010	2.7	4.6	2.0	3.2	9.5	1.2	0.2	1.6	2.9	5.1	4.4	3.3	11814.0	141.3	166.9	32.9
Q4 2010	2.5	4.7	2.8	5.0	9.6	3.1	0.1	1.5	3.0	5.0	4.4	3.3	13131.5	140.0	172.7	23.5
Q1 2011	-1.5	0.2	5.0	8.2	9.0	4.2	0.1	2.1	3.5	5.4	4.8	3.3	13908.5	138.1	179.6	29.4
Q2 2011	2.9	6.0	-0.6	3.5	9.1	5.0	0.0	1.8	3.3	5.1	4.7	3.3	13843.5	137.3	177.0	22.7
Q3 2011	0.8	3.3	2.1	4.3	9.0	2.6	0.0	1.1	2.5	4.9	4.3	3.3	11676.5	137.3	177.0	48.0
Q4 2011	4.6	5.2	0.2	1.6	8.6	1.6	0.0	1.0	2.1	5.0	4.0	3.3	13019.3	137.1	188.4	45.5
Q1 2012	2.3	4.4	6.8	9.1	8.2	2.1	0.1	0.9	2.1	4.7	3.9	3.3	14627.5	139.3	188.2	23.0
Q2 2012	1.6	3.5	2.3	3.7	8.2	1.4	0.1	0.8	1.8	4.5	3.8	3.3	14100.2	142.5	189.4	26.7
Q3 2012	2.5	4.4	-0.4	0.9	8.0	1.7	0.1	0.7	1.6	4.2	3.6	3.3	14894.7	145.4	196.6	20.5
Q4 2012	0.1	1.6	11.8	13.8	7.8	2.4	0.1	0.7	1.7	3.9	3.4	3.3	14834.9	148.9	198.3	22.7
Q1 2013	2.7	4.2	-12.6	-11.7	7.7	1.2	0.1	0.8	1.9	4.0	3.5	3.3	16396.2	153.8	203.2	19.0
Q2 2013	1.8	2.9	3.8	4.3	7.5	0.4	0.1	0.9	2.0	4.1	3.7	3.3	16771.3	158.7	212.4	20.5
Q3 2013	4.5	6.2	2.0	3.7	7.2	2.2	0.0	1.5	2.7	4.9	4.4	3.3	17718.3	162.6	222.8	17.0
Q4 2013	3.5	5.0	0.2	1.2	7.0	1.1	0.1	1.4	2.8	4.8	4.3	3.3	19413.2	166.4	229.2	20.3
Q1 2014	-2.1	-0.8	3.4	4.8	6.7	1.9	0.0	1.6	2.8	4.6	4.4	3.3	19711.2	169.7	227.6	21.4
Q2 2014	4.6	6.8	4.4	6.8	6.2	3.0	0.0	1.7	2.7	4.3	4.2	3.3	20568.7	170.8	233.0	17.0
Q3 2014	3.1	3.8	2.7	3.6	6.1	1.1	0.0	1.7	2.5	4.2	4.1	3.3	20458.8	172.1	236.0	17.0
Q4 2014	-3.9	-2.8	-3.0	-0.1	6.9	4.3	0.1	0.4	0.9	4.7	4.2	3.3	17133.5	169.5	238.9	79.0
Q1 2015	-6.1	-4.7	-4.4	-2.3	8.0	3.0	0.1	0.4	1.0	5.6	4.6	3.3	12498.5	164.0	230.2	71.3
Q2 2015	-3.9	-2.4	-3.4	-2.2	8.8	1.7	0.1	0.4	1.2	6.0	4.8	3.3	10190.1	157.6	213.6	76.9
Q3 2015	-3.2	-1.7	-2.4	-1.4	9.5	1.3	0.1	0.4	1.3	6.3	5.0	3.3	8770.7	150.7	195.1	68.1
Q4 2015	-1.5	0.0	-1.5	-0.7	9.9	1.1	0.1	0.4	1.5	6.2	5.0	3.2	8606.3	144.3	177.6	48.1
Q1 2016	1.2	2.4	0.2	1.5	10.0	1.6	0.1	0.5	1.5	6.0	4.9	3.2	9087.3	138.4	164.4	38.4
Q2 2016	1.2	2.5	0.4	1.8	10.1	1.9	0.1	0.6	1.6	5.8	4.8	3.2	9607.2	133.4	157.4	30.7
Q3 2016	3.0	4.4	1.2	2.8	10.0	2.0	0.1	0.8	1.8	5.6	4.8	3.2	10480.7	130.4	154.4	25.5
Q4 2016	3.0	4.3	1.8	3.3	9.9	1.9	0.1	0.9	1.9	5.5	4.7	3.2	11521.4	128.4	154.6	21.6
Q1 2017	3.9	5.2	2.7	4.2	9.7	1.9	0.1	1.1	2.0	5.3	4.7	3.2	12894.7	127.9	156.1	18.7
Q2 2017	3.9	5.2	2.8	4.1	9.5	1.7	0.1	1.2	2.1	5.2	4.7	3.2	14079.2	128.4	159.6	17.6
Q3 2017	3.9	5.1	2.9	4.2	9.3	1.6	0.1	1.3	2.2	5.1	4.7	3.2	15430.3	129.5	164.0	16.4
Q4 2017	3.9	5.1	3.0	4.3	9.1	1.6	0.1	1.5	2.3	5.1	4.7	3.2	16487.6	131.0	169.1	16.5

## Appendix 9: Severely Adverse Scenarios – International

<u>OBS</u>	<u>Euro Area Real GDP Growth</u>	<u>Euro Area Inflation</u>	<u>Euro Area Bilateral Dollar Exchange Rate (USD/Euro)</u>	<u>Developing Asia Real GDP Growth</u>	<u>Developing Asia Inflation</u>	<u>Developing Asia Bilateral Dollar Exchange Rate (F/USD, Index)</u>	<u>Japan Real GDP Growth</u>	<u>Japan Inflation</u>	<u>Japan Bilateral Dollar Exchange Rate (Yen/USD)</u>	<u>UK Real GDP Growth</u>	<u>UK Inflation</u>	<u>UK Bilateral Dollar Exchange Rate (USD/Pound)</u>
Q1 2001	3.7	1.1	0.879	4.0	1.6	106.0	2.6	-1.2	125.5	4.6	0.1	1.419
Q2 2001	0.3	4.1	0.847	5.9	2.0	106.1	-0.7	-0.3	124.7	3.1	3.1	1.408
Q3 2001	0.3	1.4	0.910	4.9	1.2	106.4	-4.3	-1.1	119.2	2.1	1.0	1.469
Q4 2001	0.6	1.7	0.890	7.7	0.1	106.8	-0.5	-1.4	131.0	1.3	0.0	1.454
Q1 2002	0.7	3.0	0.872	6.8	0.3	107.3	-0.9	-2.7	132.7	1.8	1.9	1.425
Q2 2002	2.1	2.0	0.986	9.0	1.1	104.7	4.3	1.7	119.9	3.3	0.9	1.525
Q3 2002	1.4	1.6	0.988	5.5	1.4	105.5	2.6	-0.7	121.7	3.6	1.4	1.570
Q4 2002	0.3	2.4	1.049	6.2	0.9	104.4	1.5	-0.4	118.8	3.7	1.9	1.610
Q1 2003	-0.9	3.3	1.090	7.0	3.5	105.5	-2.2	-1.6	118.1	3.9	1.6	1.579
Q2 2003	0.3	0.3	1.150	2.6	1.1	104.0	5.2	1.7	119.9	5.7	0.3	1.653
Q3 2003	2.1	2.2	1.165	13.4	0.0	102.6	1.7	-0.7	111.4	5.2	1.7	1.662
Q4 2003	3.1	2.2	1.260	11.8	5.7	103.3	4.2	-0.6	107.1	4.1	1.7	1.784
Q1 2004	1.9	2.3	1.229	5.1	4.0	101.4	3.8	-0.9	104.2	1.3	1.3	1.840
Q2 2004	2.2	2.4	1.218	6.1	4.1	102.7	0.3	1.1	109.4	1.2	1.0	1.813
Q3 2004	1.4	2.0	1.242	8.6	4.0	102.7	0.6	0.1	110.2	0.5	1.1	1.809
Q4 2004	1.5	2.4	1.354	7.9	0.8	98.9	-1.1	1.7	102.7	1.6	2.4	1.916
Q1 2005	0.4	1.5	1.297	7.9	2.9	98.6	0.8	-2.7	107.2	2.9	2.6	1.889
Q2 2005	2.8	2.2	1.210	7.6	1.5	98.9	5.3	-1.2	110.9	4.2	1.9	1.793
Q3 2005	2.9	3.2	1.206	9.5	2.3	98.5	1.4	-1.3	113.3	4.2	2.7	1.770
Q4 2005	2.5	2.5	1.184	10.5	1.8	98.1	0.7	0.7	117.9	5.5	1.4	1.719
Q1 2006	3.4	1.7	1.214	12.2	2.3	96.7	1.8	1.3	117.5	2.4	1.9	1.739
Q2 2006	4.8	2.5	1.278	7.8	3.2	96.6	1.7	-0.1	114.5	2.0	3.0	1.849
Q3 2006	2.5	2.0	1.269	8.8	2.1	96.2	-0.3	0.5	118.0	0.7	3.3	1.872
Q4 2006	4.4	0.9	1.320	10.7	3.7	94.5	5.2	-0.4	119.0	3.0	2.6	1.959
Q1 2007	3.2	2.2	1.337	14.8	3.6	93.9	4.1	-0.2	117.6	3.1	2.6	1.969
Q2 2007	2.3	2.3	1.352	10.1	4.9	91.9	0.5	0.0	123.4	2.4	1.6	2.006
Q3 2007	2.0	2.1	1.422	8.8	7.5	90.6	-1.5	0.1	115.0	3.4	0.3	2.039
Q4 2007	1.9	4.9	1.460	10.8	6.1	89.4	3.5	2.2	111.7	1.9	4.0	1.984
Q1 2008	2.7	4.2	1.581	8.2	8.1	88.0	2.7	1.3	99.9	1.3	3.7	1.986
Q2 2008	-1.6	3.2	1.575	7.6	6.3	88.6	-4.7	1.6	106.2	-0.9	5.6	1.991
Q3 2008	-2.3	3.2	1.408	4.2	2.9	91.4	-4.1	3.6	105.9	-6.5	5.9	1.780
Q4 2008	-7.1	-1.4	1.392	0.7	-0.9	92.2	-12.5	-2.2	90.8	-8.6	0.6	1.462

## Appendix 9: Severely Adverse Scenarios - International (Cont.)

OBS	Euro Area Real	Euro Area	Euro Area	Developing	Developing	Developing	Japan Real	Japan Inflation	Japan Bilateral	UK Real GDP	UK Inflation	UK Bilateral
	GDP Growth	Inflation	Bilateral Dollar Exchange Rate (USD/Euro)	Asia Real GDP Growth	Asia Inflation	Asia Bilateral Dollar Exchange Rate (F/USD, Index)	GDP Growth		Dollar Exchange Rate (Yen/USD)	Growth		Dollar Exchange Rate (USD/Pound)
Q1 2009	-10.8	-1.1	1.326	3.3	-1.6	94.4	-15.0	-3.6	99.2	-7.0	-0.1	1.430
Q2 2009	-1.1	0.0	1.402	15.4	2.3	92.3	7.1	-1.7	96.4	-1.0	2.0	1.645
Q3 2009	1.3	1.1	1.463	12.5	4.0	91.3	0.2	-1.2	89.5	0.8	3.7	1.600
Q4 2009	1.8	1.6	1.433	8.3	5.2	90.7	7.1	-1.6	93.1	1.6	3.1	1.617
Q1 2010	2.0	1.7	1.353	9.2	4.3	89.8	6.1	0.8	93.4	2.1	4.0	1.519
Q2 2010	4.1	2.0	1.229	9.3	3.4	91.0	4.4	-1.0	88.5	4.0	3.0	1.495
Q3 2010	1.3	1.7	1.360	8.7	3.9	88.4	5.8	-1.9	83.5	2.6	2.5	1.573
Q4 2010	2.1	2.6	1.327	8.4	7.8	87.4	-2.2	1.1	81.7	0.1	4.0	1.539
Q1 2011	3.7	3.6	1.418	9.2	6.5	86.4	-6.9	-0.4	82.8	2.2	6.6	1.605
Q2 2011	0.1	3.2	1.452	7.1	5.8	85.3	-2.7	-0.4	80.6	0.9	4.5	1.607
Q3 2011	0.0	1.5	1.345	6.9	5.7	87.4	10.8	0.4	77.0	2.8	4.0	1.562
Q4 2011	-1.1	3.4	1.297	6.3	3.0	87.2	0.6	-0.8	77.0	-0.1	3.3	1.554
Q1 2012	-0.4	2.6	1.333	5.8	3.0	86.3	4.1	1.8	82.4	0.3	1.9	1.599
Q2 2012	-1.0	2.4	1.267	6.0	3.9	88.0	-2.2	-0.7	79.8	-0.7	1.9	1.569
Q3 2012	-0.4	1.8	1.286	6.5	2.3	86.2	-2.7	-1.7	77.9	3.4	2.7	1.613
Q4 2012	-1.9	2.3	1.319	7.5	3.7	85.9	-0.5	-0.1	86.6	-1.3	3.9	1.626
Q1 2013	-1.3	0.8	1.282	5.4	4.1	86.2	5.1	0.0	94.2	2.1	2.5	1.519
Q2 2013	1.3	0.7	1.301	6.1	3.0	87.1	3.4	0.8	99.2	2.7	1.8	1.521
Q3 2013	0.6	1.6	1.354	7.7	3.5	86.5	1.8	3.0	98.3	3.5	2.7	1.618
Q4 2013	1.0	0.1	1.378	6.9	4.0	85.6	-0.5	1.9	105.3	2.5	1.3	1.657
Q1 2014	1.2	0.2	1.378	5.1	1.4	86.7	6.0	0.4	103.0	3.0	1.2	1.668
Q2 2014	0.3	0.4	1.369	6.9	2.8	86.4	-7.1	9.4	101.3	3.7	1.8	1.711
Q3 2014	1.0	0.6	1.263	6.5	3.1	86.9	1.0	1.6	109.7	2.9	1.6	1.622
Q4 2014	-8.8	3.8	1.112	-3.2	11.9	98.0	-9.4	0.3	101.4	-4.0	1.5	1.572
Q1 2015	-6.5	0.7	1.110	0.8	3.7	97.7	-10.6	-2.0	101.2	-4.2	-0.4	1.575
Q2 2015	-3.6	-0.7	1.103	4.1	0.1	97.5	-8.5	-3.3	101.7	-3.2	-1.3	1.571
Q3 2015	-1.5	-1.1	1.094	5.8	-1.1	97.2	-6.4	-3.3	102.6	-2.0	-1.3	1.564
Q4 2015	-0.1	-1.1	1.084	6.6	-1.2	96.7	-4.4	-2.7	103.4	-0.8	-0.9	1.558
Q1 2016	1.0	-0.3	1.088	6.8	0.4	94.7	-2.5	-1.5	103.4	0.3	0.0	1.559
Q2 2016	1.7	0.2	1.095	6.6	1.3	92.6	-1.0	-0.7	103.1	1.3	0.6	1.560
Q3 2016	2.1	0.5	1.105	6.5	1.8	90.7	0.2	-0.2	102.9	2.1	1.0	1.559
Q4 2016	2.2	0.5	1.114	6.4	1.8	89.2	1.1	-0.1	102.9	2.6	1.2	1.555
Q1 2017	2.2	0.6	1.125	6.3	1.9	88.4	1.7	0.0	103.0	3.0	1.4	1.552
Q2 2017	2.2	0.5	1.135	6.3	1.7	87.9	2.1	0.0	103.1	3.1	1.4	1.552
Q3 2017	2.0	0.5	1.143	6.4	1.7	87.5	2.3	0.1	103.1	3.2	1.4	1.552
Q4 2017	1.9	0.6	1.152	6.4	1.9	87.2	2.4	0.4	102.9	3.1	1.5	1.552

## Appendix 10: Global Market Shock - Adverse

### Securitized Products

Trading, PE & Other Fair Value Assets Schedule  
Securitized Products

	RMBS														
	Non-Agency Prime	Sub-prime	Option ARMS	Other AltA	Unspec Non-Prime	HELOC	RMBS CDO	RMBS CDS	Credit Basket	PrimeX	ABX / TABX	Prime Whole Loans	Non-Prime Whole Loans	European RMBS	Other / Unspecified
<b>Relative MV Shock Based on Current Rating (%)</b>															
<b>AAA Total</b>															
Pre 2006	-7.8%	-7.1%	-19.3%	-7.8%	-19.3%	-9.7%	-9.7%	-14.3%	-19.3%	-14.3%	-9.7%	-7.8%	-7.1%	-8.4%	-19.3%
2006	-10.5%	-8.9%	-23.7%	-10.5%	-23.7%	-15.7%	-9.7%	-19.2%	-23.7%	-19.2%	-9.7%	-10.5%	-8.9%	-8.4%	-23.7%
2007	-13.8%	-11.2%	-23.7%	-13.8%	-14.7%	-14.7%	-9.7%	-19.2%	-14.7%	-19.2%	-9.7%	-13.8%	-11.2%	-8.4%	-14.7%
Post 2007	-7.8%	-7.1%	-19.3%	-7.8%	-19.3%	-9.7%	-9.7%	-14.3%	-19.3%	-14.3%	-9.7%	-7.8%	-7.1%	-8.4%	-19.3%
Unspecified Vintage	-13.8%	-11.2%	-23.7%	-13.8%	-14.7%	-14.7%	-9.7%	-19.2%	-14.7%	-19.2%	-9.7%	-13.8%	-11.2%	-8.4%	-14.7%
<b>AA Total</b>															
Pre 2006	-29.5%	-19.1%	-35.3%	-29.5%	-35.3%	-20.1%	-18.9%	-14.3%	-35.3%	-14.3%	-18.9%	-29.5%	-19.1%	-17.3%	-35.3%
2006	-35.2%	-18.1%	-42.3%	-35.2%	-42.3%	-39.8%	-18.9%	-19.2%	-42.3%	-19.2%	-18.9%	-35.2%	-18.1%	-17.3%	-42.3%
2007	-35.2%	-18.1%	-42.3%	-35.2%	-39.8%	-39.8%	-18.9%	-19.2%	-39.8%	-19.2%	-18.9%	-35.2%	-18.1%	-17.3%	-39.8%
Post 2007	-29.5%	-19.1%	-35.3%	-29.5%	-35.3%	-20.1%	-18.9%	-14.3%	-35.3%	-14.3%	-18.9%	-29.5%	-19.1%	-17.3%	-35.3%
Unspecified Vintage	-35.2%	-18.1%	-42.3%	-35.2%	-39.8%	-39.8%	-18.9%	-19.2%	-39.8%	-19.2%	-18.9%	-35.2%	-18.1%	-17.3%	-39.8%
<b>A Total</b>															
Pre 2006	-34.7%	-20.6%	-41.7%	-34.7%	-41.7%	-24.3%	-23.9%	-14.3%	-41.7%	-14.3%	-23.9%	-34.7%	-20.6%	-24.1%	-41.7%
2006	-37.5%	-20.0%	-45.0%	-37.5%	-45.0%	-39.8%	-23.9%	-19.2%	-45.0%	-19.2%	-23.9%	-37.5%	-20.0%	-24.1%	-45.0%
2007	-37.5%	-19.7%	-45.0%	-37.5%	-39.8%	-39.8%	-23.9%	-19.2%	-39.8%	-19.2%	-23.9%	-37.5%	-19.7%	-24.1%	-39.8%
Post 2007	-34.7%	-20.6%	-41.7%	-34.7%	-41.7%	-24.3%	-23.9%	-14.3%	-41.7%	-14.3%	-23.9%	-34.7%	-20.6%	-24.1%	-41.7%
Unspecified Vintage	-37.5%	-19.7%	-45.0%	-37.5%	-39.8%	-39.8%	-23.9%	-19.2%	-39.8%	-19.2%	-23.9%	-37.5%	-19.7%	-24.1%	-39.8%
<b>BBB Total</b>															
Pre 2006	-34.5%	-27.3%	-41.5%	-34.5%	-41.5%	-28.4%	-20.9%	-14.3%	-41.5%	-14.3%	-20.9%	-34.5%	-27.3%	-21.2%	-41.5%
2006	-38.1%	-26.7%	-45.7%	-38.1%	-45.7%	-39.8%	-20.9%	-19.2%	-45.7%	-19.2%	-20.9%	-38.1%	-27.3%	-21.2%	-45.7%
2007	-38.1%	-26.7%	-45.7%	-38.1%	-39.8%	-39.8%	-20.9%	-19.2%	-39.8%	-19.2%	-20.9%	-38.1%	-26.7%	-21.2%	-39.8%
Post 2007	-34.5%	-27.3%	-41.5%	-34.5%	-41.5%	-28.4%	-20.9%	-14.3%	-41.5%	-14.3%	-20.9%	-34.5%	-27.3%	-21.2%	-41.5%
Unspecified Vintage	-38.1%	-26.7%	-45.7%	-38.1%	-39.8%	-39.8%	-20.9%	-19.2%	-39.8%	-19.2%	-20.9%	-38.1%	-27.3%	-21.2%	-39.8%
<b>BB Total</b>															
Pre 2006	-34.5%	-27.3%	-41.5%	-34.5%	-41.5%	-28.4%	-20.2%	-14.3%	-41.5%	-14.3%	-20.2%	-34.5%	-27.3%	-21.2%	-41.5%
2006	-38.1%	-27.3%	-45.7%	-38.1%	-45.7%	-39.8%	-20.2%	-19.2%	-45.7%	-19.2%	-20.2%	-38.1%	-27.3%	-21.2%	-45.7%
2007	-38.1%	-27.3%	-45.7%	-38.1%	-39.8%	-39.8%	-20.2%	-19.2%	-39.8%	-19.2%	-20.2%	-38.1%	-27.3%	-21.2%	-39.8%
Post 2007	-34.5%	-27.3%	-41.5%	-34.5%	-41.5%	-28.4%	-20.2%	-14.3%	-41.5%	-14.3%	-20.2%	-34.5%	-27.3%	-21.2%	-41.5%
Unspecified Vintage	-38.1%	-27.3%	-45.7%	-38.1%	-39.8%	-39.8%	-20.2%	-19.2%	-39.8%	-19.2%	-20.2%	-38.1%	-27.3%	-21.2%	-39.8%
<b>B Total</b>															
Pre 2006	-34.5%	-27.3%	-41.5%	-34.5%	-41.5%	-28.4%	-20.2%	-14.3%	-41.5%	-14.3%	-20.2%	-34.5%	-27.3%	-21.2%	-41.5%
2006	-38.1%	-27.3%	-45.7%	-38.1%	-45.7%	-39.8%	-20.2%	-19.2%	-45.7%	-19.2%	-20.2%	-38.1%	-27.3%	-21.2%	-45.7%
2007	-38.1%	-27.3%	-45.7%	-38.1%	-39.8%	-39.8%	-20.2%	-19.2%	-39.8%	-19.2%	-20.2%	-38.1%	-27.3%	-21.2%	-39.8%
Post 2007	-34.5%	-27.3%	-41.5%	-34.5%	-41.5%	-28.4%	-20.2%	-14.3%	-41.5%	-14.3%	-20.2%	-34.5%	-27.3%	-21.2%	-41.5%
Unspecified Vintage	-38.1%	-27.3%	-45.7%	-38.1%	-39.8%	-39.8%	-20.2%	-19.2%	-39.8%	-19.2%	-20.2%	-38.1%	-27.3%	-21.2%	-39.8%
<b>&lt;B Total</b>															
Pre 2006	-34.5%	-27.3%	-41.5%	-34.5%	-41.5%	-28.4%	-20.2%	-14.3%	-41.5%	-14.3%	-20.2%	-34.5%	-27.3%	-21.2%	-41.5%
2006	-38.1%	-27.3%	-45.7%	-38.1%	-45.7%	-39.8%	-20.2%	-19.2%	-45.7%	-19.2%	-20.2%	-38.1%	-27.3%	-21.2%	-45.7%
2007	-38.1%	-27.3%	-45.7%	-38.1%	-39.8%	-39.8%	-20.2%	-19.2%	-39.8%	-19.2%	-20.2%	-38.1%	-27.3%	-21.2%	-39.8%
Post 2007	-34.5%	-27.3%	-41.5%	-34.5%	-41.5%	-28.4%	-20.2%	-14.3%	-41.5%	-14.3%	-20.2%	-34.5%	-27.3%	-21.2%	-41.5%
Unspecified Vintage	-38.1%	-27.3%	-45.7%	-38.1%	-39.8%	-39.8%	-20.2%	-19.2%	-39.8%	-19.2%	-20.2%	-38.1%	-27.3%	-21.2%	-39.8%
<b>NR Total</b>															
Pre 2006	-34.5%	-27.3%	-41.5%	-34.5%	-41.5%	-28.4%	-20.2%	-14.3%	-41.5%	-14.3%	-20.2%	-34.5%	-27.3%	-21.2%	-41.5%
2006	-38.1%	-27.3%	-45.7%	-38.1%	-45.7%	-39.8%	-20.2%	-19.2%	-45.7%	-19.2%	-20.2%	-38.1%	-27.3%	-21.2%	-45.7%
2007	-38.1%	-27.3%	-45.7%	-38.1%	-39.8%	-39.8%	-20.2%	-19.2%	-39.8%	-19.2%	-20.2%	-38.1%	-27.3%	-21.2%	-39.8%
Post 2007	-34.5%	-27.3%	-41.5%	-34.5%	-41.5%	-28.4%	-20.2%	-14.3%	-41.5%	-14.3%	-20.2%	-34.5%	-27.3%	-21.2%	-41.5%
Unspecified Vintage	-38.1%	-27.3%	-45.7%	-38.1%	-39.8%	-39.8%	-20.2%	-19.2%	-39.8%	-19.2%	-20.2%	-38.1%	-27.3%	-21.2%	-39.8%

# Securitized Products

Trading, PE & Other Fair Value Assets Schedule  
Securitized Products

	ABS							CMBS							Corporate CDO / CLO		Warehouse		
	Autos	Credit Cards	Student Loans	ABS CDS	Credit Basket	Index Tranches	Other / Unspecified	Cash Non-Agency CMBS	CMBS CDS	CMBS CDO	Credit Basket	Index Tranches	Whole Loans	Other / Unspecified	CLO	Other / Unspecified	Total Size	Total Protection	Other / Unspecified
<b>Relative MV Shock Based on Current Rating (%)</b>																			
<b>AAA Total</b>																			
Pre 2006	-3.7%	-6.9%	-8.9%	-8.9%	-8.9%	-4.0%	-8.9%	-9.4%	-13.2%	-17.1%	-13.2%	-13.2%	-9.2%	-17.1%	-8.9%	-1.3%	-9.2%	9.2%	-1.3%
2006	-3.7%	-6.9%	-9.3%	-9.3%	-9.3%	-4.0%	-9.3%	-9.4%	-13.2%	-17.1%	-13.2%	-13.2%	-11.0%	-17.1%	-8.9%	-1.3%	-11.0%	11.0%	-1.3%
2007	-3.9%	-9.2%	-9.9%	-9.9%	-9.9%	-4.0%	-9.9%	-9.4%	-13.2%	-17.1%	-13.2%	-13.2%	-11.0%	-17.1%	-8.9%	-1.3%	-11.0%	11.0%	-1.3%
Post 2007	-3.7%	-6.9%	-8.9%	-8.9%	-8.9%	-4.0%	-8.9%	-9.4%	-13.2%	-17.1%	-13.2%	-13.2%	-9.2%	-17.1%	-8.9%	-1.3%	-9.2%	9.2%	-1.3%
Unspecified Vintage	-3.9%	-9.2%	-9.9%	-9.9%	-9.9%	-4.0%	-9.9%	-9.4%	-13.2%	-17.1%	-13.2%	-13.2%	-11.0%	-17.1%	-8.9%	-1.3%	-11.0%	11.0%	-1.3%
<b>AA Total</b>																			
Pre 2006	-8.9%	-16.6%	-14.5%	-16.6%	-16.6%	-4.0%	-16.6%	-24.0%	-29.2%	-38.0%	-29.2%	-29.2%	-9.2%	-38.0%	-28.0%	-1.3%	-9.2%	9.2%	-1.3%
2006	-8.9%	-16.6%	-19.0%	-19.0%	-19.0%	-4.0%	-19.0%	-24.0%	-29.2%	-38.0%	-29.2%	-29.2%	-11.0%	-38.0%	-28.0%	-1.3%	-11.0%	11.0%	-1.3%
2007	-9.5%	-19.7%	-19.1%	-19.7%	-19.7%	-4.0%	-19.7%	-24.0%	-29.2%	-38.0%	-29.2%	-29.2%	-11.0%	-38.0%	-28.0%	-1.3%	-11.0%	11.0%	-1.3%
Post 2007	-8.9%	-16.6%	-14.5%	-16.6%	-16.6%	-4.0%	-16.6%	-24.0%	-29.2%	-38.0%	-29.2%	-29.2%	-9.2%	-38.0%	-28.0%	-1.3%	-9.2%	9.2%	-1.3%
Unspecified Vintage	-9.5%	-19.7%	-19.1%	-19.7%	-19.7%	-4.0%	-19.7%	-24.0%	-29.2%	-38.0%	-29.2%	-29.2%	-11.0%	-38.0%	-28.0%	-1.3%	-11.0%	11.0%	-1.3%
<b>A Total</b>																			
Pre 2006	-9.7%	-16.8%	-17.7%	-17.7%	-17.7%	-4.0%	-17.7%	-29.8%	-29.0%	-37.8%	-29.0%	-29.0%	-9.2%	-37.8%	-41.2%	-1.3%	-9.2%	9.2%	-1.3%
2006	-9.7%	-16.8%	-18.7%	-18.7%	-18.7%	-4.0%	-18.7%	-29.8%	-29.0%	-37.8%	-29.0%	-29.0%	-11.0%	-37.8%	-41.2%	-1.3%	-11.0%	11.0%	-1.3%
2007	-10.4%	-20.0%	-22.8%	-22.8%	-22.8%	-4.0%	-22.8%	-29.8%	-29.0%	-37.8%	-29.0%	-29.0%	-11.0%	-37.8%	-41.2%	-1.3%	-11.0%	11.0%	-1.3%
Post 2007	-9.7%	-16.8%	-17.7%	-17.7%	-17.7%	-4.0%	-17.7%	-29.8%	-29.0%	-37.8%	-29.0%	-29.0%	-9.2%	-37.8%	-41.2%	-1.3%	-9.2%	9.2%	-1.3%
Unspecified Vintage	-10.4%	-20.0%	-22.8%	-22.8%	-22.8%	-4.0%	-22.8%	-29.8%	-29.0%	-37.8%	-29.0%	-29.0%	-11.0%	-37.8%	-41.2%	-1.3%	-11.0%	11.0%	-1.3%
<b>BBB Total</b>																			
Pre 2006	-9.3%	-23.2%	-17.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-9.2%	-38.8%	-43.0%	-2.0%	-9.2%	9.2%	-2.0%
2006	-9.3%	-23.2%	-18.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.0%	-2.0%	-11.0%	11.0%	-2.0%
2007	-10.0%	-27.5%	-22.8%	-27.5%	-27.5%	-4.0%	-27.5%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.0%	-2.0%	-11.0%	11.0%	-2.0%
Post 2007	-9.3%	-23.2%	-17.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-9.2%	-38.8%	-43.0%	-2.0%	-9.2%	9.2%	-2.0%
Unspecified Vintage	-10.0%	-27.5%	-22.8%	-27.5%	-27.5%	-4.0%	-27.5%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.0%	-2.0%	-11.0%	11.0%	-2.0%
<b>BB Total</b>																			
Pre 2006	-13.1%	-23.2%	-17.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-9.2%	-38.8%	-43.7%	-2.0%	-9.2%	9.2%	-2.0%
2006	-13.1%	-23.2%	-18.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.7%	-2.0%	-11.0%	11.0%	-2.0%
2007	-14.0%	-27.5%	-22.8%	-27.5%	-27.5%	-4.0%	-27.5%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.7%	-2.0%	-11.0%	11.0%	-2.0%
Post 2007	-13.1%	-23.2%	-17.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-9.2%	-38.8%	-43.7%	-2.0%	-9.2%	9.2%	-2.0%
Unspecified Vintage	-14.0%	-27.5%	-22.8%	-27.5%	-27.5%	-4.0%	-27.5%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.7%	-2.0%	-11.0%	11.0%	-2.0%
<b>B Total</b>																			
Pre 2006	-13.1%	-23.2%	-17.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-9.2%	-38.8%	-43.7%	-2.0%	-9.2%	9.2%	-2.0%
2006	-13.1%	-23.2%	-18.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.7%	-2.0%	-11.0%	11.0%	-2.0%
2007	-14.0%	-27.5%	-22.8%	-27.5%	-27.5%	-4.0%	-27.5%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.7%	-2.0%	-11.0%	11.0%	-2.0%
Post 2007	-13.1%	-23.2%	-17.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-9.2%	-38.8%	-43.7%	-2.0%	-9.2%	9.2%	-2.0%
Unspecified Vintage	-14.0%	-27.5%	-22.8%	-27.5%	-27.5%	-4.0%	-27.5%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.7%	-2.0%	-11.0%	11.0%	-2.0%
<b>&lt;B Total</b>																			
Pre 2006	-13.1%	-23.2%	-17.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-9.2%	-38.8%	-43.7%	-2.0%	-9.2%	9.2%	-2.0%
2006	-13.1%	-23.2%	-18.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.7%	-2.0%	-11.0%	11.0%	-2.0%
2007	-14.0%	-27.5%	-22.8%	-27.5%	-27.5%	-4.0%	-27.5%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.7%	-2.0%	-11.0%	11.0%	-2.0%
Post 2007	-13.1%	-23.2%	-17.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-9.2%	-38.8%	-43.7%	-2.0%	-9.2%	9.2%	-2.0%
Unspecified Vintage	-14.0%	-27.5%	-22.8%	-27.5%	-27.5%	-4.0%	-27.5%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.7%	-2.0%	-11.0%	11.0%	-2.0%
<b>NR Total</b>																			
Pre 2006	-13.1%	-23.2%	-17.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-9.2%	-38.8%	-43.7%	-2.0%	-9.2%	9.2%	-2.0%
2006	-13.1%	-23.2%	-18.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.7%	-2.0%	-11.0%	11.0%	-2.0%
2007	-14.0%	-27.5%	-22.8%	-27.5%	-27.5%	-4.0%	-27.5%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.7%	-2.0%	-11.0%	11.0%	-2.0%
Post 2007	-13.1%	-23.2%	-17.7%	-23.2%	-23.2%	-4.0%	-23.2%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-9.2%	-38.8%	-43.7%	-2.0%	-9.2%	9.2%	-2.0%
Unspecified Vintage	-14.0%	-27.5%	-22.8%	-27.5%	-27.5%	-4.0%	-27.5%	-32.6%	-29.8%	-38.8%	-29.8%	-29.8%	-11.0%	-38.8%	-43.7%	-2.0%	-11.0%	11.0%	-2.0%

# Municipals

## Trading, PE & Other Fair Value Assets Schedule Munis

	Spread Widening (bps)
<b>Bonds</b>	
AAA	14.0
AA	21.0
A	64.0
BBB	186.0
BB	214.5
B	286.0
<B	357.5
NR	357.5
<b>Loans</b>	
AAA	14.0
AA	21.0
A	64.0
BBB	186.0
BB	214.5
B	286.0
<B	357.5
NR	357.5
<b>CDS</b>	
AAA	6.0
AA	8.5
A	18.6
BBB	79.2
BB	117.9
B	157.2
<B	196.6
NR	196.6
<b>Indices</b>	
AAA	94.5
AA	94.5
A	94.5
BBB	94.5
BB	94.5
B	94.5
<B	94.5
NR	94.5
<b>Other / Unspecified Munis</b>	
AAA	14.0
AA	21.0
A	64.0
BBB	186.0
BB	214.5
B	286.0
<B	357.5
NR	357.5

## Agencies

<b>OAS Widening (bps)</b>
---------------------------

### US Residential Agency Products

IOs	300.0
POs	37.5
Other CMOs	95.0
Pass-Throughs	75.0
Agency Debt/Debentures	10.0
IOS Index	300.0
POS Index	37.5
MBX Index	75.0
Other Agency Derivatives	95.0
TBA's	75.0
Reverse Mortgages	150.0
Residential Other / Unspecified	95.0

### US Commercial Agency Products

Cash Agency CMBS	95.0
Agency CMBS Derivatives	95.0
Commercial Other / Unspecified	95.0

### Non-US Agency Products

AAA	25.0
AA	32.5
A	37.5
BBB	62.5
BB	75.0
B	125.0
<B	150.0
NR	150.0

# Rates DV01

DFAST 2015 Market Shocks: Adverse Scenario  
Rates DV01

Rates Shocks (bps)	MATURITY												
	1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	30Y
<b>AUD Directional Risks</b>													
Governments	0.0	1.5	3.6	9.1	18.1	54.2	68.7	72.3	79.5	81.3	94.0	104.8	115.6
Agencies	0.0	1.5	3.6	9.1	18.1	54.2	68.7	72.3	79.5	81.3	94.0	104.8	115.6
Municipals	0.0	1.5	3.6	9.1	18.1	54.2	68.7	72.3	79.5	81.3	94.0	104.8	115.6
Swaps / Discounting Curve	0.0	1.7	4.3	10.7	21.3	63.8	80.8	85.0	93.5	95.7	110.5	123.3	136.0
Instruments shocked by MV**													
Other	0.0	1.5	3.6	9.1	18.1	54.2	68.7	72.3	79.5	81.3	94.0	104.8	115.6

**AUD Basis Risks (Do not include the swap/discounting curve specified above)**

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

**CAD Directional Risks**

Governments	0.0	2.0	5.0	12.5	25.0	75.0	95.0	100.0	110.0	112.5	130.0	145.0	160.0
Agencies	0.0	2.0	5.0	12.5	25.0	75.0	95.0	100.0	110.0	112.5	130.0	145.0	160.0
Municipals	0.0	2.0	5.0	12.5	25.0	75.0	95.0	100.0	110.0	112.5	130.0	145.0	160.0
Swaps / Discounting Curve	0.0	2.0	5.0	12.5	25.0	75.0	95.0	100.0	110.0	112.5	130.0	145.0	160.0
Instruments shocked by MV**													
Other	0.0	1.8	4.5	11.3	22.5	67.5	85.5	90.0	99.0	101.3	117.0	130.5	144.0

**CAD Basis Risks (Do not include the swap/discounting curve specified above)**

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

**CHF Directional Risks**

Governments	0.0	0.6	1.4	3.6	7.1	21.3	26.9	28.4	31.2	31.9	36.9	41.1	45.4
Agencies	0.0	0.6	1.4	3.6	7.1	21.3	26.9	28.4	31.2	31.9	36.9	41.1	45.4
Municipals	0.0	0.6	1.4	3.6	7.1	21.3	26.9	28.4	31.2	31.9	36.9	41.1	45.4
Swaps / Discounting Curve	0.0	0.7	1.7	4.2	8.4	25.0	31.7	33.4	36.7	37.5	43.4	48.4	53.4
Instruments shocked by MV**													
Other	0.0	0.6	1.4	3.6	7.1	21.3	26.9	28.4	31.2	31.9	36.9	41.1	45.4

**CHF Basis Risks (Do not include the swap/discounting curve specified above)**

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

## Rates DV01 (Continued)

### DKK Directional Risks

Governments	1.8	2.0	5.0	12.4	24.8	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4
Agencies	1.8	2.0	5.0	12.4	24.8	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4
Municipals	1.8	2.0	5.0	12.4	24.8	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4
Swaps / Discounting Curve	2.0	2.2	5.5	13.8	27.5	82.5	104.5	110.0	121.0	123.8	143.0	159.5	176.0
Instruments shocked by MV**													
Other	1.8	2.0	5.0	12.4	24.8	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4

### DKK Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

### EUR Directional Risks

Governments: Austria	100.0	90.0	85.0	80.0	75.0	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4
Governments: Belgium	137.9	124.1	117.2	110.3	103.4	102.4	129.7	136.5	150.2	153.6	177.5	198.0	218.4
Governments: Finland	100.0	90.0	85.0	80.0	75.0	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4
Governments: France	151.5	136.4	128.8	121.2	113.7	112.5	142.5	150.0	165.0	168.8	195.0	217.5	240.0
Governments: Germany	100.0	90.0	85.0	80.0	75.0	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4
Governments: Greece	1,327.3	1,194.6	1,128.2	1,061.8	995.5	985.5	1,248.3	1,314.0	1,445.4	1,478.3	1,708.2	1,905.3	2,102.4
Governments: Ireland	254.6	229.1	216.4	203.7	190.9	189.0	239.4	252.0	277.2	283.5	327.6	365.4	403.2
Governments: Italy	370.7	333.7	315.1	296.6	278.1	275.3	348.7	367.0	403.7	412.9	477.1	532.2	587.2
Governments: Netherlands	124.8	112.3	106.1	99.8	93.6	92.7	117.4	123.5	135.9	139.0	160.6	179.1	197.6
Governments: Portugal	636.9	573.2	541.4	509.5	477.7	472.9	599.0	630.5	693.6	709.3	819.7	914.3	1,008.8
Governments: Spain	353.1	317.8	300.1	282.4	264.8	262.2	332.1	349.5	384.5	393.2	454.4	506.8	559.2
Governments: Other	353.1	317.8	300.1	282.4	264.8	262.2	332.1	349.5	384.5	393.2	454.4	506.8	559.2
Agencies	151.5	136.4	128.8	121.2	113.7	112.5	142.5	150.0	165.0	168.8	195.0	217.5	240.0
Municipals	151.5	136.4	128.8	121.2	113.7	112.5	142.5	150.0	165.0	168.8	195.0	217.5	240.0
Swaps / Discounting Curve	80.0	72.0	68.0	64.0	70.0	82.5	104.5	110.0	121.0	123.8	143.0	159.5	176.0
Instruments shocked by MV**													
Other	80.0	72.0	68.0	64.0	70.0	82.5	104.5	110.0	121.0	123.8	143.0	159.5	176.0

### EUR Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis	(7.8)	(7.8)	(7.8)	(7.8)	(7.8)	(7.2)	(6.1)	(5.8)	(5.5)	(5.3)	(5.0)	(4.7)	(4.7)
1m Basis	(3.9)	(3.9)	(3.9)	(3.9)	(3.9)	(3.6)	(3.1)	(2.9)	(2.8)	(2.7)	(2.5)	(2.4)	(2.3)
3m Basis													
6m Basis	11.1	11.1	11.1	11.1	11.1	7.5	5.4	3.8	3.0	2.3	1.7	1.4	1.0
12m Basis	29.6	29.6	29.6	29.6	29.6	18.2	12.9	8.7	6.6	4.9	3.6	2.9	1.9
Other Basis													

### GBP Directional Risks

Governments	1.8	2.0	5.0	12.4	24.8	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4
Agencies	1.8	2.0	5.0	12.4	24.8	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4
Municipals	1.8	2.0	5.0	12.4	24.8	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4
Swaps / Discounting Curve	2.0	2.2	5.5	13.8	27.5	82.5	104.5	110.0	121.0	123.8	143.0	159.5	176.0
Instruments shocked by MV**													
Other	1.8	2.0	5.0	12.4	24.8	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4

### GBP Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis	(9.7)	(9.7)	(9.7)	(9.7)	(9.7)	(9.0)	(7.7)	(7.2)	(6.9)	(6.7)	(6.2)	(5.9)	(5.8)
1m Basis	(4.9)	(4.9)	(4.9)	(4.9)	(4.9)	(4.5)	(3.8)	(3.6)	(3.5)	(3.3)	(3.1)	(3.0)	(2.9)
3m Basis													
6m Basis	19.3	19.3	19.3	19.3	19.3	11.7	8.9	6.5	5.4	4.5	3.9	3.7	3.6
12m Basis	42.0	42.0	42.0	42.0	42.0	30.5	25.9	18.5	14.5	11.5	9.2	8.2	7.3
Other Basis													

## Rates DV01 (Continued)

### JPY Directional Risks

Governments	0.0	0.7	1.6	4.0	7.9	23.8	30.1	31.7	34.9	35.7	41.2	45.9	50.7
Agencies	0.0	0.7	1.6	4.0	7.9	23.8	30.1	31.7	34.9	35.7	41.2	45.9	50.7
Municipals	0.0	0.7	1.6	4.0	7.9	23.8	30.1	31.7	34.9	35.7	41.2	45.9	50.7
Swaps / Discounting Curve	0.0	0.7	1.7	4.2	8.4	25.0	31.7	33.4	36.7	37.5	43.4	48.4	53.4
Instruments shocked by MV**													
Other	0.0	0.7	1.6	4.0	7.9	23.8	30.1	31.7	34.9	35.7	41.2	45.9	50.7

### JPY Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis	(7.50)	(7.50)	(7.50)	(7.00)	(6.50)	(6.00)	(5.50)	(5.00)	(4.50)	(4.00)	(3.50)	(3.00)	(3.00)
1m TIBOR Basis	(4.5)	(5.0)	(5.0)	(4.5)	(4.0)	(3.5)	(3.0)	(2.5)	(2.0)	(1.5)	(1.0)	(0.5)	(0.5)
3m TIBOR Basis													
6m TIBOR Basis	4.8	4.8	4.8	4.8	4.8	2.8	1.8	2.0	1.4	1.2	0.7	0.5	0.3
12m TIBOR Basis													
1m LIBOR Basis	(4.5)	(5.0)	(5.0)	(4.5)	(4.0)	(3.5)	(3.0)	(2.5)	(2.0)	(1.5)	(1.0)	(0.5)	(0.5)
3m LIBOR Basis													
6m LIBOR Basis	4.8	4.8	4.8	4.8	4.8	2.8	1.8	2.0	1.4	1.2	0.7	0.5	0.3
12m LIBOR Basis													
Other Basis													

### NOK Directional Risks

Governments	1.8	2.0	5.0	12.4	24.8	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4
Agencies	1.8	2.0	5.0	12.4	24.8	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4
Municipals	1.8	2.0	5.0	12.4	24.8	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4
Swaps / Discounting Curve	2.0	2.2	5.5	13.8	27.5	82.5	104.5	110.0	121.0	123.8	143.0	159.5	176.0
Instruments shocked by MV**													
Other	1.8	2.0	5.0	12.4	24.8	74.3	94.1	99.0	108.9	111.4	128.7	143.6	158.4

### NOK Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

### NZD Directional Risks

Governments	0.0	1.5	3.6	9.1	18.1	54.2	68.7	72.3	79.5	81.3	94.0	104.8	115.6
Agencies	0.0	1.5	3.6	9.1	18.1	54.2	68.7	72.3	79.5	81.3	94.0	104.8	115.6
Municipals	0.0	1.5	3.6	9.1	18.1	54.2	68.7	72.3	79.5	81.3	94.0	104.8	115.6
Swaps / Discounting Curve	0.0	1.7	4.3	10.7	21.3	63.8	80.8	85.0	93.5	95.7	110.5	123.3	136.0
Instruments shocked by MV**													
Other	0.0	1.5	3.6	9.1	18.1	54.2	68.7	72.3	79.5	81.3	94.0	104.8	115.6

### NZD Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

### SEK Directional Risks

Governments	0.0	1.6	3.9	9.6	19.2	57.4	72.7	76.5	84.2	86.1	99.5	111.0	122.4
Agencies	0.0	1.6	3.9	9.6	19.2	57.4	72.7	76.5	84.2	86.1	99.5	111.0	122.4
Municipals	0.0	1.6	3.9	9.6	19.2	57.4	72.7	76.5	84.2	86.1	99.5	111.0	122.4
Swaps / Discounting Curve	0.0	1.7	4.3	10.7	21.3	63.8	80.8	85.0	93.5	95.7	110.5	123.3	136.0
Instruments shocked by MV**													
Other	0.0	1.6	3.9	9.6	19.2	57.4	72.7	76.5	84.2	86.1	99.5	111.0	122.4

### SEK Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

## Rates DV01 (Continued)

### USD Directional Risks

Governments	0.0	1.8	4.5	11.3	22.5	67.5	85.5	90.0	99.0	101.3	117.0	130.5	144.0
Agencies	0.0	1.8	4.5	11.3	22.5	67.5	85.5	90.0	99.0	101.3	117.0	130.5	144.0
Municipals	0.0	1.8	4.5	11.3	22.5	67.5	85.5	90.0	99.0	101.3	117.0	130.5	144.0
Swaps / Discounting Curve	0.0	2.0	5.0	12.5	25.0	75.0	95.0	100.0	110.0	112.5	130.0	145.0	160.0
Instruments shocked by MV**													
Other	0.0	2.0	5.0	12.5	25.0	75.0	95.0	100.0	110.0	112.5	130.0	145.0	160.0

### USD Basis Risks (Do not include the swap/discounting curve specified above)

Prime Basis	(5.0)	(7.5)	(12.5)	(17.5)	(15.0)	(9.0)	(6.0)	(5.0)	(4.5)	(4.0)	(3.5)	(2.5)	(1.5)
CP Basis	0.7	(7.5)	(12.5)	(17.5)	(15.0)	(9.0)	(6.0)	(5.0)	(4.5)	(4.0)	(3.5)	(2.5)	(1.5)
OIS Basis	1.3	(7.5)	(12.5)	(17.5)	(15.0)	(9.0)	(6.0)	(5.0)	(4.5)	(4.0)	(3.5)	(2.5)	(1.5)
1m Basis	(2.5)	(5.0)	(10.0)	(15.0)	(13.0)	(6.8)	(4.3)	(3.5)	(3.0)	(2.5)	(2.0)	(1.5)	(1.0)
3m Basis													
6m Basis	13.0	13.0	13.0	13.0	13.0	9.4	8.0	6.2	5.4	5.2	5.2	5.2	5.2
12m Basis	27.0	27.0	27.0	27.0	27.0	20.0	16.8	12.8	11.1	11.2	8.2	7.2	5.4
Other Basis													

Absolute increase in Muni SIFMA/Libor Ratio (Pts)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
---	------	------	------	------	------	------	------	------	------	------	------	------	------

### Other Advanced Economies Directional Risks

Governments	0.0	1.6	3.9	9.6	19.2	57.4	72.7	76.5	84.2	86.1	99.5	111.0	122.4
Agencies	0.0	1.6	3.9	9.6	19.2	57.4	72.7	76.5	84.2	86.1	99.5	111.0	122.4
Municipals	0.0	1.6	3.9	9.6	19.2	57.4	72.7	76.5	84.2	86.1	99.5	111.0	122.4
Swaps / Discounting Curve	0.0	1.7	4.3	10.7	21.3	63.8	80.8	85.0	93.5	95.7	110.5	123.3	136.0
Instruments shocked by MV**													
Other	0.0	1.6	3.9	9.6	19.2	57.4	72.7	76.5	84.2	86.1	99.5	111.0	122.4

### Directional Risks: Emerging Europe

BGN	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
CZK	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
HRK	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
HUF	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
PLN	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
RON	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
RUB	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
Other Emerging Europe	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0

### Directional Risks: Latin America & Caribbean

ARS	150.0	150.0	150.0	150.0	150.0	150.0	190.0	200.0	220.0	225.0	260.0	290.0	320.0
BRL	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
CLP	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
COP	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
MXN	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
PEN	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
VEF	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
Other Latam & Caribbean	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0

## Rates DV01 (Continued)

### Directional Risks: Asia Ex-Japan

CNY	0.0	2.0	5.0	12.5	25.0	75.0	95.0	100.0	110.0	112.5	130.0	145.0	160.0
HKD	0.0	2.0	5.0	12.5	25.0	75.0	95.0	100.0	110.0	112.5	130.0	145.0	160.0
IDR	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
INR	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
KRW	1.0	2.0	5.0	12.5	25.0	75.0	95.0	100.0	110.0	112.5	130.0	145.0	160.0
MYR	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
PHP	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
SGD	0.0	2.0	5.0	12.5	25.0	75.0	95.0	100.0	110.0	112.5	130.0	145.0	160.0
THB	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
TWD	0.0	2.0	5.0	12.5	25.0	75.0	95.0	100.0	110.0	112.5	130.0	145.0	160.0
Other Asia Ex-Japan	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0

### Directional Risks: Middle East/North Africa

ILS	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
TRY	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
Other Middle East/Africa	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0

### Directional Risks: Sub-Saharan Africa

ZAR	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0
Other Sub-Saharan Africa	93.8	93.8	93.8	93.8	93.8	93.8	118.8	125.0	137.5	140.7	162.5	181.3	200.0

# Relative Normal Interest Rate Shocks

## Rates Vega

### Relative Normal Interest Rate Shocks (%)

		MATURITY														
		1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	25Y	30Y	
AUD	EXPIRY	1M	6.8%	8.1%	10.7%	12.2%	13.4%	15.3%	17.4%	17.0%	16.2%	21.4%	19.8%	24.6%	24.4%	26.9%
		3M	14.8%	14.8%	14.8%	17.8%	22.3%	17.0%	16.3%	16.9%	15.9%	21.2%	19.7%	24.5%	24.2%	25.7%
		6M	12.8%	12.8%	12.8%	12.8%	16.0%	15.9%	14.8%	16.3%	15.4%	20.3%	18.9%	23.6%	23.4%	23.3%
		9M	13.5%	8.9%	8.9%	8.9%	26.8%	18.3%	15.8%	15.4%	14.8%	14.1%	13.2%	15.4%	17.9%	20.4%
		1Y	13.8%	21.4%	26.8%	32.1%	38.2%	28.9%	24.8%	14.6%	14.1%	13.8%	12.9%	12.6%	15.0%	17.6%
		2Y	24.0%	26.6%	31.9%	37.2%	42.5%	34.3%	21.5%	13.4%	13.3%	13.4%	12.8%	12.6%	12.6%	17.9%
		3Y	48.3%	45.9%	43.5%	42.1%	41.1%	29.2%	20.2%	13.5%	13.7%	14.1%	13.6%	13.5%	13.5%	19.4%
		5Y	69.3%	61.6%	53.9%	46.2%	38.5%	28.3%	20.6%	20.7%	20.5%	21.6%	21.2%	18.2%	18.3%	22.4%
		7Y	68.8%	58.2%	47.6%	42.3%	34.4%	25.8%	21.0%	20.4%	21.2%	20.3%	20.3%	20.4%	21.0%	22.1%
		10Y	58.9%	48.2%	40.2%	32.1%	26.8%	21.7%	20.7%	21.0%	18.9%	28.2%	28.6%	28.9%	31.0%	32.7%
		15Y	49.8%	41.9%	34.1%	27.2%	21.0%	18.8%	19.6%	21.4%	19.4%	29.2%	29.5%	32.5%	35.0%	37.2%
		20Y	43.9%	35.7%	27.4%	24.7%	19.2%	19.7%	20.7%	22.7%	20.3%	30.3%	35.1%	38.7%	41.7%	44.4%
		30Y	70.4%	59.6%	48.8%	41.1%	38.0%	39.2%	41.4%	45.6%	41.9%	63.5%	66.5%	69.2%	71.8%	74.2%
EUR	EXPIRY	1M	13.0%	15.6%	20.8%	23.4%	26.0%	44.0%	55.4%	45.8%	36.9%	41.6%	38.5%	46.6%	46.6%	51.8%
		3M	30.8%	30.8%	30.8%	36.9%	46.2%	58.9%	60.3%	46.8%	37.4%	41.6%	39.1%	47.9%	47.9%	51.1%
		6M	37.6%	37.6%	37.6%	37.6%	47.1%	62.0%	56.9%	43.1%	35.1%	39.9%	38.1%	47.4%	47.2%	47.1%
		9M	48.4%	32.3%	32.3%	32.3%	96.8%	74.2%	58.7%	40.2%	33.2%	27.5%	26.6%	31.2%	36.3%	41.5%
		1Y	59.9%	93.1%	116.4%	139.7%	166.3%	121.8%	90.1%	37.7%	31.5%	26.6%	26.0%	25.7%	30.8%	35.9%
		2Y	100.1%	111.2%	133.4%	155.7%	177.9%	110.0%	59.7%	29.3%	26.3%	23.6%	23.9%	24.0%	24.4%	34.7%
		3Y	137.3%	130.4%	123.5%	119.4%	116.7%	70.9%	43.7%	24.8%	23.4%	22.1%	23.0%	23.4%	24.0%	34.6%
		5Y	123.0%	109.3%	95.6%	82.0%	68.3%	46.8%	32.8%	29.2%	28.4%	28.4%	30.2%	26.8%	27.9%	34.0%
		7Y	102.5%	86.7%	70.9%	63.1%	51.2%	38.3%	29.2%	27.2%	27.4%	28.0%	30.1%	31.4%	33.2%	34.7%
		10Y	82.3%	67.3%	56.1%	44.9%	37.4%	29.6%	27.5%	26.7%	27.2%	27.7%	30.1%	31.9%	33.8%	35.2%
		15Y	80.0%	67.4%	54.7%	43.8%	33.7%	28.4%	28.4%	28.5%	29.3%	29.8%	32.8%	35.6%	37.2%	39.2%
		20Y	76.1%	61.8%	47.5%	42.8%	33.3%	31.7%	31.6%	31.6%	32.3%	33.3%	37.3%	39.9%	42.4%	43.8%
		30Y	65.5%	55.4%	45.3%	38.3%	35.3%	37.6%	38.2%	39.9%	40.0%	40.7%	46.4%	49.5%	51.2%	53.7%
GBP	EXPIRY	1M	5.7%	6.7%	9.0%	10.2%	11.2%	12.5%	15.8%	17.5%	17.6%	25.2%	26.5%	36.0%	36.0%	39.9%
		3M	10.7%	10.7%	10.7%	12.9%	16.2%	14.6%	15.5%	17.2%	17.2%	24.5%	25.9%	35.3%	35.8%	38.8%
		6M	10.6%	10.6%	10.6%	10.6%	13.3%	13.6%	13.8%	15.9%	15.9%	22.7%	24.3%	33.5%	34.4%	35.3%
		9M	11.3%	7.5%	7.5%	7.5%	22.5%	16.0%	14.7%	14.9%	15.1%	15.5%	16.5%	21.2%	25.4%	29.9%
		1Y	11.7%	18.3%	22.9%	27.4%	32.6%	25.8%	23.2%	14.1%	14.3%	14.8%	15.7%	16.8%	20.7%	25.1%
		2Y	22.6%	25.1%	30.1%	35.2%	40.2%	32.5%	20.6%	12.9%	13.3%	14.0%	15.0%	16.0%	16.5%	24.0%
		3Y	47.1%	44.8%	42.4%	41.0%	40.1%	29.2%	19.9%	12.9%	13.3%	14.0%	14.9%	15.9%	16.4%	23.9%
		5Y	66.2%	58.8%	51.5%	44.1%	36.8%	27.5%	19.9%	19.1%	19.1%	20.0%	21.3%	19.4%	20.3%	24.8%
		7Y	67.0%	56.7%	46.4%	41.2%	33.5%	26.2%	20.3%	19.3%	19.8%	20.6%	22.0%	23.3%	24.3%	25.3%
		10Y	59.0%	48.3%	40.2%	32.2%	26.8%	22.0%	20.9%	20.7%	21.2%	21.8%	23.2%	24.6%	25.8%	27.1%
		15Y	58.5%	49.3%	40.1%	32.0%	24.6%	22.1%	22.6%	23.7%	24.1%	24.6%	26.2%	27.8%	29.3%	31.0%
		20Y	54.7%	44.5%	34.2%	30.8%	24.0%	24.4%	25.0%	26.3%	26.8%	27.4%	29.5%	31.6%	33.3%	35.4%
		30Y	51.5%	43.6%	35.7%	30.1%	27.8%	28.3%	29.1%	30.9%	31.4%	32.3%	34.5%	37.0%	39.3%	42.0%
JPY	EXPIRY	1M	31.2%	37.4%	49.9%	56.1%	62.3%	56.6%	66.7%	56.9%	34.6%	45.6%	37.9%	45.1%	45.0%	49.9%
		3M	44.6%	44.6%	44.6%	53.5%	66.8%	74.9%	54.7%	46.6%	32.6%	35.2%	33.4%	39.8%	38.0%	38.8%
		6M	39.5%	39.5%	39.5%	39.5%	49.4%	64.9%	46.1%	39.8%	30.9%	35.6%	31.6%	38.0%	36.6%	35.4%
		9M	51.9%	34.6%	34.6%	34.6%	103.7%	73.4%	49.1%	37.2%	28.9%	23.4%	21.6%	24.4%	27.6%	30.6%
		1Y	50.6%	78.7%	98.4%	118.1%	140.6%	108.0%	71.2%	33.9%	26.5%	22.0%	20.4%	19.5%	22.7%	25.8%
		2Y	74.2%	82.5%	98.9%	115.4%	131.9%	99.4%	54.8%	25.4%	21.2%	17.8%	17.5%	17.2%	16.9%	23.4%
		3Y	137.1%	130.2%	123.4%	119.2%	116.5%	73.3%	42.6%	22.5%	19.0%	16.8%	16.1%	15.9%	15.6%	21.6%
		5Y	102.2%	90.9%	79.5%	68.2%	56.8%	38.5%	26.6%	23.5%	22.1%	21.2%	20.2%	17.0%	17.1%	20.2%
		7Y	71.2%	60.2%	49.3%	43.8%	35.6%	27.9%	21.2%	19.9%	19.5%	19.4%	19.2%	19.0%	19.4%	19.9%
		10Y	48.1%	39.3%	32.8%	26.2%	21.9%	19.1%	17.7%	18.5%	18.1%	17.6%	17.8%	17.8%	18.3%	18.8%
		15Y	43.8%	36.9%	30.0%	24.0%	18.4%	16.9%	16.9%	17.7%	17.5%	17.0%	17.2%	17.1%	17.4%	17.5%
		20Y	36.9%	30.0%	23.0%	20.7%	16.1%	16.9%	16.9%	17.7%	17.6%	17.1%	17.3%	16.9%	17.0%	17.2%
		30Y	29.9%	25.3%	20.7%	17.5%	16.1%	16.9%	16.9%	17.7%	17.5%	17.0%	17.4%	17.0%	17.2%	17.4%

## Relative Normal Interest Rate Shocks (Continued)

EXPIRY	1M	11.4%	13.7%	18.2%	20.5%	22.8%	17.1%	19.3%	19.5%	19.3%	27.2%	27.3%	35.3%	35.8%	40.1%
	3M	20.1%	20.1%	20.1%	24.1%	30.2%	18.5%	17.6%	18.8%	18.5%	26.1%	26.2%	33.8%	34.4%	36.9%
	6M	14.9%	14.9%	14.9%	14.9%	18.6%	16.5%	15.8%	17.0%	16.9%	24.0%	24.4%	32.0%	32.4%	32.8%
	9M	14.0%	9.4%	9.4%	9.4%	28.1%	18.7%	16.7%	15.7%	16.1%	16.3%	16.7%	20.6%	24.4%	28.3%
	1Y	13.5%	21.0%	26.2%	31.5%	37.4%	29.7%	26.2%	15.2%	15.4%	15.8%	16.4%	16.7%	20.3%	24.2%
	2Y	24.2%	26.9%	32.2%	37.6%	43.0%	35.7%	22.6%	14.1%	14.3%	14.8%	15.7%	16.3%	16.6%	23.7%
	3Y	51.2%	48.6%	46.0%	44.5%	43.5%	31.1%	21.1%	13.8%	14.1%	14.5%	15.6%	16.3%	16.6%	23.8%
	5Y	68.9%	61.2%	53.6%	45.9%	38.3%	28.9%	20.8%	19.9%	19.8%	20.4%	22.3%	20.0%	20.4%	24.4%
	7Y	68.6%	58.1%	47.5%	42.2%	34.3%	27.3%	21.1%	20.3%	20.7%	21.1%	23.2%	24.4%	25.0%	25.6%
	10Y	63.5%	52.0%	43.3%	34.6%	28.9%	23.5%	22.2%	21.7%	22.2%	23.2%	24.8%	26.9%	27.4%	28.1%
	15Y	63.7%	53.6%	43.6%	34.8%	26.8%	24.2%	24.8%	25.9%	26.2%	26.9%	29.1%	31.2%	31.3%	32.2%
20Y	63.4%	51.5%	39.6%	35.7%	27.7%	28.5%	28.9%	29.6%	30.1%	30.7%	34.0%	34.8%	35.8%	36.7%	
30Y	64.0%	54.2%	44.3%	37.4%	34.5%	34.1%	33.9%	34.1%	33.7%	33.5%	35.9%	35.8%	35.9%	36.8%	

### US MBS Vega

#### Other Advanced Economies

EXPIRY	1M	6.8%	8.1%	10.7%	12.2%	13.4%	15.3%	17.4%	17.0%	16.2%	21.4%	19.8%	24.6%	24.4%	26.9%
	3M	14.8%	14.8%	14.8%	17.8%	22.3%	17.0%	16.3%	16.9%	15.9%	21.2%	19.7%	24.5%	24.2%	25.7%
	6M	12.8%	12.8%	12.8%	12.8%	16.0%	15.9%	14.8%	16.3%	15.4%	20.3%	18.9%	23.6%	23.4%	23.3%
	9M	13.5%	8.9%	8.9%	8.9%	26.8%	18.3%	15.8%	15.4%	14.8%	14.1%	13.2%	15.4%	17.9%	20.4%
	1Y	13.8%	21.4%	26.8%	32.1%	38.2%	28.9%	24.8%	14.6%	14.1%	13.8%	12.9%	12.6%	15.0%	17.6%
	2Y	24.0%	26.6%	31.9%	37.2%	42.5%	34.3%	21.5%	13.4%	13.3%	13.4%	12.8%	12.6%	12.6%	17.9%
	3Y	48.3%	45.9%	43.5%	42.1%	41.1%	29.2%	20.2%	13.5%	13.7%	14.1%	13.6%	13.5%	13.5%	19.4%
	5Y	69.3%	61.6%	53.9%	46.2%	38.5%	28.3%	20.6%	20.7%	20.5%	21.6%	21.2%	18.2%	18.3%	22.4%
	7Y	68.8%	58.2%	47.6%	42.3%	34.4%	25.8%	21.0%	20.4%	21.2%	20.3%	20.3%	20.4%	21.0%	22.1%
	10Y	58.9%	48.2%	40.2%	32.1%	26.8%	21.7%	20.7%	21.0%	18.9%	28.2%	28.6%	28.9%	31.0%	32.7%
	15Y	49.8%	41.9%	34.1%	27.2%	21.0%	18.8%	19.6%	21.4%	19.4%	29.2%	29.5%	32.5%	35.0%	37.2%
20Y	43.9%	35.7%	27.4%	24.7%	19.2%	19.7%	20.7%	22.7%	20.3%	30.3%	35.1%	38.7%	41.7%	44.4%	
30Y	70.4%	59.6%	48.8%	41.1%	38.0%	39.2%	41.4%	45.6%	41.9%	63.5%	66.5%	69.2%	71.8%	74.2%	

#### Total Emerging Europe

EXPIRY	1M	13.6%	16.3%	21.7%	24.4%	27.1%	36.0%	43.9%	38.9%	33.6%	41.3%	41.3%	53.1%	53.1%	59.0%
	3M	27.1%	27.1%	27.1%	32.6%	40.7%	43.2%	43.9%	38.9%	33.6%	41.3%	41.3%	53.1%	53.1%	56.6%
	6M	32.6%	32.6%	32.6%	32.6%	40.7%	48.0%	43.9%	38.9%	33.6%	41.3%	41.3%	53.1%	53.1%	53.1%
	9M	39.8%	26.6%	26.6%	26.6%	79.7%	62.4%	49.9%	38.9%	33.6%	29.5%	29.5%	35.4%	41.3%	47.2%
	1Y	46.8%	72.8%	91.1%	109.3%	130.1%	110.4%	83.9%	38.9%	33.6%	29.5%	29.5%	29.5%	35.4%	41.3%
	2Y	79.8%	88.7%	106.4%	124.2%	141.9%	99.9%	56.5%	29.5%	27.4%	25.5%	25.5%	25.5%	25.5%	35.7%
	3Y	131.4%	124.8%	118.2%	114.3%	111.6%	71.3%	44.9%	26.2%	25.2%	24.7%	24.7%	24.7%	24.7%	34.6%
	5Y	140.4%	124.8%	109.2%	93.6%	78.0%	52.6%	36.4%	33.1%	32.4%	33.0%	33.0%	28.3%	28.3%	33.0%
	7Y	111.9%	94.7%	77.5%	68.9%	55.9%	42.5%	32.3%	30.0%	30.5%	31.7%	31.7%	31.7%	31.7%	31.7%
	10Y	88.4%	72.3%	60.3%	48.2%	40.2%	32.0%	29.8%	28.6%	29.8%	30.2%	30.2%	30.2%	30.2%	30.2%
	15Y	76.3%	64.3%	52.2%	41.8%	32.1%	28.0%	28.2%	28.6%	29.8%	30.2%	30.2%	30.2%	30.2%	30.2%
20Y	64.3%	52.2%	40.2%	36.2%	28.1%	28.0%	28.2%	28.6%	29.8%	30.2%	30.2%	30.2%	30.2%	30.2%	
30Y	52.2%	44.2%	36.2%	30.5%	28.1%	28.0%	28.2%	28.6%	29.8%	30.2%	30.2%	30.2%	30.2%	30.2%	

#### Total Latam & Caribbean

EXPIRY	1M	8.6%	10.3%	13.7%	15.5%	17.1%	18.9%	22.7%	20.5%	21.0%	23.2%	29.3%	40.8%	39.5%	43.4%
	3M	15.0%	15.0%	15.0%	18.0%	22.6%	19.1%	17.5%	19.7%	17.0%	22.0%	24.0%	33.6%	32.7%	34.8%
	6M	14.6%	14.6%	14.6%	14.6%	18.3%	18.6%	17.8%	18.6%	15.3%	20.7%	21.8%	30.4%	29.7%	29.7%
	9M	15.7%	10.4%	10.4%	10.4%	31.2%	21.8%	19.2%	16.8%	13.5%	12.8%	13.4%	16.9%	19.3%	22.1%
	1Y	15.4%	24.0%	30.1%	36.0%	42.9%	33.7%	28.5%	15.5%	11.7%	10.8%	11.2%	11.5%	13.6%	15.9%
	2Y	29.4%	32.7%	39.2%	45.7%	52.3%	38.9%	18.1%	10.1%	9.8%	11.9%	9.6%	9.7%	9.6%	13.6%
	3Y	55.6%	52.9%	50.1%	48.4%	47.3%	24.7%	16.0%	9.5%	12.0%	11.5%	9.4%	9.5%	9.4%	13.4%
	5Y	46.9%	41.7%	36.5%	31.2%	26.1%	19.0%	13.4%	12.4%	12.2%	16.2%	12.7%	10.9%	10.9%	13.2%
	7Y	43.4%	36.7%	30.0%	26.7%	21.7%	19.9%	15.2%	13.7%	13.8%	16.2%	12.0%	12.2%	12.4%	12.9%
	10Y	33.5%	27.4%	22.9%	18.3%	15.2%	20.4%	19.1%	18.6%	17.9%	16.6%	11.2%	11.5%	12.1%	12.7%
	15Y	28.3%	23.9%	19.4%	15.5%	11.9%	17.5%	17.9%	18.6%	17.2%	15.7%	11.2%	12.5%	13.5%	14.4%
20Y	20.4%	16.6%	12.7%	11.5%	8.9%	15.0%	15.4%	16.2%	16.2%	15.6%	13.0%	15.0%	16.4%	17.7%	
30Y	60.4%	51.1%	41.8%	35.3%	32.6%	53.5%	54.7%	57.1%	56.8%	54.4%	40.6%	43.3%	45.1%	46.8%	

## Relative Normal Interest Rate Shocks (Continued)

### Total Asia Ex-Japan

EXPIRY	1M	7.9%	9.5%	12.6%	14.2%	15.8%	22.8%	31.1%	32.0%	31.7%	44.3%	42.0%	51.5%	53.6%	61.8%
	3M	16.0%	16.0%	16.0%	19.2%	24.0%	27.5%	31.0%	31.8%	31.6%	44.2%	41.8%	51.5%	53.6%	59.4%
	6M	18.4%	18.4%	18.4%	18.4%	23.1%	29.8%	31.1%	31.8%	31.6%	44.0%	41.8%	51.7%	53.9%	56.0%
	9M	22.8%	15.2%	15.2%	15.2%	45.5%	38.2%	35.1%	32.1%	31.9%	31.7%	30.1%	35.0%	42.6%	50.7%
	1Y	27.0%	42.0%	52.5%	63.0%	75.0%	66.4%	58.8%	32.5%	32.2%	32.0%	30.5%	29.7%	37.2%	45.1%
	2Y	56.4%	62.7%	75.2%	87.7%	100.3%	81.5%	52.9%	31.7%	31.3%	31.2%	29.8%	29.7%	31.1%	45.4%
	3Y	117.6%	111.7%	105.8%	102.3%	99.9%	72.8%	49.5%	31.6%	31.3%	31.1%	29.8%	30.4%	31.9%	46.7%
	5Y	145.4%	129.3%	113.1%	97.0%	80.8%	61.5%	44.2%	42.1%	41.0%	40.8%	39.1%	35.8%	37.8%	46.2%
	7Y	131.5%	111.3%	91.0%	80.9%	65.7%	52.7%	40.7%	39.3%	39.7%	39.2%	39.7%	42.7%	45.2%	47.4%
	10Y	106.3%	86.9%	72.4%	58.0%	48.3%	40.5%	38.4%	38.2%	37.9%	37.6%	41.8%	45.1%	47.8%	50.2%
	15Y	82.8%	69.7%	56.6%	45.3%	34.8%	32.0%	32.8%	34.7%	39.1%	43.7%	48.4%	51.9%	54.9%	57.5%
	20Y	109.2%	88.8%	68.3%	61.4%	47.8%	50.9%	52.9%	57.2%	59.4%	61.8%	64.5%	67.0%	69.4%	71.7%
30Y	110.1%	93.2%	76.2%	64.4%	59.3%	63.0%	65.3%	70.2%	72.7%	75.3%	78.1%	80.7%	83.3%	85.7%	

### Total ME/N. Africa

EXPIRY	1M	8.9%	10.7%	14.2%	16.0%	17.8%	19.7%	25.3%	24.0%	23.8%	32.6%	32.6%	42.0%	42.0%	46.6%
	3M	17.8%	17.8%	17.8%	21.3%	26.6%	23.6%	25.3%	24.0%	23.8%	32.6%	32.6%	42.0%	42.0%	44.8%
	6M	21.3%	21.3%	21.3%	21.3%	26.6%	26.2%	25.3%	24.0%	23.8%	32.6%	32.6%	42.0%	42.0%	42.0%
	9M	22.9%	15.3%	15.3%	15.3%	45.9%	29.9%	25.8%	22.2%	22.3%	22.2%	22.2%	26.6%	31.1%	35.5%
	1Y	24.2%	37.6%	47.0%	56.4%	67.1%	47.0%	39.4%	20.7%	21.0%	21.2%	21.2%	21.2%	25.4%	29.7%
	2Y	35.7%	39.6%	47.5%	55.5%	63.4%	48.9%	30.0%	18.1%	18.6%	18.5%	18.5%	18.5%	18.5%	25.8%
	3Y	69.2%	65.7%	62.3%	60.2%	58.8%	40.6%	27.1%	17.0%	17.8%	17.6%	17.6%	17.6%	17.6%	24.7%
	5Y	84.5%	75.1%	65.8%	56.4%	47.0%	33.9%	24.4%	22.8%	22.9%	23.6%	23.6%	20.3%	20.3%	23.6%
	7Y	81.4%	68.9%	56.4%	50.1%	40.7%	30.9%	23.7%	22.1%	22.9%	23.6%	23.6%	23.6%	23.6%	23.6%
	10Y	68.9%	56.4%	47.0%	37.6%	31.3%	24.7%	23.1%	22.1%	22.9%	23.6%	23.6%	23.6%	23.6%	23.6%
	15Y	59.5%	50.1%	40.7%	32.6%	25.0%	21.6%	21.9%	22.1%	22.9%	23.6%	23.6%	23.6%	23.6%	23.6%
	20Y	50.1%	40.7%	31.3%	28.2%	21.9%	21.6%	21.9%	22.1%	22.9%	23.6%	23.6%	23.6%	23.6%	23.6%
30Y	40.7%	34.4%	28.2%	23.8%	21.9%	21.6%	21.9%	22.1%	22.9%	23.6%	23.6%	23.6%	23.6%	23.6%	

### Total Sub-Saharan Africa

EXPIRY	1M	3.2%	3.8%	5.1%	5.7%	6.4%	8.3%	11.6%	12.3%	12.0%	16.3%	16.3%	20.9%	20.9%	23.2%
	3M	6.4%	6.4%	6.4%	7.7%	9.6%	9.9%	11.6%	12.3%	12.0%	16.3%	16.3%	20.9%	20.9%	22.3%
	6M	7.7%	7.7%	7.7%	7.7%	9.6%	11.0%	11.6%	12.3%	12.0%	16.3%	16.3%	20.9%	20.9%	20.9%
	9M	7.9%	5.3%	5.3%	5.3%	15.8%	12.5%	11.7%	11.3%	11.1%	11.0%	11.0%	13.2%	15.3%	17.5%
	1Y	8.1%	12.5%	15.7%	18.8%	22.4%	19.7%	17.8%	10.4%	10.3%	10.4%	10.4%	10.4%	12.4%	14.5%
	2Y	15.8%	17.6%	21.1%	24.6%	28.1%	22.4%	14.2%	8.8%	8.9%	8.9%	8.9%	8.9%	8.9%	12.5%
	3Y	30.6%	29.1%	27.5%	26.6%	26.0%	18.5%	12.4%	8.1%	8.2%	8.2%	8.2%	8.2%	8.2%	11.4%
	5Y	34.4%	30.5%	26.7%	22.9%	19.1%	14.2%	10.3%	9.8%	9.6%	9.6%	9.6%	8.2%	8.2%	9.6%
	7Y	28.7%	24.3%	19.9%	17.7%	14.4%	11.2%	8.6%	8.0%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%
	10Y	19.4%	15.9%	13.2%	10.6%	8.8%	7.1%	6.6%	6.3%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
	15Y	16.7%	14.1%	11.4%	9.2%	7.0%	6.2%	6.3%	6.3%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
	20Y	14.1%	11.4%	8.8%	7.9%	6.2%	6.2%	6.3%	6.3%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
30Y	11.4%	9.7%	7.9%	6.7%	6.2%	6.2%	6.3%	6.3%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	



## Relative LogNormal Interest Rate Shocks (Continued)

USD															
EXPIRY	1M	2.5%	-1.3%	-10.6%	-23.8%	-30.6%	-38.8%	-31.4%	-21.9%	-19.9%	-11.5%	-12.3%	-8.6%	-9.2%	-7.3%
	3M	-3.3%	-8.5%	-24.6%	-32.1%	-30.8%	-37.3%	-31.6%	-22.2%	-20.3%	-12.3%	-13.2%	-9.6%	-10.2%	-9.4%
	6M	-32.5%	-36.3%	-41.7%	-41.4%	-39.8%	-37.1%	-31.5%	-23.2%	-21.1%	-13.9%	-14.5%	-10.9%	-11.6%	-12.1%
	9M	-43.5%	-47.2%	-45.3%	-45.1%	-35.8%	-34.3%	-29.5%	-23.7%	-21.4%	-19.2%	-19.8%	-18.6%	-17.0%	-15.1%
	1Y	-41.5%	-38.1%	-36.0%	-33.7%	-31.1%	-26.1%	-21.9%	-23.4%	-21.4%	-19.4%	-20.0%	-21.3%	-19.7%	-17.8%
	2Y	-25.3%	-23.2%	-19.3%	-15.5%	-11.6%	-10.2%	-15.3%	-20.8%	-19.2%	-19.0%	-20.0%	-21.2%	-21.9%	-17.8%
	3Y	3.4%	2.2%	1.3%	1.1%	1.1%	-5.1%	-13.6%	-18.7%	-17.5%	-18.8%	-20.1%	-21.1%	-21.9%	-17.6%
	5Y	16.6%	11.5%	6.4%	1.2%	-3.9%	-9.8%	-14.4%	-13.3%	-14.8%	-15.7%	-16.8%	-19.5%	-20.2%	-17.6%
	7Y	22.0%	14.5%	7.1%	3.4%	-2.1%	-6.6%	-10.5%	-14.0%	-15.1%	-16.5%	-17.0%	-17.3%	-17.5%	-17.1%
	10Y	11.7%	3.8%	-2.1%	-8.1%	-12.0%	-15.8%	-16.8%	-17.4%	-18.0%	-18.5%	-18.2%	-17.6%	-17.0%	-16.3%
	15Y	7.1%	0.4%	-6.2%	-12.0%	-17.3%	-19.2%	-19.0%	-18.8%	-18.5%	-18.3%	-17.4%	-15.4%	-14.9%	-14.0%
20Y	6.0%	-1.7%	-9.5%	-12.1%	-17.2%	-16.9%	-16.8%	-16.6%	-16.6%	-16.7%	-13.5%	-12.5%	-11.6%	-10.7%	
30Y	8.6%	2.0%	-4.5%	-9.0%	-11.0%	-11.2%	-11.4%	-11.3%	-11.5%	-11.7%	-10.1%	-10.1%	-10.1%	-9.5%	

### US MBS Vega

#### Other Advanced Economies

EXPIRY	1M	6.1%	6.7%	7.8%	6.0%	3.2%	-7.4%	-8.8%	-7.3%	-8.3%	-3.3%	-5.8%	-3.6%	-4.7%	-3.6%
	3M	12.7%	12.1%	8.8%	6.7%	6.7%	-8.1%	-10.5%	-7.9%	-8.8%	-3.7%	-6.1%	-3.8%	-4.9%	-4.6%
	6M	5.2%	3.6%	-1.5%	-5.1%	-5.5%	-12.0%	-12.7%	-9.1%	-9.6%	-4.9%	-7.0%	-4.8%	-5.8%	-6.5%
	9M	-3.5%	-9.5%	-12.0%	-14.4%	-3.1%	-12.4%	-12.4%	-10.3%	-10.3%	-10.0%	-11.7%	-11.2%	-10.1%	-8.8%
	1Y	-8.6%	-4.3%	-2.9%	-1.5%	0.3%	-6.2%	-5.6%	-11.1%	-10.9%	-10.4%	-12.0%	-13.4%	-12.4%	-11.0%
	2Y	-6.9%	-5.5%	-2.3%	0.9%	4.0%	3.4%	-4.4%	-11.1%	-10.2%	-10.3%	-12.1%	-13.4%	-14.2%	-10.7%
	3Y	18.9%	17.1%	15.4%	14.4%	13.8%	4.9%	-3.6%	-9.3%	-8.7%	-9.5%	-11.5%	-12.7%	-13.6%	-9.4%
	5Y	32.8%	26.7%	20.6%	14.5%	8.4%	0.3%	-4.7%	-3.5%	-4.6%	-4.7%	-6.7%	-9.9%	-10.7%	-7.5%
	7Y	36.1%	27.6%	19.2%	15.0%	8.6%	1.9%	-1.8%	-4.1%	-4.5%	-6.5%	-8.0%	-8.8%	-8.9%	-7.9%
	10Y	23.6%	15.2%	8.9%	2.6%	-1.6%	-5.7%	-6.6%	-6.8%	-9.2%	-3.1%	-3.4%	-4.0%	-2.1%	-0.5%
	15Y	12.6%	6.6%	0.7%	-4.5%	-9.3%	-11.2%	-10.8%	-9.9%	-11.4%	-4.3%	-4.6%	-1.7%	0.6%	2.6%
20Y	7.3%	1.2%	-5.0%	-7.1%	-11.2%	-11.0%	-10.4%	-9.3%	-11.3%	-4.4%	0.2%	3.5%	6.1%	8.4%	
30Y	29.5%	21.3%	13.0%	7.2%	4.8%	5.8%	7.4%	10.6%	7.8%	24.2%	26.5%	28.5%	30.5%	32.4%	

#### Total Emerging Europe

EXPIRY	1M	-69.1%	-65.0%	-62.4%	-65.2%	-67.1%	-58.2%	-58.4%	-52.4%	-49.0%	-35.6%	-29.9%	-23.5%	-24.0%	-21.6%
	3M	-60.0%	-57.5%	-63.0%	-67.6%	-62.8%	-56.5%	-57.7%	-51.7%	-48.2%	-35.2%	-29.7%	-23.4%	-23.9%	-22.7%
	6M	-65.9%	-67.8%	-74.8%	-68.4%	-62.4%	-56.7%	-56.9%	-50.9%	-47.0%	-34.6%	-29.5%	-23.3%	-23.9%	-24.4%
	9M	-77.6%	-83.6%	-70.1%	-65.1%	-46.0%	-52.8%	-53.4%	-49.7%	-45.7%	-39.4%	-35.2%	-32.0%	-29.7%	-27.2%
	1Y	-54.3%	-44.8%	-36.6%	-28.2%	-18.4%	-37.7%	-39.8%	-48.2%	-44.2%	-38.7%	-34.9%	-34.9%	-32.5%	-30.0%
	2Y	-51.7%	-49.7%	-45.6%	-41.5%	-37.5%	-36.4%	-44.8%	-49.0%	-42.8%	-38.8%	-36.4%	-36.6%	-37.3%	-32.5%
	3Y	-15.8%	-17.4%	-18.7%	-19.1%	-19.0%	-31.4%	-40.3%	-43.1%	-38.1%	-36.3%	-35.6%	-36.3%	-37.1%	-32.5%
	5Y	1.1%	-5.0%	-11.0%	-17.2%	-23.4%	-32.9%	-35.2%	-30.7%	-30.5%	-29.0%	-30.4%	-34.1%	-35.1%	-33.0%
	7Y	12.0%	3.4%	-5.1%	-9.1%	-15.5%	-20.8%	-24.8%	-28.2%	-28.2%	-28.7%	-30.7%	-32.1%	-33.0%	-33.3%
	10Y	-1.3%	-9.6%	-15.8%	-21.9%	-26.0%	-29.8%	-30.4%	-30.2%	-30.9%	-31.7%	-33.4%	-34.4%	-34.7%	-34.8%
	15Y	-11.0%	-17.0%	-23.1%	-28.4%	-33.2%	-35.3%	-35.1%	-34.8%	-34.9%	-35.4%	-36.1%	-36.0%	-36.0%	-35.9%
20Y	-20.0%	-25.8%	-31.7%	-33.7%	-37.6%	-37.8%	-37.7%	-37.7%	-37.2%	-37.2%	-36.8%	-36.5%	-36.4%	-36.3%	
30Y	-24.9%	-28.9%	-32.9%	-35.6%	-36.8%	-36.9%	-36.8%	-36.6%	-36.0%	-35.8%	-35.8%	-35.8%	-35.8%	-35.8%	

#### Total Latam & Caribbean

EXPIRY	1M	-15.4%	-14.1%	-11.1%	-9.2%	-7.3%	-3.7%	-2.6%	-2.4%	-2.0%	0.7%	4.3%	11.7%	9.5%	11.4%
	3M	-10.2%	-10.0%	-9.6%	-6.5%	-2.1%	-3.7%	-6.5%	-3.0%	-5.2%	-0.3%	0.0%	6.0%	4.2%	4.8%
	6M	-9.7%	-9.5%	-8.7%	-7.9%	-4.3%	-4.5%	-5.2%	-4.4%	-6.4%	-1.3%	-1.8%	3.4%	1.8%	0.8%
	9M	-7.5%	-11.3%	-10.6%	-10.1%	7.5%	-2.6%	-4.4%	-5.2%	-7.7%	-7.9%	-8.7%	-7.3%	-6.4%	-5.1%
	1Y	-6.2%	1.1%	6.6%	12.1%	18.4%	6.2%	3.3%	-6.2%	-9.1%	-9.6%	-10.5%	-11.6%	-11.0%	-9.9%
	2Y	0.6%	2.9%	7.6%	12.2%	16.9%	10.4%	-4.6%	-11.0%	-10.5%	-9.0%	-12.2%	-13.4%	-14.4%	-11.9%
	3Y	27.1%	25.0%	22.9%	21.8%	21.1%	3.2%	-4.7%	-10.2%	-7.6%	-9.2%	-12.5%	-13.7%	-14.7%	-12.0%
	5Y	18.9%	14.7%	10.5%	6.2%	2.0%	-3.7%	-7.5%	-7.5%	-8.6%	-6.3%	-10.9%	-13.3%	-14.3%	-12.4%
	7Y	18.6%	13.1%	7.7%	5.0%	0.9%	-0.4%	-4.1%	-7.1%	-8.0%	-7.4%	-12.2%	-13.1%	-13.4%	-12.9%
	10Y	6.5%	1.6%	-2.1%	-5.8%	-8.3%	-4.4%	-5.6%	-6.3%	-7.7%	-9.6%	-14.6%	-15.2%	-14.3%	-13.6%
	15Y	-1.1%	-4.6%	-8.1%	-11.1%	-13.9%	-9.9%	-9.9%	-9.8%	-10.9%	-12.4%	-16.5%	-14.8%	-13.6%	-12.6%
20Y	-8.4%	-11.3%	-14.2%	-15.2%	-17.2%	-12.8%	-12.7%	-12.4%	-12.7%	-13.7%	-14.5%	-12.5%	-11.0%	-9.8%	
30Y	24.7%	17.5%	10.3%	5.2%	3.0%	19.4%	20.3%	22.1%	21.9%	20.0%	9.3%	11.4%	12.8%	14.1%	

## Relative LogNormal Interest Rate Shocks (Continued)

### Total Asia Ex-Japan

EXPIRY	1M	6.9%	7.7%	8.4%	5.3%	1.1%	-9.8%	-8.4%	-7.2%	-8.5%	1.3%	-3.0%	1.6%	1.3%	5.0%
	3M	13.0%	12.2%	7.4%	3.7%	2.3%	-9.2%	-9.8%	-8.2%	-9.1%	0.7%	-3.4%	1.3%	1.1%	3.3%
	6M	7.1%	4.7%	-2.4%	-7.2%	-7.9%	-11.8%	-11.7%	-9.5%	-9.8%	-0.1%	-3.9%	1.1%	0.9%	0.8%
	9M	-2.2%	-11.2%	-14.6%	-17.9%	-0.1%	-9.5%	-10.1%	-10.2%	-10.1%	-9.2%	-12.1%	-10.3%	-6.7%	-2.7%
	1Y	-6.6%	1.6%	5.0%	8.1%	12.0%	6.3%	5.2%	-10.4%	-10.0%	-9.2%	-12.1%	-14.0%	-10.4%	-6.4%
	2Y	4.0%	7.3%	14.1%	20.9%	27.5%	22.0%	4.9%	-10.3%	-9.2%	-9.7%	-12.7%	-14.2%	-14.6%	-6.2%
	3Y	54.1%	50.0%	45.9%	43.5%	41.9%	22.9%	4.6%	-8.3%	-7.6%	-9.7%	-12.7%	-13.9%	-14.3%	-5.3%
	5Y	67.5%	56.3%	45.1%	33.9%	22.7%	9.0%	-0.8%	-0.4%	-2.8%	-4.9%	-7.8%	-11.5%	-11.7%	-6.1%
	7Y	64.8%	50.5%	36.2%	29.1%	18.3%	9.3%	1.0%	-3.3%	-4.9%	-6.8%	-8.3%	-8.0%	-7.2%	-5.5%
	10Y	37.7%	24.7%	14.9%	5.2%	-1.4%	-7.0%	-8.8%	-9.6%	-10.1%	-11.0%	-9.6%	-8.9%	-6.6%	-4.6%
	15Y	18.7%	10.1%	1.6%	-5.8%	-12.7%	-14.7%	-14.5%	-13.7%	-11.5%	-9.5%	-8.0%	-4.8%	-2.2%	-0.1%
	20Y	31.5%	18.6%	5.6%	1.2%	-7.4%	-5.7%	-4.8%	-2.7%	-2.0%	-1.4%	2.3%	5.0%	7.2%	9.1%
30Y	36.4%	25.4%	14.4%	6.7%	3.4%	5.8%	7.3%	10.5%	12.1%	13.8%	15.6%	17.3%	19.0%	20.6%	

### Total ME/N. Africa

EXPIRY	1M	-80.5%	-81.3%	-81.2%	-80.4%	-78.3%	-65.3%	-53.8%	-36.2%	-29.2%	-16.5%	-14.9%	-10.8%	-12.5%	-11.3%
	3M	-80.4%	-81.2%	-80.6%	-78.8%	-73.4%	-61.0%	-50.9%	-34.9%	-28.3%	-16.1%	-14.8%	-10.7%	-12.5%	-12.3%
	6M	-79.5%	-79.5%	-77.9%	-72.7%	-67.4%	-55.8%	-46.7%	-33.0%	-27.0%	-15.6%	-14.7%	-10.6%	-12.4%	-13.9%
	9M	-76.5%	-77.5%	-71.1%	-67.4%	-55.1%	-50.6%	-42.5%	-32.2%	-26.7%	-21.8%	-21.3%	-20.2%	-19.1%	-17.7%
	1Y	-64.6%	-58.8%	-53.0%	-47.0%	-40.4%	-40.6%	-32.3%	-31.5%	-26.3%	-22.0%	-21.8%	-23.6%	-22.5%	-21.2%
	2Y	-45.3%	-43.0%	-38.8%	-34.5%	-30.2%	-23.3%	-26.1%	-28.4%	-24.1%	-22.5%	-23.3%	-25.2%	-26.8%	-23.2%
	3Y	-5.0%	-5.9%	-6.2%	-6.0%	-5.4%	-12.0%	-19.9%	-23.8%	-20.4%	-21.4%	-23.3%	-25.4%	-27.1%	-23.5%
	5Y	15.2%	9.7%	4.4%	-1.0%	-6.5%	-13.3%	-17.5%	-15.4%	-16.7%	-17.0%	-20.2%	-24.4%	-26.2%	-24.3%
	7Y	24.4%	16.1%	8.0%	4.0%	-2.1%	-7.6%	-11.5%	-15.8%	-16.6%	-18.2%	-21.2%	-23.4%	-24.5%	-24.6%
	10Y	9.7%	1.6%	-4.4%	-10.5%	-14.5%	-18.7%	-19.5%	-19.9%	-21.2%	-22.4%	-24.5%	-26.2%	-26.1%	-25.9%
	15Y	-3.3%	-9.0%	-14.8%	-19.8%	-24.4%	-26.7%	-26.7%	-27.0%	-27.1%	-27.5%	-28.9%	-28.0%	-27.5%	-27.1%
	20Y	-12.5%	-18.0%	-23.6%	-25.5%	-29.2%	-29.6%	-29.7%	-30.0%	-30.1%	-30.4%	-28.8%	-27.9%	-27.4%	-27.0%
30Y	-14.9%	-18.7%	-22.5%	-25.1%	-26.3%	-26.5%	-26.3%	-26.1%	-25.7%	-25.2%	-25.2%	-25.2%	-25.2%	-25.2%	

### Total Sub-Saharan Africa

EXPIRY	1M	-10.6%	-9.4%	-7.3%	-6.8%	-6.8%	-4.8%	-4.2%	-3.5%	-4.6%	-0.8%	-2.5%	-0.3%	-1.4%	-0.6%
	3M	-6.1%	-5.4%	-5.3%	-5.6%	-3.8%	-3.7%	-4.3%	-3.6%	-4.6%	-0.9%	-2.5%	-0.4%	-1.5%	-1.4%
	6M	-4.4%	-4.1%	-6.4%	-5.9%	-3.9%	-3.7%	-4.5%	-3.9%	-4.8%	-1.1%	-2.7%	-0.5%	-1.6%	-2.6%
	9M	-8.4%	-11.7%	-9.0%	-8.2%	1.5%	-3.6%	-4.7%	-5.1%	-5.7%	-5.8%	-7.3%	-7.0%	-6.3%	-5.4%
	1Y	-4.7%	-0.7%	2.3%	5.2%	8.5%	2.0%	0.7%	-5.9%	-6.3%	-6.4%	-7.9%	-9.4%	-8.7%	-7.8%
	2Y	-3.1%	-2.0%	0.4%	2.8%	5.1%	2.9%	-3.3%	-8.4%	-7.9%	-8.3%	-9.8%	-11.1%	-12.0%	-9.7%
	3Y	12.2%	10.9%	9.6%	8.8%	8.3%	1.9%	-4.2%	-8.3%	-7.9%	-9.0%	-10.7%	-11.9%	-12.9%	-10.6%
	5Y	13.0%	9.7%	6.4%	3.1%	-0.2%	-4.6%	-7.2%	-7.0%	-7.9%	-9.0%	-10.7%	-12.7%	-13.7%	-12.4%
	7Y	10.1%	6.3%	2.5%	0.7%	-2.2%	-4.8%	-7.0%	-9.0%	-9.9%	-11.1%	-12.6%	-13.5%	-14.0%	-13.8%
	10Y	-1.3%	-4.3%	-6.5%	-8.8%	-10.3%	-12.0%	-12.6%	-13.3%	-14.0%	-14.9%	-15.6%	-16.4%	-16.0%	-15.7%
	15Y	-7.0%	-9.2%	-11.3%	-13.2%	-15.0%	-16.0%	-16.2%	-16.7%	-16.6%	-16.8%	-17.5%	-16.7%	-16.2%	-15.8%
	20Y	-10.0%	-12.1%	-14.2%	-15.0%	-16.4%	-16.6%	-16.7%	-17.1%	-17.4%	-17.9%	-16.7%	-16.1%	-15.7%	-15.4%
30Y	-10.1%	-11.5%	-12.9%	-13.9%	-14.4%	-14.3%	-14.3%	-14.2%	-14.2%	-14.2%	-14.2%	-14.2%	-14.2%	-14.2%	

# Absolute Normal Interest Rate Shocks

## Rates Vega

### Absolute Normal Interest Rate Shocks (bps)

		MATURITY														
		1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	25Y	30Y	
AUD	EXPIRY	1M	2.2	2.6	3.4	3.9	4.3	6.4	9.4	10.7	10.7	14.9	14.9	19.2	19.2	21.3
		3M	4.3	4.3	4.3	5.1	6.4	7.7	9.4	10.7	10.7	14.9	14.9	19.2	19.2	20.4
		6M	5.1	5.1	5.1	5.1	6.4	8.5	9.4	10.7	10.7	14.9	14.9	19.2	19.2	19.2
		9M	6.4	4.3	4.3	4.3	12.8	11.1	10.7	10.7	10.7	10.7	10.7	12.8	14.9	17.0
		1Y	7.7	11.9	14.9	17.9	21.3	19.6	17.9	10.7	10.7	10.7	10.7	10.7	12.8	14.9
		2Y	19.2	21.3	25.5	29.8	34.0	27.7	17.5	10.7	10.7	10.7	10.7	10.7	10.7	14.9
		3Y	42.5	40.4	38.3	37.0	36.2	25.5	17.0	10.7	10.7	10.7	10.7	10.7	10.7	14.9
		5Y	57.4	51.0	44.7	38.3	31.9	23.4	16.6	15.3	14.9	14.9	14.9	14.9	12.8	14.9
		7Y	55.3	46.8	38.3	34.0	27.7	21.3	16.2	14.9	14.9	14.9	14.9	14.9	14.9	14.9
		10Y	46.8	38.3	31.9	25.5	21.3	17.0	15.8	14.9	14.9	14.9	14.9	14.9	14.9	14.9
		15Y	40.4	34.0	27.7	22.1	17.0	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
		20Y	34.0	27.7	21.3	19.2	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
		30Y	27.7	23.4	19.2	16.2	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
EUR	EXPIRY	1M	2.8	3.3	4.4	5.0	5.5	8.3	12.1	13.8	13.8	19.3	19.3	24.8	24.8	27.5
		3M	5.5	5.5	5.5	6.6	8.3	9.9	12.1	13.8	13.8	19.3	19.3	24.8	24.8	26.4
		6M	6.6	6.6	6.6	6.6	8.3	11.0	12.1	13.8	13.8	19.3	19.3	24.8	24.8	24.8
		9M	8.3	5.5	5.5	5.5	16.5	14.3	13.8	13.8	13.8	13.8	13.8	16.5	19.3	22.0
		1Y	9.9	15.4	19.3	23.1	27.5	25.3	23.1	13.8	13.8	13.8	13.8	13.8	16.5	19.3
		2Y	24.8	27.5	33.0	38.5	44.0	35.8	22.6	13.8	13.8	13.8	13.8	13.8	13.8	19.3
		3Y	55.0	52.3	49.5	47.9	46.8	33.0	22.0	13.8	13.8	13.8	13.8	13.8	13.8	19.3
		5Y	74.3	66.0	57.8	49.5	41.3	30.3	21.5	19.8	19.3	19.3	19.3	16.5	16.5	19.3
		7Y	71.5	60.5	49.5	44.0	35.8	27.5	20.9	19.3	19.3	19.3	19.3	19.3	19.3	19.3
		10Y	60.5	49.5	41.3	33.0	27.5	22.0	20.4	19.3	19.3	19.3	19.3	19.3	19.3	19.3
		15Y	52.3	44.0	35.8	28.6	22.0	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
		20Y	44.0	35.8	27.5	24.8	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
		30Y	35.8	30.3	24.8	20.9	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
GBP	EXPIRY	1M	2.2	2.6	3.4	3.9	4.3	6.4	9.4	10.7	10.7	14.9	14.9	19.2	19.2	21.3
		3M	4.3	4.3	4.3	5.1	6.4	7.7	9.4	10.7	10.7	14.9	14.9	19.2	19.2	20.4
		6M	5.1	5.1	5.1	5.1	6.4	8.5	9.4	10.7	10.7	14.9	14.9	19.2	19.2	19.2
		9M	6.4	4.3	4.3	4.3	12.8	11.1	10.7	10.7	10.7	10.7	10.7	12.8	14.9	17.0
		1Y	7.7	11.9	14.9	17.9	21.3	19.6	17.9	10.7	10.7	10.7	10.7	10.7	12.8	14.9
		2Y	19.2	21.3	25.5	29.8	34.0	27.7	17.5	10.7	10.7	10.7	10.7	10.7	10.7	14.9
		3Y	42.5	40.4	38.3	37.0	36.2	25.5	17.0	10.7	10.7	10.7	10.7	10.7	10.7	14.9
		5Y	57.4	51.0	44.7	38.3	31.9	23.4	16.6	15.3	14.9	14.9	14.9	14.9	12.8	14.9
		7Y	55.3	46.8	38.3	34.0	27.7	21.3	16.2	14.9	14.9	14.9	14.9	14.9	14.9	14.9
		10Y	46.8	38.3	31.9	25.5	21.3	17.0	15.8	14.9	14.9	14.9	14.9	14.9	14.9	14.9
		15Y	40.4	34.0	27.7	22.1	17.0	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
		20Y	34.0	27.7	21.3	19.2	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
		30Y	27.7	23.4	19.2	16.2	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
JPY	EXPIRY	1M	1.3	1.5	2.0	2.3	2.5	3.8	5.5	6.3	6.3	8.8	8.8	11.3	11.3	12.5
		3M	2.5	2.5	2.5	3.0	3.8	4.5	5.5	6.3	6.3	8.8	8.8	11.3	11.3	12.0
		6M	3.0	3.0	3.0	3.0	3.8	5.0	5.5	6.3	6.3	8.8	8.8	11.3	11.3	11.3
		9M	3.8	2.5	2.5	2.5	7.5	6.5	6.3	6.3	6.3	6.3	6.3	7.5	8.8	10.0
		1Y	4.5	7.0	8.8	10.5	12.5	11.5	10.5	6.3	6.3	6.3	6.3	6.3	7.5	8.8
		2Y	11.3	12.5	15.0	17.5	20.0	16.3	10.3	6.3	6.3	6.3	6.3	6.3	6.3	8.8
		3Y	25.0	23.8	22.5	21.8	21.3	15.0	10.0	6.3	6.3	6.3	6.3	6.3	6.3	8.8
		5Y	33.8	30.0	26.3	22.5	18.8	13.8	9.8	9.0	8.8	8.8	8.8	8.8	7.5	8.8
		7Y	32.5	27.5	22.5	20.0	16.3	12.5	9.5	8.8	8.8	8.8	8.8	8.8	8.8	8.8
		10Y	27.5	22.5	18.8	15.0	12.5	10.0	9.3	8.8	8.8	8.8	8.8	8.8	8.8	8.8
		15Y	23.8	20.0	16.3	13.0	10.0	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
		20Y	20.0	16.3	12.5	11.3	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
		30Y	16.3	13.8	11.3	9.5	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8

## Absolute Normal Interest Rate Shocks (Continued)

### USD

EXPIRY	1M	2.5	3.0	4.0	4.5	5.0	7.5	11.0	12.5	12.5	17.5	17.5	22.5	22.5	25.0	
	3M	5.0	5.0	5.0	6.0	7.5	9.0	11.0	12.5	12.5	17.5	17.5	22.5	22.5	24.0	
	6M	6.0	6.0	6.0	6.0	7.5	10.0	11.0	12.5	12.5	17.5	17.5	22.5	22.5	22.5	
	9M	7.5	5.0	5.0	5.0	15.0	13.0	12.5	12.5	12.5	12.5	12.5	15.0	17.5	20.0	
	1Y	9.0	14.0	17.5	21.0	25.0	23.0	21.0	12.5	12.5	12.5	12.5	12.5	15.0	17.5	
	2Y	22.5	25.0	30.0	35.0	40.0	32.5	20.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	17.5
	3Y	50.0	47.5	45.0	43.5	42.5	30.0	20.0	12.5	12.5	12.5	12.5	12.5	12.5	12.5	17.5
	5Y	67.5	60.0	52.5	45.0	37.5	27.5	19.5	18.0	17.5	17.5	17.5	17.5	15.0	15.0	17.5
	7Y	65.0	55.0	45.0	40.0	32.5	25.0	19.0	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
	10Y	55.0	45.0	37.5	30.0	25.0	20.0	18.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
	15Y	47.5	40.0	32.5	26.0	20.0	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
	20Y	40.0	32.5	25.0	22.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
	30Y	32.5	27.5	22.5	19.0	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5

### US MBS Vega

#### Other Advanced Economies

EXPIRY	1M	2.2	2.6	3.4	3.9	4.3	6.4	9.4	10.7	10.7	14.9	14.9	19.2	19.2	21.3	
	3M	4.3	4.3	4.3	5.1	6.4	7.7	9.4	10.7	10.7	14.9	14.9	19.2	19.2	20.4	
	6M	5.1	5.1	5.1	5.1	6.4	8.5	9.4	10.7	10.7	14.9	14.9	19.2	19.2	19.2	
	9M	6.4	4.3	4.3	4.3	12.8	11.1	10.7	10.7	10.7	10.7	10.7	12.8	14.9	17.0	
	1Y	7.7	11.9	14.9	17.9	21.3	19.6	17.9	10.7	10.7	10.7	10.7	10.7	12.8	14.9	
	2Y	19.2	21.3	25.5	29.8	34.0	27.7	17.5	10.7	10.7	10.7	10.7	10.7	10.7	10.7	14.9
	3Y	42.5	40.4	38.3	37.0	36.2	25.5	17.0	10.7	10.7	10.7	10.7	10.7	10.7	10.7	14.9
	5Y	57.4	51.0	44.7	38.3	31.9	23.4	16.6	15.3	14.9	14.9	14.9	14.9	12.8	12.8	14.9
	7Y	55.3	46.8	38.3	34.0	27.7	21.3	16.2	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
	10Y	46.8	38.3	31.9	25.5	21.3	17.0	15.8	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
	15Y	40.4	34.0	27.7	22.1	17.0	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
	20Y	34.0	27.7	21.3	19.2	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9
	30Y	27.7	23.4	19.2	16.2	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9

#### Total Emerging Europe

EXPIRY	1M	3.3	3.9	5.2	5.9	6.5	9.8	14.3	16.3	16.3	22.8	22.8	29.3	29.3	32.5	
	3M	6.5	6.5	6.5	7.8	9.8	11.7	14.3	16.3	16.3	22.8	22.8	29.3	29.3	31.2	
	6M	7.8	7.8	7.8	7.8	9.8	13.0	14.3	16.3	16.3	22.8	22.8	29.3	29.3	29.3	
	9M	9.8	6.5	6.5	6.5	19.5	16.9	16.3	16.3	16.3	16.3	16.3	19.5	22.8	26.0	
	1Y	11.7	18.2	22.8	27.3	32.5	29.9	27.3	16.3	16.3	16.3	16.3	16.3	19.5	22.8	
	2Y	29.3	32.5	39.0	45.5	52.0	42.3	26.7	16.3	16.3	16.3	16.3	16.3	16.3	16.3	22.8
	3Y	65.0	61.8	58.5	56.6	55.3	39.0	26.0	16.3	16.3	16.3	16.3	16.3	16.3	16.3	22.8
	5Y	87.8	78.0	68.3	58.5	48.8	35.8	25.4	23.4	22.8	22.8	22.8	22.8	19.5	19.5	22.8
	7Y	84.5	71.5	58.5	52.0	42.3	32.5	24.7	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
	10Y	71.5	58.5	48.8	39.0	32.5	26.0	24.1	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
	15Y	61.8	52.0	42.3	33.8	26.0	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
	20Y	52.0	42.3	32.5	29.3	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
	30Y	42.3	35.8	29.3	24.7	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8

#### Total Latam & Caribbean

EXPIRY	1M	3.2	3.8	5.0	5.7	6.3	9.4	13.8	15.7	15.7	21.9	21.9	28.2	28.2	31.3	
	3M	6.3	6.3	6.3	7.5	9.4	11.3	13.8	15.7	15.7	21.9	21.9	28.2	28.2	30.0	
	6M	7.5	7.5	7.5	7.5	9.4	12.5	13.8	15.7	15.7	21.9	21.9	28.2	28.2	28.2	
	9M	9.4	6.3	6.3	6.3	18.8	16.3	15.7	15.7	15.7	15.7	15.7	18.8	21.9	25.0	
	1Y	11.3	17.5	21.9	26.3	31.3	28.8	26.3	15.7	15.7	15.7	15.7	15.7	18.8	21.9	
	2Y	28.2	31.3	37.5	43.8	50.0	40.7	25.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	21.9
	3Y	62.5	59.4	56.3	54.4	53.2	37.5	25.0	15.7	15.7	15.7	15.7	15.7	15.7	15.7	21.9
	5Y	84.4	75.0	65.7	56.3	46.9	34.4	24.4	22.5	21.9	21.9	21.9	21.9	18.8	18.8	21.9
	7Y	81.3	68.8	56.3	50.0	40.7	31.3	23.8	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9
	10Y	68.8	56.3	46.9	37.5	31.3	25.0	23.2	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9
	15Y	59.4	50.0	40.7	32.5	25.0	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9
	20Y	50.0	40.7	31.3	28.2	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9
	30Y	40.7	34.4	28.2	23.8	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9

## Absolute Normal Interest Rate Shocks (Continued)

### Total Asia Ex-Japan

EXPIRY	1M	2.8	3.3	4.4	5.0	5.5	8.3	12.1	13.8	13.8	19.3	19.3	24.8	24.8	27.5	
	3M	5.5	5.5	5.5	6.6	8.3	9.9	12.1	13.8	13.8	19.3	19.3	24.8	24.8	26.4	
	6M	6.6	6.6	6.6	6.6	8.3	11.0	12.1	13.8	13.8	19.3	19.3	24.8	24.8	24.8	
	9M	8.3	5.5	5.5	5.5	16.5	14.3	13.8	13.8	13.8	13.8	13.8	16.5	19.3	22.0	
	1Y	9.9	15.4	19.3	23.1	27.5	25.3	23.1	13.8	13.8	13.8	13.8	13.8	13.8	16.5	19.3
	2Y	24.8	27.5	33.0	38.5	44.0	35.8	22.6	13.8	13.8	13.8	13.8	13.8	13.8	13.8	19.3
	3Y	55.0	52.3	49.5	47.9	46.8	33.0	22.0	13.8	13.8	13.8	13.8	13.8	13.8	13.8	19.3
	5Y	74.3	66.0	57.8	49.5	41.3	30.3	21.5	19.8	19.3	19.3	19.3	19.3	16.5	16.5	19.3
	7Y	71.5	60.5	49.5	44.0	35.8	27.5	20.9	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
	10Y	60.5	49.5	41.3	33.0	27.5	22.0	20.4	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
	15Y	52.3	44.0	35.8	28.6	22.0	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
	20Y	44.0	35.8	27.5	24.8	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
30Y	35.8	30.3	24.8	20.9	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	

### Total ME/N. Africa

EXPIRY	1M	3.3	3.9	5.2	5.9	6.5	9.8	14.3	16.3	16.3	22.8	22.8	29.3	29.3	32.5	
	3M	6.5	6.5	6.5	7.8	9.8	11.7	14.3	16.3	16.3	22.8	22.8	29.3	29.3	31.2	
	6M	7.8	7.8	7.8	7.8	9.8	13.0	14.3	16.3	16.3	22.8	22.8	29.3	29.3	29.3	
	9M	9.8	6.5	6.5	6.5	19.5	16.9	16.3	16.3	16.3	16.3	16.3	19.5	22.8	26.0	
	1Y	11.7	18.2	22.8	27.3	32.5	29.9	27.3	16.3	16.3	16.3	16.3	16.3	16.3	19.5	22.8
	2Y	29.3	32.5	39.0	45.5	52.0	42.3	26.7	16.3	16.3	16.3	16.3	16.3	16.3	16.3	22.8
	3Y	65.0	61.8	58.5	56.6	55.3	39.0	26.0	16.3	16.3	16.3	16.3	16.3	16.3	16.3	22.8
	5Y	87.8	78.0	68.3	58.5	48.8	35.8	25.4	23.4	22.8	22.8	22.8	22.8	19.5	19.5	22.8
	7Y	84.5	71.5	58.5	52.0	42.3	32.5	24.7	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
	10Y	71.5	58.5	48.8	39.0	32.5	26.0	24.1	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
	15Y	61.8	52.0	42.3	33.8	26.0	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
	20Y	52.0	42.3	32.5	29.3	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
30Y	42.3	35.8	29.3	24.7	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	

### Total Sub-Saharan Africa

EXPIRY	1M	3.3	3.9	5.2	5.9	6.5	9.8	14.3	16.3	16.3	22.8	22.8	29.3	29.3	32.5	
	3M	6.5	6.5	6.5	7.8	9.8	11.7	14.3	16.3	16.3	22.8	22.8	29.3	29.3	31.2	
	6M	7.8	7.8	7.8	7.8	9.8	13.0	14.3	16.3	16.3	22.8	22.8	29.3	29.3	29.3	
	9M	9.8	6.5	6.5	6.5	19.5	16.9	16.3	16.3	16.3	16.3	16.3	19.5	22.8	26.0	
	1Y	11.7	18.2	22.8	27.3	32.5	29.9	27.3	16.3	16.3	16.3	16.3	16.3	16.3	19.5	22.8
	2Y	29.3	32.5	39.0	45.5	52.0	42.3	26.7	16.3	16.3	16.3	16.3	16.3	16.3	16.3	22.8
	3Y	65.0	61.8	58.5	56.6	55.3	39.0	26.0	16.3	16.3	16.3	16.3	16.3	16.3	16.3	22.8
	5Y	87.8	78.0	68.3	58.5	48.8	35.8	25.4	23.4	22.8	22.8	22.8	22.8	19.5	19.5	22.8
	7Y	84.5	71.5	58.5	52.0	42.3	32.5	24.7	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
	10Y	71.5	58.5	48.8	39.0	32.5	26.0	24.1	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
	15Y	61.8	52.0	42.3	33.8	26.0	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
	20Y	52.0	42.3	32.5	29.3	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
30Y	42.3	35.8	29.3	24.7	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	



## Absolute LogNormal Interest Rate Shocks (Continued)

USD															
EXPIRY	1M	2.4	(1.1)	(8.5)	(16.3)	(16.3)	(19.5)	(13.5)	(7.3)	(5.7)	(2.8)	(2.7)	(1.8)	(1.9)	(1.4)
	3M	(3.3)	(8.2)	(20.4)	(20.2)	(14.6)	(18.0)	(13.7)	(7.3)	(5.9)	(3.1)	(3.0)	(2.1)	(2.2)	(1.9)
	6M	(40.9)	(42.7)	(36.3)	(27.1)	(21.4)	(18.2)	(13.5)	(7.9)	(6.4)	(3.7)	(3.5)	(2.5)	(2.6)	(2.6)
	9M	(43.4)	(43.0)	(32.1)	(27.2)	(19.0)	(16.0)	(12.2)	(8.3)	(6.5)	(5.2)	(4.9)	(4.3)	(3.8)	(3.3)
	1Y	(32.7)	(27.6)	(23.2)	(19.6)	(16.4)	(11.7)	(8.8)	(8.0)	(6.6)	(5.4)	(4.9)	(5.0)	(4.5)	(4.0)
	2Y	(13.3)	(11.7)	(9.2)	(6.9)	(4.9)	(4.0)	(5.3)	(6.5)	(5.7)	(5.2)	(4.9)	(5.0)	(5.0)	(4.0)
	3Y	1.5	1.0	0.5	0.4	0.4	(1.7)	(4.5)	(5.6)	(5.0)	(5.0)	(4.9)	(4.9)	(4.9)	(3.9)
	5Y	5.8	4.0	2.2	0.4	(1.3)	(3.0)	(4.3)	(3.7)	(4.0)	(4.0)	(3.9)	(4.3)	(4.4)	(3.8)
	7Y	6.9	4.5	2.2	1.0	(0.6)	(1.9)	(2.8)	(3.6)	(3.7)	(4.0)	(3.7)	(3.7)	(3.6)	(3.5)
	10Y	3.2	1.0	(0.6)	(2.2)	(3.2)	(4.1)	(4.1)	(4.0)	(4.1)	(4.0)	(3.8)	(3.4)	(3.2)	(3.1)
	15Y	1.6	0.1	(1.4)	(2.7)	(3.9)	(4.1)	(4.0)	(3.7)	(3.6)	(3.5)	(3.1)	(2.6)	(2.5)	(2.3)
20Y	1.2	(0.3)	(1.8)	(2.3)	(3.3)	(3.2)	(3.1)	(3.0)	(2.9)	(2.9)	(2.1)	(1.9)	(1.8)	(1.6)	
30Y	1.4	0.3	(0.7)	(1.5)	(1.8)	(1.8)	(1.9)	(1.8)	(1.9)	(1.9)	(1.6)	(1.6)	(1.6)	(1.4)	

### US MBS Vega

#### Other Advanced Economies

EXPIRY	1M	0.7	0.8	0.9	0.7	0.4	(1.1)	(1.6)	(1.4)	(1.5)	(0.6)	(1.1)	(0.7)	(0.9)	(0.7)
	3M	1.3	1.2	0.9	0.7	0.7	(1.3)	(2.0)	(1.5)	(1.7)	(0.7)	(1.1)	(0.7)	(0.9)	(0.8)
	6M	0.8	0.5	(0.2)	(0.8)	(0.8)	(2.3)	(2.6)	(1.8)	(1.8)	(0.9)	(1.3)	(0.9)	(1.1)	(1.2)
	9M	(0.6)	(1.7)	(2.1)	(2.5)	(0.5)	(2.6)	(2.7)	(2.0)	(2.0)	(1.9)	(2.2)	(2.2)	(2.0)	(1.7)
	1Y	(1.7)	(0.9)	(0.6)	(0.3)	0.1	(1.4)	(1.2)	(2.3)	(2.2)	(2.0)	(2.3)	(2.6)	(2.4)	(2.1)
	2Y	(1.8)	(1.4)	(0.6)	0.2	1.0	0.8	(1.0)	(2.3)	(2.1)	(2.0)	(2.3)	(2.6)	(2.7)	(2.0)
	3Y	4.7	4.2	3.7	3.5	3.3	1.1	(0.8)	(1.8)	(1.6)	(1.7)	(2.0)	(2.2)	(2.4)	(1.6)
	5Y	7.0	5.7	4.3	3.0	1.8	0.1	(0.9)	(0.6)	(0.8)	(0.7)	(1.0)	(1.5)	(1.7)	(1.1)
	7Y	7.1	5.4	3.7	2.9	1.7	0.4	(0.3)	(0.7)	(0.7)	(1.0)	(1.3)	(1.4)	(1.4)	(1.2)
	10Y	4.3	2.7	1.6	0.5	(0.3)	(1.0)	(1.1)	(1.0)	(1.6)	(0.3)	(0.4)	(0.4)	(0.2)	(0.1)
	15Y	2.3	1.2	0.1	(0.8)	(1.7)	(1.9)	(1.8)	(1.5)	(1.9)	(0.5)	(0.5)	(0.2)	0.1	0.2
20Y	1.3	0.2	(0.9)	(1.2)	(2.0)	(1.9)	(1.7)	(1.4)	(1.9)	(0.5)	0.0	0.3	0.5	0.6	
30Y	2.7	1.9	1.2	0.7	0.4	0.5	0.6	0.8	0.6	1.3	1.4	1.4	1.5	1.5	

#### Total Emerging Europe

EXPIRY	1M	(47.3)	(38.6)	(35.7)	(43.0)	(49.0)	(37.0)	(39.1)	(33.2)	(27.8)	(16.5)	(10.2)	(7.1)	(7.0)	(6.1)
	3M	(33.4)	(29.3)	(39.2)	(53.4)	(44.5)	(34.9)	(37.1)	(31.6)	(26.4)	(16.0)	(10.0)	(7.0)	(7.0)	(6.4)
	6M	(48.6)	(54.1)	(81.4)	(55.9)	(43.6)	(33.9)	(34.7)	(29.5)	(24.5)	(15.2)	(9.8)	(6.9)	(6.9)	(6.8)
	9M	(106.3)	(146.4)	(59.2)	(44.7)	(28.0)	(29.2)	(30.1)	(27.0)	(22.6)	(16.7)	(11.4)	(9.4)	(8.5)	(7.5)
	1Y	(32.1)	(25.4)	(19.7)	(14.4)	(8.9)	(18.5)	(20.3)	(24.3)	(20.6)	(15.8)	(11.1)	(10.1)	(9.2)	(8.3)
	2Y	(35.4)	(33.4)	(29.8)	(26.5)	(23.3)	(21.9)	(26.6)	(26.8)	(20.4)	(16.2)	(12.5)	(11.8)	(11.7)	(10.1)
	3Y	(10.6)	(11.5)	(12.0)	(11.9)	(11.6)	(19.1)	(23.1)	(21.7)	(16.7)	(13.9)	(11.8)	(11.6)	(11.7)	(10.2)
	5Y	0.6	(2.7)	(5.8)	(8.9)	(11.9)	(16.8)	(16.8)	(12.8)	(11.6)	(9.6)	(9.5)	(10.8)	(11.0)	(10.5)
	7Y	5.6	1.5	(2.3)	(4.0)	(6.8)	(8.7)	(9.7)	(10.4)	(9.6)	(9.0)	(9.5)	(10.1)	(10.5)	(10.8)
	10Y	(0.5)	(3.8)	(6.1)	(8.5)	(9.9)	(11.0)	(10.7)	(9.8)	(9.8)	(9.7)	(10.7)	(11.1)	(11.6)	(11.9)
	15Y	(4.0)	(6.1)	(8.3)	(10.1)	(11.8)	(12.4)	(12.0)	(11.3)	(11.4)	(11.6)	(11.8)	(12.3)	(12.6)	(12.8)
20Y	(7.8)	(10.0)	(12.3)	(13.0)	(14.5)	(14.6)	(14.4)	(14.0)	(13.1)	(12.6)	(13.0)	(13.2)	(13.3)	(13.4)	
30Y	(10.4)	(12.0)	(13.7)	(14.8)	(15.3)	(15.4)	(15.3)	(15.0)	(14.2)	(13.8)	(13.8)	(13.8)	(13.8)	(13.8)	

#### Total Latam & Caribbean

EXPIRY	1M	(1.7)	(1.6)	(1.2)	(1.0)	(0.7)	(0.5)	(0.3)	(0.3)	(0.3)	0.1	0.5	1.2	1.0	1.2
	3M	(1.3)	(1.2)	(1.2)	(0.8)	(0.2)	(0.5)	(1.1)	(0.4)	(0.8)	0.0	0.0	0.7	0.5	0.6
	6M	(1.4)	(1.4)	(1.2)	(1.1)	(0.6)	(0.7)	(0.8)	(0.7)	(1.1)	(0.2)	(0.3)	0.5	0.2	0.1
	9M	(1.2)	(1.8)	(1.6)	(1.5)	1.1	(0.4)	(0.7)	(0.8)	(1.4)	(1.5)	(1.5)	(1.1)	(1.0)	(0.8)
	1Y	(1.1)	0.2	1.1	2.0	3.0	1.0	0.6	(1.0)	(1.9)	(2.1)	(2.1)	(2.2)	(2.1)	(1.9)
	2Y	0.1	0.5	1.4	2.1	2.9	1.9	(1.1)	(2.6)	(2.5)	(1.7)	(2.7)	(3.0)	(3.3)	(2.7)
	3Y	5.3	4.9	4.4	4.1	3.9	0.7	(1.1)	(2.5)	(1.4)	(1.7)	(2.8)	(3.1)	(3.4)	(2.7)
	5Y	5.1	3.9	2.8	1.6	0.5	(0.9)	(1.9)	(1.9)	(2.1)	(1.1)	(2.5)	(3.1)	(3.3)	(2.8)
	7Y	5.0	3.5	2.0	1.3	0.2	(0.1)	(0.9)	(1.5)	(1.7)	(1.3)	(3.0)	(3.2)	(3.2)	(3.0)
	10Y	1.8	0.4	(0.6)	(1.6)	(2.3)	(0.7)	(0.9)	(1.0)	(1.2)	(1.7)	(3.8)	(3.9)	(3.6)	(3.3)
	15Y	(0.3)	(1.3)	(2.3)	(3.2)	(3.9)	(1.7)	(1.6)	(1.5)	(1.9)	(2.4)	(4.5)	(3.6)	(3.1)	(2.7)
20Y	(2.9)	(4.0)	(5.0)	(5.4)	(6.1)	(2.7)	(2.6)	(2.4)	(2.5)	(2.8)	(3.5)	(2.6)	(2.1)	(1.7)	
30Y	2.4	1.7	1.0	0.5	0.3	1.1	1.2	1.2	1.2	1.2	0.7	0.8	0.9	0.9	

## Absolute LogNormal Interest Rate Shocks (Continued)

### Total Asia Ex-Japan

EXPIRY	1M	1.1	1.2	1.3	0.8	0.2	(1.6)	(1.4)	(1.3)	(1.5)	0.2	(0.5)	0.3	0.2	0.8
	3M	2.0	1.8	1.1	0.6	0.4	(1.5)	(1.7)	(1.4)	(1.6)	0.1	(0.6)	0.2	0.2	0.5
	6M	1.2	0.8	(0.4)	(1.2)	(1.3)	(2.0)	(2.0)	(1.7)	(1.7)	0.0	(0.6)	0.2	0.1	0.1
	9M	(0.4)	(1.9)	(2.4)	(3.0)	0.0	(1.6)	(1.7)	(1.7)	(1.7)	(1.5)	(1.9)	(1.6)	(1.0)	(0.4)
	1Y	(1.1)	0.3	0.8	1.3	2.0	1.0	0.8	(1.7)	(1.6)	(1.4)	(1.9)	(2.2)	(1.5)	(0.9)
	2Y	0.8	1.4	2.7	3.9	5.1	3.9	0.8	(1.7)	(1.5)	(1.5)	(2.0)	(2.2)	(2.1)	(0.9)
	3Y	10.1	9.3	8.5	8.0	7.6	3.9	0.8	(1.3)	(1.2)	(1.5)	(1.9)	(2.0)	(2.0)	(0.7)
	5Y	12.8	10.6	8.5	6.3	4.2	1.6	(0.1)	(0.1)	(0.5)	(0.8)	(1.2)	(1.7)	(1.7)	(0.8)
	7Y	12.3	9.6	6.8	5.5	3.4	1.6	0.2	(0.5)	(0.8)	(1.1)	(1.3)	(1.2)	(1.0)	(0.7)
	10Y	7.2	4.7	2.8	1.0	(0.3)	(1.3)	(1.5)	(1.6)	(1.6)	(1.7)	(1.4)	(1.2)	(0.9)	(0.6)
	15Y	3.6	2.0	0.3	(1.1)	(2.4)	(2.7)	(2.5)	(2.3)	(1.7)	(1.3)	(1.0)	(0.6)	(0.3)	0.0
	20Y	4.3	2.5	0.8	0.2	(1.0)	(0.7)	(0.6)	(0.3)	(0.2)	(0.1)	0.2	0.5	0.7	0.8
	30Y	4.0	2.8	1.6	0.7	0.4	0.6	0.7	1.0	1.1	1.2	1.3	1.4	1.5	1.6

### Total ME/N. Africa

EXPIRY	1M	(144.5)	(156.2)	(160.6)	(154.7)	(135.0)	(82.7)	(43.5)	(18.4)	(10.8)	(4.8)	(3.6)	(2.5)	(2.8)	(2.6)
	3M	(157.7)	(167.0)	(160.0)	(145.1)	(107.9)	(65.2)	(36.7)	(16.7)	(10.1)	(4.6)	(3.5)	(2.4)	(2.8)	(2.8)
	6M	(152.3)	(152.3)	(136.4)	(97.5)	(76.0)	(46.9)	(28.6)	(14.5)	(9.1)	(4.3)	(3.4)	(2.4)	(2.8)	(3.1)
	9M	(147.2)	(145.2)	(96.4)	(77.7)	(56.2)	(39.1)	(24.9)	(14.0)	(9.1)	(6.1)	(5.1)	(4.7)	(4.4)	(4.1)
	1Y	(83.8)	(71.2)	(58.3)	(47.4)	(37.6)	(29.0)	(18.1)	(13.5)	(9.0)	(6.2)	(5.4)	(5.6)	(5.4)	(5.1)
	2Y	(37.7)	(34.0)	(28.6)	(23.8)	(19.6)	(12.6)	(12.1)	(10.7)	(7.8)	(6.5)	(6.2)	(6.6)	(7.2)	(6.3)
	3Y	(2.9)	(3.2)	(3.3)	(3.0)	(2.6)	(5.1)	(7.8)	(8.1)	(6.0)	(6.0)	(6.2)	(6.8)	(7.5)	(6.6)
	5Y	6.0	3.8	1.7	(0.4)	(2.4)	(4.5)	(5.7)	(4.5)	(4.7)	(4.4)	(5.3)	(6.7)	(7.4)	(7.0)
	7Y	8.0	5.2	2.5	1.3	(0.7)	(2.3)	(3.2)	(4.4)	(4.3)	(4.6)	(5.6)	(6.4)	(6.9)	(7.1)
	10Y	2.9	0.5	(1.3)	(3.1)	(4.3)	(5.4)	(5.4)	(5.2)	(5.5)	(5.8)	(6.7)	(7.4)	(7.5)	(7.6)
	15Y	(1.0)	(2.8)	(4.5)	(6.0)	(7.4)	(8.1)	(8.0)	(7.8)	(7.9)	(8.0)	(8.6)	(8.5)	(8.4)	(8.3)
	20Y	(4.2)	(6.1)	(8.0)	(8.6)	(9.9)	(10.2)	(10.1)	(10.1)	(9.8)	(9.6)	(9.0)	(8.8)	(8.6)	(8.5)
	30Y	(5.1)	(6.3)	(7.6)	(8.5)	(8.9)	(9.1)	(8.9)	(8.8)	(8.4)	(7.9)	(7.9)	(7.9)	(7.9)	(7.9)

### Total Sub-Saharan Africa

EXPIRY	1M	(1.8)	(1.5)	(1.1)	(1.0)	(1.1)	(0.8)	(0.7)	(0.6)	(0.8)	(0.1)	(0.4)	(0.1)	(0.2)	(0.1)
	3M	(0.9)	(0.7)	(0.7)	(0.9)	(0.6)	(0.6)	(0.7)	(0.6)	(0.8)	(0.2)	(0.4)	(0.1)	(0.2)	(0.2)
	6M	(0.6)	(0.5)	(1.0)	(0.9)	(0.6)	(0.6)	(0.8)	(0.7)	(0.8)	(0.2)	(0.4)	(0.1)	(0.3)	(0.4)
	9M	(2.0)	(3.0)	(1.9)	(1.6)	0.3	(0.7)	(0.9)	(0.9)	(1.0)	(1.0)	(1.3)	(1.2)	(1.1)	(0.9)
	1Y	(1.0)	(0.1)	0.5	1.0	1.7	0.4	0.1	(1.1)	(1.2)	(1.2)	(1.4)	(1.7)	(1.6)	(1.5)
	2Y	(0.8)	(0.5)	0.1	0.7	1.2	0.7	(0.8)	(1.9)	(1.7)	(1.8)	(2.0)	(2.3)	(2.6)	(2.1)
	3Y	3.3	2.9	2.6	2.3	2.2	0.5	(1.1)	(2.0)	(1.8)	(2.1)	(2.4)	(2.7)	(3.0)	(2.5)
	5Y	4.0	3.0	2.0	0.9	(0.1)	(1.4)	(2.1)	(1.9)	(2.2)	(2.4)	(2.9)	(3.5)	(3.8)	(3.5)
	7Y	3.5	2.2	0.9	0.2	(0.7)	(1.6)	(2.3)	(2.9)	(3.1)	(3.5)	(4.0)	(4.4)	(4.6)	(4.6)
	10Y	(0.6)	(1.8)	(2.7)	(3.7)	(4.3)	(5.0)	(5.1)	(5.3)	(5.6)	(6.0)	(6.5)	(6.9)	(6.8)	(6.6)
	15Y	(3.0)	(3.9)	(4.9)	(5.7)	(6.4)	(6.8)	(6.8)	(7.0)	(7.0)	(7.2)	(7.6)	(7.2)	(7.0)	(6.8)
	20Y	(4.5)	(5.5)	(6.4)	(6.8)	(7.4)	(7.5)	(7.5)	(7.6)	(7.7)	(8.0)	(7.3)	(7.0)	(6.8)	(6.7)
	30Y	(4.5)	(5.1)	(5.7)	(6.2)	(6.3)	(6.3)	(6.2)	(6.2)	(6.1)	(6.1)	(6.1)	(6.1)	(6.1)	(6.1)

## Other Rates

### Absolute Change in Inflation (bps)

Currency	MATURITY												
	1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	30Y
AUD	20.0	30.0	40.0	47.5	52.5	55.0	60.0	65.0	72.5	80.0	72.5	65.0	60.0
EUR	22.5	35.0	45.0	55.0	60.0	62.5	67.5	72.5	80.0	90.0	80.0	72.5	67.5
GBP	22.5	32.5	45.0	52.5	57.5	62.5	67.5	72.5	80.0	90.0	72.5	72.5	67.5
JPY	10.0	15.0	20.0	25.0	27.5	30.0	32.5	35.0	37.5	40.0	37.5	35.0	30.0
USD	25.0	37.5	50.0	60.0	65.0	70.0	75.0	80.0	90.0	100.0	90.0	80.0	75.0
Other	22.5	35.0	45.0	55.0	60.0	62.5	67.5	72.5	80.0	90.0	80.0	72.5	67.5

### Absolute Change in Cross-Currency vs. USD Basis (bps)

(move in bps of spread on non-USD leg)

Currency	MATURITY												
	1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	30Y
AUD	(25.0)	(22.5)	(20.0)	(17.5)	(15.0)	(10.0)	(7.5)	(5.0)	(2.5)	0.0	0.0	0.0	0.0
EUR	(62.5)	(60.0)	(55.0)	(52.5)	(50.0)	(40.0)	(30.0)	(20.0)	(12.5)	(7.5)	(5.0)	(2.5)	(2.5)
GBP	(35.0)	(32.5)	(30.0)	(27.5)	(25.0)	(20.0)	(15.0)	(12.5)	(10.0)	(7.5)	(5.0)	(2.5)	(2.5)
JPY	(30.0)	(27.5)	(25.0)	(22.5)	(20.0)	(15.0)	(12.5)	(10.0)	(7.5)	(5.0)	(2.5)	(2.5)	(2.5)
Other	(35.0)	(32.5)	(30.0)	(27.5)	(25.0)	(20.0)	(15.0)	(12.5)	(10.0)	(7.5)	(5.0)	(2.5)	(2.5)

## Appendix 11: Global Market Shock - Severely Adverse

### Securitized Products

Trading, PE & Other Fair Value Assets Schedule  
Securitized Products

	RMBS															
	Non-Agency		Unspec Non-				RMBS					Prime Whole		Non-Prime	European	Other /
	Prime	Sub-prime	Option ARMS	Other AltA	Prime	HELOC	RMBS CDO	RMBS CDS	Credit Basket	PrimeX	ABX / TABX	Loans	Whole Loans	RMBS	Unspecified	
<b>Relative MV Shock Based on Current Rating (%)</b>																
<b>AAA Total</b>																
Pre 2006	-15.5%	-14.2%	-38.7%	-15.5%	-38.7%	-19.5%	-19.5%	-28.6%	-38.7%	-28.6%	-19.5%	-15.5%	-14.2%	-16.8%	-38.7%	
2006	-21.1%	-17.7%	-47.5%	-21.1%	-47.5%	-31.4%	-19.5%	-38.5%	-47.5%	-38.5%	-19.5%	-21.1%	-17.7%	-16.8%	-47.5%	
2007	-27.6%	-22.5%	-47.5%	-27.6%	-29.5%	-29.5%	-19.5%	-38.5%	-29.5%	-38.5%	-19.5%	-27.6%	-22.5%	-16.8%	-29.5%	
Post 2007	-15.5%	-14.2%	-38.7%	-15.5%	-38.7%	-19.5%	-19.5%	-28.6%	-38.7%	-28.6%	-19.5%	-15.5%	-14.2%	-16.8%	-38.7%	
Unspecified Vintage	-27.6%	-22.5%	-47.5%	-27.6%	-29.5%	-29.5%	-19.5%	-38.5%	-29.5%	-38.5%	-19.5%	-27.6%	-22.5%	-16.8%	-29.5%	
<b>AA Total</b>																
Pre 2006	-58.9%	-38.2%	-70.7%	-58.9%	-70.7%	-40.3%	-37.9%	-28.6%	-70.7%	-28.6%	-37.9%	-58.9%	-38.2%	-34.5%	-70.7%	
2006	-70.5%	-36.1%	-84.6%	-70.5%	-84.6%	-79.6%	-37.9%	-38.5%	-84.6%	-38.5%	-37.9%	-70.5%	-36.1%	-34.5%	-84.6%	
2007	-70.5%	-36.1%	-84.6%	-70.5%	-79.6%	-79.6%	-37.9%	-38.5%	-79.6%	-38.5%	-37.9%	-70.5%	-36.1%	-34.5%	-79.6%	
Post 2007	-58.9%	-38.2%	-70.7%	-58.9%	-70.7%	-40.3%	-37.9%	-28.6%	-70.7%	-28.6%	-37.9%	-58.9%	-38.2%	-34.5%	-70.7%	
Unspecified Vintage	-70.5%	-36.1%	-84.6%	-70.5%	-79.6%	-79.6%	-37.9%	-38.5%	-79.6%	-38.5%	-37.9%	-70.5%	-36.1%	-34.5%	-79.6%	
<b>A Total</b>																
Pre 2006	-69.4%	-41.2%	-83.3%	-69.4%	-83.3%	-48.5%	-47.8%	-28.6%	-83.3%	-28.6%	-47.8%	-69.4%	-41.2%	-48.2%	-83.3%	
2006	-75.0%	-40.1%	-90.0%	-75.0%	-90.0%	-79.6%	-47.8%	-38.5%	-90.0%	-38.5%	-47.8%	-75.0%	-40.1%	-48.2%	-90.0%	
2007	-75.0%	-39.5%	-90.0%	-75.0%	-79.6%	-79.6%	-47.8%	-38.5%	-79.6%	-38.5%	-47.8%	-75.0%	-39.5%	-48.2%	-79.6%	
Post 2007	-69.4%	-41.2%	-83.3%	-69.4%	-83.3%	-48.5%	-47.8%	-28.6%	-83.3%	-28.6%	-47.8%	-69.4%	-41.2%	-48.2%	-83.3%	
Unspecified Vintage	-75.0%	-39.5%	-90.0%	-75.0%	-79.6%	-79.6%	-47.8%	-38.5%	-79.6%	-38.5%	-47.8%	-75.0%	-39.5%	-48.2%	-79.6%	
<b>BBB Total</b>																
Pre 2006	-69.1%	-54.6%	-82.9%	-69.1%	-82.9%	-56.8%	-41.7%	-28.6%	-82.9%	-28.6%	-41.7%	-69.1%	-54.6%	-42.3%	-82.9%	
2006	-76.2%	-53.3%	-91.5%	-76.2%	-91.5%	-79.6%	-41.7%	-38.5%	-91.5%	-38.5%	-41.7%	-76.2%	-54.6%	-42.3%	-91.5%	
2007	-76.2%	-53.3%	-91.5%	-76.2%	-79.6%	-79.6%	-41.7%	-38.5%	-79.6%	-38.5%	-41.7%	-76.2%	-53.3%	-42.3%	-79.6%	
Post 2007	-69.1%	-54.6%	-82.9%	-69.1%	-82.9%	-56.8%	-41.7%	-28.6%	-82.9%	-28.6%	-41.7%	-69.1%	-54.6%	-42.3%	-82.9%	
Unspecified Vintage	-76.2%	-53.3%	-91.5%	-76.2%	-79.6%	-79.6%	-41.7%	-38.5%	-79.6%	-38.5%	-41.7%	-76.2%	-54.6%	-42.3%	-79.6%	
<b>BB Total</b>																
Pre 2006	-69.1%	-54.6%	-82.9%	-69.1%	-82.9%	-56.8%	-40.5%	-28.6%	-82.9%	-28.6%	-40.5%	-69.1%	-54.6%	-42.3%	-82.9%	
2006	-76.2%	-54.6%	-91.5%	-76.2%	-91.5%	-79.6%	-40.5%	-38.5%	-91.5%	-38.5%	-40.5%	-76.2%	-54.6%	-42.3%	-91.5%	
2007	-76.2%	-54.6%	-91.5%	-76.2%	-79.6%	-79.6%	-40.5%	-38.5%	-79.6%	-38.5%	-40.5%	-76.2%	-54.6%	-42.3%	-79.6%	
Post 2007	-69.1%	-54.6%	-82.9%	-69.1%	-82.9%	-56.8%	-40.5%	-28.6%	-82.9%	-28.6%	-40.5%	-69.1%	-54.6%	-42.3%	-82.9%	
Unspecified Vintage	-76.2%	-54.6%	-91.5%	-76.2%	-79.6%	-79.6%	-40.5%	-38.5%	-79.6%	-38.5%	-40.5%	-76.2%	-54.6%	-42.3%	-79.6%	
<b>B Total</b>																
Pre 2006	-69.1%	-54.6%	-82.9%	-69.1%	-82.9%	-56.8%	-40.5%	-28.6%	-82.9%	-28.6%	-40.5%	-69.1%	-54.6%	-42.3%	-82.9%	
2006	-76.2%	-54.6%	-91.5%	-76.2%	-91.5%	-79.6%	-40.5%	-38.5%	-91.5%	-38.5%	-40.5%	-76.2%	-54.6%	-42.3%	-91.5%	
2007	-76.2%	-54.6%	-91.5%	-76.2%	-79.6%	-79.6%	-40.5%	-38.5%	-79.6%	-38.5%	-40.5%	-76.2%	-54.6%	-42.3%	-79.6%	
Post 2007	-69.1%	-54.6%	-82.9%	-69.1%	-82.9%	-56.8%	-40.5%	-28.6%	-82.9%	-28.6%	-40.5%	-69.1%	-54.6%	-42.3%	-82.9%	
Unspecified Vintage	-76.2%	-54.6%	-91.5%	-76.2%	-79.6%	-79.6%	-40.5%	-38.5%	-79.6%	-38.5%	-40.5%	-76.2%	-54.6%	-42.3%	-79.6%	
<b>&lt;B Total</b>																
Pre 2006	-69.1%	-54.6%	-82.9%	-69.1%	-82.9%	-56.8%	-40.5%	-28.6%	-82.9%	-28.6%	-40.5%	-69.1%	-54.6%	-42.3%	-82.9%	
2006	-76.2%	-54.6%	-91.5%	-76.2%	-91.5%	-79.6%	-40.5%	-38.5%	-91.5%	-38.5%	-40.5%	-76.2%	-54.6%	-42.3%	-91.5%	
2007	-76.2%	-54.6%	-91.5%	-76.2%	-79.6%	-79.6%	-40.5%	-38.5%	-79.6%	-38.5%	-40.5%	-76.2%	-54.6%	-42.3%	-79.6%	
Post 2007	-69.1%	-54.6%	-82.9%	-69.1%	-82.9%	-56.8%	-40.5%	-28.6%	-82.9%	-28.6%	-40.5%	-69.1%	-54.6%	-42.3%	-82.9%	
Unspecified Vintage	-76.2%	-54.6%	-91.5%	-76.2%	-79.6%	-79.6%	-40.5%	-38.5%	-79.6%	-38.5%	-40.5%	-76.2%	-54.6%	-42.3%	-79.6%	
<b>NR Total</b>																
Pre 2006	-69.1%	-54.6%	-82.9%	-69.1%	-82.9%	-56.8%	-40.5%	-28.6%	-82.9%	-28.6%	-40.5%	-69.1%	-54.6%	-42.3%	-82.9%	
2006	-76.2%	-54.6%	-91.5%	-76.2%	-91.5%	-79.6%	-40.5%	-38.5%	-91.5%	-38.5%	-40.5%	-76.2%	-54.6%	-42.3%	-91.5%	
2007	-76.2%	-54.6%	-91.5%	-76.2%	-79.6%	-79.6%	-40.5%	-38.5%	-79.6%	-38.5%	-40.5%	-76.2%	-54.6%	-42.3%	-79.6%	
Post 2007	-69.1%	-54.6%	-82.9%	-69.1%	-82.9%	-56.8%	-40.5%	-28.6%	-82.9%	-28.6%	-40.5%	-69.1%	-54.6%	-42.3%	-82.9%	
Unspecified Vintage	-76.2%	-54.6%	-91.5%	-76.2%	-79.6%	-79.6%	-40.5%	-38.5%	-79.6%	-38.5%	-40.5%	-76.2%	-54.6%	-42.3%	-79.6%	

# Securitized Products

Trading, PE & Other Fair Value Assets Schedule  
Securitized Products

	ABS							CMBS							Corporate CDO / CLO		Warehouse			
	Autos		Student Credit Cards	Loans	ABS CDS	Credit Basket	Index Tranches	Other / Unspecified	Cash Non-Agency CMBS	CMBS CDS	CMBS CDO	Credit Basket	Index Tranches	Whole Loans	Other / Unspecified	CLO	Other / Unspecified	Total Size	Total Protection	Other / Unspecified
<b>Relative MV Shock Based on Current Rating (%)</b>																				
<b>AAA Total</b>																				
Pre 2006	-7.3%	-13.7%	-17.8%	-17.8%	-17.8%	-8.0%	-17.8%	-18.9%	-26.4%	-34.3%	-26.4%	-26.4%	-18.4%	-34.3%	-17.7%	-2.7%	-18.4%	18.4%	-2.7%	
2006	-7.3%	-13.7%	-18.5%	-18.5%	-18.5%	-8.0%	-18.5%	-18.9%	-26.4%	-34.3%	-26.4%	-26.4%	-22.1%	-34.3%	-17.7%	-2.7%	-22.1%	22.1%	-2.7%	
2007	-7.8%	-18.3%	-19.8%	-19.8%	-19.8%	-8.0%	-19.8%	-18.9%	-26.4%	-34.3%	-26.4%	-26.4%	-22.1%	-34.3%	-17.7%	-2.7%	-22.1%	22.1%	-2.7%	
Post 2007	-7.3%	-13.7%	-17.8%	-17.8%	-17.8%	-8.0%	-17.8%	-18.9%	-26.4%	-34.3%	-26.4%	-26.4%	-18.4%	-34.3%	-17.7%	-2.7%	-18.4%	18.4%	-2.7%	
Unspecified Vintage	-7.8%	-18.3%	-19.8%	-19.8%	-19.8%	-8.0%	-19.8%	-18.9%	-26.4%	-34.3%	-26.4%	-26.4%	-22.1%	-34.3%	-17.7%	-2.7%	-22.1%	22.1%	-2.7%	
<b>AA Total</b>																				
Pre 2006	-17.8%	-33.1%	-28.9%	-33.1%	-33.1%	-8.0%	-33.1%	-48.1%	-58.4%	-75.9%	-58.4%	-58.4%	-18.4%	-75.9%	-56.1%	-2.7%	-18.4%	18.4%	-2.7%	
2006	-17.8%	-33.1%	-38.0%	-38.0%	-38.0%	-8.0%	-38.0%	-48.1%	-58.4%	-75.9%	-58.4%	-58.4%	-22.1%	-75.9%	-56.1%	-2.7%	-22.1%	22.1%	-2.7%	
2007	-19.0%	-39.4%	-38.2%	-39.4%	-39.4%	-8.0%	-39.4%	-48.1%	-58.4%	-75.9%	-58.4%	-58.4%	-22.1%	-75.9%	-56.1%	-2.7%	-22.1%	22.1%	-2.7%	
Post 2007	-17.8%	-33.1%	-28.9%	-33.1%	-33.1%	-8.0%	-33.1%	-48.1%	-58.4%	-75.9%	-58.4%	-58.4%	-18.4%	-75.9%	-56.1%	-2.7%	-18.4%	18.4%	-2.7%	
Unspecified Vintage	-19.0%	-39.4%	-38.2%	-39.4%	-39.4%	-8.0%	-39.4%	-48.1%	-58.4%	-75.9%	-58.4%	-58.4%	-22.1%	-75.9%	-56.1%	-2.7%	-22.1%	22.1%	-2.7%	
<b>A Total</b>																				
Pre 2006	-19.4%	-33.7%	-35.4%	-35.4%	-35.4%	-8.0%	-35.4%	-59.7%	-58.1%	-75.5%	-58.1%	-58.1%	-18.4%	-75.5%	-82.3%	-2.7%	-18.4%	18.4%	-2.7%	
2006	-19.4%	-33.7%	-37.5%	-37.5%	-37.5%	-8.0%	-37.5%	-59.7%	-58.1%	-75.5%	-58.1%	-58.1%	-22.1%	-75.5%	-82.3%	-2.7%	-22.1%	22.1%	-2.7%	
2007	-20.7%	-40.0%	-45.6%	-45.6%	-45.6%	-8.0%	-45.6%	-59.7%	-58.1%	-75.5%	-58.1%	-58.1%	-22.1%	-75.5%	-82.3%	-2.7%	-22.1%	22.1%	-2.7%	
Post 2007	-19.4%	-33.7%	-35.4%	-35.4%	-35.4%	-8.0%	-35.4%	-59.7%	-58.1%	-75.5%	-58.1%	-58.1%	-18.4%	-75.5%	-82.3%	-2.7%	-18.4%	18.4%	-2.7%	
Unspecified Vintage	-20.7%	-40.0%	-45.6%	-45.6%	-45.6%	-8.0%	-45.6%	-59.7%	-58.1%	-75.5%	-58.1%	-58.1%	-22.1%	-75.5%	-82.3%	-2.7%	-22.1%	22.1%	-2.7%	
<b>BBB Total</b>																				
Pre 2006	-18.7%	-46.3%	-35.4%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-18.4%	-77.6%	-85.9%	-43.9%	-18.4%	18.4%	-43.9%	
2006	-18.7%	-46.3%	-37.5%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-85.9%	-43.9%	-22.1%	22.1%	-43.9%	
2007	-20.0%	-55.1%	-45.6%	-55.1%	-55.1%	-8.0%	-55.1%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-85.9%	-43.9%	-22.1%	22.1%	-43.9%	
Post 2007	-18.7%	-46.3%	-35.4%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-18.4%	-77.6%	-85.9%	-43.9%	-18.4%	18.4%	-43.9%	
Unspecified Vintage	-20.0%	-55.1%	-45.6%	-55.1%	-55.1%	-8.0%	-55.1%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-85.9%	-43.9%	-22.1%	22.1%	-43.9%	
<b>BB Total</b>																				
Pre 2006	-26.2%	-46.3%	-35.4%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-18.4%	-77.6%	-87.4%	-43.9%	-18.4%	18.4%	-43.9%	
2006	-26.2%	-46.3%	-37.5%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-87.4%	-43.9%	-22.1%	22.1%	-43.9%	
2007	-28.0%	-55.1%	-45.6%	-55.1%	-55.1%	-8.0%	-55.1%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-87.4%	-43.9%	-22.1%	22.1%	-43.9%	
Post 2007	-26.2%	-46.3%	-35.4%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-18.4%	-77.6%	-87.4%	-43.9%	-18.4%	18.4%	-43.9%	
Unspecified Vintage	-28.0%	-55.1%	-45.6%	-55.1%	-55.1%	-8.0%	-55.1%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-87.4%	-43.9%	-22.1%	22.1%	-43.9%	
<b>B Total</b>																				
Pre 2006	-26.2%	-46.3%	-35.4%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-18.4%	-77.6%	-87.4%	-43.9%	-18.4%	18.4%	-43.9%	
2006	-26.2%	-46.3%	-37.5%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-87.4%	-43.9%	-22.1%	22.1%	-43.9%	
2007	-28.0%	-55.1%	-45.6%	-55.1%	-55.1%	-8.0%	-55.1%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-87.4%	-43.9%	-22.1%	22.1%	-43.9%	
Post 2007	-26.2%	-46.3%	-35.4%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-18.4%	-77.6%	-87.4%	-43.9%	-18.4%	18.4%	-43.9%	
Unspecified Vintage	-28.0%	-55.1%	-45.6%	-55.1%	-55.1%	-8.0%	-55.1%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-87.4%	-43.9%	-22.1%	22.1%	-43.9%	
<b>&lt;B Total</b>																				
Pre 2006	-26.2%	-46.3%	-35.4%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-18.4%	-77.6%	-87.4%	-43.9%	-18.4%	18.4%	-43.9%	
2006	-26.2%	-46.3%	-37.5%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-87.4%	-43.9%	-22.1%	22.1%	-43.9%	
2007	-28.0%	-55.1%	-45.6%	-55.1%	-55.1%	-8.0%	-55.1%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-87.4%	-43.9%	-22.1%	22.1%	-43.9%	
Post 2007	-26.2%	-46.3%	-35.4%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-18.4%	-77.6%	-87.4%	-43.9%	-18.4%	18.4%	-43.9%	
Unspecified Vintage	-28.0%	-55.1%	-45.6%	-55.1%	-55.1%	-8.0%	-55.1%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-87.4%	-43.9%	-22.1%	22.1%	-43.9%	
<b>NR Total</b>																				
Pre 2006	-26.2%	-46.3%	-35.4%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-18.4%	-77.6%	-87.4%	-43.9%	-18.4%	18.4%	-43.9%	
2006	-26.2%	-46.3%	-37.5%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-87.4%	-43.9%	-22.1%	22.1%	-43.9%	
2007	-28.0%	-55.1%	-45.6%	-55.1%	-55.1%	-8.0%	-55.1%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-87.4%	-43.9%	-22.1%	22.1%	-43.9%	
Post 2007	-26.2%	-46.3%	-35.4%	-46.3%	-46.3%	-8.0%	-46.3%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-18.4%	-77.6%	-87.4%	-43.9%	-18.4%	18.4%	-43.9%	
Unspecified Vintage	-28.0%	-55.1%	-45.6%	-55.1%	-55.1%	-8.0%	-55.1%	-65.1%	-59.7%	-77.6%	-59.7%	-59.7%	-22.1%	-77.6%	-87.4%	-43.9%	-22.1%	22.1%	-43.9%	

**Trading, PE & Other Fair Value Assets Schedule**  
 Munis

	<b>Spread Widening (bps)</b>
<b>Bonds</b>	
AAA	28.0
AA	42.0
A	128.0
BBB	372.0
BB	429.0
B	572.0
<B	715.0
NR	715.0
<b>Loans</b>	
AAA	28.0
AA	42.0
A	128.0
BBB	372.0
BB	429.0
B	572.0
<B	715.0
NR	715.0
<b>CDS</b>	
AAA	11.9
AA	17.0
A	37.2
BBB	158.4
BB	235.9
B	314.5
<B	393.1
NR	393.1
<b>Indices</b>	
AAA	189.0
AA	189.0
A	189.0
BBB	189.0
BB	189.0
B	189.0
<B	189.0
NR	189.0
<b>Other / Unspecified Munis</b>	
AAA	28.0
AA	42.0
A	128.0
BBB	372.0
BB	429.0
B	572.0
<B	715.0
NR	715.0

## Agencies

### Trading, PE & Other Fair Value Assets Schedule

Agencies

	OAS Widening (bps)
<b>US Residential Agency Products</b>	
IOs	600.0
POs	75.0
Other CMOs	190.0
Pass-Throughs	150.0
Agency Debt/Debentures	20.0
IOS Index	600.0
POS Index	75.0
MBX Index	150.0
Other Agency Derivatives	190.0
TBA's	150.0
Reverse Mortgages	300.0
Residential Other / Unspecified	190.0
<b>US Commercial Agency Products</b>	
Cash Agency CMBS	190.0
Agency CMBS Derivatives	190.0
Commercial Other / Unspecified	190.0
<b>Non-US Agency Products</b>	
AAA	50.0
AA	65.0
A	75.0
BBB	125.0
BB	150.0
B	250.0
<B	300.0
NR	300.0

# Rates DV01

DFAST 2015 Market Shocks: Severely Adverse Scenario  
Rates DV01

Rates Shocks (bps)	MATURITY												
	1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	30Y
<b>AUD Directional Risks</b>													
Governments	(149.5)	(149.5)	(149.1)	(149.8)	(150.6)	(156.8)	(147.1)	(144.9)	(142.3)	(133.0)	(143.1)	(150.6)	(153.3)
Agencies	(149.5)	(149.5)	(149.1)	(149.8)	(150.6)	(156.8)	(147.1)	(144.9)	(142.3)	(133.0)	(143.1)	(150.6)	(153.3)
Municipals	(149.5)	(149.5)	(149.1)	(149.8)	(150.6)	(156.8)	(147.1)	(144.9)	(142.3)	(133.0)	(143.1)	(150.6)	(153.3)
Swaps / Discounting Curve	(114.5)	(130.7)	(146.8)	(152.5)	(152.5)	(153.6)	(146.2)	(148.6)	(152.5)	(157.4)	(173.7)	(199.5)	(236.4)
Instruments shocked by MV**													
Other	(114.5)	(130.7)	(146.8)	(152.5)	(152.5)	(153.6)	(146.2)	(148.6)	(152.5)	(157.4)	(173.7)	(199.5)	(236.4)

**AUD Basis Risks (Do not include the swap/discounting curve specified above)**

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

**CAD Directional Risks**

Governments	(60.9)	(60.9)	(67.4)	(69.6)	(71.8)	(73.1)	(81.3)	(79.9)	(72.7)	(60.0)	(51.0)	(36.2)	(39.9)
Agencies	(60.9)	(60.9)	(67.4)	(69.6)	(71.8)	(73.1)	(81.3)	(79.9)	(72.7)	(60.0)	(51.0)	(36.2)	(39.9)
Municipals	(60.9)	(60.9)	(67.4)	(69.6)	(71.8)	(73.1)	(81.3)	(79.9)	(72.7)	(60.0)	(51.0)	(36.2)	(39.9)
Swaps / Discounting Curve	(60.8)	(66.5)	(83.6)	(89.7)	(92.9)	(101.9)	(107.0)	(116.9)	(119.6)	(107.4)	(84.2)	(78.6)	(77.6)
Instruments shocked by MV**													
Other	(60.8)	(66.5)	(83.6)	(89.7)	(92.9)	(101.9)	(107.0)	(116.9)	(119.6)	(107.4)	(84.2)	(78.6)	(77.6)

**CAD Basis Risks (Do not include the swap/discounting curve specified above)**

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

**CHF Directional Risks**

Governments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(5.7)	(14.8)	(31.9)	(45.6)	(55.8)	(63.8)
Agencies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(5.7)	(14.8)	(31.9)	(45.6)	(55.8)	(63.8)
Municipals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(5.7)	(14.8)	(31.9)	(45.6)	(55.8)	(63.8)
Swaps / Discounting Curve	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(12.4)	(22.1)	(33.8)	(46.2)	(55.8)	(64.4)
Instruments shocked by MV**													
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(12.4)	(22.1)	(33.8)	(46.2)	(55.8)	(64.4)

**CHF Basis Risks (Do not include the swap/discounting curve specified above)**

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

## Rates DV01 (Continued)

### DKK Directional Risks

Governments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(6.0)	(18.1)	(35.4)	(48.0)	(72.1)	(80.4)	(81.0)
Agencies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(6.0)	(18.1)	(35.4)	(48.0)	(72.1)	(80.4)	(81.0)
Municipals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(6.0)	(18.1)	(35.4)	(48.0)	(72.1)	(80.4)	(81.0)
Swaps / Discounting Curve	(8.0)	(11.0)	(13.9)	(12.7)	(12.7)	(20.9)	(29.0)	(29.0)	(36.6)	(43.5)	(55.0)	(66.6)	(76.0)	(85.6)
Instruments shocked by MV**														
Other	(8.0)	(11.0)	(13.9)	(12.7)	(12.7)	(20.9)	(29.0)	(29.0)	(36.6)	(43.5)	(55.0)	(66.6)	(76.0)	(85.6)

### DKK Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis														
1m Basis														
3m Basis														
6m Basis														
12m Basis														
Other Basis														

### EUR Directional Risks

Governments: Austria	(1.6)	(1.6)	(1.9)	(1.9)	(1.9)	(2.0)	(4.0)	(6.8)	(7.1)	(19.7)	(23.4)	(24.5)	(38.0)
Governments: Belgium	(2.4)	(2.4)	(2.7)	(2.0)	(1.3)	(0.5)	(0.7)	(3.3)	(3.3)	(7.1)	(16.7)	(18.5)	(23.1)
Governments: Finland	(2.0)	(2.0)	(2.3)	(2.6)	(2.9)	(3.4)	(5.8)	(16.9)	(21.8)	(34.7)	(43.4)	(48.4)	(51.4)
Governments: France	0.0	0.0	0.0	0.0	0.0	0.0	(0.7)	(9.1)	(9.1)	(13.1)	(17.4)	(19.8)	(29.4)
Governments: Germany	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(10.0)	(25.9)	(34.7)	(39.8)	(52.0)	(66.7)
Governments: Greece	1,263.2	1,263.2	1,263.2	1,263.2	1,263.2	1,237.8	1,199.6	1,148.4	1,049.4	795.6	470.8	349.8	264.8
Governments: Ireland	149.3	149.3	149.3	149.3	149.3	131.6	124.1	130.0	113.8	75.3	56.0	48.3	40.4
Governments: Italy	341.6	341.6	341.6	341.6	341.6	345.0	342.2	317.8	279.6	231.7	175.3	141.6	94.7
Governments: Netherlands	(3.9)	(3.9)	(3.6)	(3.6)	(3.6)	(4.1)	(5.9)	(15.3)	(25.0)	(38.1)	(50.3)	(55.2)	(67.9)
Governments: Portugal	631.6	631.6	631.6	631.6	631.6	618.9	599.8	574.2	524.7	397.8	235.4	174.9	132.4
Governments: Spain	209.1	209.1	209.1	209.1	209.1	191.7	176.9	154.5	136.4	121.4	93.5	68.6	60.0
Governments: Other	(3.9)	(3.9)	(3.6)	(3.6)	(3.6)	(4.1)	(5.9)	(15.3)	(25.0)	(38.1)	(50.3)	(55.2)	(67.9)
Agencies	(3.9)	(3.9)	(3.6)	(3.6)	(3.6)	(4.1)	(5.9)	(15.3)	(25.0)	(38.1)	(50.3)	(55.2)	(67.9)
Municipals	(3.9)	(3.9)	(3.6)	(3.6)	(3.6)	(4.1)	(5.9)	(15.3)	(25.0)	(38.1)	(50.3)	(55.2)	(67.9)
Swaps / Discounting Curve	(0.2)	(1.0)	(1.7)	(2.8)	(4.9)	(7.8)	(11.1)	(17.3)	(24.2)	(33.9)	(45.3)	(54.2)	(62.8)
Instruments shocked by MV**													
Other	(0.2)	(1.0)	(1.7)	(2.8)	(4.9)	(7.8)	(11.1)	(17.3)	(24.2)	(33.9)	(45.3)	(54.2)	(62.8)

### EUR Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis	(0.2)	(2.3)	(4.5)	(3.3)	(3.9)	(2.8)	(2.6)	(2.9)	(3.4)	(3.8)	(3.8)	(3.6)	(3.3)
1m Basis	(0.1)	(0.7)	(1.3)	(1.0)	(1.1)	(1.2)	(1.0)	(1.0)	(1.5)	(2.1)	(2.7)	(2.9)	(3.2)
3m Basis													
6m Basis	0.1	1.0	1.9	1.4	1.7	1.1	0.9	0.7	0.5	0.2	(0.3)	(0.5)	(0.6)
12m Basis	0.3	2.7	5.3	3.9	4.6	3.3	2.8	2.6	2.7	2.5	1.8	1.4	0.9
Other Basis													

### GBP Directional Risks

Governments	(12.5)	(12.5)	(16.0)	(20.2)	(24.5)	(54.2)	(73.3)	(83.1)	(88.5)	(96.9)	(92.9)	(93.8)	(87.2)
Agencies	(12.5)	(12.5)	(16.0)	(20.2)	(24.5)	(54.2)	(73.3)	(83.1)	(88.5)	(96.9)	(92.9)	(93.8)	(87.2)
Municipals	(12.5)	(12.5)	(16.0)	(20.2)	(24.5)	(54.2)	(73.3)	(83.1)	(88.5)	(96.9)	(92.9)	(93.8)	(87.2)
Swaps / Discounting Curve	0.0	0.0	0.0	0.0	(5.0)	(9.7)	(37.9)	(71.6)	(82.6)	(85.5)	(86.2)	(82.5)	(73.7)
Instruments shocked by MV**													
Other	0.0	0.0	0.0	0.0	(5.0)	(9.7)	(37.9)	(71.6)	(82.6)	(85.5)	(86.2)	(82.5)	(73.7)

### GBP Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis	(25.2)	(21.5)	(22.8)	(24.4)	(23.2)	(25.2)	(24.4)	(20.4)	(15.8)	(10.3)	(1.5)	(3.9)	(2.4)
1m Basis	(9.0)	(7.7)	(8.1)	(8.7)	(8.3)	(9.0)	(8.3)	(6.7)	(5.5)	(3.9)	(2.9)	(2.4)	(1.7)
3m Basis													
6m Basis	2.1	1.8	1.9	2.0	1.9	1.4	1.0	0.7	0.5	0.5	0.8	1.0	0.9
12m Basis	10.8	9.2	9.8	10.5	10.0	13.6	12.3	8.4	6.8	5.8	5.7	5.2	3.8
Other Basis													

## Rates DV01 (Continued)

### JPY Directional Risks

Governments	(4.5)	(4.5)	(4.7)	(4.4)	(4.1)	(4.9)	(4.6)	(6.4)	(10.9)	(13.6)	(24.3)	(28.0)	(44.8)
Agencies	(4.5)	(4.5)	(4.7)	(4.4)	(4.1)	(4.9)	(4.6)	(6.4)	(10.9)	(13.6)	(24.3)	(28.0)	(44.8)
Municipals	(4.5)	(4.5)	(4.7)	(4.4)	(4.1)	(4.9)	(4.6)	(6.4)	(10.9)	(13.6)	(24.3)	(28.0)	(44.8)
Swaps / Discounting Curve	(0.3)	(1.2)	(2.4)	(2.6)	(4.5)	(6.2)	(6.8)	(9.6)	(14.2)	(22.2)	(34.5)	(42.0)	(52.9)
Instruments shocked by MV**													
Other	(0.3)	(1.2)	(2.4)	(2.6)	(4.5)	(6.2)	(6.8)	(9.6)	(14.2)	(22.2)	(34.5)	(42.0)	(52.9)

### JPY Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis													
1m TIBOR Basis	1.0	1.1	1.4	1.2	1.3	1.2	0.9	0.8	0.9	1.0	1.6	1.9	2.1
3m TIBOR Basis													
6m TIBOR Basis	1.1	1.2	1.6	1.3	1.4	0.7	0.5	0.7	0.6	0.8	0.7	0.5	0.4
12m TIBOR Basis													
1m LIBOR Basis	1.0	1.1	1.4	1.2	1.3	1.2	0.9	0.8	0.9	1.0	1.6	1.9	2.1
3m LIBOR Basis													
6m LIBOR Basis	1.1	1.2	1.6	1.3	1.4	0.7	0.5	0.7	0.6	0.8	0.7	0.5	0.4
12m LIBOR Basis													
Other Basis													

### NOK Directional Risks

Governments	(56.5)	(56.5)	(61.5)	(65.5)	(69.7)	(71.0)	(71.6)	(77.3)	(69.0)	(69.4)	(76.7)	(78.0)	(78.1)
Agencies	(56.5)	(56.5)	(61.5)	(65.5)	(69.7)	(71.0)	(71.6)	(77.3)	(69.0)	(69.4)	(76.7)	(78.0)	(78.1)
Municipals	(56.5)	(56.5)	(61.5)	(65.5)	(69.7)	(71.0)	(71.6)	(77.3)	(69.0)	(69.4)	(76.7)	(78.0)	(78.1)
Swaps / Discounting Curve	(8.9)	(1.7)	(5.4)	(8.7)	(10.0)	(30.0)	(45.0)	(44.0)	(43.7)	(47.1)	(55.0)	(60.0)	(63.0)
Instruments shocked by MV**													
Other	(8.9)	(1.7)	(5.4)	(8.7)	(10.0)	(30.0)	(45.0)	(44.0)	(43.7)	(47.1)	(55.0)	(60.0)	(63.0)

### NOK Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

### NZD Directional Risks

Governments	(150.6)	(150.6)	(152.3)	(153.5)	(154.8)	(146.3)	(132.8)	(128.5)	(117.2)	(113.2)	(118.2)	(119.6)	(119.6)
Agencies	(150.6)	(150.6)	(152.3)	(153.5)	(154.8)	(146.3)	(132.8)	(128.5)	(117.2)	(113.2)	(118.2)	(119.6)	(119.6)
Municipals	(150.6)	(150.6)	(152.3)	(153.5)	(154.8)	(146.3)	(132.8)	(128.5)	(117.2)	(113.2)	(118.2)	(119.6)	(119.6)
Swaps / Discounting Curve	(137.7)	(150.0)	(169.0)	(175.6)	(184.8)	(182.0)	(172.0)	(163.4)	(156.1)	(146.4)	(139.9)	(139.4)	(139.4)
Instruments shocked by MV**													
Other	(137.7)	(150.0)	(169.0)	(175.6)	(184.8)	(182.0)	(172.0)	(163.4)	(156.1)	(146.4)	(139.9)	(139.4)	(139.4)

### NZD Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

## Rates DV01 (Continued)

### SEK Directional Risks

Governments	(2.4)	(2.4)	(3.1)	(6.1)	(7.2)	(12.6)	(21.3)	(42.9)	(57.9)	(63.1)	(76.3)	(79.5)	(82.1)
Agencies	(2.4)	(2.4)	(3.1)	(6.1)	(7.2)	(12.6)	(21.3)	(42.9)	(57.9)	(63.1)	(76.3)	(79.5)	(82.1)
Municipals	(2.4)	(2.4)	(3.1)	(6.1)	(7.2)	(12.6)	(21.3)	(42.9)	(57.9)	(63.1)	(76.3)	(79.5)	(82.1)
Swaps / Discounting Curve	1.8	3.0	1.4	0.0	0.0	(15.0)	(25.0)	(41.5)	(49.7)	(59.9)	(71.3)	(83.0)	(89.1)
Instruments shocked by MV**													
Other	1.8	3.0	1.4	0.0	0.0	(15.0)	(25.0)	(41.5)	(49.7)	(59.9)	(71.3)	(83.0)	(89.1)

### SEK Basis Risks (Do not include the swap/discounting curve specified above)

OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													

### USD Directional Risks

Governments	(0.5)	(2.7)	(4.0)	(7.4)	(10.8)	(42.0)	(69.7)	(92.9)	(105.0)	(109.4)	(121.4)	(125.6)	(129.0)
Agencies	(0.5)	(2.7)	(4.0)	(7.4)	(10.8)	(42.0)	(69.7)	(92.9)	(105.0)	(109.4)	(121.4)	(125.6)	(129.0)
Municipals	(0.5)	(2.7)	(4.0)	(7.4)	(10.8)	(42.0)	(69.7)	(92.9)	(105.0)	(109.4)	(121.4)	(125.6)	(129.0)
Swaps / Discounting Curve	(12.6)	(11.3)	(14.9)	(17.1)	(20.9)	(47.0)	(69.8)	(94.0)	(108.5)	(116.4)	(125.8)	(134.2)	(142.6)
Instruments shocked by MV**													
Other	(12.6)	(11.3)	(14.9)	(17.1)	(20.9)	(47.0)	(69.8)	(94.0)	(108.5)	(116.4)	(125.8)	(134.2)	(142.6)

### USD Basis Risks (Do not include the swap/discounting curve specified above)

Prime Basis	(1.8)	(2.5)	(2.5)	(2.7)	(3.3)	(4.5)	(3.8)	(4.0)	(1.3)	(0.8)	(0.9)	(0.9)	(0.9)
CP Basis	(2.1)	(2.8)	(2.8)	(3.1)	(3.8)	(5.3)	(6.3)	(5.3)	(3.0)	(4.4)	(4.8)	(4.9)	(5.0)
OIS Basis	(1.5)	(2.0)	(2.0)	(2.2)	(2.7)	(3.5)	(2.6)	(2.7)	(1.9)	(1.9)	(2.1)	(2.2)	(2.2)
1m Basis	(4.1)	(5.5)	(3.4)	(2.7)	(2.9)	(3.1)	(2.8)	(1.5)	(0.4)	0.7	0.7	2.5	3.1
3m Basis													
6m Basis	1.6	2.2	2.2	2.4	2.9	4.2	5.2	5.4	5.4	5.6	6.1	6.3	6.5
12m Basis	3.3	4.5	4.5	4.9	6.1	9.1	11.0	11.3	11.1	12.3	9.7	8.9	6.7
Other Basis													

Absolute increase in Muni SIFMA/Libor Ratio (Pts)	(31.4)	8.8	(2.5)	8.3	19.2	19.5	20.1	21.3	21.2	20.1	15.1	12.1	8.5
---	--------	-----	-------	-----	------	------	------	------	------	------	------	------	-----

### Other Advanced Economies Directional Risks

Governments	(0.5)	(2.7)	(4.0)	(7.4)	(10.8)	(42.0)	(69.7)	(92.9)	(105.0)	(109.4)	(121.4)	(125.6)	(129.0)
Agencies	(0.5)	(2.7)	(4.0)	(7.4)	(10.8)	(42.0)	(69.7)	(92.9)	(105.0)	(109.4)	(121.4)	(125.6)	(129.0)
Municipals	(0.5)	(2.7)	(4.0)	(7.4)	(10.8)	(42.0)	(69.7)	(92.9)	(105.0)	(109.4)	(121.4)	(125.6)	(129.0)
Swaps / Discounting Curve	(12.6)	(11.3)	(14.9)	(17.1)	(20.9)	(47.0)	(69.8)	(94.0)	(108.5)	(116.4)	(125.8)	(134.2)	(142.6)
Instruments shocked by MV**													
Other	(12.6)	(11.3)	(14.9)	(17.1)	(20.9)	(47.0)	(69.8)	(94.0)	(108.5)	(116.4)	(125.8)	(134.2)	(142.6)

## Rates DV01 (Continued)

### Directional Risks: Emerging Europe

BGN	(3.2)	(3.2)	(5.8)	(12.2)	(12.2)	(18.6)	(32.8)	(42.5)	(47.6)	(53.0)	(53.0)	(53.0)	(53.0)
CZK	(1.1)	(0.3)	(1.1)	(8.1)	(8.1)	(13.9)	(16.8)	(22.7)	(24.0)	(35.6)	(45.4)	(45.6)	(66.7)
HRK	165.5	165.5	165.5	165.5	165.5	135.1	103.3	75.7	93.0	105.0	105.0	105.0	105.0
HUF	35.8	39.1	44.1	48.2	52.2	60.9	56.3	56.0	59.9	64.9	71.8	71.4	71.4
PLN	7.5	14.0	11.3	9.4	9.4	(14.5)	(19.7)	(20.9)	(21.1)	(21.9)	(29.1)	(36.4)	(40.3)
RON	63.6	28.7	5.1	1.7	(5.2)	(25.9)	(27.6)	(35.8)	(46.9)	(41.6)	(41.7)	(35.8)	(35.8)
RUB	190.0	323.2	276.8	281.9	268.6	220.6	110.8	33.7	12.9	7.9	7.9	7.9	7.9
Other Emerging Europe	7.5	14.0	11.3	9.4	9.4	(14.5)	(19.7)	(20.9)	(21.1)	(21.9)	(29.1)	(36.4)	(40.3)

### Directional Risks: Latin America & Caribbean

ARS	726.9	726.9	775.5	775.5	775.5	775.5	775.5	775.5	775.5	775.5	775.5	775.5	775.5
BRL	130.1	121.7	105.2	79.0	79.0	51.9	118.1	147.3	147.3	147.3	147.3	147.3	147.3
CLP	65.0	60.9	52.6	39.5	39.5	26.0	59.1	73.7	73.7	73.7	73.7	73.7	73.7
COP	65.0	60.9	52.6	39.5	39.5	26.0	59.1	73.7	73.7	73.7	73.7	73.7	73.7
MXN	22.4	13.0	4.6	0.3	(4.8)	(13.7)	(14.2)	(17.6)	(17.5)	(19.2)	(22.8)	(23.0)	(23.0)
PEN	65.0	60.9	52.6	39.5	39.5	26.0	59.1	73.7	73.7	73.7	73.7	73.7	73.7
VEF	65.0	60.9	52.6	39.5	39.5	26.0	59.1	73.7	73.7	73.7	73.7	73.7	73.7
Other Latam & Caribbean	65.0	60.9	52.6	39.5	39.5	26.0	59.1	73.7	73.7	73.7	73.7	73.7	73.7

### Directional Risks: Asia Ex-Japan

CNY	65.0	65.0	55.0	60.0	62.0	89.0	93.0	107.5	102.0	96.0	96.0	96.0	96.0
HKD	19.6	19.6	19.6	49.4	77.5	113.5	132.5	132.5	120.0	106.0	99.0	99.0	99.0
IDR	138.7	138.7	199.1	337.5	475.0	420.0	400.0	360.0	327.5	295.0	295.0	295.0	295.0
INR	295.5	295.5	295.5	295.5	295.5	312.5	318.5	317.5	310.5	305.5	305.5	305.5	305.5
KRW	75.5	75.5	44.0	56.0	75.5	92.5	87.0	71.0	57.5	45.0	37.5	37.0	37.0
MYR	4.0	8.0	10.2	16.0	59.5	113.5	130.5	163.0	161.5	169.5	124.5	124.5	124.5
PHP	1,201.0	857.0	745.0	715.0	658.6	585.0	555.0	500.0	465.0	415.0	415.0	415.0	415.0
SGD	26.0	26.0	26.0	26.0	26.0	88.0	126.0	141.0	137.0	117.3	104.3	102.8	93.5
THB	149.5	149.5	149.5	149.5	149.5	230.0	252.0	275.0	264.0	251.0	252.5	247.0	247.0
TWD	27.0	27.0	27.0	27.0	27.0	45.5	51.5	62.0	60.5	57.0	57.0	57.0	57.0
Other Asia Ex-Japan	4.0	8.0	10.2	16.0	59.5	113.5	130.5	163.0	161.5	169.5	124.5	124.5	124.5

### Directional Risks: Middle East/North Africa

ILS	11.0	11.0	11.0	11.0	11.0	11.0	14.0	30.5	21.5	26.5	14.5	20.0	20.0
TRY	387.5	245.0	260.4	354.4	448.5	463.0	432.0	377.0	337.0	302.0	281.5	287.5	287.5
Other Middle East/Africa	387.5	245.0	260.4	354.4	448.5	463.0	432.0	377.0	337.0	302.0	281.5	287.5	287.5

### Directional Risks: Sub-Saharan Africa

ZAR	95.0	108.3	140.4	184.1	170.5	212.0	225.0	219.8	205.8	192.5	191.0	193.0	196.0
Other Sub-Saharan Africa	95.0	108.3	140.4	184.1	170.5	212.0	225.0	219.8	205.8	192.5	191.0	193.0	196.0



## Relative Normal Interest Rate Shocks (Continued)

### USD

EXPIRY	1M	-68.7%	-68.7%	-68.7%	-68.7%	-68.7%	-68.7%	-2.6%	51.2%	89.3%	151.5%	181.4%	204.6%	212.6%	243.7%
	3M	-67.9%	-67.9%	-67.9%	-67.9%	-67.9%	-69.4%	-22.7%	20.3%	51.5%	101.0%	118.3%	146.2%	157.4%	175.8%
	6M	-46.2%	-46.2%	-46.2%	-46.2%	-46.2%	-61.4%	-17.7%	8.8%	27.8%	61.8%	70.8%	86.3%	95.9%	112.0%
	9M	-31.5%	-31.5%	-31.5%	-31.5%	-31.5%	-48.4%	-22.3%	3.3%	18.5%	44.3%	56.9%	65.4%	64.5%	82.8%
	1Y	-52.7%	-52.7%	-52.7%	-52.7%	-52.7%	-36.7%	-24.9%	-0.6%	10.4%	29.1%	34.2%	46.8%	47.2%	56.2%
	2Y	-22.6%	-22.6%	-22.6%	-22.6%	-22.6%	-19.7%	-12.5%	-7.1%	2.8%	11.8%	16.5%	26.2%	26.7%	31.1%
	3Y	-21.1%	-21.1%	-21.1%	-21.1%	-21.1%	-11.4%	-10.4%	-2.4%	2.1%	3.8%	12.4%	17.9%	18.5%	22.4%
	5Y	-10.0%	-10.0%	-10.0%	-10.0%	-10.0%	-15.6%	-8.0%	-3.6%	-4.0%	-4.0%	-0.3%	8.4%	8.6%	11.9%
	7Y	0.7%	0.7%	0.7%	0.7%	0.7%	-3.2%	-3.7%	-5.9%	-8.3%	-7.8%	0.9%	4.3%	5.0%	7.9%
	10Y	-4.3%	-4.3%	-4.3%	-4.3%	-4.3%	-15.9%	-16.9%	-16.0%	-16.4%	-10.3%	-8.2%	-2.3%	-0.8%	3.7%
	15Y	-26.9%	-26.9%	-26.9%	-26.9%	-26.9%	-22.5%	-18.6%	-10.8%	-9.6%	-8.1%	-1.7%	-0.7%	3.6%	3.3%
	20Y	-12.0%	-12.0%	-12.0%	-12.0%	-12.0%	-13.4%	-12.4%	-11.5%	-13.2%	-5.3%	0.6%	6.4%	7.2%	9.2%
30Y	-13.0%	-13.0%	-13.0%	-13.0%	-13.0%	-6.0%	-2.7%	3.3%	7.9%	27.0%	34.0%	20.9%	31.6%	20.8%	

### US MBS Vega

#### Other Advanced Economies

EXPIRY	1M	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	12.7%	19.9%	20.0%	20.0%	18.7%	14.2%	-0.3%	-10.8%	-21.3%
	3M	-8.7%	-8.7%	-8.7%	-8.7%	-8.7%	11.7%	21.6%	25.6%	26.4%	23.6%	18.1%	3.6%	-7.1%	-17.2%
	6M	-6.3%	-6.3%	-6.3%	-6.3%	-6.3%	9.9%	16.6%	18.0%	18.8%	14.0%	8.9%	-3.7%	-13.0%	-21.5%
	9M	-5.3%	-5.3%	-5.3%	-5.3%	-5.3%	8.8%	14.6%	8.5%	10.7%	9.0%	3.7%	-7.7%	-16.4%	-23.8%
	1Y	-4.5%	-4.5%	-4.5%	-4.5%	-4.5%	7.8%	13.1%	2.2%	5.7%	5.0%	-0.6%	-11.2%	-19.2%	-25.7%
	2Y	-18.5%	-18.5%	-18.5%	-18.5%	-18.5%	-12.7%	-8.2%	-9.7%	-5.1%	-6.7%	-13.0%	-21.4%	-27.8%	-31.8%
	3Y	-11.1%	-11.1%	-11.1%	-11.1%	-11.1%	-12.7%	-11.4%	-14.0%	-12.7%	-9.4%	-17.2%	-24.7%	-30.9%	-33.4%
	5Y	-8.9%	-8.9%	-8.9%	-8.9%	-8.9%	-1.8%	-5.5%	-8.2%	-11.7%	-10.4%	-21.8%	-28.7%	-35.0%	-34.7%
	7Y	-3.5%	-3.5%	-3.5%	-3.5%	-3.5%	-6.7%	-8.7%	-10.0%	-7.1%	-5.7%	-15.8%	-22.5%	-25.9%	-25.2%
	10Y	-14.1%	-14.1%	-14.1%	-14.1%	-14.1%	-5.9%	-3.6%	2.1%	0.8%	-5.9%	-18.4%	-29.7%	-26.0%	-23.3%
	15Y	-31.3%	-31.3%	-31.3%	-31.3%	-31.3%	-22.6%	-20.3%	-18.1%	-14.4%	-28.2%	-39.2%	-25.7%	-17.4%	-12.0%
	20Y	-32.2%	-32.2%	-32.2%	-32.2%	-32.2%	-27.6%	-29.0%	-31.3%	-29.2%	-51.9%	-20.7%	-3.1%	7.6%	13.4%
30Y	-34.0%	-34.0%	-34.0%	-34.0%	-34.0%	-29.1%	-30.6%	-33.2%	-30.9%	-56.1%	-21.9%	-3.2%	7.8%	13.9%	

#### Total Emerging Europe

EXPIRY	1M	-55.1%	-55.1%	-55.1%	-55.1%	-55.1%	-30.6%	-58.4%	-21.1%	14.3%	34.9%	50.3%	54.1%	67.7%	74.2%
	3M	-55.1%	-55.1%	-55.1%	-55.1%	-55.1%	-30.6%	-59.0%	-9.8%	17.1%	39.6%	49.6%	55.9%	64.3%	71.2%
	6M	-55.1%	-55.1%	-55.1%	-55.1%	-55.1%	-30.6%	-57.5%	-14.6%	11.8%	29.6%	40.5%	42.3%	51.2%	52.6%
	9M	-53.9%	-53.9%	-53.9%	-53.9%	-53.9%	-30.6%	-59.6%	-13.9%	7.2%	26.5%	35.2%	37.6%	43.9%	45.6%
	1Y	-52.8%	-52.8%	-52.8%	-52.8%	-52.8%	-30.6%	-61.5%	-13.4%	2.7%	23.4%	30.0%	32.9%	36.7%	38.5%
	2Y	-36.0%	-36.0%	-36.0%	-36.0%	-36.0%	-19.6%	-27.5%	-3.3%	4.7%	12.3%	17.7%	22.3%	22.0%	19.9%
	3Y	-26.7%	-26.7%	-26.7%	-26.7%	-26.7%	-15.2%	-8.5%	-1.4%	3.3%	9.7%	10.0%	11.9%	12.8%	12.9%
	5Y	-1.3%	-1.3%	-1.3%	-1.3%	-1.3%	8.1%	4.6%	6.9%	7.6%	8.7%	8.4%	9.3%	8.1%	7.8%
	7Y	1.1%	1.1%	1.1%	1.1%	1.1%	3.7%	4.8%	4.2%	5.0%	5.3%	5.0%	4.3%	3.9%	3.6%
	10Y	1.4%	1.4%	1.4%	1.4%	1.4%	2.9%	2.6%	3.6%	2.9%	4.9%	1.6%	1.3%	-0.4%	1.1%
	15Y	3.6%	3.6%	3.6%	3.6%	3.6%	0.6%	0.5%	0.1%	1.4%	0.9%	-0.7%	-0.5%	-1.2%	0.0%
	20Y	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	2.7%	1.9%	0.1%	0.3%	0.1%	-0.5%	0.4%	2.7%	2.0%
30Y	4.7%	4.7%	4.7%	4.7%	4.7%	2.3%	2.0%	1.9%	3.0%	6.1%	6.6%	3.1%	1.7%	-0.7%	

#### Total Latam & Caribbean

EXPIRY	1M	241.6%	241.6%	241.6%	241.6%	241.6%	190.9%	240.5%	154.1%	165.1%	134.4%	171.3%	188.2%	195.0%	198.8%
	3M	212.1%	212.1%	212.1%	212.1%	212.1%	161.7%	185.1%	148.2%	133.2%	127.4%	140.7%	154.9%	161.6%	166.0%
	6M	108.7%	108.7%	108.7%	108.7%	108.7%	100.8%	148.7%	102.5%	118.7%	157.1%	166.9%	183.4%	185.4%	187.1%
	9M	112.1%	112.1%	112.1%	112.1%	112.1%	110.1%	120.2%	109.7%	104.6%	119.4%	126.3%	134.8%	137.0%	138.8%
	1Y	105.8%	105.8%	105.8%	105.8%	105.8%	110.5%	91.2%	110.9%	86.8%	83.5%	87.9%	92.3%	94.7%	96.4%
	2Y	56.4%	56.4%	56.4%	56.4%	56.4%	48.1%	39.3%	40.9%	42.8%	57.3%	46.6%	49.7%	53.0%	55.1%
	3Y	40.3%	40.3%	40.3%	40.3%	40.3%	30.9%	34.5%	35.8%	54.3%	65.6%	54.2%	58.6%	62.1%	64.2%
	5Y	26.3%	26.3%	26.3%	26.3%	26.3%	25.6%	28.4%	29.4%	43.0%	82.9%	65.5%	74.0%	77.7%	79.6%
	7Y	22.4%	22.4%	22.4%	22.4%	22.4%	26.8%	30.6%	32.9%	48.0%	82.4%	66.1%	73.8%	77.0%	78.9%
	10Y	23.4%	23.4%	23.4%	23.4%	23.4%	38.4%	43.3%	45.9%	64.0%	84.6%	69.9%	76.4%	78.6%	80.2%
	15Y	24.1%	24.1%	24.1%	24.1%	24.1%	39.6%	44.6%	47.5%	84.6%	116.3%	86.8%	89.9%	90.7%	91.4%
	20Y	15.9%	15.9%	15.9%	15.9%	15.9%	26.1%	29.6%	31.9%	58.8%	84.2%	72.8%	77.6%	79.9%	81.6%
30Y	23.3%	23.3%	23.3%	23.3%	23.3%	37.7%	42.0%	44.6%	58.6%	73.5%	51.7%	52.5%	52.5%	52.4%	

## Relative Normal Interest Rate Shocks (Continued)

### Total Asia Ex-Japan

EXPIRY	1M	26.6%	26.6%	26.6%	26.6%	26.6%	21.0%	12.1%	10.7%	12.7%	19.8%	13.1%	12.1%	12.1%	12.1%
	3M	27.1%	27.1%	27.1%	27.1%	27.1%	21.1%	12.1%	10.6%	12.6%	19.7%	13.0%	12.1%	12.1%	12.1%
	6M	7.8%	7.8%	7.8%	7.8%	7.8%	5.2%	1.8%	-6.2%	1.6%	6.6%	1.3%	1.0%	1.3%	1.6%
	9M	-5.2%	-5.2%	-5.2%	-5.2%	-5.2%	-2.9%	-4.9%	-7.7%	0.0%	5.5%	0.4%	0.2%	0.7%	0.9%
	1Y	-12.8%	-12.8%	-12.8%	-12.8%	-12.8%	-5.5%	-7.9%	-7.3%	-0.7%	5.6%	0.2%	0.0%	0.2%	0.5%
	2Y	-3.6%	-3.6%	-3.6%	-3.6%	-3.6%	-6.6%	-6.3%	-7.1%	-3.0%	2.5%	-2.4%	-2.4%	-2.0%	-1.9%
	3Y	-7.5%	-7.5%	-7.5%	-7.5%	-7.5%	-7.5%	-5.6%	-7.8%	-6.6%	-5.0%	-8.2%	-8.2%	-7.9%	-7.8%
	5Y	-15.9%	-15.9%	-15.9%	-15.9%	-15.9%	-17.3%	-16.3%	-16.6%	-16.2%	-13.4%	-13.4%	-13.0%	-12.6%	-12.2%
	7Y	-14.0%	-14.0%	-14.0%	-14.0%	-14.0%	-15.5%	-14.2%	-18.2%	-19.6%	-14.3%	-13.6%	-12.6%	-12.0%	-11.6%
	10Y	-19.8%	-19.8%	-19.8%	-19.8%	-19.8%	-21.5%	-23.8%	-26.8%	-23.5%	-16.2%	-14.8%	-13.3%	-12.4%	-11.7%
	15Y	-18.4%	-18.4%	-18.4%	-18.4%	-18.4%	-20.6%	-19.8%	-20.7%	-17.3%	-10.2%	-8.3%	-7.0%	-6.3%	-5.7%
	20Y	-5.5%	-5.5%	-5.5%	-5.5%	-5.5%	-7.1%	-6.3%	-7.4%	-5.6%	-0.3%	0.0%	0.3%	0.7%	1.1%
30Y	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-3.3%	-2.7%	-4.0%	-2.6%	2.3%	2.4%	2.9%	3.0%	3.1%	

### Total ME/N. Africa

EXPIRY	1M	-6.8%	-6.8%	-6.8%	-6.8%	-6.8%	10.7%	18.9%	18.4%	19.3%	18.7%	15.4%	-0.3%	-12.2%	-24.1%
	3M	-6.8%	-6.8%	-6.8%	-6.8%	-6.8%	10.7%	21.9%	23.8%	25.9%	23.8%	19.7%	4.0%	-8.0%	-19.5%
	6M	-6.8%	-6.8%	-6.8%	-6.8%	-6.8%	10.7%	18.6%	17.4%	19.0%	14.8%	10.0%	-4.3%	-15.4%	-25.3%
	9M	-5.9%	-5.9%	-5.9%	-5.9%	-5.9%	9.4%	15.6%	8.1%	10.6%	9.3%	4.1%	-8.7%	-18.7%	-27.0%
	1Y	-5.2%	-5.2%	-5.2%	-5.2%	-5.2%	8.3%	13.6%	2.0%	5.5%	5.1%	-0.7%	-12.3%	-21.2%	-28.3%
	2Y	-18.0%	-18.0%	-18.0%	-18.0%	-18.0%	-11.8%	-7.5%	-8.6%	-4.7%	-6.0%	-12.3%	-20.4%	-26.7%	-30.1%
	3Y	-10.4%	-10.4%	-10.4%	-10.4%	-10.4%	-11.5%	-10.0%	-11.5%	-10.8%	-7.7%	-14.5%	-21.1%	-26.4%	-27.8%
	5Y	-7.1%	-7.1%	-7.1%	-7.1%	-7.1%	-1.4%	-4.2%	-5.9%	-8.5%	-7.5%	-15.9%	-20.9%	-25.4%	-24.0%
	7Y	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-5.2%	-6.4%	-7.1%	-5.0%	-4.4%	-12.1%	-17.0%	-19.1%	-17.7%
	10Y	-10.8%	-10.8%	-10.8%	-10.8%	-10.8%	-4.4%	-2.6%	1.5%	0.6%	-3.2%	-10.0%	-15.9%	-13.0%	-11.0%
	15Y	-24.5%	-24.5%	-24.5%	-24.5%	-24.5%	-17.0%	-14.8%	-12.3%	-11.2%	-15.0%	-20.6%	-12.3%	-7.7%	-5.0%
	20Y	-24.1%	-24.1%	-24.1%	-24.1%	-24.1%	-19.8%	-20.1%	-20.0%	-21.5%	-26.5%	-9.1%	-1.2%	2.8%	4.7%
30Y	-24.1%	-24.1%	-24.1%	-24.1%	-24.1%	-19.8%	-20.1%	-20.0%	-21.5%	-26.5%	-9.1%	-1.2%	2.8%	4.7%	

### Total Sub-Saharan Africa

EXPIRY	1M	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	4.5%	8.6%	9.5%	9.8%	9.3%	7.7%	-0.1%	-6.1%	-12.0%
	3M	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	4.5%	10.0%	12.2%	13.1%	11.9%	9.8%	2.0%	-4.0%	-9.7%
	6M	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	4.5%	8.5%	9.0%	9.6%	7.4%	5.0%	-2.1%	-7.7%	-12.6%
	9M	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	3.9%	7.1%	4.1%	5.3%	4.6%	2.0%	-4.3%	-9.2%	-13.4%
	1Y	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	3.5%	6.1%	1.0%	2.7%	2.5%	-0.3%	-6.0%	-10.4%	-13.8%
	2Y	-8.0%	-8.0%	-8.0%	-8.0%	-8.0%	-5.4%	-3.6%	-4.2%	-2.2%	-2.9%	-5.9%	-9.9%	-12.9%	-14.5%
	3Y	-4.6%	-4.6%	-4.6%	-4.6%	-4.6%	-5.3%	-4.6%	-5.5%	-4.9%	-3.6%	-6.7%	-9.8%	-12.2%	-12.9%
	5Y	-2.9%	-2.9%	-2.9%	-2.9%	-2.9%	-0.6%	-1.8%	-2.5%	-3.6%	-3.0%	-6.4%	-8.5%	-10.3%	-9.7%
	7Y	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.9%	-2.3%	-2.6%	-1.8%	-1.5%	-4.1%	-5.9%	-6.6%	-6.1%
	10Y	-3.0%	-3.0%	-3.0%	-3.0%	-3.0%	-1.2%	-0.7%	0.4%	0.2%	-0.9%	-2.7%	-4.3%	-3.5%	-3.0%
	15Y	-6.9%	-6.9%	-6.9%	-6.9%	-6.9%	-4.9%	-4.2%	-3.5%	-3.1%	-4.0%	-5.6%	-3.3%	-2.1%	-1.3%
	20Y	-6.8%	-6.8%	-6.8%	-6.8%	-6.8%	-5.7%	-5.8%	-5.7%	-6.0%	-7.2%	-2.5%	-0.3%	0.8%	1.3%
30Y	-6.8%	-6.8%	-6.8%	-6.8%	-6.8%	-5.7%	-5.8%	-5.7%	-6.0%	-7.2%	-2.5%	-0.3%	0.8%	1.3%	



## Relative LogNormal Interest Rate Shocks (Continued)

USD																
EXPIRY	1M	-38.9%	-40.7%	-23.2%	-22.7%	-25.4%	-26.1%	114.6%	201.1%	265.6%	358.3%	399.3%	447.2%	467.9%	531.1%	
	3M	-9.0%	14.3%	-3.2%	-17.8%	-20.3%	-28.3%	68.8%	139.1%	191.6%	266.1%	287.5%	342.5%	367.8%	406.4%	
	6M	44.0%	45.4%	27.7%	28.1%	28.1%	-12.2%	75.7%	114.9%	144.2%	194.0%	203.1%	234.8%	256.0%	289.2%	
	9M	54.0%	52.0%	59.0%	60.9%	61.7%	15.1%	62.8%	102.7%	125.0%	161.5%	178.5%	197.4%	199.1%	235.5%	
	1Y	13.2%	13.0%	12.9%	12.8%	12.7%	39.7%	55.1%	94.1%	108.4%	133.5%	138.2%	163.9%	167.7%	186.6%	
	2Y	66.6%	66.0%	65.2%	64.5%	63.9%	60.2%	69.0%	76.2%	87.6%	98.9%	106.0%	126.3%	130.1%	139.9%	
	3Y	52.8%	52.2%	51.3%	50.6%	49.9%	65.5%	67.2%	78.2%	80.8%	82.0%	98.1%	110.9%	114.9%	123.4%	
	5Y	69.1%	68.9%	68.5%	68.2%	67.9%	56.6%	65.8%	67.5%	66.5%	65.3%	76.0%	94.5%	97.7%	103.9%	
	7Y	73.6%	73.3%	72.8%	72.4%	71.9%	63.5%	61.2%	59.2%	55.4%	58.6%	78.4%	87.8%	91.0%	96.5%	
	10Y	66.1%	66.0%	65.8%	65.7%	65.5%	44.9%	42.6%	43.2%	45.7%	59.3%	66.4%	79.9%	82.6%	90.7%	
	15Y	34.2%	34.3%	34.3%	34.4%	34.5%	42.9%	50.5%	65.5%	68.4%	72.1%	86.2%	86.6%	93.8%	92.7%	
20Y	65.0%	65.0%	65.1%	65.2%	65.3%	63.1%	65.3%	67.6%	65.0%	81.3%	89.9%	99.4%	100.1%	103.4%		
30Y	59.8%	59.8%	59.8%	59.8%	59.8%	72.5%	78.6%	89.7%	98.1%	133.1%	146.1%	121.9%	141.6%	121.8%		

### US MBS Vega

#### Other Advanced Economies

EXPIRY	1M	77.9%	92.5%	109.6%	117.6%	117.7%	155.1%	143.9%	118.2%	111.3%	103.7%	99.0%	89.2%	82.8%	74.9%
	3M	103.3%	119.5%	127.9%	125.5%	120.0%	149.9%	144.5%	127.0%	121.6%	111.9%	106.1%	96.9%	90.9%	84.1%
	6M	132.5%	143.7%	134.8%	126.0%	121.3%	135.2%	127.4%	110.3%	106.3%	94.5%	90.2%	83.5%	79.2%	74.5%
	9M	126.4%	128.8%	120.5%	117.2%	115.0%	120.8%	115.8%	90.3%	90.1%	85.1%	81.4%	76.1%	72.8%	69.2%
	1Y	115.6%	114.9%	113.8%	112.8%	111.8%	108.8%	106.8%	76.8%	79.9%	77.7%	74.1%	70.0%	67.6%	64.9%
	2Y	51.2%	49.3%	46.5%	43.9%	41.3%	48.9%	52.1%	49.5%	56.8%	56.1%	53.9%	52.3%	52.1%	51.3%
	3Y	54.5%	53.5%	52.1%	50.7%	49.4%	42.2%	45.5%	41.4%	43.2%	52.2%	49.7%	49.0%	49.1%	48.9%
	5Y	53.8%	53.5%	53.1%	52.6%	52.2%	62.3%	56.4%	50.7%	48.2%	53.3%	49.6%	49.3%	49.3%	49.1%
	7Y	60.7%	60.6%	60.3%	60.0%	59.8%	53.5%	49.3%	51.9%	59.4%	71.7%	71.1%	73.2%	74.4%	74.5%
	10Y	51.3%	51.3%	51.4%	51.5%	51.6%	66.5%	70.9%	81.7%	92.2%	94.7%	86.6%	77.2%	82.4%	85.7%
	15Y	55.4%	55.8%	56.5%	57.2%	58.0%	81.3%	90.1%	102.6%	118.1%	92.8%	79.8%	103.4%	116.5%	124.1%
20Y	80.6%	81.2%	82.1%	83.0%	83.9%	100.4%	100.6%	102.4%	117.8%	58.4%	125.7%	157.9%	175.6%	183.3%	
30Y	46.6%	46.6%	46.6%	46.6%	46.6%	57.4%	54.0%	48.4%	53.5%	-2.6%	73.5%	114.9%	139.4%	152.9%	

#### Total Emerging Europe

EXPIRY	1M	-54.7%	-54.7%	-50.6%	-40.5%	-37.4%	5.9%	-35.0%	21.6%	60.4%	93.8%	109.8%	106.2%	139.6%	165.3%
	3M	-53.6%	-53.2%	-34.6%	-30.4%	-30.6%	10.8%	-34.4%	38.8%	65.5%	100.8%	108.7%	109.2%	135.3%	160.8%
	6M	-2.6%	71.9%	44.6%	-6.6%	-15.8%	19.2%	-29.5%	31.3%	59.3%	86.8%	95.8%	91.8%	117.5%	132.8%
	9M	-15.3%	10.5%	-22.6%	-24.5%	-24.5%	13.5%	-35.3%	28.7%	52.1%	81.3%	87.6%	85.8%	107.5%	121.8%
	1Y	-28.6%	-27.6%	-26.2%	-24.9%	-23.7%	12.4%	-38.9%	27.2%	45.7%	76.3%	79.8%	79.9%	97.7%	111.0%
	2Y	2.0%	2.3%	2.9%	3.4%	3.9%	26.5%	13.0%	34.0%	48.8%	58.7%	60.9%	67.5%	78.6%	82.7%
	3Y	13.1%	13.0%	13.0%	13.0%	12.9%	30.5%	30.0%	36.8%	46.9%	53.6%	48.6%	55.0%	67.1%	71.9%
	5Y	28.0%	27.6%	27.1%	26.6%	26.1%	36.1%	39.6%	49.8%	49.5%	49.7%	43.1%	55.1%	64.5%	64.1%
	7Y	48.0%	48.1%	48.2%	48.3%	48.5%	52.7%	54.8%	48.9%	47.4%	43.5%	43.6%	53.7%	59.7%	59.0%
	10Y	39.3%	39.3%	39.2%	39.1%	39.0%	40.9%	40.1%	41.0%	36.6%	35.7%	44.7%	56.7%	53.6%	55.5%
	15Y	30.3%	30.2%	30.1%	29.9%	29.8%	25.5%	24.8%	23.4%	35.7%	47.4%	61.4%	59.3%	56.7%	57.6%
20Y	73.0%	73.4%	73.9%	74.5%	75.0%	82.6%	83.4%	85.0%	90.1%	97.3%	79.9%	73.9%	73.3%	69.2%	
30Y	59.4%	59.4%	59.4%	59.4%	59.4%	55.8%	55.3%	55.1%	56.8%	61.6%	62.4%	56.9%	54.9%	51.2%	

#### Total Latam & Caribbean

EXPIRY	1M	228.6%	235.4%	241.6%	245.7%	249.3%	202.2%	252.2%	163.1%	173.4%	141.9%	180.8%	198.1%	205.1%	209.1%
	3M	210.4%	215.6%	217.7%	221.8%	222.6%	172.7%	195.7%	157.2%	140.7%	134.8%	149.2%	163.8%	170.6%	175.2%
	6M	112.0%	113.8%	117.1%	117.1%	117.6%	109.4%	158.2%	109.9%	125.9%	165.6%	176.4%	193.2%	195.2%	197.0%
	9M	122.1%	124.0%	122.2%	122.3%	122.8%	119.0%	128.8%	117.2%	111.3%	126.7%	134.3%	142.9%	145.2%	147.0%
	1Y	113.5%	114.1%	115.0%	115.9%	116.7%	118.7%	98.5%	118.2%	92.9%	89.6%	94.6%	99.0%	101.5%	103.2%
	2Y	61.0%	61.0%	60.9%	60.8%	60.7%	52.8%	44.1%	45.1%	47.2%	62.4%	51.6%	54.8%	58.2%	60.3%
	3Y	45.3%	45.3%	45.3%	45.4%	45.4%	35.8%	38.9%	40.0%	59.2%	71.2%	59.6%	64.1%	67.6%	69.8%
	5Y	29.6%	29.6%	29.6%	29.5%	29.5%	28.7%	31.9%	33.2%	47.6%	89.3%	71.1%	79.9%	83.8%	85.8%
	7Y	26.4%	26.4%	26.4%	26.4%	26.4%	30.9%	34.8%	37.5%	53.5%	89.0%	72.0%	79.8%	83.2%	85.1%
	10Y	28.1%	28.1%	28.1%	28.1%	28.1%	43.7%	48.9%	51.8%	70.2%	91.3%	76.0%	82.6%	84.9%	86.5%
	15Y	28.2%	28.2%	28.2%	28.1%	28.1%	44.1%	49.3%	52.3%	90.6%	123.4%	93.0%	96.2%	97.2%	97.8%
20Y	19.8%	19.8%	19.8%	19.8%	19.8%	30.4%	34.0%	36.4%	64.3%	90.5%	78.7%	83.7%	86.0%	87.8%	
30Y	27.5%	27.5%	27.5%	27.5%	27.5%	42.3%	46.8%	49.5%	64.0%	79.4%	56.9%	57.7%	57.7%	57.5%	

## Relative LogNormal Interest Rate Shocks (Continued)

### Total Asia Ex-Japan

EXPIRY	1M	-6.0%	-1.0%	6.1%	-1.0%	-6.5%	-14.8%	-18.9%	-14.2%	-8.0%	2.7%	-0.1%	-0.3%	-0.3%	-0.3%
	3M	10.7%	20.6%	5.1%	-5.7%	-7.2%	-14.6%	-18.5%	-13.8%	-7.6%	3.0%	0.1%	-0.2%	-0.2%	-0.2%
	6M	-19.4%	-21.9%	-28.6%	-27.4%	-27.2%	-27.7%	-26.7%	-27.0%	-16.6%	-8.4%	-10.4%	-10.1%	-9.9%	-9.6%
	9M	-39.7%	-42.1%	-38.3%	-37.4%	-37.4%	-32.8%	-30.7%	-27.4%	-17.2%	-8.8%	-10.9%	-10.6%	-10.3%	-10.1%
	1Y	-38.9%	-39.4%	-40.1%	-40.8%	-41.5%	-32.7%	-31.0%	-25.6%	-16.6%	-7.9%	-10.6%	-10.5%	-10.4%	-10.3%
	2Y	-28.6%	-28.3%	-27.9%	-27.5%	-27.1%	-26.2%	-23.3%	-20.2%	-14.4%	-7.9%	-11.3%	-11.5%	-11.6%	-11.6%
	3Y	-26.0%	-25.6%	-25.0%	-24.4%	-23.8%	-21.4%	-18.3%	-17.7%	-14.7%	-12.9%	-15.8%	-16.2%	-16.4%	-16.6%
	5Y	-25.9%	-25.6%	-25.2%	-24.7%	-24.3%	-23.7%	-22.8%	-21.7%	-21.8%	-18.9%	-19.9%	-20.3%	-20.4%	-20.4%
	7Y	-21.6%	-21.4%	-21.1%	-20.8%	-20.6%	-20.9%	-18.5%	-23.3%	-24.6%	-20.2%	-20.5%	-20.3%	-20.1%	-20.0%
	10Y	-27.2%	-27.1%	-27.0%	-26.9%	-26.8%	-27.9%	-29.6%	-31.7%	-29.3%	-23.0%	-22.5%	-21.7%	-21.1%	-20.6%
	15Y	-26.5%	-26.5%	-26.5%	-26.5%	-26.4%	-28.4%	-27.5%	-28.2%	-25.5%	-19.4%	-17.9%	-16.9%	-16.3%	-15.9%
20Y	-16.0%	-16.0%	-16.0%	-16.0%	-16.0%	-17.4%	-16.7%	-17.7%	-16.0%	-11.4%	-11.1%	-10.8%	-10.5%	-10.1%	
30Y	-12.7%	-12.7%	-12.7%	-12.7%	-12.7%	-14.0%	-13.5%	-14.7%	-13.5%	-9.0%	-8.9%	-8.5%	-8.4%	-8.3%	

### Total ME/N. Africa

EXPIRY	1M	-39.5%	-40.9%	-41.6%	-41.0%	-38.6%	-14.0%	-1.8%	-3.6%	6.7%	6.9%	9.8%	-6.4%	-17.6%	-28.8%
	3M	-41.4%	-42.4%	-41.6%	-40.0%	-35.4%	-11.8%	0.8%	2.0%	12.8%	11.9%	13.9%	-2.3%	-13.7%	-24.4%
	6M	-40.9%	-40.9%	-39.0%	-33.6%	-30.4%	-9.1%	-1.9%	-1.7%	6.8%	4.1%	4.8%	-10.1%	-20.5%	-29.8%
	9M	-37.2%	-36.6%	-30.3%	-27.5%	-25.5%	-8.3%	-4.4%	-8.1%	-0.6%	-0.5%	-0.9%	-14.2%	-23.6%	-31.5%
	1Y	-26.7%	-25.6%	-24.1%	-22.8%	-21.7%	-7.7%	-6.2%	-12.0%	-4.9%	-3.9%	-5.5%	-17.5%	-26.0%	-32.6%
	2Y	-30.3%	-30.0%	-29.8%	-29.5%	-29.3%	-27.1%	-24.7%	-17.4%	-13.8%	-12.9%	-16.7%	-25.1%	-31.1%	-34.3%
	3Y	-27.9%	-27.9%	-27.9%	-28.0%	-28.0%	-29.1%	-22.2%	-19.7%	-19.0%	-13.2%	-18.9%	-25.6%	-30.7%	-32.0%
	5Y	-9.7%	-9.4%	-9.0%	-8.5%	-8.2%	-1.0%	-7.3%	-11.6%	-12.3%	-9.0%	-19.5%	-24.6%	-29.1%	-27.9%
	7Y	-12.0%	-12.0%	-12.0%	-11.9%	-11.9%	-14.1%	-15.2%	-12.3%	-8.0%	-7.6%	-16.5%	-21.4%	-23.5%	-22.2%
	10Y	-11.3%	-11.2%	-11.1%	-10.9%	-10.8%	-3.7%	-1.3%	4.0%	-0.1%	-6.6%	-13.8%	-19.8%	-17.3%	-15.6%
	15Y	-30.8%	-30.9%	-30.9%	-30.9%	-31.0%	-24.3%	-22.5%	-20.5%	-18.8%	-21.7%	-26.4%	-18.5%	-14.0%	-11.4%
20Y	-28.7%	-28.7%	-28.7%	-28.7%	-28.7%	-24.8%	-25.0%	-24.9%	-26.3%	-31.0%	-14.7%	-7.3%	-3.5%	-1.7%	
30Y	-28.7%	-28.7%	-28.7%	-28.7%	-28.7%	-24.8%	-25.0%	-24.9%	-26.3%	-31.0%	-14.7%	-7.3%	-3.5%	-1.7%	

### Total Sub-Saharan Africa

EXPIRY	1M	-17.2%	-18.6%	-21.4%	-24.0%	-23.4%	-20.3%	-17.4%	-15.1%	-13.0%	-11.6%	-12.1%	-18.6%	-23.7%	-28.8%
	3M	-19.7%	-20.7%	-26.1%	-24.2%	-24.6%	-20.9%	-16.5%	-12.9%	-10.3%	-9.5%	-10.4%	-16.9%	-22.0%	-26.9%
	6M	-29.0%	-31.6%	-26.1%	-26.0%	-26.3%	-21.6%	-17.9%	-15.4%	-13.0%	-13.1%	-14.3%	-20.3%	-25.0%	-29.2%
	9M	-19.9%	-19.2%	-22.7%	-24.1%	-25.1%	-21.4%	-18.2%	-18.5%	-16.0%	-15.1%	-16.6%	-21.9%	-26.2%	-29.8%
	1Y	-24.9%	-25.3%	-25.9%	-26.4%	-27.0%	-22.4%	-19.0%	-20.9%	-17.9%	-16.8%	-18.5%	-23.3%	-27.2%	-30.2%
	2Y	-30.2%	-30.3%	-30.4%	-30.4%	-30.5%	-27.0%	-24.6%	-23.1%	-20.5%	-20.4%	-22.7%	-26.2%	-29.0%	-30.6%
	3Y	-25.3%	-25.2%	-25.0%	-24.9%	-24.7%	-24.6%	-23.1%	-22.6%	-21.3%	-20.2%	-23.0%	-25.9%	-28.3%	-29.1%
	5Y	-20.5%	-20.4%	-20.2%	-20.0%	-19.8%	-17.1%	-18.1%	-18.1%	-19.4%	-19.0%	-22.6%	-24.8%	-26.7%	-26.4%
	7Y	-17.7%	-17.7%	-17.5%	-17.4%	-17.3%	-17.6%	-17.5%	-18.4%	-18.0%	-18.2%	-21.1%	-23.0%	-23.9%	-23.6%
	10Y	-20.2%	-20.2%	-20.1%	-20.1%	-20.1%	-18.5%	-17.9%	-16.7%	-17.4%	-18.6%	-20.7%	-22.5%	-21.8%	-21.4%
	15Y	-24.3%	-24.3%	-24.3%	-24.3%	-24.3%	-22.6%	-22.2%	-21.6%	-21.5%	-22.5%	-24.1%	-22.2%	-21.1%	-20.4%
20Y	-25.0%	-25.0%	-25.0%	-25.1%	-25.1%	-24.2%	-24.4%	-24.4%	-24.8%	-25.8%	-21.7%	-19.8%	-18.8%	-18.4%	
30Y	-24.5%	-24.5%	-24.5%	-24.5%	-24.5%	-23.6%	-23.7%	-23.6%	-23.9%	-24.8%	-21.0%	-19.3%	-18.4%	-18.0%	

# Absolute Normal Interest Rate Shocks

## Rates Vega

### Absolute Normal Interest Rate Shocks (bps)

		MATURITY													
		1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	25Y	30Y
AUD	1M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	10.7	12.5	13.2	13.0	10.7	(0.2)	(8.5)	(16.8)
	3M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	12.4	16.1	17.7	16.6	13.7	2.8	(5.6)	(13.6)
	6M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	10.5	11.8	13.0	10.3	7.0	(3.0)	(10.7)	(17.6)
	9M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	9.8	5.9	7.7	6.8	3.0	(6.4)	(13.7)	(19.8)
	1Y	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	9.4	1.6	4.3	3.9	(0.5)	(9.4)	(16.3)	(21.7)
	2Y	(14.8)	(14.8)	(14.8)	(14.8)	(14.8)	(10.2)	(6.7)	(7.7)	(4.1)	(5.3)	(10.8)	(18.0)	(23.5)	(26.5)
	3Y	(9.8)	(9.8)	(9.8)	(9.8)	(9.8)	(11.1)	(9.6)	(11.0)	(9.8)	(7.1)	(13.4)	(19.4)	(24.3)	(25.6)
	5Y	(7.4)	(7.4)	(7.4)	(7.4)	(7.4)	(1.5)	(4.4)	(6.1)	(8.5)	(7.2)	(15.3)	(20.1)	(24.4)	(23.1)
	7Y	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(5.5)	(6.7)	(7.3)	(5.0)	(4.2)	(11.6)	(16.4)	(18.4)	(17.0)
	10Y	(11.2)	(11.2)	(11.2)	(11.2)	(11.2)	(4.6)	(2.7)	1.5	0.6	(3.1)	(9.6)	(15.3)	(12.5)	(10.6)
	15Y	(25.4)	(25.4)	(25.4)	(25.4)	(25.4)	(17.9)	(15.4)	(12.6)	(11.1)	(14.4)	(19.8)	(11.8)	(7.4)	(4.8)
	20Y	(25.0)	(25.0)	(25.0)	(25.0)	(25.0)	(20.9)	(20.9)	(20.6)	(21.4)	(25.5)	(8.8)	(1.2)	2.7	4.5
30Y	(25.0)	(25.0)	(25.0)	(25.0)	(25.0)	(20.9)	(20.9)	(20.6)	(21.4)	(25.5)	(8.8)	(1.2)	2.7	4.5	
EUR	1M	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(19.0)	(8.8)	6.9	19.2	27.7	29.8	37.3	40.9
	3M	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(19.2)	(4.1)	8.3	21.8	27.3	30.8	35.4	39.2
	6M	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(18.7)	(6.1)	5.7	16.3	22.3	23.3	28.2	29.0
	9M	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(19.4)	(5.8)	3.5	14.6	19.4	20.7	24.2	25.1
	1Y	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(20.0)	(5.6)	1.3	12.9	16.5	18.1	20.2	21.2
	2Y	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(13.0)	(1.8)	2.8	7.8	11.3	14.2	14.0	12.7
	3Y	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(4.9)	(0.9)	2.1	6.4	6.6	7.8	8.4	8.5
	5Y	(0.8)	(0.8)	(0.8)	(0.8)	(0.8)	5.5	3.2	4.9	5.3	6.0	5.8	6.4	5.6	5.4
	7Y	0.8	0.8	0.8	0.8	0.8	2.8	3.7	3.2	3.7	3.8	3.6	3.1	2.8	2.6
	10Y	1.1	1.1	1.1	1.1	1.1	2.4	2.1	2.9	2.2	3.7	1.2	1.0	(0.3)	0.8
	15Y	2.9	2.9	2.9	2.9	2.9	0.5	0.4	0.1	1.1	0.7	(0.5)	(0.4)	(0.9)	0.0
	20Y	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	2.2	1.5	0.1	0.2	0.1	(0.4)	0.3	2.0	1.5
30Y	3.8	3.8	3.8	3.8	3.8	1.9	1.6	1.5	2.3	4.6	5.0	2.3	1.3	(0.5)	
GBP	1M	(4.6)	(4.6)	(4.6)	(4.6)	(4.6)	(4.2)	(5.3)	(3.8)	6.8	23.3	30.2	36.4	41.8	45.4
	3M	(4.6)	(4.6)	(4.6)	(4.6)	(4.6)	(6.1)	(6.7)	(7.8)	5.4	18.9	26.7	33.6	39.0	44.1
	6M	(4.6)	(4.6)	(4.6)	(4.6)	(4.6)	(9.0)	(9.0)	(1.9)	4.9	16.0	20.8	25.6	29.7	33.3
	9M	(4.6)	(4.6)	(4.6)	(4.6)	(4.6)	(12.2)	(10.3)	(3.6)	2.9	13.2	17.0	21.1	24.3	27.0
	1Y	(13.3)	(13.3)	(13.3)	(13.3)	(13.3)	(15.4)	(11.6)	(5.4)	0.9	10.3	13.3	16.7	18.8	20.7
	2Y	(14.4)	(14.4)	(14.4)	(14.4)	(14.4)	(17.0)	(12.6)	(4.3)	1.1	4.8	7.4	10.3	12.3	13.5
	3Y	(7.0)	(7.0)	(7.0)	(7.0)	(7.0)	(12.0)	(9.6)	(4.3)	(2.4)	0.9	2.9	5.8	7.5	8.3
	5Y	(3.0)	(3.0)	(3.0)	(3.0)	(3.0)	(0.5)	0.2	0.8	0.3	(0.8)	0.0	1.5	4.7	1.2
	7Y	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	2.1	1.9	1.3	(0.3)	(2.3)	(2.0)	(0.5)	0.1	0.9
	10Y	(0.9)	(0.9)	(0.9)	(0.9)	(0.9)	3.0	2.9	2.2	(0.1)	(1.9)	(1.5)	(0.9)	(1.5)	(1.1)
	15Y	(1.2)	(1.2)	(1.2)	(1.2)	(1.2)	0.0	(0.3)	(1.7)	(1.7)	(1.7)	(1.9)	(2.0)	(1.2)	(0.9)
	20Y	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	1.4	(0.2)	1.2	1.3	(0.3)	(0.6)	(0.6)	(1.0)	(0.4)
30Y	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(4.7)	(5.1)	(4.7)	(5.7)	(3.5)	(2.9)	(0.8)	1.7	2.9	
JPY	1M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(9.1)	4.5	18.6	18.5	18.5
	3M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(4.0)	7.8	18.4	18.3	18.3
	6M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(3.3)	6.2	15.5	14.7	14.2
	9M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(3.4)	5.4	12.8	12.1	11.5
	1Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(2.9)	4.9	10.4	9.5	8.9
	2Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(2.3)	3.4	7.4	6.7	6.2
	3Y	(6.2)	(6.2)	(6.2)	(6.2)	(6.2)	(5.5)	(4.8)	(3.0)	(1.9)	(1.8)	3.3	6.3	5.4	4.7
	5Y	(12.3)	(12.3)	(12.3)	(12.3)	(12.3)	(11.0)	(9.5)	(6.0)	(3.8)	0.0	3.6	4.1	3.4	2.6
	7Y	(9.7)	(9.7)	(9.7)	(9.7)	(9.7)	(8.0)	(6.4)	(4.9)	(2.1)	0.4	2.3	3.5	2.7	2.1
	10Y	(7.6)	(7.6)	(7.6)	(7.6)	(7.6)	(6.6)	(5.0)	(2.5)	(1.4)	0.0	0.6	2.1	1.3	0.8
	15Y	(5.8)	(5.8)	(5.8)	(5.8)	(5.8)	(4.7)	(3.2)	(0.9)	(2.4)	(2.8)	(1.4)	0.1	(0.5)	(0.2)
	20Y	(14.1)	(14.1)	(14.1)	(14.1)	(14.1)	(13.1)	(11.7)	(9.5)	(8.4)	(6.9)	(4.7)	(2.7)	(2.2)	(1.8)
30Y	(16.0)	(16.0)	(16.0)	(16.0)	(16.0)	(14.9)	(13.4)	(11.1)	(9.8)	(8.0)	(4.1)	(1.8)	(1.7)	(1.2)	

## Absolute Normal Interest Rate Shocks (Continued)

### USD

EXPIRY	1M	(15.1)	(15.1)	(15.1)	(15.1)	(15.1)	(30.2)	(1.5)	32.8	57.9	97.4	116.4	130.5	133.7	152.0
	3M	(16.9)	(16.9)	(16.9)	(16.9)	(16.9)	(33.8)	(14.2)	13.5	34.8	67.7	79.1	97.2	103.1	114.2
	6M	(18.7)	(18.7)	(18.7)	(18.7)	(18.7)	(37.3)	(12.3)	6.5	20.5	45.1	50.7	60.7	66.6	76.8
	9M	(16.8)	(16.8)	(16.8)	(16.8)	(16.8)	(33.6)	(16.7)	2.6	14.4	33.9	42.5	47.7	46.3	58.5
	1Y	(35.2)	(35.2)	(35.2)	(35.2)	(35.2)	(28.4)	(20.0)	(0.5)	8.5	23.1	26.0	35.1	34.8	40.7
	2Y	(21.0)	(21.0)	(21.0)	(21.0)	(21.0)	(17.9)	(11.3)	(6.3)	2.4	9.9	13.1	20.1	20.1	23.0
	3Y	(20.6)	(20.6)	(20.6)	(20.6)	(20.6)	(11.0)	(9.9)	(2.2)	1.9	3.3	10.0	13.7	13.9	16.5
	5Y	(9.8)	(9.8)	(9.8)	(9.8)	(9.8)	(14.8)	(7.5)	(3.3)	(3.5)	(3.4)	(0.2)	6.3	6.3	8.5
	7Y	0.7	0.7	0.7	0.7	0.7	(2.9)	(3.3)	(5.1)	(7.0)	(6.5)	0.7	3.1	3.5	5.4
	10Y	(3.7)	(3.7)	(3.7)	(3.7)	(3.7)	(13.5)	(14.1)	(12.9)	(12.9)	(7.8)	(5.8)	(1.5)	(0.5)	2.3
	15Y	(20.1)	(20.1)	(20.1)	(20.1)	(20.1)	(16.3)	(13.1)	(7.3)	(6.4)	(5.3)	(1.0)	(0.4)	2.0	1.8
	20Y	(7.6)	(7.6)	(7.6)	(7.6)	(7.6)	(8.2)	(7.5)	(6.8)	(7.7)	(3.0)	0.3	3.2	3.5	4.4
	30Y	(6.6)	(6.6)	(6.6)	(6.6)	(6.6)	(3.1)	(1.4)	1.7	4.1	14.1	16.6	10.2	15.4	9.9

### US MBS Vega

#### Other Advanced Economies

EXPIRY	1M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	10.7	12.5	13.2	13.0	10.7	(0.2)	(8.5)	(16.8)
	3M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	12.4	16.1	17.7	16.6	13.7	2.8	(5.6)	(13.6)
	6M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	10.5	11.8	13.0	10.3	7.0	(3.0)	(10.7)	(17.6)
	9M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	9.8	5.9	7.7	6.8	3.0	(6.4)	(13.7)	(19.8)
	1Y	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	9.4	1.6	4.3	3.9	(0.5)	(9.4)	(16.3)	(21.7)
	2Y	(14.8)	(14.8)	(14.8)	(14.8)	(14.8)	(10.2)	(6.7)	(7.7)	(4.1)	(5.3)	(10.8)	(18.0)	(23.5)	(26.5)
	3Y	(9.8)	(9.8)	(9.8)	(9.8)	(9.8)	(11.1)	(9.6)	(11.0)	(9.8)	(7.1)	(13.4)	(19.4)	(24.3)	(25.6)
	5Y	(7.4)	(7.4)	(7.4)	(7.4)	(7.4)	(1.5)	(4.4)	(6.1)	(8.5)	(7.2)	(15.3)	(20.1)	(24.4)	(23.1)
	7Y	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(5.5)	(6.7)	(7.3)	(5.0)	(4.2)	(11.6)	(16.4)	(18.4)	(17.0)
	10Y	(11.2)	(11.2)	(11.2)	(11.2)	(11.2)	(4.6)	(2.7)	1.5	0.6	(3.1)	(9.6)	(15.3)	(12.5)	(10.6)
	15Y	(25.4)	(25.4)	(25.4)	(25.4)	(25.4)	(17.9)	(15.4)	(12.6)	(11.1)	(14.4)	(19.8)	(11.8)	(7.4)	(4.8)
	20Y	(25.0)	(25.0)	(25.0)	(25.0)	(25.0)	(20.9)	(20.9)	(20.6)	(21.4)	(25.5)	(8.8)	(1.2)	2.7	4.5
	30Y	(25.0)	(25.0)	(25.0)	(25.0)	(25.0)	(20.9)	(20.9)	(20.6)	(21.4)	(25.5)	(8.8)	(1.2)	2.7	4.5

#### Total Emerging Europe

EXPIRY	1M	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(19.0)	(8.8)	6.9	19.2	27.7	29.8	37.3	40.9
	3M	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(19.2)	(4.1)	8.3	21.8	27.3	30.8	35.4	39.2
	6M	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(18.7)	(6.1)	5.7	16.3	22.3	23.3	28.2	29.0
	9M	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(19.4)	(5.8)	3.5	14.6	19.4	20.7	24.2	25.1
	1Y	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(20.0)	(5.6)	1.3	12.9	16.5	18.1	20.2	21.2
	2Y	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(13.0)	(1.8)	2.8	7.8	11.3	14.2	14.0	12.7
	3Y	(13.2)	(13.2)	(13.2)	(13.2)	(13.2)	(8.3)	(4.9)	(0.9)	2.1	6.4	6.6	7.8	8.4	8.5
	5Y	(0.8)	(0.8)	(0.8)	(0.8)	(0.8)	5.5	3.2	4.9	5.3	6.0	5.8	6.4	5.6	5.4
	7Y	0.8	0.8	0.8	0.8	0.8	2.8	3.7	3.2	3.7	3.8	3.6	3.1	2.8	2.6
	10Y	1.1	1.1	1.1	1.1	1.1	2.4	2.1	2.9	2.2	3.7	1.2	1.0	(0.3)	0.8
	15Y	2.9	2.9	2.9	2.9	2.9	0.5	0.4	0.1	1.1	0.7	(0.5)	(0.4)	(0.9)	0.0
	20Y	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	2.2	1.5	0.1	0.2	0.1	(0.4)	0.3	2.0	1.5
	30Y	3.8	3.8	3.8	3.8	3.8	1.9	1.6	1.5	2.3	4.6	5.0	2.3	1.3	(0.5)

#### Total Latam & Caribbean

EXPIRY	1M	88.2	88.2	88.2	88.2	88.2	95.0	145.6	117.6	122.9	126.7	128.1	130.0	139.1	143.3
	3M	88.2	88.2	88.2	88.2	88.2	95.0	145.6	117.6	122.9	126.7	128.1	130.0	139.1	143.3
	6M	55.7	55.7	55.7	55.7	55.7	67.6	109.7	90.0	121.4	166.2	167.7	169.8	175.8	177.6
	9M	67.3	67.3	67.3	67.3	67.3	82.1	97.9	102.3	120.8	146.3	147.6	149.4	155.2	157.1
	1Y	77.1	77.1	77.1	77.1	77.1	94.2	84.1	111.7	116.1	121.6	122.6	125.3	131.0	132.9
	2Y	54.0	54.0	54.0	54.0	54.0	50.2	55.9	63.6	68.5	75.2	75.7	80.2	86.4	88.8
	3Y	45.3	45.3	45.3	45.3	45.3	47.0	53.8	59.3	70.6	89.5	90.2	96.9	103.2	104.8
	5Y	47.3	47.3	47.3	47.3	47.3	46.4	51.6	53.5	77.5	111.9	113.0	127.1	133.1	131.9
	7Y	42.0	42.0	42.0	42.0	42.0	42.0	47.9	52.5	76.2	111.3	121.0	132.8	135.7	133.8
	10Y	48.0	48.0	48.0	48.0	48.0	47.0	52.4	54.0	78.4	111.8	137.2	145.7	141.8	138.1
	15Y	50.5	50.5	50.5	50.5	50.5	49.5	54.7	56.0	107.7	162.2	169.7	157.0	147.1	139.3
	20Y	38.9	38.9	38.9	38.9	38.9	38.1	42.1	43.0	79.3	118.0	122.4	113.5	106.6	101.0
	30Y	15.7	15.7	15.7	15.7	15.7	15.4	16.8	17.1	22.6	29.6	27.9	26.6	25.5	24.5

## Absolute Normal Interest Rate Shocks (Continued)

### Total Asia Ex-Japan

EXPIRY	1M	9.3	9.3	9.3	9.3	9.3	7.6	4.7	4.6	5.5	8.6	6.0	5.8	5.6	5.4
	3M	9.3	9.3	9.3	9.3	9.3	7.6	4.7	4.6	5.5	8.6	6.0	5.8	5.6	5.4
	6M	2.8	2.8	2.8	2.8	2.8	1.9	0.7	(2.7)	0.7	2.9	0.6	0.5	0.6	0.7
	9M	(1.9)	(1.9)	(1.9)	(1.9)	(1.9)	(1.1)	(1.9)	(3.3)	0.0	2.4	0.2	0.1	0.3	0.4
	1Y	(4.7)	(4.7)	(4.7)	(4.7)	(4.7)	(2.1)	(3.1)	(3.1)	(0.3)	2.4	0.1	0.0	0.1	0.2
	2Y	(1.6)	(1.6)	(1.6)	(1.6)	(1.6)	(2.9)	(2.7)	(3.1)	(1.3)	1.1	(1.1)	(1.1)	(0.9)	(0.8)
	3Y	(3.5)	(3.5)	(3.5)	(3.5)	(3.5)	(3.4)	(2.5)	(3.4)	(2.9)	(2.2)	(3.8)	(3.7)	(3.4)	(3.2)
	5Y	(8.1)	(8.1)	(8.1)	(8.1)	(8.1)	(8.5)	(7.9)	(7.8)	(7.6)	(6.3)	(6.6)	(6.0)	(5.5)	(5.1)
	7Y	(7.6)	(7.6)	(7.6)	(7.6)	(7.6)	(8.1)	(7.3)	(8.9)	(9.5)	(7.0)	(6.6)	(5.7)	(5.1)	(4.7)
	10Y	(11.3)	(11.3)	(11.3)	(11.3)	(11.3)	(11.7)	(12.6)	(13.5)	(11.9)	(8.3)	(6.8)	(5.7)	(5.0)	(4.5)
	15Y	(11.6)	(11.6)	(11.6)	(11.6)	(11.6)	(12.4)	(11.6)	(11.5)	(8.5)	(4.5)	(3.3)	(2.6)	(2.2)	(1.9)
	20Y	(2.2)	(2.2)	(2.2)	(2.2)	(2.2)	(2.7)	(2.3)	(2.5)	(1.8)	(0.1)	0.0	0.1	0.2	0.3
30Y	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	(1.0)	(0.8)	(1.1)	(0.7)	0.6	0.6	0.7	0.7	0.7	

### Total ME/N. Africa

EXPIRY	1M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	10.7	12.5	13.2	13.0	10.7	(0.2)	(8.5)	(16.8)
	3M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	12.4	16.1	17.7	16.6	13.7	2.8	(5.6)	(13.6)
	6M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	10.5	11.8	13.0	10.3	7.0	(3.0)	(10.7)	(17.6)
	9M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	9.8	5.9	7.7	6.8	3.0	(6.4)	(13.7)	(19.8)
	1Y	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	9.4	1.6	4.3	3.9	(0.5)	(9.4)	(16.3)	(21.7)
	2Y	(14.8)	(14.8)	(14.8)	(14.8)	(14.8)	(10.2)	(6.7)	(7.7)	(4.1)	(5.3)	(10.8)	(18.0)	(23.5)	(26.5)
	3Y	(9.8)	(9.8)	(9.8)	(9.8)	(9.8)	(11.1)	(9.6)	(11.0)	(9.8)	(7.1)	(13.4)	(19.4)	(24.3)	(25.6)
	5Y	(7.4)	(7.4)	(7.4)	(7.4)	(7.4)	(1.5)	(4.4)	(6.1)	(8.5)	(7.2)	(15.3)	(20.1)	(24.4)	(23.1)
	7Y	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(5.5)	(6.7)	(7.3)	(5.0)	(4.2)	(11.6)	(16.4)	(18.4)	(17.0)
	10Y	(11.2)	(11.2)	(11.2)	(11.2)	(11.2)	(4.6)	(2.7)	1.5	0.6	(3.1)	(9.6)	(15.3)	(12.5)	(10.6)
	15Y	(25.4)	(25.4)	(25.4)	(25.4)	(25.4)	(17.9)	(15.4)	(12.6)	(11.1)	(14.4)	(19.8)	(11.8)	(7.4)	(4.8)
	20Y	(25.0)	(25.0)	(25.0)	(25.0)	(25.0)	(20.9)	(20.9)	(20.6)	(21.4)	(25.5)	(8.8)	(1.2)	2.7	4.5
30Y	(25.0)	(25.0)	(25.0)	(25.0)	(25.0)	(20.9)	(20.9)	(20.6)	(21.4)	(25.5)	(8.8)	(1.2)	2.7	4.5	

### Total Sub-Saharan Africa

EXPIRY	1M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	10.7	12.5	13.2	13.0	10.7	(0.2)	(8.5)	(16.8)
	3M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	12.4	16.1	17.7	16.6	13.7	2.8	(5.6)	(13.6)
	6M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	10.5	11.8	13.0	10.3	7.0	(3.0)	(10.7)	(17.6)
	9M	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	9.8	5.9	7.7	6.8	3.0	(6.4)	(13.7)	(19.8)
	1Y	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)	5.3	9.4	1.6	4.3	3.9	(0.5)	(9.4)	(16.3)	(21.7)
	2Y	(14.8)	(14.8)	(14.8)	(14.8)	(14.8)	(10.2)	(6.7)	(7.7)	(4.1)	(5.3)	(10.8)	(18.0)	(23.5)	(26.5)
	3Y	(9.8)	(9.8)	(9.8)	(9.8)	(9.8)	(11.1)	(9.6)	(11.0)	(9.8)	(7.1)	(13.4)	(19.4)	(24.3)	(25.6)
	5Y	(7.4)	(7.4)	(7.4)	(7.4)	(7.4)	(1.5)	(4.4)	(6.1)	(8.5)	(7.2)	(15.3)	(20.1)	(24.4)	(23.1)
	7Y	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(5.5)	(6.7)	(7.3)	(5.0)	(4.2)	(11.6)	(16.4)	(18.4)	(17.0)
	10Y	(11.2)	(11.2)	(11.2)	(11.2)	(11.2)	(4.6)	(2.7)	1.5	0.6	(3.1)	(9.6)	(15.3)	(12.5)	(10.6)
	15Y	(25.4)	(25.4)	(25.4)	(25.4)	(25.4)	(17.9)	(15.4)	(12.6)	(11.1)	(14.4)	(19.8)	(11.8)	(7.4)	(4.8)
	20Y	(25.0)	(25.0)	(25.0)	(25.0)	(25.0)	(20.9)	(20.9)	(20.6)	(21.4)	(25.5)	(8.8)	(1.2)	2.7	4.5
30Y	(25.0)	(25.0)	(25.0)	(25.0)	(25.0)	(20.9)	(20.9)	(20.6)	(21.4)	(25.5)	(8.8)	(1.2)	2.7	4.5	

# Absolute LogNormal Interest Rate Shocks

## Rates Vega

### Absolute LogNormal Interest Rate Shocks (Vol Pts)

		MATURITY													
		1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	25Y	30Y
AUD	1M	9.1	10.7	12.6	13.7	13.8	23.5	26.8	22.3	20.7	19.0	18.2	16.4	15.2	13.7
	3M	10.7	12.3	13.5	13.4	12.7	24.2	28.2	23.8	22.8	20.6	19.5	17.8	16.8	15.5
	6M	19.7	21.6	20.5	18.8	17.9	25.6	26.7	21.1	20.2	18.0	17.2	15.9	15.1	14.1
	9M	22.9	23.5	21.3	20.4	19.8	25.2	25.0	17.9	17.7	16.4	15.7	14.7	14.1	13.3
	1Y	23.3	23.0	22.7	22.4	22.0	24.8	23.9	15.8	16.1	15.2	14.5	13.7	13.2	12.6
	2Y	13.7	13.1	12.2	11.4	10.7	11.5	11.6	10.2	11.4	10.8	10.3	10.0	10.0	9.7
	3Y	13.6	13.2	12.7	12.1	11.7	9.4	9.7	8.0	8.0	9.2	8.7	8.7	8.7	8.4
	5Y	11.5	11.4	11.2	11.0	10.8	12.5	11.0	8.8	8.1	8.2	7.7	7.7	7.6	7.3
	7Y	11.9	11.8	11.7	11.6	11.5	10.3	8.7	8.6	9.2	11.5	11.4	11.7	11.7	11.2
	10Y	9.2	9.2	9.2	9.2	9.2	11.5	11.7	12.3	15.6	10.7	9.8	8.8	8.8	8.7
	15Y	10.0	10.0	10.1	10.2	10.4	14.1	14.9	15.4	19.8	10.5	8.9	10.6	11.2	11.3
	20Y	14.3	14.4	14.5	14.7	14.8	17.3	16.5	15.3	19.5	6.4	12.1	13.9	14.4	14.2
	30Y	8.0	8.0	8.0	8.0	8.0	9.6	8.6	7.0	8.6	(0.3)	6.9	10.0	11.2	11.5

EUR	1M	(152.9)	(83.0)	(62.7)	(64.8)	(52.3)	(6.4)	(62.2)	9.2	39.4	42.0	38.5	38.0	44.1	47.0
	3M	(59.9)	(45.7)	(69.9)	(54.6)	(53.4)	(9.4)	(62.5)	22.3	39.6	44.0	37.4	38.2	42.0	45.0
	6M	(106.2)	22.2	(54.8)	(53.3)	(50.7)	1.4	(51.2)	17.3	33.8	36.7	32.8	31.9	36.1	36.9
	9M	(42.8)	(38.5)	(44.1)	(44.9)	(44.1)	4.9	(43.6)	17.4	28.4	33.7	29.9	29.6	32.7	33.7
	1Y	(55.2)	(53.4)	(50.8)	(48.3)	(45.9)	10.3	(38.6)	17.5	23.9	31.1	27.2	27.4	29.5	30.5
	2Y	(10.9)	(10.2)	(9.3)	(8.5)	(7.8)	16.0	3.9	22.1	22.5	23.5	22.3	24.2	24.5	23.7
	3Y	5.1	4.8	4.4	4.0	3.7	18.0	19.5	19.3	18.4	20.1	17.9	19.0	19.8	19.9
	5Y	22.5	21.9	21.1	20.4	19.8	25.2	20.5	18.7	18.1	16.8	16.5	17.8	17.6	17.2
	7Y	17.3	17.0	16.6	16.2	15.9	16.5	15.8	15.3	14.8	14.9	15.1	15.4	15.2	14.8
	10Y	15.7	15.6	15.4	15.2	15.1	15.4	14.5	13.6	14.0	15.5	14.6	14.7	13.4	13.9
	15Y	17.0	17.0	16.9	16.9	16.8	15.6	15.3	14.8	16.1	16.4	14.9	13.9	13.0	13.1
	20Y	16.0	16.0	16.0	16.0	16.1	18.8	18.3	17.4	17.1	16.7	14.3	13.7	14.2	13.3
	30Y	17.7	17.7	17.7	17.7	17.7	15.3	14.8	14.2	14.8	16.4	15.2	12.3	11.1	9.2

GBP	1M	(8.2)	(7.6)	(6.9)	(4.9)	(2.6)	0.8	8.8	15.8	22.3	28.3	26.8	26.8	28.0	28.3
	3M	(7.2)	(6.8)	(6.1)	(2.1)	(1.7)	1.0	8.6	12.7	21.3	25.5	24.9	25.3	26.5	27.5
	6M	(5.9)	(5.6)	(0.2)	(0.3)	(0.3)	2.5	9.5	18.7	21.6	24.2	22.0	21.5	22.0	22.4
	9M	2.6	3.1	1.7	1.2	1.0	3.9	10.9	18.6	20.7	22.8	20.2	19.5	19.6	19.7
	1Y	(7.0)	(6.6)	(6.0)	(5.5)	(5.1)	5.6	12.5	18.6	20.1	21.5	18.6	17.7	17.2	17.0
	2Y	15.0	16.0	17.5	18.9	20.1	17.7	22.1	22.7	20.9	18.5	15.7	14.7	14.2	13.9
	3Y	25.4	25.7	26.2	26.7	27.1	23.6	21.1	19.1	16.1	14.7	12.5	11.9	11.5	11.2
	5Y	20.2	20.1	19.9	19.7	19.6	20.0	17.7	14.8	13.0	10.5	9.0	8.5	8.9	7.2
	7Y	14.0	13.9	13.7	13.5	13.3	13.7	12.7	11.6	10.0	8.0	6.9	6.6	6.3	6.6
	10Y	11.1	11.0	10.9	10.8	10.7	11.8	11.1	9.7	8.2	6.6	5.9	5.4	5.1	5.2
	15Y	7.2	7.1	7.1	7.0	7.0	7.1	6.6	5.4	5.2	4.9	4.1	4.2	4.5	4.6
	20Y	6.1	6.1	6.1	6.1	6.0	6.5	5.5	5.6	5.3	4.2	4.5	4.5	4.3	4.4
	30Y	5.4	5.4	5.4	5.4	5.4	4.3	4.0	3.8	3.2	4.1	4.0	4.6	5.5	5.8

JPY	1M	4.1	4.4	4.6	7.2	9.6	25.0	30.3	27.9	25.4	(5.8)	15.9	26.3	24.5	23.1
	3M	5.5	5.1	8.9	13.7	15.6	23.8	36.7	32.0	25.6	10.2	21.2	26.8	25.5	24.4
	6M	19.9	27.7	30.9	31.2	33.2	36.6	45.5	34.9	25.4	10.9	19.1	24.0	22.2	21.0
	9M	25.7	27.7	29.1	31.6	34.8	40.8	44.8	33.4	25.0	11.5	18.1	21.4	19.9	18.7
	1Y	34.5	37.3	41.8	46.8	52.4	48.7	48.0	32.7	25.2	12.9	17.5	19.2	17.7	16.7
	2Y	56.0	56.0	55.8	55.7	55.6	42.9	41.1	28.5	23.2	14.5	15.4	16.6	15.5	14.9
	3Y	5.8	5.7	5.5	5.4	5.2	11.8	13.1	15.5	16.6	13.4	14.5	15.6	14.5	14.0
	5Y	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	2.0	4.9	9.8	10.8	12.6	12.9	13.6	12.8	12.5
	7Y	8.6	8.4	8.2	8.0	7.9	9.1	10.3	9.5	10.9	11.2	11.5	12.7	12.1	11.8
	10Y	9.5	9.4	9.2	9.1	8.9	8.0	8.8	8.7	9.0	9.1	10.3	11.6	11.4	11.1
	15Y	6.2	6.1	6.1	6.0	6.0	6.0	6.7	7.2	7.3	8.1	9.5	11.3	11.1	11.6
	20Y	2.9	2.9	2.9	2.9	2.9	3.1	4.1	5.1	6.0	7.2	9.0	11.1	11.6	11.9
	30Y	1.0	1.0	1.0	1.0	1.0	1.3	2.6	4.0	5.3	7.2	10.4	12.7	12.6	12.9

# Absolute LogNormal Interest Rate Shocks (Continued)

## USD

EXPIRY	1M	(36.9)	(33.9)	(18.8)	(15.6)	(13.5)	(13.1)	49.3	66.8	75.6	88.6	88.3	93.8	95.2	105.5
	3M	(9.0)	13.9	(2.6)	(11.2)	(9.6)	(13.6)	29.9	45.9	55.2	67.3	65.5	74.3	77.4	83.6
	6M	55.3	53.4	24.1	18.4	15.1	(6.0)	32.5	39.3	43.5	51.9	48.7	53.2	56.6	62.3
	9M	54.0	47.4	41.8	36.7	32.7	7.0	26.0	35.8	38.1	44.1	43.9	45.8	45.0	51.9
	1Y	10.4	9.4	8.3	7.4	6.7	17.8	22.3	32.1	33.3	36.9	34.1	38.8	38.6	41.9
	2Y	35.0	33.3	30.9	28.9	27.1	23.3	24.0	24.0	25.9	27.1	26.1	29.6	29.8	31.4
	3Y	23.2	22.4	21.3	20.3	19.4	22.4	22.2	23.5	22.9	22.0	23.8	25.5	25.9	27.3
	5Y	24.2	23.8	23.3	22.9	22.4	17.1	19.6	18.7	17.9	16.5	17.5	20.9	21.2	22.3
	7Y	23.0	22.8	22.4	22.1	21.7	18.0	16.5	15.3	13.8	14.2	17.2	18.5	18.9	19.8
	10Y	17.9	17.8	17.7	17.6	17.4	11.5	10.5	10.0	10.4	12.9	13.7	15.3	15.7	17.0
	15Y	7.7	7.7	7.7	7.7	7.7	9.2	10.5	12.8	13.4	13.9	15.3	14.6	16.0	15.5
20Y	12.7	12.7	12.7	12.7	12.7	11.9	12.1	12.1	11.4	13.9	14.1	15.5	15.2	15.4	
30Y	9.7	9.7	9.7	9.7	9.7	11.9	13.0	14.7	16.3	22.2	22.8	19.0	22.0	18.5	

## US MBS Vega

### Other Advanced Economies

EXPIRY	1M	9.1	10.7	12.6	13.7	13.8	23.5	26.8	22.3	20.7	19.0	18.2	16.4	15.2	13.7
	3M	10.7	12.3	13.5	13.4	12.7	24.2	28.2	23.8	22.8	20.6	19.5	17.8	16.8	15.5
	6M	19.7	21.6	20.5	18.8	17.9	25.6	26.7	21.1	20.2	18.0	17.2	15.9	15.1	14.1
	9M	22.9	23.5	21.3	20.4	19.8	25.2	25.0	17.9	17.7	16.4	15.7	14.7	14.1	13.3
	1Y	23.3	23.0	22.7	22.4	22.0	24.8	23.9	15.8	16.1	15.2	14.5	13.7	13.2	12.6
	2Y	13.7	13.1	12.2	11.4	10.7	11.5	11.6	10.2	11.4	10.8	10.3	10.0	10.0	9.7
	3Y	13.6	13.2	12.7	12.1	11.7	9.4	9.7	8.0	8.0	9.2	8.7	8.7	8.7	8.4
	5Y	11.5	11.4	11.2	11.0	10.8	12.5	11.0	8.8	8.1	8.2	7.7	7.7	7.6	7.3
	7Y	11.9	11.8	11.7	11.6	11.5	10.3	8.7	8.6	9.2	11.5	11.4	11.7	11.7	11.2
	10Y	9.2	9.2	9.2	9.2	9.2	11.5	11.7	12.3	15.6	10.7	9.8	8.8	8.8	8.7
	15Y	10.0	10.0	10.1	10.2	10.4	14.1	14.9	15.4	19.8	10.5	8.9	10.6	11.2	11.3
20Y	14.3	14.4	14.5	14.7	14.8	17.3	16.5	15.3	19.5	6.4	12.1	13.9	14.4	14.2	
30Y	8.0	8.0	8.0	8.0	8.0	9.6	8.6	7.0	8.6	(0.3)	6.9	10.0	11.2	11.5	

### Total Emerging Europe

EXPIRY	1M	(37.5)	(32.5)	(28.9)	(26.7)	(27.4)	3.7	(23.4)	13.7	34.3	43.6	37.6	32.2	40.8	46.7
	3M	(29.9)	(27.1)	(21.5)	(24.0)	(21.7)	6.6	(22.1)	23.7	35.9	45.8	36.7	32.9	39.3	45.2
	6M	(1.9)	57.3	48.5	(5.4)	(11.1)	11.5	(18.0)	18.1	31.0	38.1	31.8	27.3	33.8	37.1
	9M	(21.0)	18.3	(19.1)	(16.8)	(14.9)	7.4	(19.9)	15.6	25.7	34.5	28.5	25.2	30.6	33.8
	1Y	(16.9)	(15.7)	(14.1)	(12.7)	(11.5)	6.1	(19.8)	13.7	21.3	31.1	25.4	23.2	27.5	30.6
	2Y	1.3	1.6	1.9	2.2	2.4	16.0	7.7	18.6	23.2	24.5	20.9	21.7	24.7	25.7
	3Y	8.8	8.6	8.3	8.1	7.9	18.6	17.3	18.5	20.6	20.5	16.2	17.6	21.1	22.6
	5Y	15.3	14.9	14.3	13.8	13.3	18.5	18.9	20.7	18.8	16.5	13.5	17.4	20.2	20.4
	7Y	22.3	22.1	21.8	21.5	21.2	21.9	21.5	18.1	16.1	13.7	13.6	16.9	19.0	19.2
	10Y	15.6	15.5	15.3	15.1	14.9	15.1	14.2	13.3	11.6	11.0	14.3	18.3	17.9	19.0
	15Y	11.0	10.9	10.8	10.7	10.6	8.9	8.5	7.6	11.6	15.5	20.2	20.2	19.8	20.5
20Y	28.4	28.5	28.6	28.8	29.0	31.9	31.7	31.5	31.7	33.1	28.3	26.7	26.9	25.6	
30Y	24.7	24.7	24.7	24.7	24.7	23.3	22.9	22.5	22.3	23.8	24.1	22.0	21.2	19.8	

### Total Latam & Caribbean

EXPIRY	1M	25.4	26.0	26.3	26.1	25.6	24.6	33.1	23.2	22.0	21.1	19.8	19.5	20.9	21.5
	3M	26.2	26.6	26.3	25.9	25.0	23.9	32.4	22.8	21.8	20.9	19.8	19.5	20.9	21.5
	6M	16.5	16.6	16.4	15.7	15.2	16.3	23.5	17.1	21.1	26.9	25.6	25.3	26.2	26.5
	9M	19.5	19.5	18.4	17.8	17.3	18.5	20.2	18.8	20.6	23.5	22.5	22.2	23.2	23.5
	1Y	20.4	20.1	19.6	19.2	18.8	20.0	16.8	19.9	19.5	19.5	18.7	18.8	19.7	20.0
	2Y	11.4	11.2	10.9	10.6	10.4	9.4	10.1	10.7	11.2	11.7	11.6	12.1	13.1	13.5
	3Y	8.9	8.8	8.7	8.5	8.4	8.4	9.2	9.6	10.9	13.5	13.4	14.4	15.4	15.8
	5Y	8.0	7.9	7.8	7.7	7.7	7.2	8.1	8.3	11.7	16.0	16.2	18.5	19.6	19.5
	7Y	7.1	7.1	7.1	7.0	7.0	6.7	7.4	8.1	11.2	15.8	17.5	19.5	20.1	19.9
	10Y	7.9	7.9	7.9	7.8	7.8	7.2	7.8	7.8	11.2	15.7	20.0	21.5	21.1	20.6
	15Y	8.0	8.0	8.0	8.0	8.0	7.4	8.1	8.1	15.6	23.7	25.3	23.6	22.2	21.1
20Y	7.0	7.0	7.0	7.0	7.0	6.4	6.9	7.0	12.4	18.2	18.9	17.5	16.4	15.6	
30Y	2.7	2.7	2.7	2.7	2.7	2.5	2.7	2.7	3.5	4.6	4.4	4.2	4.0	3.9	

## Absolute LogNormal Interest Rate Shocks (Continued)

### Total Asia Ex-Japan

EXPIRY	1M	(1.0)	(0.2)	0.9	(0.2)	(1.0)	(2.4)	(3.2)	(2.5)	(1.4)	0.4	0.0	(0.1)	0.0	0.0
	3M	1.6	3.0	0.8	(0.9)	(1.1)	(2.4)	(3.2)	(2.4)	(1.3)	0.5	0.0	0.0	0.0	0.0
	6M	(3.3)	(3.7)	(4.9)	(4.6)	(4.5)	(4.6)	(4.5)	(4.8)	(2.8)	(1.3)	(1.7)	(1.6)	(1.5)	(1.4)
	9M	(6.8)	(7.2)	(6.4)	(6.2)	(6.2)	(5.4)	(5.1)	(4.7)	(2.9)	(1.4)	(1.7)	(1.7)	(1.6)	(1.5)
	1Y	(6.5)	(6.5)	(6.6)	(6.7)	(6.8)	(5.4)	(5.1)	(4.3)	(2.7)	(1.2)	(1.6)	(1.6)	(1.5)	(1.5)
	2Y	(5.4)	(5.3)	(5.2)	(5.1)	(5.0)	(4.7)	(3.9)	(3.3)	(2.3)	(1.2)	(1.8)	(1.8)	(1.7)	(1.6)
	3Y	(4.9)	(4.8)	(4.6)	(4.5)	(4.3)	(3.7)	(3.0)	(2.8)	(2.3)	(2.0)	(2.4)	(2.4)	(2.3)	(2.3)
	5Y	(4.9)	(4.8)	(4.7)	(4.6)	(4.5)	(4.2)	(3.9)	(3.5)	(3.5)	(2.9)	(3.1)	(3.0)	(2.9)	(2.8)
	7Y	(4.1)	(4.0)	(4.0)	(3.9)	(3.8)	(3.7)	(3.2)	(3.8)	(3.9)	(3.2)	(3.1)	(2.9)	(2.8)	(2.6)
	10Y	(5.2)	(5.2)	(5.1)	(5.1)	(5.1)	(5.0)	(5.1)	(5.1)	(4.7)	(3.6)	(3.3)	(3.0)	(2.8)	(2.6)
	15Y	(5.1)	(5.1)	(5.1)	(5.1)	(5.1)	(5.2)	(4.8)	(4.6)	(3.8)	(2.7)	(2.3)	(2.0)	(1.9)	(1.8)
	20Y	(2.2)	(2.2)	(2.2)	(2.2)	(2.2)	(2.2)	(2.1)	(2.0)	(1.8)	(1.2)	(1.1)	(1.0)	(1.0)	(0.9)
30Y	(1.4)	(1.4)	(1.4)	(1.4)	(1.4)	(1.4)	(1.3)	(1.4)	(1.2)	(0.8)	(0.7)	(0.7)	(0.7)	(0.6)	

### Total ME/N. Africa

EXPIRY	1M	(70.8)	(78.6)	(82.2)	(78.8)	(66.6)	(17.8)	(1.5)	(1.8)	2.5	2.0	2.4	(1.5)	(4.0)	(6.5)
	3M	(81.1)	(87.2)	(82.6)	(73.8)	(52.0)	(12.6)	0.5	0.9	4.6	3.4	3.3	(0.5)	(3.1)	(5.5)
	6M	(78.3)	(78.3)	(68.2)	(45.1)	(34.3)	(7.7)	(1.2)	(0.7)	2.3	1.1	1.1	(2.2)	(4.6)	(6.7)
	9M	(71.5)	(68.5)	(41.1)	(31.7)	(26.0)	(6.4)	(2.6)	(3.5)	(0.2)	(0.1)	(0.2)	(3.3)	(5.5)	(7.4)
	1Y	(34.7)	(31.0)	(26.5)	(23.0)	(20.2)	(5.5)	(3.4)	(5.1)	(1.7)	(1.1)	(1.3)	(4.2)	(6.3)	(7.9)
	2Y	(25.2)	(23.8)	(21.9)	(20.4)	(19.0)	(14.7)	(11.4)	(6.5)	(4.5)	(3.7)	(4.4)	(6.6)	(8.3)	(9.3)
	3Y	(15.9)	(15.4)	(14.8)	(14.2)	(13.6)	(12.4)	(8.7)	(6.7)	(5.6)	(3.7)	(5.0)	(6.9)	(8.4)	(8.9)
	5Y	(3.8)	(3.7)	(3.4)	(3.2)	(3.0)	(0.3)	(2.4)	(3.4)	(3.5)	(2.3)	(5.1)	(6.8)	(8.2)	(8.0)
	7Y	(3.9)	(3.9)	(3.8)	(3.8)	(3.7)	(4.2)	(4.2)	(3.4)	(2.1)	(1.9)	(4.3)	(5.9)	(6.6)	(6.4)
	10Y	(3.4)	(3.4)	(3.3)	(3.2)	(3.2)	(1.1)	(0.4)	1.1	0.0	(1.7)	(3.8)	(5.6)	(5.0)	(4.6)
	15Y	(9.5)	(9.5)	(9.4)	(9.4)	(9.4)	(7.4)	(6.7)	(5.9)	(5.5)	(6.3)	(7.9)	(5.6)	(4.3)	(3.5)
	20Y	(9.7)	(9.7)	(9.7)	(9.7)	(9.7)	(8.5)	(8.5)	(8.4)	(8.6)	(9.8)	(4.6)	(2.3)	(1.1)	(0.5)
30Y	(9.8)	(9.8)	(9.8)	(9.8)	(9.8)	(8.5)	(8.5)	(8.4)	(8.6)	(9.8)	(4.6)	(2.3)	(1.1)	(0.5)	

### Total Sub-Saharan Africa

EXPIRY	1M	(2.9)	(3.0)	(3.2)	(3.7)	(3.6)	(3.4)	(3.0)	(2.6)	(2.2)	(2.0)	(2.0)	(3.0)	(3.9)	(4.8)
	3M	(2.9)	(2.8)	(3.8)	(3.7)	(3.7)	(3.5)	(2.8)	(2.2)	(1.7)	(1.6)	(1.7)	(2.8)	(3.6)	(4.5)
	6M	(4.6)	(5.0)	(4.3)	(4.1)	(4.0)	(3.6)	(3.0)	(2.6)	(2.2)	(2.2)	(2.3)	(3.3)	(4.1)	(4.9)
	9M	(4.0)	(3.9)	(4.3)	(4.4)	(4.5)	(3.9)	(3.3)	(3.4)	(2.9)	(2.7)	(2.9)	(3.8)	(4.6)	(5.3)
	1Y	(5.2)	(5.2)	(5.3)	(5.3)	(5.3)	(4.5)	(3.8)	(4.1)	(3.4)	(3.1)	(3.4)	(4.3)	(5.0)	(5.6)
	2Y	(7.5)	(7.4)	(7.4)	(7.3)	(7.3)	(6.4)	(5.7)	(5.1)	(4.5)	(4.3)	(4.8)	(5.5)	(6.2)	(6.6)
	3Y	(6.8)	(6.8)	(6.7)	(6.6)	(6.5)	(6.3)	(5.8)	(5.4)	(4.9)	(4.6)	(5.2)	(6.0)	(6.6)	(6.8)
	5Y	(6.3)	(6.3)	(6.2)	(6.1)	(6.0)	(5.0)	(5.2)	(5.0)	(5.2)	(5.1)	(6.1)	(6.8)	(7.5)	(7.4)
	7Y	(6.1)	(6.1)	(6.0)	(5.9)	(5.9)	(5.8)	(5.7)	(5.9)	(5.6)	(5.7)	(6.7)	(7.5)	(7.9)	(7.8)
	10Y	(8.5)	(8.4)	(8.4)	(8.4)	(8.4)	(7.6)	(7.2)	(6.6)	(6.9)	(7.5)	(8.6)	(9.5)	(9.2)	(9.1)
	15Y	(10.4)	(10.4)	(10.4)	(10.4)	(10.4)	(9.7)	(9.4)	(9.0)	(9.1)	(9.6)	(10.5)	(9.6)	(9.1)	(8.8)
	20Y	(11.3)	(11.3)	(11.3)	(11.3)	(11.3)	(11.0)	(10.9)	(10.9)	(11.0)	(11.5)	(9.5)	(8.6)	(8.2)	(7.9)
30Y	(10.8)	(10.8)	(10.8)	(10.8)	(10.8)	(10.4)	(10.3)	(10.2)	(10.2)	(10.6)	(9.0)	(8.2)	(7.9)	(7.7)	

## Other Rates

### Absolute Change in Inflation (bps)

Currency	MATURITY												
	1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	30Y
AUD	(149.5)	(149.5)	(149.1)	(149.8)	(150.6)	(156.8)	(147.1)	(144.9)	(142.3)	(133.0)	(143.1)	(150.6)	(153.3)
EUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(10.0)	(25.9)	(34.7)	(39.8)	(52.0)	(66.7)
GBP	(12.5)	(12.5)	(16.0)	(20.2)	(24.5)	(54.2)	(73.3)	(83.1)	(88.5)	(96.9)	(92.9)	(93.8)	(87.2)
JPY	(4.5)	(4.5)	(4.7)	(4.4)	(4.1)	(4.9)	(4.6)	(6.4)	(10.9)	(13.6)	(24.3)	(28.0)	(44.8)
USD	(0.5)	(2.7)	(4.0)	(7.4)	(10.8)	(42.0)	(69.7)	(92.9)	(105.0)	(109.4)	(121.4)	(125.6)	(129.0)
Other	65.0	60.9	52.6	39.5	39.5	26.0	59.1	73.7	73.7	73.7	73.7	73.7	73.7

### Absolute Change in Cross-Currency vs. USD Basis (bps)

(move in bps of spread on non-USD leg)

Currency	MATURITY												
	1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	30Y
AUD	11.8	11.8	11.8	11.8	11.8	10.6	5.6	(2.0)	(13.8)	(35.9)	(64.4)	(81.5)	(116.5)
EUR	(7.5)	(7.5)	(15.5)	(23.8)	(20.3)	(24.0)	(22.8)	(20.1)	(15.3)	(9.7)	(5.7)	(5.4)	(5.7)
GBP	(30.3)	(30.3)	(30.3)	(30.3)	(30.3)	(36.0)	(33.8)	(25.2)	(15.5)	(8.7)	(3.5)	0.5	6.8
JPY	(22.8)	(22.8)	(22.8)	(22.8)	(22.8)	(23.9)	(23.8)	(24.3)	(21.4)	(18.5)	(13.0)	(11.0)	(9.3)
Other	(7.5)	(7.5)	(15.5)	(23.8)	(20.3)	(24.0)	(22.8)	(20.1)	(15.3)	(9.7)	(5.7)	(5.4)	(5.7)

## Appendix 12: Data Notes

Sources for data through 2014:Q3 (as released through 10/22/2014). The 2014:Q3 values of variables marked with an asterisk (\*) are projected.

**U.S. real GDP growth\***: Percent change in real Gross Domestic Product at an annualized rate, Bureau of Economic Analysis.

**U.S. nominal GDP growth\***: Percent change in nominal Gross Domestic Product at an annualized rate, Bureau of Economic Analysis.

**U.S. real disposable income growth\***: Percent change in nominal disposable personal income divided by the price index for personal consumption expenditures at an annualized rate, Bureau of Economic Analysis.

**U.S. nominal disposable income growth\***: Percent change in nominal disposable personal income at an annualized rate, Bureau of Economic Analysis.

**U.S. unemployment rate**: Quarterly average of monthly data, Bureau of Labor Statistics.

**U.S. CPI inflation\***: Percent change in the Consumer Price Index at an annualized rate, Bureau of Labor Statistics.

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

**U.S. 5-year Treasury yield**: Quarterly average of the yield on 5-year U.S. Treasury bonds, constructed for 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 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. BBB corporate yield**: Quarterly average of the yield on 10-year BBB-rated corporate bonds, constructed for FRB/U.S. model by Federal Reserve staff using a Nelson-Siegel smoothed yield curve model; see Charles R. Nelson and Andrew F. Siegel (1987), "Parsimonious Modeling of Yield Curves," *Journal of Business*, vol. 60, pp. 473–89. Data prior to 1997 is based on the WARGA database. Data after 1997 is based on the Merrill Lynch database.

**U.S. mortgage rate**: 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.

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

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

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

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

**Euro area real GDP growth\***: 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**: Staff calculations based on Statistical Office of the European Community via Haver.

**Developing Asia real GDP growth\***: Staff calculations based on Chinese National Bureau of Statistics via CEIC; Indian Central Statistical Organization via CEIC; Bank of Korea via Haver; Census and Statistics Department of Hong Kong via CEIC; and Taiwan Directorate-General of Budget, Accounting, and Statistics via CEIC.

**Developing Asia inflation\***: Staff calculations based on Chinese National Bureau of Statistics via CEIC; Indian Ministry of Statistics and Programme Implementation via Haver; Labour Bureau of India via CEIC; National Statistical Office of Korea via CEIC; Census and Statistic Department of Hong Kong via CEIC; and Taiwan Directorate-General of Budget, Accounting, and Statistics via CEIC.

**Japan real GDP growth\***: Cabinet Office via Haver.

**Japan inflation**: Ministry of Internal Affairs and Communications via Haver.

**U.K. real GDP growth**: Office for National Statistics via Haver.

**U.K. inflation**: Staff calculations based on Office for National Statistics (uses Retail Price Index to extend series back to 1960) via Haver.

\* **Exchange rates**: Bloomberg.