

SUMMARY INSTRUCTIONS AND GUIDANCE

March 5, 2019

Accompanying Order Nos. 2019-OR-B-1, 2019-OR-FNMA-1, AND 2019-OR-FHLMC-1



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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 and Freddie Mac (the Enterprises), and the eleven Federal Home Loan Banks (Banks). These entities are referred to herein as regulated entities.

Each regulated entity has total consolidated assets of more than \$10 billion and, therefore, each 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. 1238, and these instructions and guidance apply equally to the Enterprises and the Banks. There will be changes to the stress testing requirements in future cycles as a result of The Economic Growth, Regulatory Relief, and Consumer Protection Act.

FHFA's stress testing rule establishes the basic requirements for each regulated entity to conduct Dodd-Frank Act Stress Tests (DFAST) 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, and
- Correspondence related to stress tests.

Stress Test Scenarios

The stress tests are based on portfolios as of December 31, 2018. The planning horizon for the stress test is nine quarters starting with the first quarter of 2019 and extending through the first quarter of 2021. 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 are contained 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. Each regulated entity is expected to indicate which variables are included in its stress tests in its report 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 instead are hypothetical scenarios and assumptions 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 December 31, 2018 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.

If a regulated entity can demonstrate that its loss-estimation methodology stresses identical positions under both the global market shock and the macroeconomic scenario, the regulated entity may assume that the combined losses from such positions 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 shock 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 one of the following:

- 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;
- a regulated entity's largest counterparty across the regulated entity's single-family mortgage insurance providers, and the potential losses and effects on capital associated with such a default; or
- a regulated entity's largest

counterparty across the regulated entity's providers of multifamily credit enhancements, and the potential losses and effects on capital associated with such a default.

The regulated entity should identify its largest counterparty as the counterparty that represents the largest total net stressed loss if the counterparty defaulted on its obligations. Net stressed losses for SFT counterparties 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.¹

The as-of date for the counterparty default scenario component is December 31, 2018 – 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 follow:

House Prices

The House Price Index assumptions provided by FHFA describe the path of national house prices. Each regulated entity should extrapolate the national house price path beyond the projection date as needed.

Each regulated entity should also translate the national house price path in each scenario to regional house price paths as appropriate for each regulated entity's models, and should interpolate the house price paths to accommodate the frequency of data required by their models.

Missing Variables

Each regulated entity should use its internal assumptions for variables that its models consume but that FHFA does not provide.

Balance Sheet Evolution

Each regulated entity should also use its internal assumptions to roll its balance sheets forward through the nine-quarter projection period. The assumptions should reflect reasonable expectations for future business and should conform to the regulated entity's internal strategic plan. The Enterprise should ensure that the size and composition of its book of business during the stress test is consistent with the goals in FHFA's Conservatorship Scorecard.

Capital Actions

For capital actions, each Bank should take into account its 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, each Bank should either assume payment of stock dividends equal to those paid in the year ending immediately prior to the first quarter of the planning horizon or follow any established rules it has for dividend payments.

Each Bank should either assume that it does not redeem or repurchase any capital instrument over the planning horizon or that

¹ 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.

its capital actions will accord with its established capital plans. It should also assume that it will redeem all mandatorily redeemable capital stock per its usual practice unless restricted from doing so by FHFA actions.

Finally, each Bank should assume that it 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.

Operational Risk Losses

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

Changes in Accounting Standards

The Financial Accounting Standards Board (FASB) periodically makes revisions to U.S. Generally Accepted Accounting Principles (U.S. GAAP). These changes affect an entity's financial reporting upon adoption by the entity. The FASB has made major revisions to accounting standards associated with recognition and measurement of financial instruments, revenue recognition, leases, credit losses, and derivatives and hedging. The effective dates for these standards range from fiscal years beginning after December 15, 2017, to fiscal years beginning after December 15, 2020.

A regulated entity should not reflect the adoption of new accounting standards in its projections unless the firm has already adopted the accounting standard for financial reporting purposes.

With regard to Accounting Standards
Update No. 2016-13, Financial Instruments –
Credit Losses (Topic 326): Measurement of
Credit Losses on Financial Instruments
(CECL), all regulated entities should exclude
the potential effect of CECL for the 2019
DFAST reporting cycle, even if a regulated
entity chooses to early adopt CECL for
financial reporting purposes in 2019. FHFA
will provide further guidance on reflecting
CECL in the 2020 DFAST reporting cycle.

Reporting Format and Timing

The Enterprises must submit results of the Baseline, Adverse, and Severely Adverse scenarios to FHFA and the Board on or before May 20, 2019 and must publicly disclose a summary of the results of only the Severely Adverse scenario between August 1 and August 15. The Banks are to report results of the Baseline, Adverse, and Severely Adverse scenarios to FHFA and the Board by August 31 and publicly disclose a summary of the results of only the Severely Adverse scenario between November 15 and November 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, each regulated entity should substantiate that its results are consistent with the specified macroeconomic and financial environment and that the components of its results are internally consistent within each scenario.

The regulated entities are required to report the results using the DFAST templates provided in Appendices 2 and 3.

The regulated entities are also 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. Each board of directors 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 changes as appropriate to its capital structure (including the level and composition of capital); and any changes to its exposures, concentrations, and risk positions; plans for recovery and resolution; or to improve overall risk management. Consultation with FHFA staff is expected in making any such changes. If a regulated entity is under FHFA conservatorship, any postassessment actions would require FHFA's prior approval.

Results should include effects on capital, as required under the DFAST 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 DFAST templates. Failure to submit complete data to FHFA in a timely manner may result in 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).

Evaluation of Stress Test Processes and Results

FHFA will focus particular attention on the processes related to 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 each regulated entity's assumptions for reasonableness and consistency with the assumptions used by other regulated entities. FHFA may require a regulated entity to adjust its assumptions or resubmit its results where FHFA 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 enterprisewide 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 of directors 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 of directors to have the perspective to effectively understand and challenge reported results. The board of directors 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 DFAST Reporting Templates - Enterprises

Scenario Templates 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	International Variables
Real GDP Growth	☐ Euro Area Real GDP Growth
☐ Nominal GDP Growth	☐ Euro Area Inflation
Real Disposable Income Growth	☐ Euro Area Bilateral Dollar Exchange Rate (\$/euro)
☐ Nominal Disposable Income Growth	Developing Asia Real GDP Growth
Unemployment Rate	Developing Asia Inflation
CPI Inflation Rate	Developing Asia Bilateral Dollar Exchange Rate (F/UDS, indes, base = 2000,Q1)
3-month Treasury Yield	☐ Japan Real GDP Growth
5-year Treasury Yield	☐ Japan Inflation
10-year Treasury Yield	☐ Japan Bilateral Dollar Exchange Rate (yen/USD)
BBB Corporate Yield	U.K. Real GDP Growth
☐ Mortgage Rate	U.K. Inflation
☐ Prime Rate	U.K. Bilaeral Dollar Exchange Rate (USD/pound)
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), Assetbased Securities (ABS), Commercial Mortgage-backed Securities (CMBS) and other collateral	
Agency Securities Option-Adjusted Spreads (OAS)	
Municipal Securities	
Counterparty Default Risk	
For variables not used, please provide a brief explanation belo	ow as to why it was not used:
Variable Name	Explanation
1	
2	
3	
4	
5	

Scenario Variables Beyond Those Supplied

	Baseline Scenario (additional variables u	sed beyond those supplied)	
7. 1.1.1.			
Variable	Mariahla Nama	Variable Definition	
Number	Variable Name	Variable Definition	
1			
2			
3			
4			
5			
	Adverse Scenario (additional variables us	sed hevond those supplied)	
/ariable	Auterse seemans (additional variables as	ca beyond mose supplied,	
Number	Variable Name	Variable Definition	
1	variable rame	variable berilliaen	
2			
3			
4			
5			
,			
	Severely Adverse Scenario (additional variabl	es used beyond those supplied)	
/ariable			
Number	Variable Name	Variable Definition	
1			
2			
<i>3</i>			
4			

<u>Baseline</u>

Spread Assumptions

Spread to Benchmark

		Actual					Projected				
Category	Benchmark	4Q 2018	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

	Actual					Projected				
Variable Name	4Q 2018	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9

Forward Curve

	Actual				P	rojected				
Maturity	4Q 2018	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
3-Month Treasury	2.3	2.5	2.6	2.7	2.8	2.8	2.8	2.8	2.8	2.8
6-Month										
1 year										
2 year										
5 year Treasury	2.9	2.8	2.9	3.0	3.0	3.0	3.0	3.0	3.1	3.3
10 year Treasury	3.0	2.9	3.0	3.1	3.2	3.2	3.2	3.2	3.2	3.4
15 year										
30 year										

House Price Index

 $(NOTE: For printing \ purposes \ dates \ only \ goes \ to \ Oct-19. \ However, the \ underlying \ excel \ spreadsheet \ collects \ 30 \ years \ of \ data.)$

	Actual				1	Projected					
Region	4Q 2018	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19

Region 1

Region 2

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Adverse

Spread Assumptions

Spread to Benchmark

		Actual					Projected				
Category	Benchmark	4Q 2018	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

		Actual					Projected				
Ī	Variable Name	4Q 2018	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9

Forward Curve

	Actual				F	Projected				
Maturity	4Q 2018	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
3-Month Treasury	2.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
6-Month										
1 year										
2 year										
5 year Treasury	2.9	0.5	0.7	0.7	0.8	0.8	0.9	1.0	1.0	1.1
10 year Treasury	3.0	0.9	1.0	1.1	1.2	1.3	1.3	1.3	1.4	1.6
15 year										
30 year										

House Price Index

 $(\textit{NOTE: For printing purposes dates only goes to Oct-19.}\ However, the underlying excel spreadsheet collects 30\ years of data.)$

	Actual	Projected									
Region	4Q 2018	Jan-19	Feb-19	Mar-19	Apr-19	Mav-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19

Region 1

Region 2

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Severely Adverse

Spread Assumptions

Spread to Benchmark

		Actual					Projected				
Category	Benchmark	4Q 2018	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

	Actual				P	rojected				
Variable Name	4Q 2018	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9

Forward Curve

	Actual				Pro	ojected				
Maturity	4Q 2018	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
3-Month Treasury	2.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
6-Month										
1 year										
2 year										
5 year Treasury	2.9	0.3	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.9
10 year Treasury	3.0	0.8	0.9	1.0	1.1	1.2	1.2	1.2	1.2	1.5
15 year										
30 year										

House Price Index

(NOTE: For printing purposes dates only go to Oct-19. However, the underlying excel spreadsheet collects 30 years of data.)

	Actual				P	rojectea					
Region	4Q 2018	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19

Region 1 Region 2

20 | P a g e

Stress Test Template Instructions										
1. All numbers should be reported in millions										
2. Reported numbers should reflect the 12/31/2018 start date.										

Income Statement (BASELINE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
Net interest income (excluding management and guaranty fee income)											
2 Management and guaranty fee income ¹		ļ									
3 Total net interest income											
		İ									
4 Other income ²		<u> </u>									
5 Total revenue		į									
C. DEO (formalisand promotive symposis)											
6 REO (foreclosed property expense) 7 Operational risk losses		i i									
8 Administrative expenses		ļ									
9 Other expenses ³		•									
		į									
10 Pre-provision net revenue		ļ									
11 (Provision) benefit for credit losses		; 									
12 Derivatives gains (losses)		•									
13 Trading gains (losses)		i !									
14 Other gains (losses)		•									
15 Global market shock impact on trading securities and held-for-sale loans		į									
16 Counterparty default losses		ļ									
17 Pre-Tax income (loss)											
40 (Davidson) have fit for factoral in a constant		į									
18 (Provision) benefit for federal income taxes19 Extraordinary gains (losses), net of tax effect		į									
19 Extraordinary gains (losses), her or tax effect		İ									
20 Net income (loss)											
21 Global market shock impact on available-for-sale securities		İ									
21 Global market shock impact on available-for-sale securities 22 Other comprehensive income		į									
22 Otto Comprononce mounts		İ									
23 Comprehensive income (loss)		ļ									

 $^{^{\}rm 1}$ Includes guaranty fees received for managing credit risk on mortgage loans of consolidated trusts/PCs.

² Includes SOP 03-3 gains/losses, net.

³ Includes Security Impairments.

<u>Ca</u>	pital Roll Forward (BASELINE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
CA	PITAL											
1	Beginning capital											
2	Senior preferred Treasury draw (prior period)											
3	Net income (loss)											
4	Less: Dividends											
5	Change in AOCI											
6	Change in non-controlling/minority interest Other											
,	Other											
8	Ending capital (deficit)											
9	Beginning PSPA funding commitment available											
10	Treasury draw required											
44	Demaining DCDA for ding commitment available											
11	Remaining PSPA funding commitment available											
OT	HER											
12	Deferred tax assets, net of allowance											
13	Total Assets											

Portfolio Balances (BASELINE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
RETAINED PORTFOLIO										
Agency securities										
1 Single-family										
2 Multifamily										
Non-Agency securities										
3 Private Label Securities (PLS)										
4 Commercial Mortgage-backed Securities (CMBS)										
5 Other ¹										
Whole loans										
6 Single-family										
7 Multifamily										
8 Total retained portfolio										
9 Single-family guaranty book of business										

¹ Other includes mortgage revenue bonds and other.

_	edit Overview - Quarterly (BASELINE) cludes single-family and multifamily)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
то	TAL PORTFOLIO											
1 2 3 4	CREDIT EXPENSES (\$s in millions) Foreclosed property expense (REO) Net charge-offs Credit losses Provision for credit losses											
5	Credit Expenses											
6 7 8 9	LOAN LOSS RESERVE (\$s in millions) Beginning loan loss reserve Net charge-offs Provison (benefit) for loan losses Other											
10	Ending Total Loan Loss Reserve											
11	Unpaid Principal Balance (\$s in millions)											

¹ Amount depicts the summation of foreclosed property expense and provision for credit losses.

1 Net interest income 2 Management and guaranty fee income 3 Other non-interest income 4 Total revenue 5 REO (foreclosed property exp.) 6 Other expenses? 7 Pre-provision net revenue 8 (Provision) benefit for credit losses 9 Derivatives gains (losses) 10 Gains (losses) no loans 11 Other fair value gains (losses) 12 Global market shock impact on trading securities and held-for-sale loans 13 Pre-Tax income (loss) 14 Provision (benefit) for federal income taxes 15 Extraordinary gains (losses), net of tax effect 16 Net income (loss) 17 Global market shock impact on available-for-sale securities 18 Other comprehensive income 19 Comprehensive income (loss)	Multifamily - Income Statement (BASELINE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
7 Pre-provision net revenue 8 (Provision) benefit for credit losses 9 Derivatives gains (losses) 10 Gains (losses) on loans 11 Other fair value gains (losses) 12 Global market shock impact on trading securities and held-for-sale loans 13 Pre-Tax income (loss) 14 Provision (benefit) for federal income taxes 15 Extraordinary gains (losses), net of tax effect 16 Net income (loss) 17 Global market shock impact on available-for-sale securities 18 Other comprehensive income	Management and guaranty fee income Other non-interest income											
8 (Provision) benefit for credit losses 9 Derivatives gains (losses) 10 Gains (losses) on loans 11 Other fair value gains (losses) 12 Global market shock impact on trading securities and held-for-sale loans 13 Pre-Tax income (loss) 14 Provision (benefit) for federal income taxes 15 Extraordinary gains (losses), net of tax effect 16 Net income (loss) 17 Global market shock impact on available-for-sale securities 18 Other comprehensive income												
9 Derivatives gains (losses) 10 Gains (losses) on loans 11 Other fair value gains (losses) 12 Global market shock impact on trading securities and held-for-sale loans 13 Pre-Tax income (loss) 14 Provision (benefit) for federal income taxes 15 Extraordinary gains (losses), net of tax effect 16 Net income (loss) 17 Global market shock impact on available-for-sale securities 18 Other comprehensive income	7 Pre-provision net revenue											
14 Provision (benefit) for federal income taxes 15 Extraordinary gains (losses), net of tax effect 16 Net income (loss) 17 Global market shock impact on available-for-sale securities 18 Other comprehensive income	 9 Derivatives gains (losses) 10 Gains (losses) on loans 11 Other fair value gains (losses) 											
14 Provision (benefit) for federal income taxes 15 Extraordinary gains (losses), net of tax effect 16 Net income (loss) 17 Global market shock impact on available-for-sale securities 18 Other comprehensive income	13 Pre-Tax income (loss)											
17 Global market shock impact on available-for-sale securities 18 Other comprehensive income	14 Provision (benefit) for federal income taxes											
18 Other comprehensive income	16 Net income (loss)											
19 Comprehensive income (loss)	·											
	19 Comprehensive income (loss)											

¹ Includes net interest income on multifamily whole loans, GSE multifamily MBS held in the retained portfolio, CMBS, and multifamily MRBs.

 $^{^{2}}$ Includes operational risk losses, administrative expenses, gains from partnership investments, and security impairments.

<u>Mu</u>	ultifamily Credit Overview - Quarterly (BASELINE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
TO	TAL PORTFOLIO		! !									
1 2 3 4 5	CREDIT EXPENSES (\$s in millions) Foreclosed property expense (REO) Net charge-offs Credit losses Provision for credit losses Credit Expense\$											
6 7 8 9	LOAN LOSS RESERVE (\$s in millions) Beginning loan loss reserve Net charge-offs Provison (benefit) for loan losses Other											
10	Ending Total Loan Loss Reserve		l İ									
11	Unpaid Principal Balance (\$s in millions)											

¹ Amount depicts the summation of foreclosed property expense and provision for credit losses.

	Multifamily Key Metrics (BASELINE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
	(\$s in millions)											
1	Total multifamily market volume (industry)											
3 4	Enterprise market share percentage New acquisition volume Liquidation volume Securitization volume											
6	Effective guaranty fee rate ² (bps)											
	Guaranty portfolio balance Loans and securities held in portfolio											

 $^{^{\}rm 1}$ Includes property sales and other run-off/prepayments.

 $^{^{\}rm 2}$ Guaranty fee income divided by weighted average portfolio balance.

Single-Family Credit Overview - Quarterly (BASELINE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
TOTAL PORTFOLIO											
CREDIT EXPENSES (\$s in millions) Foreclosed property expense (REO) Net charge-offs Credit losses Provision for credit losses Credit Expenses¹											
LOAN LOSS RESERVE (\$s in millions) Beginning loan loss reserve Net charge-offs Provison (benefit) for loan losses/guaranty losses Other In Ending Total Loan Loss Reserve											
Memo: 11 FAS 5 Loan Loss Reserve 12 FAS 114 Loan Loss Reserve 13 Concessions in FAS 114 Loan Loss Reserve ² 14 Unpaid Principal Balance (\$s in millions)											
	į										
CURRENT BOOK (as of 12/31/18) CREDIT EXPENSES (\$s in millions) 15 Foreclosed property expense (REO) 16 Net charge-offs											
17 Credit losses 18 Provision for credit losses											
19 Credit Expenses1											
LOAN LOSS RESERVE (\$s in millions) Beginning loan loss reserve Net charge-offs Provison (benefit) for loan losses/guaranty losses Other India Loan Loss Reserve - Current Book											
25 Unpaid Principal Balance (\$s in millions)											
NEW BUSINESS CREDIT EXPENSES (\$s in millions) Foreclosed property expense (REO) Net charge-offs Credit losses Provision for credit losses Credit Expenses Credit Expenses Credit Expenses											
LOAN LOSS RESERVE (\$s in millions) Beginning loan loss reserve Net charge-offs Provison (benefit) for loan losses/guaranty losses Provison (benefit) for loan losses/guaranty losses Cher Ending Loan Loss Reserve - New Business											
36 Unpaid Principal Balance (\$s in millions)	·										

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.

	Single-Family Credit Overview - Quarterly (BASELINE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
	SERIOUSLY DELINQUENT LOAN ACTIVITY (count in '000s)										
1	Beginning seriously delinquent loans										
2	Seriously delinquent inflows - new SDQ										
3	Seriously delinquent inflows - cured										
4	Seriously delinquent cured by modification										
5	Seriously delinquent - cured										
6	Seriously delinquent to default										
7	Seriously delinquent to payoff										
8	Ending Seriously Delinquent Loans										
	Ending seriously delinquent rate (%) Aggregate UPB of seriously delinquent loans (\$s in millions)										

11 Loan modifications (count in 000s)

(\$s in millions)

PRIVATE MORTGAGE INSURERS - OVERVIEW (Nine Quarter Cumulative Totals)

Arch Essent Mortgage Guaranty Mortgage Mortgage Guaranty Mortgage Guaranty Mortgage Insurance Company Inc. Corporation Corporation Co. Republic Rep	Triad Guaranty Insurance Residential Other Corporation Insurance Co.	
--	--	--

- 12 Expected Gross Claims to MI Companies¹
- Less: Reinsurance Proceeds
 Subtotal (net of reinsurance)
 Less: Haircut Amount

16 Expected Net Claims from MI Companies¹

- 17 Gross MI Benefit included in ending Loan Loss Reserves²
- 18 Less: Haircut Amount³
- 19 Net MI Benefit included in ending Loan Loss Reserves²

20 Total Net MI Benefit

- ¹ Represents amount related to loans that default during the nine-quarter projection period.
 ² Represents amount of MI benefit included in loan loss reserves at the end of the nine-quarter projection period.
 ³ Represents amount Gross MI benefit included in loan loss reserves at the end of the nine-quarter projection period is reduced due to MI Haircut.

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

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	_						
3	MODIFIED LOANS Current Less than 90 days delinquent Seriously delinquent (90 days or more delinquent or in the process of foreclosure) Total																	
6 7	NON-MODIFIED LOANS Current Less than 90 days delinquent Seriously delinquent (90 days or more delinquent or in the process of foreclosure) Total																	
	(\$s in millions)					Loan Loss	Doggrup											
	Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9							
10 11	MODIFIED LOANS Current Less than 90 days delinquent Seriously delinquent (90 days or more delinquent or in the process of foreclosure) Total											_						
14 15	NON-MODIFIED LOANS Current Less than 90 days delinquent Seriously delinquent (90 days or more delinquent or in the process of foreclosure) Total																	
	(\$s in millions)			E	nd of Quar	ter Project	ed Charge	-Offs (Und	iscounted \$	\$s)		_						
		Most Recent										Nine Quarter Cumulative						
	Loan Status Modified Non-Modified	Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	<u>Total</u>						

Single-Family Credit Summary (BASELINE)

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

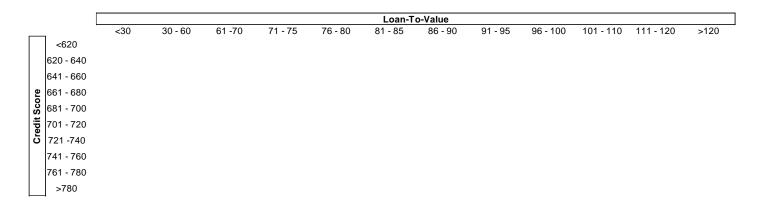
(\$s in millions)	End of Quarter Unpaid Principal Balance (UPB)											
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	_	
1 <=80% 2 >80% - 100% 3 >100% 4 Total												
(\$s in millions)					Loan Loss	Reserve						
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	_	
5 <=80% 6 >80% - 100% 7 >100% 8 Total												
(\$s in millions)				End of Q	uarter Projec	ted Charge-C	offs (Undiscou	unted \$s)				
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total	
9 <=80% 10 >80% - 100% 11 >100%												

Single-Family Credit Summary (BASELINE) Vintage Status - CURRENT BOOK

	(\$s in millions)				End of Qua	arter Unpaid I	Principal Bala	nce (UPB)				
	Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q 5	Q6	Q7	Q8	Q9	_
11 12 13 14	2004 and prior 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018											
	(D = 1 =111 =)					1 1	D					
	(\$s in millions)					Loan Loss	Reserve					
	Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	_
17 18 19 20 21 22 23 24 25 26 27 28 29	2010 2011 2012 2013 2014 2015											
	(\$s in millions)				End of Q	uarter Projec	ted Charge-C	ffs (Undiscou	unted \$s)			
	Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
32 33 34 35 36 37 38 39 40 41 42 43	2004 and prior 2 2005 3 2006 3 2007 5 2008 5 2009 7 2010 3 2011 9 2012 9 2013 2014 2 2015 3 2016 4 2017 5 2018											

(\$s in millions)

Single-Family - 9 Quarter Cumulative Credit Losses (BASELINE)



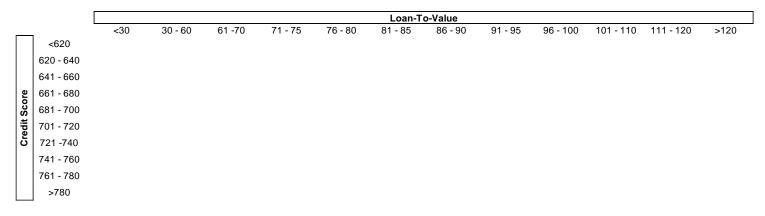
Credit losses represent the summation of net charge-offs and foreclosed property expenses (REO).

Use LTV and credit score as of December 31, 2018.

(\$s in millions)

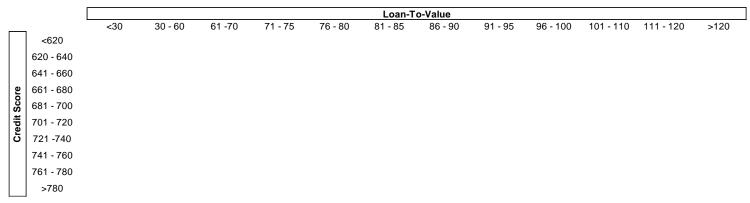
Single-Family - Loan Loss Reserves (BASELINE)

Loan Loss Reserves as of 12/31/18



Use LTV and credit score as of December 31, 2018

Loan Loss Reserves at 3/31/21 (end of nine quarters)



Use LTV and credit score as of December 31, 2018

Single-Family Credit Summary (BASELINE) Vintage and MTMLTV Status - CURRENT BOOK

(\$s in millions)		End of Quarter (UPB)									End of Quarter (UPB)
Loan Status a	t 12/31/18	Most Recent Quarter	Inflows	Cumulative Defaults ¹	Cumulative Prepays ²	Run-off ³	Other ⁴	Migrate to <=80%	Migrate to 80% - 100%	Migrate to >100%	Q9
2004 and prior	<=80% 80% - 100% >100%										
2005 - 2008	<=80% 80% - 100% >100%										
2009 and Later	<=80% 80% - 100% >100%										

(\$s in millions)		Loan Loss Reserves									
			Cumulative	Provision for							
Loan Status a	t 12/31/18	Beginning	Charge-offs	Credit Losses	Other	Ending					
	<=80%										
2004 and prior	80% - 100%										
	>100%										
	<=80%										
2005 - 2008	80% - 100%										
	>100%										
	<=80%										
2009 and Later	80% - 100%										
	>100%										

¹ Amount depicts principal balance of loans that are in the process of foreclosure.

 $^{^{2}\,\}mathrm{Amount}$ depicts principal balance of loans that have prepaid through refinance.

³ Amount depicts reduction in principal balance due to amortization.

⁴ Amount includes NPL sales and other miscellaneous items.

Single-Family Credit Summary (BASELINE) Vintage and Delinquency Status - CURRENT BOOK

(\$s in millions)			End of Quarter (UPB)					Cumulative U	Inpaid Principal B						End of Quarter (UPB)
Loo	n Status at 12/31/18		Most Recent Quarter	Inflows	Cumulative Defaults ¹	Cumulative Prepays ²	Run-off ³	Other ⁴	Migrate to Modified Current	Migrate to Modified <90 Days	Migrate to Modified SDQ	Migrate to Non-Modified	Migrate to Non-Modified <90 Days	Migrate to Non-Modified SDQ	Q9
2004 and prior	Modified	Current <90 Days SDQ	Quarter	Innows	Defaults	Prepays	Run-off	Other	Current	<90 Days	SDQ	Current	<90 Days	SDQ	Q9
2004 and prior	Non-Modified	Current <90 Days SDQ													_
2005 - 2008	Modified	Current <90 Days SDQ													
	Non-Modified	Current <90 Days SDQ													
2009 and Later	Modified	Current <90 Days SDQ													
	Non-Modified	Current <90 Days SDQ													

in millions)				L	oan Loss Reserves	3	
Lane	0-1		Declaries	Cumulative	Provision for	Other	E. die e
Loar	Status at 12/31/18	Current	Beginning	Charge-offs	Credit Losses	Other	Ending
	Modified	<90 Days SDQ					
2004 and prior							
	Non-Modified	Current <90 Days SDQ					
	Modified	Current <90 Days SDQ					
2005 - 2008							
	Non-Modified	Current <90 Days SDQ					
	Modified	Current <90 Days SDQ					
2009 and Later							
	Non-Modified	Current <90 Days SDQ					

¹ Amount depicts principal balance of loans that are in the process of foreclosure.

² Amount depicts principal balance of loans that have prepaid through refinance.

³ Amount depicts principal balance due to amontization.

⁴ Amount depicts exclusion in principal balance due to amontization.

⁴ Amount includes NPL sales and other miscellaneous items.

Single-Family Credit Summary (BASELINE) MTMLTV and Delinquency Status - CURRENT BOOK

(\$s in millions)			End of Quarter (UPB)					Cumulative L	Inpaid Principal B						End of Quarter (UPB)
	_oan Status at 12/31/18		Most Recent Quarter	Inflows	Cumulative Defaults ¹	Cumulative Prepays ²	Run-off ³	Other ⁴	Migrate to Modified Current	Migrate to Modified <90 Days	Migrate to Modified SDQ	Migrate to Non-Modified Current	Migrate to Non-Modified <90 Days	Migrate to Non-Modified SDQ	Q9
<=80%	Modified	Current <90 Days SDQ	Quarter	IIIIOWS	Belauts	Перауз	Kuron	Other	Odneni	C30 Days		Odneni	CSO Days	<u> </u>	Q3
1 =50 %	Non-Modified	Current <90 Days SDQ													
80% - 100%	Modified	Current <90 Days SDQ													
80 % - 100 %	Non-Modified	Current <90 Days SDQ													
>100%	Modified	Current <90 Days SDQ													
>100%	Non-Modified	Current <90 Days SDQ													

s in millions)				L	oan Loss Reserves	3	
Loai	n Status at 12/31/18		Beginning	Cumulative Charge-offs	for Credit Losses	Other	Ending
	Modified	Current <90 Days SDQ					
<=80%	Non-Modified	Current <90 Days SDQ					
000/ 4000/	Modified	Current <90 Days SDQ					
80% - 100%	Non-Modified	Current <90 Days SDQ					
>100%	Modified	Current <90 Days SDQ					
>100%	Non-Modified	Current <90 Days SDQ					

<sup>Amount depicts principal balance of loans that are in the process of foreclosure.
Amount depicts principal balance of loans that have prepaid through refinance.
Amount depicts reduction in principal balance due to amortization.
Amount includes NPL sales and other miscellaneous items.</sup>

	Credit Risk Transfers - Quarterly (BASELINE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q 5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
	(\$s in millions)											
Sing	le-Family											
1 2 3 4	CAS/STACR (Non-REMIC/Non-Trust) Interest Expense Fair Value Gain (Loss) Other Expenses Recoveries											
5 6 7	CAS/STACR (REMIC/Trust) Credit Expense Other Expenses Recoveries											
8 9 10	CIRT/ACIS Premium Expense Other Expenses Recoveries											
11 12 13	OTHER Fair Value Gain (Loss) Other Expenses Recoveries											
14	Total Single-Family Income (Loss)											
Mult	ifamily		i I									
15 16 17	CIRT/ACIS Premium Expense Other Expenses Recoveries											
18	Total Multifamily Income (Loss)											
19	Total Income (Loss)											
20 21 22	CAS/STACR REMIC/Trust Debt Issuances CIRT/ACIS Transactions Other Transactions											
	Reference Pool (Quarter)											
24	Outstanding Reference Pool		į									

Income St	atement (ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
			<u> </u>									
	income (excluding management and guaranty fee income)		•									
	ent and guaranty fee income ¹		l									
3 Total ne	t interest income		į									
			<u> </u>									
4 Other inco	··· ·		į									
5 Total re	/enue		l i									
C DEO (fare)			į									
7 Operationa	closed property expense)		į									
8 Administrat												
9 Other expe			İ									
9 Other expe	ilises		}									
10 Pre-prov	rision net revenue		į									
10 110 pio	noist not revenue		!									
11 (Provision)	benefit for credit losses		! ! !									
12 Derivatives	rains (losses)		į									
13 Trading ga			<u> </u>									
14 Other gains	· ·		į									
	ket shock impact on trading securities and held-for-sale loans		! :									
	ty default losses											
. o ooumo.pa.	y dordain lococo		į									
17 Pre-Tax	income (loss)											
18 (Provision)	benefit for federal income taxes		İ									
	ry gains (losses), net of tax effect		į									
19 LAHAOIUIII	ly gains (losses), her or tax effect											
20 Net incom	e (loss)											
04 01-1-1	Latabasel Suprant on socialists formale assumits.		į									
	ket shock impact on available-for-sale securities											
22 Other com	orehensive income		į									
23 Comprehe	ensive income (loss)											

 $^{^{\}rm 1}$ Includes guaranty fees received for managing credit risk on mortgage loans of consolidated trusts/PCs.

² Includes SOP 03-3 gains/losses, net.

³ Includes Security Impairments.

Capital Roll Forward (ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
CAPITAL 1 Beginning capital 2 Senior preferred Treasury draw (prior period) 3 Net income (loss) 4 Less: Dividends 5 Change in AOCI 6 Change in non-controlling/minority interest 7 Other											
8 Ending capital (deficit)											
 9 Beginning PSPA funding commitment available 10 Treasury draw required 11 Remaining PSPA funding commitment available 											
OTHER 12 Deferred tax assets, net of allowance 13 Total Assets											

Portfolio Balances (ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
RETAINED PORTFOLIO		! !								
Agency securities		ļ :								
1 Single-family		! 								
2 Multifamily		į								
Non-Agency securities		 - 								
3 Private Label Securities (PLS)		 								
4 Commercial Mortgage-backed Securities (CMBS)		į								
5 Other ¹		! :								
Whole loans		į								
6 Single-family		į :								
7 Multifamily		! !								
		į								
8 Total retained portfolio		 								
		į								
		<u>į</u>								
9 Single-family guaranty book of business		ļ !								

¹ Other includes mortgage revenue bonds and other.

(\$s in millions)

Global Market Shock (ADVERSE)

Applicable

UPB

Q1 Loss

- 1 Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS)
- 2 Commercial Mortgage-backed Securities (CMBS)
- 3 Asset-based Securities (ABS) and other collateral
- 4 Single-Family Agency Securities
- 5 Multifamily Agency Securities
- 6 Municipal Securities
- 7 Single-Family Loans
- 8 Multifamily Loans
- 9 Counterparty Default Risk*

Counterparty Name Counterparty Type Total Potential Income Statement Impact

Derivatives

Repo

Single-Family Mortgage Insurance Provider Multifamily Credit Enhancement Provider

Other

Total

^{*} Please provide the name and attribution of counterparty default risk by type (eg: derivatives, repo, etc.) of the largest counterparty below:

(\$s in millions)

Global Market Shock (ADVERSE)

Applicable UPB

Q1 Loss

TRADING SECURITIES

- 1 Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS)
- 2 Commercial Mortgage-backed Securities (CMBS)
- 3 Asset-based Securities (ABS) and other collateral
- 4 Single Family Agency Securities
- 5 Multifamily Agency Securities
- 6 Municipal Securities
- 7 Counterparty Default Risk

AVAILABLE-FOR-SALE SECURITIES (Post-Tax Amounts)

- 8 Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS)
- 9 Commercial Mortgage-backed Securities (CMBS)
- 10 Asset-based Securities (ABS) and other collateral
- 11 Single Family Agency Securities
- 12 Multifamily Agency Securities
- 13 Municipal Securities

HELD-FOR-SALE LOANS

- 14 Single Family Loans
- 15 Multifamily Loans

(*Credit ratings should be as of December 31, 2018)

										RMBS							
	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	Other / Unspecified	RM Sub
/* (\$MM) A Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
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st 2007 specified Vintage	\$0 \$0														+		\$
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2006 06	\$0 \$0																\$ \$
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al	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
		-													•		
fit/Loss (\$MM) Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
2006	\$0		•														\$
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otal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
2006 06	\$0 \$0														+		\$
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at 2007 specified Vintage Fotal 2006 96 97 st 2007 specified Vintage	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0																\$ \$ \$ \$
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(*Credit ratings should be as of December 31, 2018)

*Credit ratings should be	as of Dece	mber 31,	2018)									(Disc				ONLY							
						ABS	Index			Cash Non				CMBS				Co	orporate CDO	Corporate		Warehous	<u>a</u>
	Grand Total	Autos		Student Loans			Tranche	Other / Unspecified	ABS SubTotal		CMBS	CMBS CDO	Credit Basket	Index Tranches	Whole Loans	Other / Unspecified	CMBS SubTotal	CLO	Other / Unspecified	CDO/CLO	Total Size	Total Protection	Other / Unspecified
MV* (\$MM) AAA Total	\$0	\$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	\$0 \$0			-		<u> </u>	ļ.	-	\$0 \$0				-	<u> </u>	ļ .	-	\$0 \$0		-	\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage	\$0		**	**		•	•	••	\$0	**		•	**	•	**		\$0			\$0		**	
AA Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
A Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
BBB Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
BB Total	\$0	\$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	\$0 \$0 \$0								\$0 \$0 \$0								\$0 \$0 \$0			\$0 \$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0 \$0								\$0 \$0 \$0								\$0 \$0 \$0			\$0 \$0 \$0			
B Total	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage <b td="" total<=""><td>\$0 \$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0 \$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0 \$0</td><td>\$0</td><td>\$0</td><td>\$0 \$0</td><td>\$0</td><td>\$0</td><td>\$0</td>	\$0 \$0	\$0	\$0	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage NR Total	\$0 \$0	\$0	\$0	\$0	\$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	\$0 \$0	\$U	\$ 0	\$ 0	\$ 0	\$0	\$0	30	\$0 \$0	ψU	\$0	\$U	\$ 0	30	\$ 0	\$ 0	\$0 \$0 \$0	\$ 0	\$0	\$0 \$0	\$0	ψU	\$ 0
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			1
Unspecified Vintage	\$0								\$0								\$0			\$0			
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Profit/Loss (\$MM) AAA Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
AA Total	\$0	\$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	\$0 \$0 \$0								\$0 \$0 \$0								\$0 \$0 \$0			\$0 \$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
A Total	\$0	\$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	\$0 \$0	Н							\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage BBB Total	\$0 \$0	\$0	\$0	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
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2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0 \$0			
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Unspecified Vintage	\$0	**	er.	60	60	**	**	**	\$0	60	**	**	60	60	60	60	\$0	60	60	\$0 \$0	60	60	
Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0
2006 2007 Post 2007	\$0 \$0 \$0								\$0 \$0 \$0								\$0 \$0 \$0			\$0 \$0 \$0			
Unspecified Vintage	\$0								\$0								\$0			\$0			
NR Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0	Ш							\$0 \$0								\$0 \$0			\$0 \$0			
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

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)
Bonds			(, = 0)	
AAA				
AA				
A				
ввв				
BB				
В				
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NR				
Bonds Total	\$0	\$0	\$0	\$0
1M	· ·	•	·	
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
10Y 15Y				
20Y				
	+			
30Y	60	\$0	*	***
Bonds Total	\$0	\$0	\$0	\$0
Loans				
AAA				
AA				
A				
BBB				<u> </u>
вв				
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR				
Loans Total	\$0	\$0	\$0	\$0
1M			•	
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
				
15Y	+			
20Y	+			
30Y				
Loans Total	\$0	\$0	\$0	\$0
CDS				
AAA				
AA				
A				
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В				
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NR				1
CDS Total	\$0	\$0	\$0	\$0
1M			•	
3M				
6M	 			
9M				
1Y				
				
2Y				
3Y	+			
5Y	+			
7Y				
10Y				1
15Y				
20Y				
30Y				
CDS Total	\$0	\$0	\$0	\$0
<u> </u>				·

Trading and Other Fair Value Assets Munis (Adverse)

I				
AAA	1			
AA				
A				<u> </u>
ВВВ				
BB				
В				
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NR				
Indices Total	\$0	\$0	\$0	\$0
1M				
3M				
6M				
9M				
1Y				
2Y				+
3Y				
5Y				
7Y 10Y				
				<u> </u>
15Y 20Y		+		+
30Y				+
Indices Total	\$0	\$0	\$0	\$0
Other / Unspecified Munis	Ψ0	45	Ψ3	1 40
AAA	1	1		1
AA		+		
A		+		
BBB		+		
ВВ				
В				
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NR				
Other / Unspecified Munis Total	\$0	\$0	\$0	\$0
1M		-	-	
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y				
Other / Unspecified Munis Total	\$0	\$0	\$0	\$0
Grand Total				
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
В	\$0	\$0	\$0	\$0
<b NB</b 	\$0	\$0	\$0	\$0
NR Grand Total	\$0 \$0	\$0	\$0 \$0	\$0
1M	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
3M				
6M	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
9M			\$0 \$0	
1Y	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
2Y	\$0 \$0	\$0	\$0 \$0	\$0 \$0
3Y	\$0 \$0	\$0	\$0 \$0	\$0
5Y	\$0 \$0	\$0	\$0 \$0	\$0 \$0
7Y	\$0	\$0	\$O	\$0
10Y	\$0	\$0	\$O	\$0
15Y	\$0	\$0	\$O	\$0
20Y	\$0	\$0	\$O	\$0
30Y	\$0	\$0	\$0	\$0
	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0

Trading & Other Fair Value Assets Template

Agencies (Adverse)

	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Wide ning (AFS)	Profit/Loss from OAS Widening (Trading Secs)
US Residential Agency Produc	ts			1
lOs				
POs Other CMOs				
Other CMOs				
Pass-Throughs				
Agency Debt/Debentures				
IOS Index				
POS Index				
MBX Index				
Other Agency Derivatives				
TBA's				
Reverse Mortgages				
Residential Other / Unspecified Total	\$0	\$0	\$0	\$0
lotai	\$0	φυ	ΨΟ	ΨΟ
US Commercial Agency Production Cash Agency CMBS Agency CMBS Derivatives Commercial Other / Unspecified	ets			
Total	\$0	\$0	\$0	\$0
Non-US Agency Products				1
AA				
· - ·				
Α				
A BBB				
BBB				
BBB BB				
BBB BB B				
BBB BB				

	Multifamily - Income Statement (ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
1 2 3 4	Net interest income¹ Management and guaranty fee income Other non-interest income Total revenue											
	REO (foreclosed property exp.) Other expenses ²											
7	Pre-provision net revenue											
9 10 11	(Provision) benefit for credit losses Derivatives gains (losses) Gains (losses) on loans Other fair value gains (losses) Global market shock impact on trading securities and held-for-sale loans											
13	Pre-Tax income (loss)											
	Provision (benefit) for federal income taxes Extraordinary gains (losses), net of tax effect											
16	Net income (loss)											
	Global market shock impact on available-for-sale securities Other comprehensive income											
19	Comprehensive income (loss)											

¹ Includes net interest income on multifamily whole loans, GSE multifamily MBS held in the retained portfolio, CMBS, and multifamily MRBs.

 $^{^{2}}$ Includes operational risk losses, administrative expenses, gains from partnership investments, and security impairments.

	Credit Risk Transfers - Quarterly (ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q 5	Q6	Q7	Q8	Q 9	Nine Quarter Cumulative Total
	(\$s in millions)											
Sing	gle-Family											
1 2 3 4	CAS/STACR (Non-REMIC/Non-Trust) Interest Expense Fair Value Gain (Loss) Other Expenses Recoveries CAS/STACR (REMIC/Trust)											
5 6	Credit Expense Other Expenses											
Mult	Recoveries CIRT/ACIS Premium Expense Other Expenses Recoveries OTHER Fair Value Gain (Loss) Other Expenses Recoveries Total Single-Family Income (Loss)											_
15 16	Premium Expense Other Expenses											
17	Recoveries											
18	Total Multifamily Income (Loss)											
19	Total Income (Loss)											
20 21 22	CAS/STACR REMIC/Trust Debt Issuances CIRT/ACIS Transactions Other Transactions											
	Reference Pool (Quarter)											
24	Outstanding Reference Pool											

Income Statement (SEVERELY ADVERSE) (without establishing DTA)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
 Net interest income (excluding management and guaranty fee income) Management and guaranty fee income¹ Total net interest income 											
4 Other income ² 5 Total revenue											
 6 REO (foreclosed property expense) 7 Operational risk losses 8 Administrative expenses 9 Other expenses³ 											
10 Pre-provision net revenue		i i									
11 (Provision) benefit for credit losses											
 Derivatives gains (losses) Trading gains (losses) Other gains (losses) Global market shock impact on trading securities and held-for-sale loans Counterparty default losses 											
17 Pre-Tax income (loss)											
18 (Provision) benefit for federal income taxes19 Extraordinary gains (losses), net of tax effect											
20 Net income (loss)											
21 Global market shock impact on available-for-sale securities22 Other comprehensive income											
23 Comprehensive income (loss)		ļ									

 $^{^{\}rm 1}$ Includes guaranty fees received for managing credit risk on mortgage loans of consolidated trusts/PCs.

² Includes SOP 03-3 gains/losses, net.

³ Includes Security Impairments.

Income Statement (SEVERELY ADVERSE) (with establishing DTA)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
 Net interest income (excluding management and guaranty fee income) Management and guaranty fee income¹ 											
3 Total net interest income											
4 Other income ²		•									
5 Total revenue		į									
 6 REO (foreclosed property expense) 7 Operational risk losses 8 Administrative expenses 9 Other expenses³ 											
10 Pre-provision net revenue											
11 (Provision) benefit for credit losses											
 Derivatives gains (losses) Trading gains (losses) Other gains (losses) Global market shock impact on trading securities and held-for-sale loans Counterparty default losses 											
17 Pre-Tax income (loss)		!									
18 (Provision) benefit for federal income taxes 19 Extraordinary gains (losses), net of tax effect											
20 Net income (loss)											
21 Global market shock impact on available-for-sale securities22 Other comprehensive income											
23 Comprehensive income (loss)		ļ I									

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

² Includes SOP 03-3 gains/losses, net.

³ Includes Security Impairments.

	pital Roll Forward (SEVERELY ADVERSE) hout establishing DTA)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
CA 1 2	PITAL Beginning capital Senior preferred Treasury draw (prior period)											
3 4 5	Net income (loss) Less: Dividends Change in AOCI											
6 7	Change in non-controlling/minority interest Other											
8	Ending capital (deficit)											
9 10	Beginning PSPA funding commitment available Treasury draw required											
11	Remaining PSPA funding commitment available											
	HER Deferred tax assets, net of allowance											
13	Total Assets											

(\$s in millions)

	pital Roll Forward (SEVERELY ADVERSE) h establishing DTA)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
CA	PITAL											
1	Beginning capital		ļ									
2	Senior preferred Treasury draw (prior period) Net income (loss)		!									
4	Less: Dividends		į									
5	Change in AOCI		! :									
6	Change in non-controlling/minority interest		į									
7	Other		! !									
8	Ending capital (deficit)		l I									
9 10	Beginning PSPA funding commitment available Treasury draw required											
11	Remaining PSPA funding commitment available											
			! ! !									
			i									
ОТ	HER		 									
12	Deferred tax assets, net of allowance											
13	Total Assets											

Portfolio E	alances (SEVERELY ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
3 Private I	ecurities amily ily cy securities Label Securities (PLS) rcial Mortgage-backed Securities (CMBS) ns amily										
8 Total reta	ined portfolio										
9 Single-fa	nily guaranty book of business										

¹ Other includes mortgage revenue bonds and other.

(\$s in millions)

Global Market Shock (SEVERELY ADVERSE)

Applicable **UPB**

Q1 Loss

- 1 Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS)
- 2 Commercial Mortgage-backed Securities (CMBS)
- Asset-based Securities (ABS) and other collateral
- Single-Family Agency Securities 4
- 5 Multifamily Agency Securities
- **Municipal Securities** 6
- 7 Single-Family Loans
- 8 Multifamily Loans
- Counterparty Default Risk*

^{*} Please provide the name and attribution of counterparty default risk by type (eg: derivatives, repo, etc.) of the largest counterparty below:

Counterparty Name	Counterparty Type	Total Potential Income Statement Impact

Derivatives

Repo

Single-Family Mortgage Insurance Provider Multifamily Credit Enhancement Provider

Other

Total

(\$s in millions)

Global Market Shock (SEVERELY ADVERSE)

Applicable UPB

Q1 Loss

TRADING SECURITIES

- 1 Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS)
- 2 Commercial Mortgage-backed Securities (CMBS)
- 3 Asset-based Securities (ABS) and other collateral
- 4 Single Family Agency Securities
- 5 Multifamily Agency Securities
- 6 Municipal Securities
- 7 Counterparty Default Risk

AVAILABLE-FOR-SALE SECURITIES (Post-Tax Amounts)

- 8 Private Label Securities (PLS) or Non-Agency Prices for Residential Mortgage-backed Securities (RMBS)
- 9 Commercial Mortgage-backed Securities (CMBS)
- 10 Asset-based Securities (ABS) and other collateral
- 11 Single Family Agency Securities
- 12 Multifamily Agency Securities
- 13 Municipal Securities

HELD-FOR-SALE LOANS

- 14 Single Family Loans
- 15 Multifamily Loans

(*Credit ratings should be as of December 31, 2018)

	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	Other / Unspecified	RI I Sub
/* (\$MM) A Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
re 2006	\$0	\$ 0	φU	\$ 0	ΨU	3 0	40	\$ 0	φU	\$ 0	40	\$0	\$0	\$ 0	\$ 0	ΦU	4
106 107	\$0 \$0																\$
st 2007 specified Vintage	\$0 \$0																9
Γotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
9 2006 06	\$0 \$0																*
07 st 2007	\$0																
specified Vintage	\$0 \$0																\$
otal e 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
06	\$0																4
07 st 2007	\$0 \$0																
specified Vintage	\$0															••	
Total 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
06 07	\$0 \$0																\$
st 2007 specified Vintage	\$0 \$0																- 4
Fotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	4
2006 06	\$0 \$0																
07	\$0																
st 2007 specified Vintage	\$0 \$0																-
otal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
2006 06	\$0 \$0																
7 st 2007	\$0 \$0																9
specified Vintage	\$0																
otal 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
6 7	\$0 \$0																
st 2007	\$0																
pecified Vintage	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$ 0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	_
2006	\$0	- 50	ΨΟ	- 50	Ψ0	\$0	\$ 0	1	40	30	\$ 0	40		40		40	
06 07	\$0 \$0																
st 2007 specified Vintage	\$0 \$0																9
al	\$0																
		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	•
fit/Loss (\$MM)																	5
Total	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	
Total 2006 06	\$0 \$0 \$0																
Total e 2006 06 07 st 2007	\$0 \$0 \$0 \$0 \$0																
Total 2006 06 07 st 2007 specified Vintage	\$0 \$0 \$0 \$0 \$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total 2 2006 06 07 st 2007 specified Vintage 0 2006	\$0 \$0 \$0 \$0 \$0 \$0 \$0																
Total 2006 26 27 27 28 28 207 28 2007 29 2006 20 2006 20 2006 20 2006	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total 2 2006 206 206 206 206 207 2 2006 207 2 2006 206 206 207 2 2006 207 2 2007 2 2007 2 2007 2 2007 2 2007 2 2007 2 2007 2 2007 2 2007 2 2006 2007 2 2007 2 2007 2 2006 2007 2 2007 2 2007 2 2007 2 2006 2007 2 2007 2 2006 2 2007 2 2007 2 2006 2 2007 2 2007 2 2007 2 2006 2 2007 2 2007 2 2006 2 2007 2 2007 2 2006 2 2007 2 2007 2 2007 2 2007 2 2006 2 2007 2 2007 2 2007 2 2006 2 2007 2 2007 2 2006 2 2007 2 20	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total 2 a 2006 26 26 27 28 20 20 20 20 20 20 20 20 20 20 20 20 20	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total 2 2006 36 77 st 2007 specified Vintage otal 2 2006 36 51 52 51 52 52 53 54 54 55 55 55 55 55 56 56 56 57 57 58 56 56 57 57 58 56 56 57 57 58 56 56 56 57 58 56 56 56 56 56 56 56 56 56 56 56 56 56	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	
Total 2 2006 36 37 st 2007 specified Vintage otal 2 2006 36 37 specified Vintage tal st 2007 specified Vintage tal 2 2006 36 36 37	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	
Total 2 2006 56 77 st 2007 specified Vintage o'otal 2 2006 66 75 st 2007 specified Vintage st 2007 st 2006 66 77 st 2006	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0	\$0 \$0 \$0	
Total 2 2006 36 37 st 2007 st 2007 cotal 2 2006 36 37 37 specified Vintage 38 t 2007 specified Vintage 48 t 2007 specified Vintage 48 t 2007 specified Vintage 48 t 2007 specified Vintage 48 t 2007 specified Vintage	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	
Total 2 2006 36 37 st 2007 st 2007 st 2008 36 36 37 st 2007 specified Vintage st 2007 specified Vintage st 2007 specified Vintage st 2007 st 2007 st 2007 st 2007 st 2007 st 2007 st 2007 specified Vintage	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0	\$0 \$0 \$0	
Total 2 2006 16 17 17 18 2007 18 2007 19 2006 16 17 18 2007 18 2007 18 2007 18 2007 18 2007 18 2007 18 2007 18 2006 18 7 17 18 2006 18 7 18 2006 18 7 18 2006 18 7 18 2006 18 7 18 2007	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0	\$0 \$0 \$0	
Total 2 2006 16 17 18 2007 18 2007 18 2007 18 2006 18 2007 18 2007 18 2006 18 2006 18 2007 19 2006 18 2007 19 2006 18 2007 19 2006 18 2007 19 2006 18 2007 19 2006 18 2007 19 2006 18 2007 19 2006 18 2007 18 2006 18 2007 18 2007 18 2007	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0	\$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0	
Total 2 2006 16 17 17 18 2007 18 2007 18 2008 18 18 2008 18 2008 18 2007 19 21 2008 18 2007 19 21 2008 18 2007 19 21 2007 19 21 2007 19 2006 18 2008 18 2007 19 21 2008 18 2008	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0	\$0 \$0 \$0	
Total 2006 16 17 18 2007 18 2007 18 2006 16 17 18 2007 18 2007 18 2007 18 2007 19 2006 18 2007 19 2006 18 2007 19 2006 18 2007 19 2006 18 2007	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0	\$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0	
Total 2006 66 77 81 2007 95 2006 66 77 81 2007 95 2006 66 77 81 2007 95 2006 66 77 81 2007 95 2006 66 87 87 81 2007 95 2006 66 87 87 81 2007 95 2006 67 81 2007 95 2006 67 81 2007 95 2006 67 81 2007 95 2006 67 81 2007 95 2006 67 81 2007 95 2006 67 81 2007 95 2006 67 97 98 2007 98 2007 98 2007 98 2007 98 2007 98 2007 98 2007 98 2007 98 2007 98 2007 98 2007 98 2007 98 2007 98 2007 98 2007	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0	\$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0	
Total 2 2006 16 17 18 2007 18 2007 18 2006 16 16 17 18 2006 16 18 2007 18 2006 18 2007 18 2007 18 2007 18 2007 18 2007 18 2007 18 2007 18 2006 18 2007 18 2006 18 2007	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0	\$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0	
Total 2006 66 77 st 2007 solution 66 67 77 st 2007 specified Vintage 66 67 78 st 2007 specified Vintage 66 67 78 st 2007 specified Vintage 67 st 2006 68 77 st 2006 69 77 st 2006 69 77 st 2006 69 77 st 2007 specified Vintage 70 specified Vintage	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	
Total 2006 66 77 st 2007 st 2007 st 2007 st 2007 st 2007 specified Vintage 66 77 st 2007 specified Vintage tal 2006 66 77 st 2007 st 2007 st 2006 66 77 st 2007 specified Vintage 78 st 2007 specified Vintage 78 st 2007 specified Vintage 78 st 2007 specified Vintage 78 st 2007 specified Vintage 78 st 2007 specified Vintage 78 st 2007 specified Vintage 78 st 2007 specified Vintage 78 spe	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	
Total 2006 66 75 81 2007 82 2006 66 75 81 2006 66 75 81 2007 82 2006 66 87 81 2007 83 2006 66 87 81 2007 83 2006 66 87 81 2007 83 2006 66 87 81 2007 83 2006 66 87 81 2007 83 2006 66 87 81 2007 83 2006 66 87 81 2007 83 2006 66 87 81 2007 83 2006 66 87 81 2007 83 2006 66 87 88 2006 66 87 88 2006 66 87 88 2006 66 87 88 2007	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	
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Total 2 2006 26 27 2007 31 2007 31 2007 31 2007 31 2006 36 37 37 30 30 30 30 30 30 30 30 30 30 30 30 30	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	
Total 2 2006 6 77 81 2007 81 2007 81 2007 81 2006 6 77 81 2007 81 2006 6 77 81 2007 81 2007 81 2007 81 2007 81 2007 81 2007 81 2007 81 2007 81 2007 81 2007 81 2007 81 2006 86 77 81 2006 86 77 81 2006 86 77 81 2006 86 77 81 2006 86 77 81 2007 81 2006 86 77 81 2007 81 2006 86 77 81 2007 81 2007 81 2006 86 77 81 2007	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	
Total 2 2006 36 37 31 2007 31 2007 35 2006 36 36 37 31 2007 35 2006 36 37 38 2007 38 2007 38 2007 38 2007 38 2007 38 2007 38 2007 38 2007 38 2007 38 2007 38 2006 38 2007 38 2007 38 2006 38 2007 38 2007 38 2007 38 2007 38 2007 38 2007 38 2007 38 2007 38 2007 38 2007 39 2016 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 30 30 2008 3	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	
Total 2 2 2006 36 37 31 2007 31 2007 31 2007 32 2006 36 37 37 38 2007 39 2008 36 37 38 2 2008 38 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	
Total 2 2 2006 36 37 st 2007 st 2007 st 2007 st 2007 specified Vintage odal 2 2006 36 37 st 2007 specified Vintage odal 3 2006 36 37 st 2007	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	
fit/Loss (\$MM) Total 2 2006 36 37 st 2007 specified Vintage 75 st 2007 st 2006 36 37 st 2007 specified Vintage 75 st 2007 specified Vintage 75 specified Vintage 75 specified Vintage 75 specified Vintage 75 specified Vintage 75 specified Vintage 75 specified Vintage 75 specified Vintage 75 specified Vintage 75 specified Vintage 75 specified Vintage 75 specified Vintage 75 specified Vintage 75 specified Vintage 76 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage 77 specified Vintage	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	

(*Credit ratings should be as of December 31, 2018)

	as of Decer	nber 31,	2018)									`		ie io r									
						ABS	Index			Cash Non-				CMBS				Co	rporate CDO	Corporate		Warehouse	•
	Grand Total	Autos	Credit Cards	Student Loans	ABS CDS	Credit Basket	Tranche	Other / Unspecified	ABS SubTotal			CMBS	Credit Basket	Index Tranches	Whole Loans	Other / Unspecified	CMBS SubTotal	CLO	Other / Unspecified	CDO/CLO	Total Size	Total Protection	Other / Unspecified
MV* (\$MM) AAA Total	\$0	\$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	\$0 \$0			<u> </u>		<u> </u>			\$0 \$0	-				-	-	-	\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage AA Total	\$0 \$0	*0	*0	*0	60	***	\$0	\$0	\$0 \$0	*0	£0.	*0	*0	*0	\$0	***	\$0 \$0	*0	\$0	\$0 \$0	*0	*0	***
Pre 2006 2006	\$0 \$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0 \$0	\$0	\$0	\$0 \$0 \$0	\$0	\$0	\$0
2006 2007 Post 2007	\$0 \$0								\$0 \$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage	\$0								\$0								\$0			\$0			
A Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
BBB Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
BB Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
B Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0 \$0								\$0 \$0			\$0 \$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
<b td="" total<=""><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td>	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage NR Total	\$0 \$0	\$0	\$0	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage Total	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
Profit/Loss (\$MM)	40	40	40	40	40	40	40	\$ 0	40	40	40	φυ	40	40	40	40	40	40	40	40	40	40	- 40
AAA Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
AA Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0 \$0								\$0 \$0			\$0 \$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
A Total	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage BBB Total	\$0 \$0	\$0	\$0	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage BB Total	\$0 \$0	\$0	\$0	\$0	\$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	\$0 \$0			ļ.,	-	<u> </u>		V 0	\$0 \$0				-	-	-	-	\$0 \$0	Ų.		\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage	\$0	0.0	60				•	45	\$0	0.7	0.0	•					\$0	0.0		\$0	200	•	
B Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007 Post 2007	\$0 \$0 \$0								\$0 \$0 \$0								\$0 \$0 \$0			\$0 \$0 \$0			
Unspecified Vintage	\$0 \$0								\$0								\$0			\$0			
<b total<br="">Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
NR Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

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)
Bonds			(AFS)	(Trading Secs)
AAA				
AA				
A BBB			+ -	
BBB BB			+	
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR				
Bonds Total	\$0	\$0	\$0	\$0
1M 3M			+	
6M				
9M				
1Y				
2Y				
3Y			<u> </u>	
5Y 7Y			1	
10Y			1	
15Y			1	
20Y				
30Y				
Bonds Total	\$0	\$0	\$0	\$0
•				
AAA	1		1 -	
AA			+	
A				
BBB			1	
вв				
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR	# 0	*	C O	#6
Loans Total	\$0	\$0	\$0	\$0
3M			+	
6M				
9M				
1Y				
2Y				
3Y			ļ	
5Y 7Y			+ +	
10Y			†	
15Y				
20Y				
30Y				
Loans Total	\$0	\$0	\$0	\$0
CDS				
AAA	1 1		T -	1
AAA			†	1
A			1	1
ввв			I	
вв				
B_			ł	-
<b< td=""><td> </td><td></td><td>ł </td><td>1</td></b<>			ł	1
NR CDS Total	\$0	\$0	\$0	\$0
1M	40	Ψυ	40	40
3M			1	
6M				
9M				
1Y			ł	
2Y	 		 	+
3Y 5Y			ł	
7Y			†	+
10Y			1	1
15Y				
20Y				
30Y				
CDS Total	\$0	\$0	\$0	\$0

Trading and Other Fair Value Assets Munis (Severely Adverse)

Indices				
AAA		1		
AA				
Α				
BBB				
BB				
B_				
<b< td=""><td></td><td>+</td><td></td><td></td></b<>		+		
NR	***	C O	# 2	# 0
Indices Total 1M	\$0	\$0	\$0	\$0
3M		+		
6M		+		
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y				
15Y		+		
20Y		+		
30Y	60	6 0	*	40
Indices Total	\$0	\$0	\$0	\$0
Other / Unspecified Munis	1			1
AAA				
AA		+		-
A BBB		+		
BB		+		
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR				
Other / Unspecified Munis Total	\$0	\$0	\$0	\$0
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y		+		
7Y 10Y		+		
15Y		+		
20Y		+		
30Y		+		
Other / Unspecified Munis Total	\$0	\$0	\$0	\$0
Other / Other Common marine : Other	40	40	40	40
Grand Total				
AAA	\$0	\$0	\$0	\$0
AA	\$0	\$0	\$0	\$0
A	\$0	\$0	\$0	\$0
BBB	\$0	\$0	\$O	\$0
вв	\$0	\$0	\$ 0	\$0
В	\$0	\$0	\$0	\$0
<b< td=""><td>\$0</td><td>\$0</td><td><u>\$0</u></td><td>\$0</td></b<>	\$0	\$0	<u>\$0</u>	\$0
NR .	\$0	\$0	\$0	\$0
Grand Total	\$0	\$0	\$0	\$0
1M	\$0	\$0	\$0 \$0	\$0
3M 6M	\$0 \$0	\$0	\$0 \$0	\$0 \$0
9M	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
1Y	\$0	\$0	\$O	\$0
2Y	\$0	\$0	\$0	\$0
3Y	\$0	\$0	\$O	\$0
5Y	\$0	\$0	\$0	\$0
7Y	\$0	\$0	\$0	\$0
10Y	\$0	\$0	\$0	\$0
15Y	\$0	\$0	\$O	\$0
20Y		\$O	\$O	\$0
	\$0			
30Y Grand Total	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0

Trading & Other Fair Value Assets Template

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)
US Residential Agency Products			()	(**************************************
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				
Total	\$0	\$0	\$0	\$0
US Commercial Agency Products Cash Agency CMBS	T			
Agency CMBS Derivatives				
Commercial Other / Unspecified				
Total	\$0	\$0	\$0	\$0
Non-US Agency Products				
AAA				
AA				
Α				
BBB				
BB				
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR				
Total	\$0	\$0	\$0	\$0

	edit Overview - Quarterly (SEVERELY ADVERSE) cludes single-family and multifamily)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
то	TAL PORTFOLIO		i I									
1 2 3 4 5	CREDIT EXPENSES (\$s in millions) Foreclosed property expense (REO) Net charge-offs Credit losses Provision for credit losses Credit Expenses											
6 7 8 9	LOAN LOSS RESERVE (\$s in millions) Beginning loan loss reserve Net charge-offs Provison (benefit) for loan losses Other											
10 11	Ending Total Loan Loss Reserve Unpaid Principal Balance (\$s in millions)											

¹ Amount depicts the summation of foreclosed property expense and provision for credit losses.

Multifamily - Income Statement (SEVERELY ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
 Net interest income¹ Management and guaranty fee income Other non-interest income Total revenue 											
 5 REO (foreclosed property exp.) 6 Other expenses² 											
7 Pre-provision net revenue		l İ									
 8 (Provision) benefit for credit losses 9 Derivatives gains (losses) 10 Gains (losses) on loans 11 Other fair value gains (losses) 12 Global market shock impact on trading securities and held-for-sale loans 											
13 Pre-Tax income (loss)											
14 Provision (benefit) for federal income taxes15 Extraordinary gains (losses), net of tax effect											
16 Net income (loss)											
17 Global market shock impact on available-for-sale securities18 Other comprehensive income											
19 Comprehensive income (loss)		l									

¹ Includes net interest income on multifamily whole loans, GSE multifamily MBS held in the retained portfolio, CMBS, and multifamily MRBs.

 $^{^{2}}$ Includes operational risk losses, administrative expenses, gains from partnership investments, and security impairments.

	ultifamily Credit Overview - Quarterly (SEVERELY ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
1 2 3 4 5	Credit losses											
6 7 8 9	Net charge-offs Provison (benefit) for loan losses Other											
10	Ending Total Loan Loss Reserve Unpaid Principal Balance (\$s in millions)											

¹ Amount depicts the summation of foreclosed property expense and provision for credit losses.

	Multifamily Key Metrics (SEVERELY ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
	(\$s in millions)											
1	Total multifamily market volume (industry)											
3 4	Enterprise market share percentage New acquisition volume Liquidation volume Securitization volume											
6	Effective guaranty fee rate ² (bps)											
	Guaranty portfolio balance Loans and securities held in portfolio											

 $^{^{\}rm 1}$ Includes property sales and other run-off/prepayments.

 $^{^{\}rm 2}$ Guaranty fee income divided by weighted average portfolio balance.

Most Recent Single-Family Credit Overview - Quarterly (SEVERELY ADVERSE) Quarter		Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q 9	Nine Quarter Cumulative Total
TOTAL PORTFOLIO CREDIT EXPENSES (\$s in millions) Foreclosed property expense (REO) Net charge-offs Credit losses Provision for credit losses										
LOAN LOSS RESERVE (\$s in millions) Beginning loan loss reserve Net charge-offs Provison (benefit) for loan losses/guaranty losses Other The Inding Total Loan Loss Reserve										
Memo: 11 FAS 5 Loan Loss Reserve 12 FAS 114 Loan Loss Reserve 13 Concessions in FAS 114 Loan Loss Reserve 14 Unpaid Principal Balance (\$s in millions)										
CURRENT BOOK (as of 12/31/18) CREDIT EXPENSES (\$s in millions) 15 Foreclosed property expense (REO) 16 Net charge-offs 17 Credit losses 18 Provision for credit losses										
LOAN LOSS RESERVE (\$s in millions) Beginning loan loss reserve Net charge-offs Provison (benefit) for loan losses/guaranty losses Other Ending Loan Loss Reserve - Current Book										
25 Unpaid Principal Balance (\$s in millions) NEW BUSINESS CREDIT EXPENSES (\$s in millions) 26 Foreclosed property expense (REO) 27 Net charge-offs 28 Credit losses 29 Provision for credit losses										
Credit Expenses 1 LOAN LOSS RESERVE (\$s in millions) Beginning loan loss reserve Net charge-offs Provison (benefit) for loan losses/guaranty losses Cher Ending Loan Loss Reserve - New Business										
36 Unpaid Principal Balance (\$s in millions)	I									

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.

	Single-Family Credit Overview - Quarterly (SEVERELY ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
	SERIOUSLY DELINQUENT LOAN ACTIVITY (count in '000s)										
1	Beginning seriously delinquent loans	į									
2	Seriously delinquent inflows - new SDQ										
3	Seriously delinquent inflows - cured										
4	Seriously delinquent cured by modification										
5	Seriously delinquent - cured	j									
6	Seriously delinquent to default	ļ									
7	Seriously delinquent to payoff										
8	Ending Seriously Delinquent Loans										
	Ending seriously delinquent rate (%) Aggregate UPB of seriously delinquent loans (\$s in millions)										

11 Loan modifications (count in 000s)

(\$s in millions)

PRIVATE MORTGAGE INSURERS - OVERVIEW (Nine Quarter Cumulative Totals)

Arch Mortgage Insurance Company	Essent Guaranty, Inc.	Genworth Mortgage Insurance Corporation	Mortgage Guaranty Insurance Corporation	PMI Mortgage Insurance Co.	Radian Guaranty Inc.	Republic Mortgage Insurance Company	Triad Guaranty Insurance Corporation	Guaranty Residential Insurance Co.	Other
--	-----------------------------	--	--	-------------------------------------	----------------------------	--	--	---	-------

- 12 Expected Gross Claims to MI Companies¹
- Less: Reinsurance Proceeds
 Subtotal (net of reinsurance)
 Less: Haircut Amount

16 Expected Net Claims from MI Companies¹

- 17 Gross MI Benefit included in ending Loan Loss Reserves²
- 18 Less: Haircut Amount³
- 19 Net MI Benefit included in ending Loan Loss Reserves²

20 Total Net MI Benefit

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

¹ Represents amount related to loans that default during the nine-quarter projection period.
² Represents amount of MI benefit included in loan loss reserves at the end of the nine-quarter projection period.
³ Represents amount Gross MI benefit included in loan loss reserves at the end of the nine-quarter projection period is reduced due to MI Haircut.

Single-Family Credit Summary (SEVERELY ADVERSE)

Delinquency Status - CURRENT BOOK

	(\$s in millions)			Er	d of Quarte	er Unpaid F	Principal Ba	alance (UPI	В)			
	Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	
3	MODIFIED LOANS Current Less than 90 days delinquent Seriously delinquent (90 days or more delinquent or in the process of foreclosure) Total											
6 7	NON-MODIFIED LOANS Current Less than 90 days delinquent Seriously delinquent (90 days or more delinquent or in the process of foreclosure) Total											_
	(for in millioner)					LoonLoon	Doggra					
	(\$s in millions) Loan Status	Most Recent Quarter	Q1	Q2	Q3	<u>Loan Loss</u> Q4	Q5	Q6	Q7	Q8	Q9	_
10 11	MODIFIED LOANS Current Less than 90 days delinquent Seriously delinquent (90 days or more delinquent or in the process of foreclosure) Total			-								_
14 15	NON-MODIFIED LOANS Current Less than 90 days delinquent Seriously delinquent (90 days or more delinquent or in the process of foreclosure) Total											
	(\$s in millions)			E	nd of Quar	ter Projecte	ed Charge	-Offs (Undi	scounted \$	Ss)		
	Loan Status	Most Recent	04	02	02	04	OF.	Os	07	00	00	Nine Quarter Cumulative
	Loan Status Modified Non-Modified	Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9_	Total

Single-Family Credit Summary (SEVERELY ADVERSE)

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

	(\$s in millions)				End of Qua	arter Unpaid F	Principal Balar	nce (UPB)				
	Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	_
2	<=80% >80% - 100% >100% Total											
	(\$s in millions)					Loan Loss	Pacania					7
	Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	_
6 7	<=80% >80% - 100% >100% Total											
	(\$s in millions)				End of Q	uarter Project	ed Charge-O	ffs (Undiscou	nted \$s)			
	Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Nine Quarter Cumulative Total
10	9 <=80% 0 >80% - 100% 1 >100%											

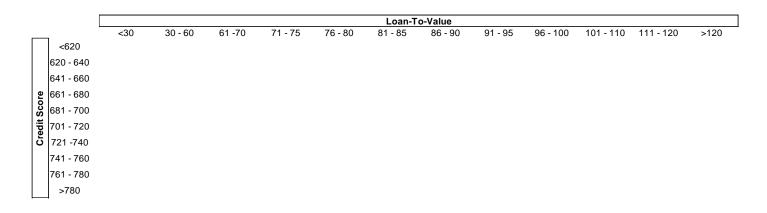
Single-Family Credit Summary (SEVERELY ADVERSE)

Vintage Status - CURRENT BOOK

(\$s in millions)				End of Qua	arter Unpaid I	Principal Bala	nce (UPB)				
Loan Status	Most Recent Quarter	Q1	Q2	Q3	Q4	Q 5	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 12 2015 13 2016 14 2017 15 2018											
(\$s in millions)					Loan Loss	Reserve					
(40 111111110110)	Most				Eddir Eddi	reserve					_
Loan Status	Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	_
16 2004 and prior 17 2005 18 2006 19 2007 20 2008 21 2009 22 2010 23 2011 24 2012 25 2013 26 2014 27 2015 28 2016 29 2017 30 2018											
(\$s in millions)				End of Q	uarter Project	ed Charge-O	ffs (Undiscou	ınted \$s)			
Loan Status	Most Recent Quarter	01	03						08	09	Nine Quarter Cumulative Total
31 2004 and prior 32 2005 33 2006 34 2007 35 2008 36 2009 37 2010 38 2011 39 2012 40 2013 41 2014 42 2015 43 2016 44 2017 45 2018	Quality	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	10101

(\$s in millions)

Single-Family - 9 Quarter Cumulative Credit Losses (SEVERELY ADVERSE)



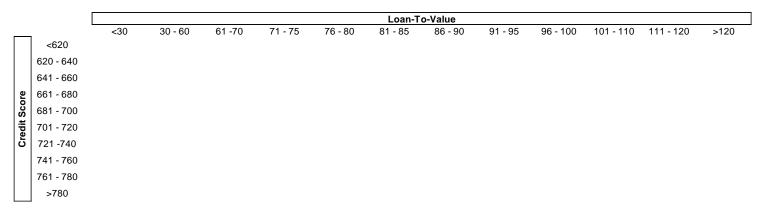
Credit losses represent the summation of net charge-offs and foreclosed property expenses (REO).

Use LTV and credit score as of December 31, 2018.

(\$s in millions)

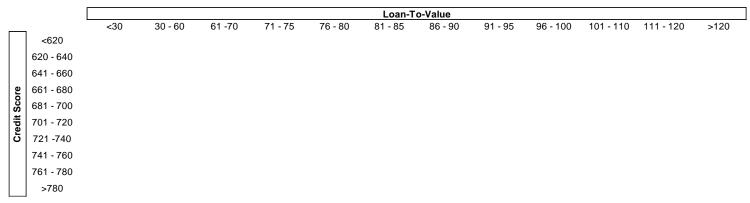
Single-Family - Loan Loss Reserves (SEVERELY ADVERSE)

Loan Loss Reserves as of 12/31/18



Use LTV and credit score as of December 31, 2018

Loan Loss Reserves at 3/31/21 (end of nine quarters)



Use LTV and credit score as of December 31, 2018

Single-Family Credit Summary (SEVERELY ADVERSE)

Vintage and MTMLTV Status - CURRENT BOOK

(\$s in millions)		End of Quarter (UPB)	ter Cumulative Unpaid Principal Balance (UPB)								
		Most Recent		Cumulative	Cumulative			Migrate to	Migrate to 80%	Migrate to] ` '
Loan Status a	t 12/31/18	Quarter	Inflows	Defaults ¹	Prepays ²	Run-off ³	Other⁴	<=80%	- 100%	>100%	Q9
2004 and prior	<=80% 80% - 100% >100%										
		1-									
2005 - 2008	<=80% 80% - 100% >100%										
2009 and Later	<=80% 80% - 100% >100%										

\$s in millions)			L	oan Loss Reserves	3	
		·	Cumulative	Provision for		
Loan Status a	t 12/31/18	Beginning	Charge-offs	Credit Losses	Other	Ending
	<=80%					
2004 and prior	80% - 100%					
	>100%					
	<=80%					
2005 - 2008	80% - 100%					
	>100%					
	<=80%					
2009 and Later	80% - 100%					
	>100%					

¹ Amount depicts principal balance of loans that are in the process of foreclosure.

 $^{^{2}\,\}mathrm{Amount}$ depicts principal balance of loans that have prepaid through refinance.

³ Amount depicts reduction in principal balance due to amortization.

⁴ Amount includes NPL sales and other miscellaneous items.

Single-Family Credit Summary (SEVERELY ADVERSE) Vintage and Delinquency Status - CURRENT BOOK

(\$s in millions)			End of Quarter (UPB)					Cumulative U	Inpaid Principal E						End of Quarter (UPB)
			Most Recent		Cumulative	Cumulative			Migrate to Modified	Migrate to Modified	Migrate to Modified	Migrate to Non-Modified	Migrate to Non-Modified	Migrate to Non-Modified	
	Loan Status at 12/31/18		Quarter	Inflows	Defaults ¹	Prepays ²	Run-off ³	Other ⁴	Current	<90 Days	SDQ	Current	<90 Days	SDQ	Q9
	Modified	Current <90 Days SDQ													
2004 and pri	or		i												
	Non-Modified	Current <90 Days SDQ													
	Modified	Current <90 Days SDQ													
2005 - 2008	В														
	Non-Modified	Current <90 Days SDQ													
		0													
	Modified	Current <90 Days SDQ													
2009 and La	ter														
	Non-Modified	Current <90 Days SDQ													

n millions) Loa 2004 and prior				L	oan Loss Reserves	3	
Lane	0-1		Declaries	Cumulative	Provision for	Other	En dia s
Loar	Status at 12/31/18	Current	Beginning	Charge-offs	Credit Losses	Other	Ending
	Modified	<90 Days SDQ					
2004 and prior							
	Non-Modified	Current <90 Days SDQ					
	Modified	Current <90 Days SDQ					
2005 - 2008							
	Non-Modified	Current <90 Days SDQ					
	Modified	Current <90 Days SDQ					
2009 and Later							
	Non-Modified	Current <90 Days SDQ					

¹ Amount depicts principal balance of loans that are in the process of foreclosure.

² Amount depicts principal balance of loans that have prepaid through refinance.

³ Amount depicts principal balance due to amontization.

⁴ Amount depicts exclusion in principal balance due to amontization.

⁴ Amount includes NPL sales and other miscellaneous items.

Single-Family Credit Summary (SEVERELY ADVERSE) MTMLTV and Delinquency Status - CURRENT BOOK

(\$s in millions)			End of Quarter (UPB)					Cumulative L	Inpaid Principal B						End of Quarter (UPB)
ı	_oan Status at 12/31/18		Most Recent Quarter	Inflows	Cumulative Defaults ¹	Cumulative Prepays ²	Run-off ³	Other ⁴	Migrate to Modified Current	Migrate to Modified <90 Days	Migrate to Modified SDQ	Migrate to Non-Modified Current	Migrate to Non-Modified <90 Days	Migrate to Non-Modified SDQ	Q9
	Modified	Current <90 Days SDQ			20.000										
<=80%	Non-Modified	Current <90 Days SDQ													
80% - 100%	Modified	Current <90 Days SDQ													
60% - 100%	Non-Modified	Current <90 Days SDQ													
>100%	Modified	Current <90 Days SDQ													
>100%	Non-Modified	Current <90 Days SDQ													

(\$s in millions)				L	oan Loss Reserves	š	
Loa	n Status at 12/31/18		Beginning	Cumulative Charge-offs	Provision for Credit Losses	Other	Ending
- 909/	Modified	Current <90 Days SDQ					
<=80%	Non-Modified	Current <90 Days SDQ					
80% - 100%	Modified	Current <90 Days SDQ					
00% - 100%	Non-Modified	Current <90 Days SDQ					
>100%	Modified	Current <90 Days SDQ					
>100%	Non-Modified	Current <90 Days SDQ					

<sup>Amount depicts principal balance of loans that are in the process of foreclosure.
Amount depicts principal balance of loans that have prepaid through refinance.
Amount depicts reduction in principal balance due to amortization.
Amount includes NPL sales and other miscellaneous items.</sup>

	Credit Risk Transfers - Quarterly (SEVERELY ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q 9	Nine Quarter Cumulative Total
	(\$s in millions)											
Sing	le-Family											
1 2 3 4	CAS/STACR (Non-REMIC/Non-Trust) Interest Expense Fair Value Gain (Loss) Other Expenses Recoveries CAS/STACR (REMIC/Trust)											
5 6	Credit Expense Other Expenses											
7	Recoveries		i I									
8 9 10	CIRT/ACIS Premium Expense Other Expenses Recoveries											
11 12 13	OTHER Fair Value Gain (Loss) Other Expenses Recoveries											
14	Total Single-Family Income (Loss)											
Mult	ifamily		 									
15 16 17	CIRT/ACIS Premium Expense Other Expenses Recoveries											
18	Total Multifamily Income (Loss)											
19	Total Income (Loss)											
20 21 22	CAS/STACR REMIC/Trust Debt Issuances CIRT/ACIS Transactions Other Transactions											
23	Reference Pool (Quarter)											
24	Outstanding Reference Pool											

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

Cumulative Projected Financial Metrics (Q1 2019 - Q1 2021)

Impact of establishing

Results without establishing valuation allowance on deferred tax assets

Percent of

average assets⁶

Billions of

dollars

valuation allowance on deferred tax assets

Results with establishing valuation allowance on deferred tax assets

Billions of Percent of average assets⁶

- Pre-provision net revenue¹
- 2 (Provision) benefit for credit losses
- 3 Mark-to-market gains (losses)2
- 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)³
- 8 Total comprehensive income (loss)
- 9 Dividends paid
- 10 PSPA funding commitment as of December 31, 2018
- 11 Treasury draws required
- 12 Remaining PSPA funding commitment
- 13 Credit losses⁴
- 14 Credit losses (% of average portfolio balance)⁵

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.

⁵ Average portfolio balance over the nine-quarter planning horizon.

⁶ Average total assets over the nine-quarter planning horizon.

Appendix 3: FHFA DFAST Reporting Templates - FHLBanks

Stress Test Template Instructions
All numbers should be reported in millions to two decimal places, except for capital ratios and credit enhancements in percentages.
2. Reported numbers should reflect the 12/31/2018 start date.

Scenario Templates 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	International Variables
Real GDP Growth	☐ Euro Area Real GDP Growth
☐ Nominal GDP Growth	☐ Euro Area Inflation
Real Disposable Income Growth	☐ Euro Area Bilateral Dollar Exchange Rate (\$/euro)
☐ Nominal Disposable Income Growth	Developing Asia Real GDP Growth
Unemployment Rate	Developing Asia Inflation
CPI Inflation Rate	Developing Asia Bilateral Dollar Exchange Rate (F/UDS, indes, base = 2000,Q1)
3-month Treasury Yield	Japan Real GDP Growth
5-year Treasury Yield	☐ Japan Inflation
10-year Treasury Yield	☐ Japan Bilateral Dollar Exchange Rate (yen/USD)
BBB Corporate Yield	U.K. Real GDP Growth
☐ Mortgage Rate	U.K. Inflation
☐ Prime Rate	U.K. Bilaeral Dollar Exchange Rate (USD/pound)
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), Assetbased Securities (ABS), Commercial Mortgage-backed Securities (CMBS) and other collateral	
Agency Securities Option-Adjusted Spreads (OAS)	
Municipal Securities	
Counterparty Default Risk	
For variables not used, please provide a brief explanation belo	w as to why it was not used:
Variable Name	Explanation
1	
2	
3	
4	
5	

Scenario Variables Beyond Those Supplied

	Baseline Scenario (additional varia	bles used beyond those supplied)
Variable		
Number	Variable Name	Variable Definition
1		
2		
<i>3</i>		
4		
5		
	Adverse Scenario (additional varia	bles used beyond those supplied)
Variable		
Number	Variable Name	Variable Definition
1		
2		
3		
4		
5		
	Severely Adverse Scenario (additional v	ariables used beyond those supplied)
Variable		
Number	Variable Name	Variable Definition
1		
2		
3		
4		
5		

Baseline

Spread Assumptions

Spread to Benchmark

		Actual					Projected				
Category	Benchmark	4Q 2018	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

	Actual				I	Projected				
Variable Name	4Q 2018	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9

Forward Curve

	Actual				F	rojected				
Maturity	4Q 2018	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
3-Month Treasury	2.3	2.5	2.6	2.7	2.8	2.8	2.8	2.8	2.8	2.8
6-Month										
1 year										
2 year										
5 year Treasury	2.9	2.8	2.9	3.0	3.0	3.0	3.0	3.0	3.1	3.3
10 year Treasury	3.0	2.9	3.0	3.1	3.2	3.2	3.2	3.2	3.2	3.4
15 year										
30 year										

House Price Index

(NOTE: For printing purposes dates only goes to Oct-19. However, the underlying excel spreadsheet collects 30 years of data.)

	Actual					Projected					
Region	4Q 2018	Jan-19	Feb-19	Mar-19	Apr-19	Mav-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19

Region 1

Region 2

.

.

Adverse

Spread Assumptions

Spread to Benchmark

		Actual				P	rojected				
Category	Benchmark	4Q 2018	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

	Actual				1	Projected				
Variable Name	4Q 2018	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9

Forward Curve

	Actual				P	rojected				
Maturity	4Q 2018	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
3-Month Treasury	2.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
6-Month										
1 year										
2 year										
5 year Treasury	2.9	0.5	0.7	0.7	0.8	0.8	0.9	1.0	1.0	1.1
10 year Treasury	3.0	0.9	1.0	1.1	1.2	1.3	1.3	1.3	1.4	1.6
15 year										
30 year										

House Price Index

 $(NOTE: For printing \ purposes \ dates \ only \ goes \ to \ Oct-19. \ However, the \ underlying \ excel \ spreadsheet \ collects \ 30 \ years \ of \ data.)$

	Actual					Projected					
Region	40 2018	Jan-19	Feb-19	Mar-19	Apr-19	Mav-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19

Region 1

Region 2

. . .

Severely Adverse

Spread Assumptions

Spread to Benchmark

		Actual					Projected				
Category	Benchmark	4Q 2018	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

	Actual				P	rojected				
Variable Name	4Q 2018	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9

Forward Curve

	Actual				Pr	ojected				
Maturity	4Q 2018	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
3-Month Treasury	2.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
6-Month										
1 year										
2 year										
5 year Treasury	2.9	0.3	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.9
10 year Treasury	3.0	0.8	0.9	1.0	1.1	1.2	1.2	1.2	1.2	1.5
15 year										
30 year				_						

House Price Index

 $(NOTE: For printing \ purposes \ dates \ only \ go \ to \ Oct-19. \ However, \ the \ underlying \ excel \ spreadsheet \ collects \ 30 \ years \ of \ data.)$

	Actual				P	rojected					
Region	4Q 2018	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19

Region 1

Region 2

.

.

Most Recent **Income Statement - Aggregate (BASE)** Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Interest Income: Advances Whole loans held for portfolio 3 **Investment Securities** Fed Funds 5 Other Interest Income 6 Total Interest Income Interest Expense: CO Bonds 8 Discount Notes Member Deposits 10 Other Interest Expense 11 Total Interest Expense 12 Net interest income 13 Provision (reversal) for credit losses on mortgage loans 14 Net Interest Income after mortgage loan loss provision 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 22 Income (loss) before assessments 23 Total assessments 24 Net Income (Loss)

Most Recent Income Statement - Existing (BASE) Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Interest Income: Advances Whole loans held for portfolio 3 **Investment Securities** Fed Funds 5 Other Interest Income 6 Total Interest Income Interest Expense: CO Bonds 8 Discount Notes Member Deposits 10 Other Interest Expense 11 Total Interest Expense 12 Net interest income 13 Provision (reversal) for credit losses on mortgage loans 14 Net Interest Income after mortgage loan loss provision 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 22 Income (loss) before assessments 23 Total assessments 24 Net Income (Loss)

Most Recent **Income Statement - Replacement (BASE)** Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Interest Income: Advances Whole loans held for portfolio 3 **Investment Securities** Fed Funds 5 Other Interest Income 6 Total Interest Income Interest Expense: CO Bonds 8 Discount Notes Member Deposits 10 Other Interest Expense 11 Total Interest Expense 12 Net interest income 13 Provision (reversal) for credit losses on mortgage loans 14 Net Interest Income after mortgage loan loss provision 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 22 Income (loss) before assessments 23 Total assessments

24 Net Income (Loss)

Most Recent **Balance Sheet - Aggregate (BASE)** Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 **ASSETS** 1 Advances 2 Investment Securities 3 Mortgage Loans 4 Allowance for loan losses 5 Fed Funds 6 Other assets **Total assets** LIABILITIES 8 CO bonds 9 Discount notes 10 Member deposits 11 Other liabilities 12 **Total liabilities CAPITAL** 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) Total capital 20 Total liabilities and capital

Most Recent **Balance Sheet - Existing (BASE)** Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 **ASSETS** 1 Advances 2 Investment Securities 3 Mortgage Loans Allowance for loan losses 5 Fed Funds 6 Other assets **Total assets** LIABILITIES 8 CO bonds 9 Discount notes 10 Member deposits 11 Other liabilities **Total liabilities** 12 **CAPITAL** 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) Total capital 20 Total liabilities and capital

Most Recent **Balance Sheet - Replacement (BASE)** Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 **ASSETS** 1 Advances 2 Investment Securities 3 Mortgage Loans Allowance for loan losses 5 Fed Funds 6 Other assets **Total assets** LIABILITIES 8 CO bonds 9 Discount notes 10 Member deposits 11 Other liabilities **Total liabilities** 12 CAPITAL 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) **Total capital** 19 20 Total liabilities and capital

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

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

Most Recent **Income Statement - Aggregate (ADVERSE)** Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Interest Income: Advances Whole loans held for portfolio 3 Investment Securities 4 Fed Funds 5 Other Interest Income Total Interest Income Interest Expense: 7 CO Bonds Discount Notes 9 Member Deposits 10 Other Interest Expense **Total Interest Expense** 11 12 Net interest income 13 Provision (reversal) for credit losses on mortgage loans 14 Net Interest Income after mortgage loan loss provision 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 22 Income (loss) before assessments 23 Total assessments 24 Net Income (Loss)

Most Recent **Income Statement - Existing (ADVERSE)** Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Interest Income: Advances 2 Whole loans held for portfolio **Investment Securities** 3 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 Total Interest Expense 11 12 Net interest income 13 Provision (reversal) for credit losses on mortgage loans Net Interest Income after mortgage loan loss provision 15 Derivatives gains (losses) 16 Gains (losses) on securities 17 Total net gain (loss) on changes in fair value Total OTTI credit charge Other gains (losses) 20 Operating expenses 21 Other expenses 22 Income (loss) before assessments 23 Total assessments

24 Net Income (Loss)

Most Recent

	Rec	cent									
Ind	come Statement - Replacement (ADVERSE) Qua	arter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
	Interest Income:	į									
1	Advances	Ì									
2	Whole loans held for portfolio	Ì									
3	Investment Securities	Ì									
4	Fed Funds										
5	Other Interest Income	Ì									
6	Total Interest Income	- 1									
	Interest Expense:	i									
7	CO Bonds	Ì									
8	Discount Notes										
9	Member Deposits										
10	Other Interest Expense										
11	Total Interest Expense										
12	Net interest income										
13	Provision (reversal) for credit losses on mortgage loans	i									
14	Net Interest Income after mortgage loan loss provision	į									
4-	Desired to a main (lease a)										
	Derivatives gains (losses)										
	Gains (losses) on securities										
17	Total net gain (loss) on changes in fair value	- 1									
18	Total OTTI credit charge Other gains (losses)	- 1									
19	Other gains (losses)	i i									
20	Operating expenses	į									
	Other expenses	İ									
22	Income (loss) before assessments										
22	וווטוווב (וטסס) שבוטוב מססבססווובוונס	į									
23	Total assessments										

24 Net Income (Loss)

Most Recent **Balance Sheet-Aggregate (ADVERSE)** Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 **ASSETS** 1 Advances 2 Investment Securities 3 Mortgage Loans Allowance for loan losses 5 Fed Funds 6 Other assets **Total assets** LIABILITIES 8 CO bonds 9 Discount notes 10 Member deposits 11 Other liabilities **Total liabilities** 12 **CAPITAL** 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) Total capital 19

20 Total liabilities and capital

Most Recent

Balance Sheet - Existing (ADVERSE)	ıarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
ASSETS 1 Advances 2 Investment Securities 3 Mortgage Loans 4 Allowance for loan losses 5 Fed Funds 6 Other assets 7 Total assets										
LIABILITIES 8 CO bonds 9 Discount notes 10 Member deposits 11 Other liabilities 12 Total liabilities										
CAPITAL 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) 19 Total capital										
20 Total liabilities and capital										

Most Recent **Balance Sheet - Replacement (ADVERSE)** Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 **ASSETS** 1 Advances 2 Investment Securities 3 Mortgage Loans Allowance for loan losses 5 Fed Funds 6 Other assets **Total assets** LIABILITIES 8 CO bonds 9 Discount notes 10 Member deposits 11 Other liabilities 12 **Total liabilities CAPITAL** 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) Total capital 20 Total liabilities and capital

Capital Roll Forward (ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
CAPITAL 1 Beginning Capital 2 Net Income 3 Less: Dividends 4 Other Capital Actions 5 Change in AOCI 6 Other										
7 Ending Capital										
8 Regulatory Capital	İ									
Capital Ratios	ļ									
9 Regulatory Capital10 Leverage Capital11 Permanent Capital										

		Most									
	Cradit (ADVEDSE)	Recent	04	00	00	0.4	0.5	00	07	00	00
	Credit (ADVERSE)	Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
	CREDIT EXPENSES	į									
1	Provision for credit losses	į									
		İ									
	PLS CREDIT QUALITY										
2	Principal										
3	Principal writedown	- !									
4	Balance										
5	Credit support	į									
		į									
	COUNTERPARTY CREDIT	İ									
6	Unsecured credit										
7	Unsecured derivative counterparty exposure										
8	Payment from private mortgage insurers										

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
-------------------	-------------------

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

(*Credit ratings should be as of December 31, 2018)

redit ratings should be	as of Dece	mber 31, 2	:018)														
		Non-				Unspec				RMBS			Prime	Non-Prime			
	Grand Total	Agency Prime	Sub- prime	Option ARMS	Other AltA	Non-	HELOC	RMBS CDO	RMBS CDS	Credit Basket	PrimeX	ABX / TABX	Whole Loans	Whole Loans	European	Other / Unspecified	RN Sub
/* (\$MM) A Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
re 2006	\$0	Ψ0	40		\$0			100	40		40	40		- 30		- 40	\$
006 007	\$0 \$0																\$
ost 2007 nspecified Vintage	\$0 \$0																\$
Total	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
re 2006 006	\$0																\$
007 ost 2007	\$0 \$0																\$
nspecified Vintage	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
e 2006	\$0	Ψ0	40		\$0	40		1	40		40	40				- 40	\$
06 07	\$0 \$0																\$
st 2007 specified Vintage	\$0 \$0																
B Total e 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	9
06	\$0																\$
07 st 2007	\$0 \$0																
specified Vintage	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total e 2006	\$0	\$0	\$ U	\$0	\$ U	\$U	\$0	\$0	\$0	\$U	\$ U	\$0	\$0	\$0	\$0	\$ 0	\$
06 07	\$0 \$0																
st 2007 specified Vintage	\$0 \$0																
otal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
e 2006 06	\$0 \$0																
07 ost 2007	\$0 \$0							 						-	+		
nspecified Vintage	\$0																
Total re 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 	\$0	\$0	\$0	
006 007	\$0 \$0		-					 	_	\vdash		-		-	+		1
ost 2007 nspecified Vintage	\$0 \$0						-										\$
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
re 2006 006	\$0 \$0			1				-						-	+		\$
007 ost 2007	\$0 \$0						ļ										\$
Inspecified Vintage	\$0														1	-	\$
tal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
ofit/Loss (\$MM) A Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
re 2006 006	\$0 \$0																\$
007 ost 2007	\$0 \$0							<u> </u>									\$
nspecified Vintage	\$0																\$
Total re 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
006	\$0 \$0							<u> </u>	<u> </u>								\$
ost 2007	\$0																4
nspecified Vintage otal	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	9
re 2006 006	\$0 \$0	, W	40		- 50				40		40	40			1		4
007	\$0																- 4
ost 2007 nspecified Vintage	\$0 \$0																_
B Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
re 2006 006	\$0 \$0																\$
007 ost 2007	\$0 \$0																\$
nspecified Vintage	\$0																
re 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
006 007	\$0 \$0														+		
ost 2007 nspecified Vintage	\$0 \$0							 	_	\vdash		-	1	 	+		
otal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
e 2006 06	\$0 \$0																
07 st 2007	\$0 \$0			<u>+</u> =	\vdash	\vdash	\vdash	<u> </u>	<u> </u>	\vdash		<u> </u>	<u> </u>	<u> </u>			*
specified Vintage	\$0																\$
Total e 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
06 07	\$0 \$0			+		\vdash	₩	 	 	\vdash		<u> </u>	\vdash	 	+		
ost 2007 nspecified Vintage	\$0 \$0																
Total	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	9
re 2006	\$0 \$0																
007	\$0 \$0			,													
	\$0 \$0 \$0																\$

(*Credit ratings should be as of December 31, 2018)

Γ		nber 31,				ABS								CMBS				Co	rporate CDC)/CLO		Warehous	Se .
							Index			Cash Non										Corporate			
	Grand Total	Autos		Student Loans		Credit Basket	Tranche s	Other / Unspecified	ABS SubTotal	Agency CMBS	CMBS CDS	CMBS CDO	Credit Basket	Index Tranches	Whole Loans	Other / Unspecified	CMBS SubTotal	CLO	Other / Unspecified	CDO/CLO d SubTotal	Total Size	Total Protection	Other / unspecified
MV* (\$MM) AAA Total	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			_
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage	\$0								\$0								\$0			\$0			
AA Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			-
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
ATotal	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			-
Unspecified Vintage	\$0								\$0								\$0			\$0			
BBB Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0 	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0				-				\$0 \$0								\$0 \$0			\$0 \$0			
BB Total	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0			L	L	L =			\$0 \$0		L	ĿΤ					\$0 \$0	L ¯	L	\$0 \$0		L T	$\pm -$
Unspecified Vintage	\$0	***		-				***	\$0				**		•		\$0		-	\$0	60		
B Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
<b td="" total<=""><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td>	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			+
Unspecified Vintage NR Total	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
Pre 2006	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Profit/Loss (\$MM) AAA Total	\$0	\$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	\$0 \$0		40	40	1	90		\$0	\$0 \$0	Ψυ	90	1	40	90	40	40	\$0 \$0	- 40	-	\$0 \$0	\$0		40
2007 Post 2007	\$0 \$0								\$0 \$0 \$0								\$0 \$0 \$0			\$0 \$0			
Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
AA Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
A Total	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			1
Unspecified Vintage	\$0								\$0								\$0			\$0			
BBB Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			-
BB Total	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0				E	E			\$0 \$0			oxdot					\$0 \$0			\$0 \$0			
Unspecified Vintage	\$0	-						•	\$0				•				\$0			\$0			
B Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0			\perp	┢▔	E			\$0 \$0			ĿΤ					\$0 \$0	\vdash		\$0 \$0			
<b td="" total<=""><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td>	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage	\$0	***	•					-	\$0	**	-		**		•	•	\$0			\$0	60	-	
NR Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007	\$0 \$0								\$0 \$0			$oxed{oxed}$					\$0 \$0			\$0 \$0			
Unspecified Vintage					\$0				\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Trading and Other Fair Value Assets Munis (Adverse)

	MV (\$MM) Available-for-Sale	MV (\$MM) Trading	Profit/Loss from OAS	Profit/Loss from OAS
	Securities	Securities	Widening (AFS)	Widening (Trading Secs)
Bonds				T
AAA AA				
Ā				
ввв				
вв				
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR Bonds Total	\$0	\$0	\$0	\$0
1M	40	40	40	1
3M				
6M				
9M				
1Y 2Y				
3Y			-	
5Y				
7Y				
10Y				
15Y				
20Y				
30Y	40	*	C O	60
Bonds Total	\$0	\$0	\$0	\$0
Loans AAA	 	1		
AAA				
Ā				
ввв				
вв				
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR	**	*	*	60
Loans Total 1M	\$0	\$0	\$0	\$0
3M				
6M				
9M				
1Y				
2Y 3Y				
5Y				
7Y				
10Y				
15Y				
20Y				
30Y Loans Total	\$0	\$0	\$0	\$0
Louis Fotal	40	ΨΟ	Ψ0	Ψ0
CDS				1
AAA				
AA A				
BBB	+			†
ВВ				
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR				
CDS Total	\$0	\$0	\$0	\$0
1M 3M				1
6M				
9M				
1Y				
2Y				
3Y				
5Y				
7Y				
10Y 15Y				
20Y				
30Y				
CDS Total	\$0	\$0	\$0	\$0

Trading and Other Fair Value Assets Munis (Adverse)

	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Widening	Profit/Loss from OAS Widening
	occar nies	Geodifics	(AFS)	(Trading Secs)
Indices				
AAA				
AA	 			
A BBB	<u> </u>			
BB				
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR Indiana Tatal	\$0	\$0	\$0	\$0
Indices Total 1M	\$0	\$ 0	\$0	\$ 0
3M				
6M				
9M				
1Y				
2Y 3Y	+			+
5Y	 			†
7Y				
10Y				<u> </u>
15Y 20Y	-			1
30Y	+			+
Indices Total	\$0	\$0	\$0	\$0
Other / Unspecified Munis	_			
AAA	<u> </u>			
AA A	+			-
BBB				+
BB				
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR	50	\$0	\$0	\$0
Other / Unspecified Munis 7	Гф \$0	\$0	\$0	\$0
3M				
6M				
9M				
1Y 2Y				_
3Y				+
5Y				+
7Y				1
10Y				
10Y 15Y				
10Y 15Y 20Y				
10Y 15Y 20Y 30Y	- SO	\$0	\$0	\$0
10Y 15Y 20Y	rc \$0	\$0	\$0	\$0
10Y 15Y 20Y 30Y Other / Unspecified Munis T	202			
10Y 15Y 20Y 30Y Other / Unspecified Munis T	\$0	\$0	\$0	\$0
10Y 15Y 20Y 30Y Other / Unspecified Munis T	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA AA	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA AA BBB	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA AA	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA A BBB BB BB BB BB B	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA AA BBB BB BB BB BB BB BB BB BB	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA BBB BB BB BB BR BR Grand Total	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA A BBB BB BB BB BB CB NR Grand Total	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA BBB BB BB BB CB NR Grand Total 1M 3M	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA A BBB BB BB BB BB CB NR Grand Total	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA A BBB BB BB BB CB NR Grand Total 1M 3M 6M 9M	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA BBB BB BB CB NR Grand Total 1M 3M 6M 9M 1Y 2Y	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA ABBB BB BB B <b 1m="" 1y="" 2y="" 3m="" 3y<="" 6m="" 9m="" grand="" nr="" td="" total=""><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td>	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA A BBB BB BB CB NR Grand Total 1M 3M 6M 9M 1Y 2Y 3Y 5Y	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA A BBB BB BB BB CB NR Grand Total 1M 3M 6M 9M 1Y 2Y 3Y 5Y	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA ABBB BB BB CB NR Grand Total 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA A BBB BB BB BB CB NR Grand Total 1M 3M 6M 9M 1Y 2Y 3Y 5Y	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
10Y 15Y 20Y 30Y Other / Unspecified Munis T Grand Total AAA AA A BBB BB B C S NR Grand Total 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$

Trading & Other Fair Value Assets Template

Agencies (Adverse)

				,
	MV (\$MM)	MV (\$MM)	Profit/Loss	Profit/Loss
	Available-for-Sale	Trading	from OAS	from OAS
	Securities	Securities	Widening	Widening
	oecui illes	occurries.	(AFS)	(Trading Secs)
US Residential Agency Products				
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				
Total	\$0	\$0	\$0	\$0
US Commercial Agency Products	S T		1	T
Cash Agency CMBS				
Agency CMBS Derivatives				
Commercial Other / Unspecified				
Total	\$0	\$0	\$0	\$0
Non-US Agency Products				,
AAA				
AA				
Α				
BBB				
ВВ				
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR				
Total	\$0	\$0	\$0	\$0

Most Recent **Income Statement-Aggregate (SEVERELY ADVERSE)** 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 Total Interest Income Interest Expense: CO Bonds 8 Discount Notes 9 Member Deposits 10 Other Interest Expense Total Interest Expense 12 Net interest income 13 Provision (reversal) for credit losses on mortgage loans 14 Net Interest Income after mortgage loan loss provision 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 22 Income (loss) before assessments 23 Total assessments 24 Net Income (Loss)

Most Recent

		Recent									
<u>Inc</u>	come Statement - Existing (SEVERELY ADVERSE)	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	į									
8	Discount Notes	į									
9	Member Deposits	į									
10	Other Interest Expense	į									
11	Total Interest Expense										
12	Net interest income										
13	Provision (reversal) for credit losses on mortgage loans										
14	Net Interest Income after mortgage loan loss provision										
15	Derivatives gains (losses)										
	Gains (losses) on securities	İ									
17	Total net gain (loss) on changes in fair value	İ									
18	Total OTTI credit charge	Ī									
19	Other gains (losses)										
	Curior game (100000)										
20	Operating expenses										
21	Other expenses	- 1									
22	Income (loss) before assessments										
23	Total assessments										

24 Net Income (Loss)

Most Recent Income Statement - Replacement (SEVERELY ADVERSE) Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Interest Income: 1 Advances 2 Whole loans held for portfolio **Investment Securities** Fed Funds 5 Other Interest Income 6 Total Interest Income Interest Expense: 7 CO Bonds 8 Discount Notes Member Deposits 9 Other Interest Expense 10 Total Interest Expense 12 Net interest income 13 Provision (reversal) for credit losses on mortgage loans 14 Net Interest Income after mortgage loan loss provision 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

22 Income (loss) before assessments

23 Total assessments24 Net Income (Loss)

Most Recent **Balance Sheet-Aggregate (SEVERELY ADVERSE)** Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 **ASSETS** 1 Advances 2 Investment Securities 3 Mortgage Loans 4 Allowance for loan losses 5 Fed Funds 6 Other assets 7 **Total assets** LIABILITIES 8 CO bonds 9 Discount notes 10 Member deposits 11 Other liabilities 12 **Total liabilities** CAPITAL 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) 19 Total capital 20 Total liabilities and capital

Most Recent **Balance Sheet - Existing (SEVERELY ADVERSE)** Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 **ASSETS** 1 Advances 2 Investment Securities 3 Mortgage Loans 4 Allowance for loan losses 5 Fed Funds 6 Other assets **Total assets** LIABILITIES 8 CO bonds 9 Discount notes 10 Member deposits 11 Other liabilities **Total liabilities** 12 CAPITAL 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) 19 Total capital 20 Total liabilities and capital

Most Recent Balance Sheet - Replacement (SEVERELY ADVERSE) Quarter Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 **ASSETS** 1 Advances 2 Investment Securities 3 Mortgage Loans 4 Allowance for loan losses 5 Fed Funds 6 Other assets Total assets LIABILITIES 8 CO bonds 9 Discount notes 10 Member deposits 11 Other liabilities 12 **Total liabilities** CAPITAL 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) 19 Total capital 20 Total liabilities and capital

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

	Credit (SEVERELY ADVERSE)	Most Recent Quarter	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
	CREDIT EXPENSES										
1	Provision for credit losses	i									
	PLS CREDIT QUALITY	į									
2	Principal	-									
3	Principal writedown										
4	Balance										
5	Credit support										
		i									
	COUNTERPARTY CREDIT	į									
6	Unsecured credit										
7	Unsecured derivative counterparty exposure										
8											

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-

- 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

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

(*Credit ratings should be as of December 31, 2018)

										RMBS							
	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	ı H Sı
(\$MM) Total	•	\$0		\$0				\$0	\$0		\$0	\$0		\$0	\$0	\$0	_
2006	\$0 \$0	\$ U	\$0	\$U 	\$0	\$0	\$0	ΦU	\$U 	\$0 	\$U	\$ U	\$0	\$U	\$U	\$U	1
6 7	\$0 \$0																1
t 2007	\$0																1
pecified Vintage	\$0						L										Ł
otal 2006	\$0 \$0	\$0	\$0	\$0 	\$0	\$0 	\$0	\$0	\$0 	\$0 	\$0	\$0	\$0	\$0	\$0	\$0 I	4
6	\$0																1
7 st 2007	\$0 \$0																-
pecified Vintage	\$0																1
tal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
2006 6	\$0 \$0																-
7	\$0																1
t 2007 pecified Vintage	\$0 \$0																1
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
2006	\$0																1
5 7	\$0 \$0																1
2007	\$0								l .							ļ <u> </u>	
pecified Vintage	\$0	60	60		60		ec.	e.c.	60	60	ec.	60			ė n	60	£
otal 2006	\$0 \$0	\$0	\$0	\$0 	\$0	\$0	\$0	\$0	\$0 	\$0 	\$0	\$0	\$0 	\$0	\$0	\$0 	1
3	\$0 \$0																
: 2007	\$0 \$0																j
pecified Vintage	\$0			L					L	L					1	l	4
al	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 I	4
2006 6	\$0 \$0																1
2007	\$0 \$0																Ł
ecified Vintage	\$0 \$0																
otal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
2006	\$0 \$0																-
	\$0																1
2007	\$0 \$0																4
pecified Vintage	\$0 \$0	\$0	**	**	\$0	\$0	**	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	ļ\$0	I
otal 2006	\$0	\$0	\$0	\$0 	\$0	\$0	\$0	\$0	\$U	\$U	\$U	\$0	\$0	\$0	\$0	\$0	1
3	\$0 \$0																4
2007	\$0																1
pecified Vintage	\$0									<u> </u>						<u> </u>	£
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
t/Loss (\$MM)																	
otal 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 	1
6	\$0																1
2007	\$0 \$0																1
pecified Vintage	\$0																1
otal 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	4
2006	\$0 \$0																1
2007	\$0 \$0																1
ecified Vintage	\$0 \$0																1
al	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
2006	\$0																4
5	\$0 \$0														<u></u>		1
2007 pecified Vintage	\$0 \$0																4
-		**	**	**	- 60	**	**	**	· ^^	, eo		**	- 00	- 60	- AA	1	į,
Total 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 	1
5	\$0																1
2007	\$0 \$0																1
pecified Vintage	\$0																1
otal	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 I	\$0	\$0	\$0	\$0	\$0	\$0	\$0 I	4
2006	\$0 \$0																1
	\$0																1
2007 pecified Vintage	\$0 \$0																1
al	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	f
2006	\$0																1
	\$0 \$0			 		 			 	 							1
2007	\$0																1
pecified Vintage	\$0 \$0	**	**	- ea	£0.	**	<u> </u>	**	- fo	**	£0.	**		**	60	L	Į,
otal 2006	\$0 \$0	\$0	\$0	\$0 	\$0	\$0	\$0	\$0	\$0 	\$0 	\$0	\$0	\$0	\$0 	\$0	\$0 	1
5	\$0																1
2007	\$0 \$0			 		 			 	 							
pecified Vintage	\$0																1
otal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	4
2006 S	\$0 \$0																1
,	\$0																1
2007	\$0 \$0			 					 	 				1			1
pecified Vintage									-	-							

*Credit ratings should be	as of Dece	mber 31,	2018)									וסוסו			ПГА	ONLY	,						
						ABS							(CMBS				Co	rporate CDO			Warehous	Ð
	Grand			Student		Credit Basket	Index Tranche s	Other / Unspecified	ABS	Cash Non- Agency CMBS		CMBS	Credit	Index	Whole	Other / Unspecified	CMBS	61.0	Other / Unspecified	Corporate CDO/CLO	Tatal Cias	Total	Other / Unspecifie
MV* (\$MM)	Total																						
AAA Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
AA Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006	\$0								\$0								\$0			\$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage A Total	\$0 \$0	\$0	\$0	\$0	\$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	\$0 \$0	-	-	<u> </u>	<u> </u>				\$0 \$0			-		-	-		\$0 \$0		-	\$0 \$0	-		
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage	\$0								\$0								\$0			\$0			
BBB Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
BB Total	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage	\$0								\$0								\$0			\$0			
B Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
<b td="" total<=""><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td>	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage	\$0								\$0							4-	\$0			\$0			
NR Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Profit/Loss (\$MM)														4									
AAA Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
AA Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006	\$0								\$0								\$0			\$0 \$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0			
Unspecified Vintage A Total	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$n	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
Pre 2006 2006	\$0 \$0	-	-	ļ.	ļ.	ļ.	<u> </u>	40	\$0 \$0		-	-	Ţ,	-	-	-	\$0 \$0		"	\$0 \$0	- 40		
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage	\$0								\$0								\$0			\$0			
BBB Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
BB Total	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			-
2007 Post 2007	\$0 \$0				Ŀ				\$0 \$0								\$0 \$0			\$0 \$0			\vdash
Unspecified Vintage	\$0								\$0								\$0			\$0			
B Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
<b td="" total<=""><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td><td>\$0</td>	\$0	\$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	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
2007 Post 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Unspecified Vintage	\$0	60	**					40	\$0				**	40		40	\$0		40	\$0	**	**	
NR Total Pre 2006	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0
2006 2007	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Post 2007 Unspecified Vintage	\$0 \$0								\$0 \$0								\$0 \$0			\$0 \$0			
Total	\$0	\$0	\$0	\$0	\$ 0	\$ 0	\$0	\$0	\$0	\$0	\$ 0	\$0	\$0	\$0	\$ 0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

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 I -				
AAA				1
AA	+			
A				
BBB				
вв				
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR				
Bonds Total	\$0	\$0	\$0	\$0
1M				
3M				
6M				
9M				
1Y				
2Y				
3Y				
5Y 7Y			-	_
10Y				+
15Y			-	
20Y				
30Y				
Bonds Total	\$0	\$0	\$0	\$0
		-		
Loans				
AAA		Ī		
AA				1
A				
ввв				
вв				
В				
<b< td=""><td></td><td></td><td></td><td></td></b<>				
NR				
Loans Total	\$0	\$0	\$O	\$0
1M				
3M				
6M				
9M				
1Y				
2Y				
2Y 3Y				
2Y				
2Y 3Y 5Y 7Y				
2Y 3Y 5Y 7Y 10Y				
2Y 3Y 5Y 7Y				
2Y 3Y 5Y 7Y 10Y 15Y 20Y				
2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y				
2Y 3Y 5Y 7Y 10Y 15Y 20Y	\$0	\$0	\$0	\$0
2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Loans Total	\$0	\$0	\$0	\$0
2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Loans Total	\$0	\$0	\$0	\$0
2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Loans Total	\$0	\$0	\$0	\$0
2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Loans Total	\$0	\$0	\$0	\$0
2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Loans Total CDS AAA AA AA	\$0	\$0	\$0	\$0
2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Loans Total CDS AAA AA AA BBBB	\$0	\$0	\$0	\$0
2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Loans Total CDS AAA AA A BBBB BBB BBB	\$0	\$O	\$O	\$0
2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Loans Total CDS AAA A BBB BB BB BB BB BB	\$0	\$O	\$o	\$0
2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Loans Total CDS AAA AA BBB BB BB BB BB BB BB BB BB BB	\$0	\$0	\$0	\$0
2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Loans Total CDS AAA AA ABBB BB BB BB BB BB BB BB BB BB				
2Y	\$0	\$0 \$0	\$0 \$0	\$0
2Y				
2Y 3Y 5Y 7Y 10Y 10Y 15Y 20Y 30Y Loans Total CDS AAA AA A BBB BB BB BR BR CDS Total 1M 3M 6M 9M 11Y 2Y 3Y				
2Y				
2Y 3Y 5Y 7Y 10Y 115Y 20Y 30Y Loans Total CDS AAA A BBB BB BB BB CB NR CDS Total 1M 3M 6M 9M 1Y 2Y 3Y 5Y				
2Y 3Y 5Y 7Y 10Y 10Y 15Y 20Y 30Y Loans Total CDS AAA AA ABBB BB BB BR CDS Total 1M 3M GM 9M 1Y 2Y 3Y 5Y 7Y 10Y				
2Y				
2Y				
2Y 3Y 3Y 5Y 7Y 10Y 115Y 20Y 30Y Loans Total CDS AAA AA A BBB BB BB BR BR CDS Total 1M 3M 6M 9M 11Y 2Y 3Y 5Y 7Y 110Y 115Y				

Trading and Other Fair Value Assets Munis (Severely Adverse)

	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Widening	Profit/Loss from OAS Widening
			(AFS)	(Trading Secs)
Indices	7			
AAA AA				
A				
BBB				
вв				
B <b< td=""><td></td><td></td><td></td><td></td></b<>				
NR				
Indices Total	\$0	\$0	\$0	\$0
1M				
3M 6M	-			
9M	1			
1Y				
2Y				
3Y				
5Y 7Y	+			+
10Y	 			
15Y				
20Y				
30Y		***	40	#0
Indices Total	\$0	\$0	\$0	\$0
Other / Unspecified Munis				
AAA				
AA				
Α				
BBB				
BB				
B <b< td=""><td> </td><td></td><td></td><td></td></b<>	 			
NR				
Other / Unspecified Munis T	\$0	\$0	\$0	\$0
1M				
3M				
6M 9M	1			
1Y	1			
2Y				
3Y				
5Y	 			
7Y 10Y				
15Y	 			
20Y				
201/				
30Y				
30Y Other / Unspecified Munis T	\$0	\$0	\$0	\$0
Other / Unspecified Munis T	\$0	\$0	\$0	\$0
Other / Unspecified Munis T Grand Total	-			•
Other / Unspecified Munis T	\$0	\$0	\$0	\$0
Other / Unspecified Munis T Grand Total AAA	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0
Other / Unspecified Munis T Grand Total AAA AA A BBB	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0
Other / Unspecified Munis T Grand Total AAA AA BBB BBB	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0
Other / Unspecified Munis T Grand Total AAA AA A BBB BB BB	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0
Other / Unspecified Munis T Grand Total AAA AA BBB BB B - <b< td=""><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0</td></b<>	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
Other / Unspecified Munis T Grand Total AAA AA A BBB BB BB	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0
Other / Unspecified Munis T Grand Total AAA AA A BBB BB BB CB NR Grand Total 1M	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Other / Unspecified Munis T Grand Total AAA AA BBB BB CB NR Grand Total 1M 3M	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
Other / Unspecified Munis T Grand Total AAA AA BBB BB B <b 1m="" 3m="" 6m<="" grand="" nr="" td="" total=""><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td>	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Other / Unspecified Munis T Grand Total AAA AA A BBB BB BB CB NR Grand Total 1M 3M 6M 9M	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Other / Unspecified Munis T Grand Total AAA AA BBB BB B <b 1m="" 3m="" 6m<="" grand="" nr="" td="" total=""><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td>	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Other / Unspecified Munis T Grand Total AAA AA A BBB BB CB NR Grand Total 1M 3M 6M 9M 1Y 2Y 3Y	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Other / Unspecified Munis T Grand Total AAA AA A BBB BB B <b 1m="" 1y="" 2y="" 3m="" 3y="" 5y<="" 6m="" 9m="" grand="" nr="" td="" total=""><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td>	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Other / Unspecified Munis T Grand Total AAA AA A BBB BB SB R CFand Total 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Other / Unspecified Munis T Grand Total AAA AA BBB BB CB NR Grand Total 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Other / Unspecified Munis T Grand Total AAA AA A BBB BB B <b 10y="" 15y<="" 1m="" 1y="" 2y="" 3m="" 3y="" 5y="" 6m="" 7y="" 9m="" grand="" nr="" td="" total=""><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td><td>\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$</td>	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Other / Unspecified Munis T Grand Total AAA AA BBB BB CB NR Grand Total 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$

Trading & Other Fair Value Assets Template Agencies (Severely Adverse)

erely Adverse)			<u>_</u>	
	MV (\$MM) Available-for-Sale Securities	MV (\$MM) Trading Securities	Profit/Loss from OAS Widening (AFS)	Profit/Loss from OAS Widening (Trading Secs)
US Residential Agency Products				.,
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				
Total	\$0	\$0	\$0	\$0
US Commercial Agency Products Cash Agency CMBS Agency CMBS Derivatives Commercial Other / Unspecified				
Total	\$0	\$0	\$0	\$0
Non-US Agency Products	· ·		1	
AA				
A				
BBB				
BB				
В				
- <b< td=""><td></td><td></td><td></td><td></td></b<>				
NR				
Total	\$0	\$0	\$0	\$0

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

Cumulative Projected Financial Metrics (Q1 2019 - Q1 2021)

- 1 Net interest income + other non-interest income, net
- 2 (Provision) benefit for credit losses on mortgage loans
- 3 OTTI credit losses
- 4 Mark-to-market gains (losses)
- 5 Global market shock impact on trading securities
- 6 Counterparty default losses
- 7 AHP assessments
- 8 Net income (loss)
- 9 Other comprehensive income (loss)
- 10 Total comprehensive income (loss)
- 11 Total capital (GAAP) starting
- 12 Total capital (GAAP) ending
- 13 Regulatory capital ratio starting
- 14 Regulatory capital ratio ending

Appendix 4: Baseline Scenario - Domestic

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Dow Jones Total Stock Market Index (Level)	House Price Index (Level)	Commercial Real Estate Price Index (Level)	Market Volatility Index (Level)
2004 Q1	2.2	5.2	1.9	5.3	5.7	3.4	0.9	3.0	4.1	5.5	5.6	4.0	11,039.4	148.1	153.0	21.6
2004 Q2	3.1	6.5	4.7	7.6	5.6	3.2	1.1	3.7	4.7	6.1	6.1	4.0	11,144.6	153.9	163.3	20.0
2004 Q3	3.8	6.6	2.6	4.7	5.4	2.6	1.5	3.5	4.4	5.8	5.9	4.4	10,893.8	159.4	175.1	19.3
2004 Q4	4.1	7.3	5.1	8.8	5.4	4.4	2.0	3.5	4.3	5.4	5.7	4.9	11,951.5	165.3	178.2	16.6
2005 Q1	4.5	7.9	-4.6	-2.4	5.3	2.0	2.5	3.9	4.4	5.4	5.8	5.4	11,637.3	172.2	179.0	14.7
2005 Q2	1.9	4.7	3.9	6.4	5.1	2.7	2.9	3.9	4.2	5.5	5.7	5.9	11,856.7	179.0	185.2	17.7
2005 Q3	3.6	7.4	1.2	5.6	5.0	6.2	3.4	4.0	4.3	5.5	5.8	6.4	12,282.9	185.2	190.2	14.2
2005 Q4	2.5	5.9	5.2	8.6	5.0	3.8	3.8	4.4	4.6	5.9	6.2	7.0	12,497.2	190.6	198.1	16.5
2006 Q1	5.4	8.4	8.0	10.2	4.7	2.1	4.4	4.6	4.7	6.0	6.2	7.4	13,121.6	193.7	203.3	14.6
2006 Q2	0.9	4.4	1.0	4.3	4.6	3.7	4.7	5.0	5.2	6.5	6.6	7.9	12,808.9	193.1	212.1	23.8
2006 Q3	0.6	3.5	1.0	4.0	4.6	3.8	4.9	4.8	5.0	6.4	6.6	8.3	13,322.5	191.7	220.1	18.6
2006 Q4	3.5	5.0	5.4	4.7	4.4	-1.6	4.9	4.6	4.7	6.1	6.2	8.3	14,215.8	191.1	221.8	12.7
2007 Q1	0.9	5.0	3.4	7.4	4.5	4.0	5.0	4.6	4.8	6.1	6.2	8.3	14,354.0	189.0	229.4	19.6
2007 Q2	2.3	5.0	1.0	4.3	4.5	4.6	4.7	4.7	4.9	6.3	6.4	8.3	15,163.1	183.6	239.1	18.9
2007 Q3	2.2	4.3	0.4	2.6	4.7	2.6	4.3	4.5	4.8	6.5	6.6	8.2	15,317.8	177.9	247.5	30.8
2007 Q4	2.5	4.1	0.3	4.3	4.8	5.0	3.4	3.8	4.4	6.4	6.2	7.5	14,753.6	172.2	248.7	31.1
2008 Q1	-2.3	-0.8	1.1	4.6	5.0	4.4	2.1	2.8	3.9	6.5	5.9	6.2	13,284.1	165.1	235.2	32.2
2008 Q2	2.1	4.3	7.5	12.0	5.3	5.3	1.6	3.2	4.1	6.8	6.1	5.1	13,016.4	157.2	223.7	24.1
2008 Q3	-2.1	0.8	-8.1	-4.3	6.0	6.3	1.5	3.1	4.1	7.2	6.3	5.0	11,826.0	150.0	230.6	46.7
2008 Q4	-8.4	-7.2	3.5	-2.5	6.9	-8.9	0.3	2.2	3.7	9.4	5.9	4.1	9,056.7	142.4	219.4	80.9
2009 Q1	-4.4	-4.5	-1.7	-4.0	8.3	-2.7	0.2	1.9	3.2	9.0	5.1	3.3	8,044.2	138.1	209.0	56.7
2009 Q2	-0.6	-1.2	4.4	6.3	9.3	2.1	0.2	2.3	3.7	8.2	5.0	3.3	9,342.8	138.1	179.9	42.3
2009 Q3	1.5	1.9	-4.4	-1.8	9.6	3.5	0.2	2.5	3.8	6.8	5.2	3.3	10,812.8	138.7	160.1	31.3
2009 Q4	4.5	5.9	-0.1	3.0	9.9	3.2	0.1	2.3	3.7	6.1	4.9	3.3	11,385.1	139.1	159.3	30.7
2010 Q1	1.5	2.6	2.3	3.7	9.8	0.6	0.1	2.4	3.9	5.8	5.0	3.3	12,032.5	139.2	153.3	27.3
2010 Q2	3.7	5.7	6.8	7.2	9.6	-0.1	0.1	2.3	3.6	5.6	4.9	3.3	10,645.8	138.3	165.3	45.8
2010 Q3	3.0	4.2	2.9	3.6	9.5	1.2	0.2	1.6	2.9	5.1	4.4	3.3	11,814.0	135.6	166.7	32.9
2010 Q4	2.0	4.3	2.3	4.8	9.5	3.3	0.1	1.5	3.0	5.0	4.4	3.3	13,131.5	134.3	168.4	23.5
2011 Q1	-1.0	1.2	4.1	7.8	9.0	4.3	0.1	2.1	3.5	5.4	4.8	3.3	13,908.5	133.1	171.2	29.4
2011 Q2	2.9	5.6	-0.9	3.1	9.1	4.6	0.0	1.8	3.3	5.1	4.7	3.3	13,843.5	132.6	173.1	22.7
2011 Q3	-0.1	2.5	1.8	3.7	9.0	2.6	0.0	1.1	2.5	4.9	4.3	3.3	11,676.5	133.3	169.6	48.0
2011 Q4	4.7	5.4	1.2	2.6	8.6	1.8	0.0	1.0	2.1	5.0	4.0	3.3	13,019.3	133.3	176.0	45.5
2012 Q1	3.2	5.8	7.7	10.7	8.3	2.3	0.1	0.9	2.1	4.7	3.9	3.3	14,627.5	134.7	179.1	23.0
2012 Q2	1.7	3.3	3.7	4.7	8.2	0.8	0.1	0.8	1.8	4.5	3.8	3.3	14,100.2	138.0	179.8	26.7
2012 Q3	0.5	2.6	-2.8	-1.7	8.0	1.8	0.1	0.7	1.6	4.2	3.6	3.3	14,894.7	140.8	185.6	20.5
2012 Q4	0.5	2.5	11.5	14.1	7.8	2.7	0.1	0.7	1.7	3.9	3.4	3.3	14,834.9	143.8	185.3	22.7

Appendix 4: Baseline Scenario - Domestic (Cont.)

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Dow Jones Total Stock Market Index (Level)	House Price Index (Level)	Commercial Real Estate Price Index (Level)	Market Volatility Index (Level)
2013 Q1	3.6	5.3	-15.1	-13.9	7.7	1.6	0.1	0.8	1.9	4.0	3.5	3.3	16,396.2	147.4	187.7	19.0
2013 Q2	0.5	1.7	3.0	3.3	7.5	-0.4	0.1	0.9	2.0	4.1	3.7	3.3	16,771.3	151.4	196.8	20.5
2013 Q3	3.2	5.2	1.7	3.4	7.2	2.2	0.0	1.5	2.7	4.9	4.4	3.3	17,718.3	155.1	206.5	17.0
2013 Q4	3.2	5.7	1.6	3.3	6.9	1.5	0.1	1.4	2.8	4.8	4.3	3.3	19,413.2	158.2	211.6	20.3
2014 Q1	-1.0	0.5	6.2	8.3	6.7	2.5	0.0	1.6	2.8	4.6	4.4	3.3	19,711.2	160.2	209.4	21.4
2014 Q2	5.1	7.8	4.9	7.0	6.2	2.1	0.0	1.7	2.7	4.3	4.2	3.3	20,568.7	161.3	215.7	17.0
2014 Q3	4.9	6.9	4.5	5.7	6.1	1.1	0.0	1.7	2.5	4.2	4.1	3.3	20,458.8	163.5	220.1	17.0
2014 Q4	1.9	2.7	5.0	4.6	5.7	-0.9	0.0	1.6	2.3	4.2	4.0	3.3	21,424.6	166.0	228.9	26.3
2015 Q1	3.3	3.0	5.0	3.2	5.5	-2.6	0.0	1.5	2.0	4.0	3.7	3.3	21,707.6	168.1	242.8	22.4
2015 Q2	3.3	5.7	3.1	5.1	5.4	2.7	0.0	1.5	2.2	4.2	3.8	3.3	21,630.9	170.2	244.9	18.9
2015 Q3	1.0	2.4	3.4	4.7	5.1	1.5	0.0	1.6	2.3	4.5	4.0	3.3	19,959.3	172.6	249.9	40.7
2015 Q4	0.4	0.5	0.9	0.7	5.0	0.1	0.1	1.6	2.2	4.6	3.9	3.3	21,100.9	175.1	249.9	24.4
2016 Q1	1.5	1.2	2.7	3.0	4.9	-0.1	0.3	1.4	2.0	4.6	3.7	3.5	21,179.4	177.3	241.6	28.1
2016 Q2	2.3	5.1	-0.6	1.7	4.9	2.7	0.3	1.3	1.8	4.1	3.6	3.5	21,621.5	179.4	245.3	25.8
2016 Q3	1.9	3.5	1.5	3.3	4.9	1.8	0.3	1.2	1.6	3.7	3.4	3.5	22,468.6	182.0	261.8	18.1
2016 Q4	1.8	3.9	2.7	4.7	4.8	2.7	0.4	1.7	2.2	4.1	3.8	3.5	23,276.7	184.9	264.6	22.5
2017 Q1	1.8	3.9	4.5	6.6	4.6	3.0	0.6	2.0	2.5	4.2	4.2	3.8	24,508.3	187.3	259.7	13.1
2017 Q2	3.0	4.2	2.2	3.0	4.4	0.1	0.9	1.8	2.3	4.0	4.0	4.0	25,125.0	189.9	269.2	16.0
2017 Q3	2.8	4.8	2.2	3.9	4.3	2.1	1.0	1.8	2.3	3.9	3.9	4.3	26,148.5	193.2	274.1	16.0
2017 Q4	2.3	5.1	2.3	5.1	4.1	3.3	1.2	2.1	2.4	3.9	3.9	4.3	27,673.2	196.2	282.6	13.1
2018 Q1	2.2	4.3	4.4	7.0	4.1	3.5	1.6	2.5	2.8	4.2	4.3	4.5	27,383.0	199.3	276.9	37.3
2018 Q2	4.2	7.6	1.8	3.8	3.9	1.7	1.8	2.8	2.9	4.6	4.5	4.8	28,313.8	201.7	292.6	23.6
2018 Q3	3.4	4.9	2.4	4.0	3.8	2.0	2.0	2.8	2.9	4.6	4.6	5.0	30,189.6	203.9	285.5	16.1
2018 Q4	2.7	4.6	2.7	4.4	3.8	1.8	2.3	2.9	3.0	5.0	4.8	5.3	25,724.5	205.2	287.1	36.1
2019 Q1	2.2	4.2	2.8	4.2	3.7	1.5	2.5	2.8	2.9	4.6	4.5	5.5	26,025.8	206.5	292.8	28.3
2019 Q2	2.5	4.8	2.3	4.5	3.6	2.3	2.6	2.9	3.0	4.8	4.6	5.6	26,366.9	207.8	296.4	27.0
2019 Q3	2.2	4.4	2.3	4.4	3.6	2.3	2.7	3.0	3.1	4.9	4.6	5.7	26,686.8	209.1	300.2	25.3
2019 Q4	2.0	4.2	2.2	4.3	3.6	2.3	2.8	3.0	3.2	4.9	4.7	5.8	26,998.3	210.4	303.9	24.5
2020 Q1	1.7	4.0	2.1	4.3	3.6	2.4	2.8	3.0	3.2	4.9	4.7	5.8	27,298.7	211.7	307.8	23.9
2020 Q2	1.6	4.0	2.1	4.0	3.6	2.1	2.8	3.0	3.2	4.9	4.7	5.8	27,603.1	213.0	311.6	23.5
2020 Q3	1.5	3.7	1.9	4.0	3.7	2.2	2.8	3.0	3.2	4.9	4.7	5.8	27,894.4	214.3	315.6	23.7
2020 Q4	1.6	3.8	1.9	3.8	3.8	2.1	2.8	3.1	3.2	4.9	4.7	5.8	28,192.7	215.7	319.5	23.9
2021 Q1	2.2	4.3	2.3	4.4	3.9	2.2	2.8	3.3	3.4	5.2	4.9	5.8	28,528.5	217.3	321.9	24.6
2021 Q2	2.0	4.1	2.2	4.2	4.0	2.2	2.8	3.3	3.5	5.1	5.0	5.8	28,857.6	219.0	324.3	23.8
2021 Q3	2.0	4.1	2.2	4.2	4.0	2.2	2.8	3.4	3.5	5.2	5.0	5.8	29,190.5	220.6	326.8	23.7
2021 Q4	2.0	4.1	2.2	4.2	4.0	2.2	2.8	3.4	3.5	5.2	5.0	5.8	29,527.2	222.3	329.3	23.6
2022 Q1	2.0	4.1	2.2	4.2	4.1	2.2	2.8	3.4	3.6	5.2	5.1	5.8	29,867.5	223.9	331.7	23.6

Appendix 5: Baseline Scenario - International

Date	Euro area real GDP growth	Euro area inflation	Euro area bilateral dollar exchange rate (USD/euro)	Developing Asia real GDP growth	Developing Asia inflation	Developing Asia bilateral dollar exchange rate (F/USD, index)	Japan real GDP growth	Japan inflation	Japan bilateral dollar exchange rate (yen/USD)	U.K. real GDP growth	U.K. inflation	U.K. bilateral dollar exchange rate (USD/pound)
2004 Q1	2.3	2.2	1.2	5.6	4.0	101.4	3.1	0.8	104.2	2.2	1.3	1.8
2004 Q2	2.2	2.6	1.2	6.9	4.1	102.8	-0.3	-0.4	109.4	1.5	1.0	1.8
2004 Q3	1.2	2.0	1.2	8.2	4.1	102.7	2.6	-0.1	110.2	0.7	1.1	1.8
2004 Q4	1.5	2.4	1.4	6.4	0.8	98.9	-0.8	1.9	102.7	1.0	2.4	1.9
2005 Q1	0.6	1.4	1.3	10.5	2.9	98.6	1.9	-1.2	107.2	3.8	2.5	1.9
2005 Q2	2.8	2.2	1.2	8.6	1.5	98.9	2.7	-1.0	110.9	4.5	1.9	1.8
2005 Q3	3.0	3.1	1.2	9.3	2.4	98.6	4.0	-1.0	113.3	4.8	2.7	1.8
2005 Q4	2.5	2.4	1.2	11.7	1.6	98.1	0.7	0.1	117.9	6.1	1.4	1.7
2006 Q1	3.7	1.7	1.2	11.0	2.4	96.8	0.6	1.2	117.5	1.1	1.9	1.7
2006 Q2	4.3	2.5	1.3	7.0	3.2	96.7	1.1	0.4	114.5	0.9	3.0	1.8
2006 Q3	2.6	2.1	1.3	10.3	2.2	96.4	-0.7	0.4	118.0	0.3	3.3	1.9
2006 Q4	4.5	0.9	1.3	11.3	3.6	94.6	5.3	-0.5	119.0	1.4	2.6	2.0
2007 Q1	3.0	2.3	1.3	13.9	3.6	94.0	2.9	-0.7	117.6	4.0	2.6	2.0
2007 Q2	2.6	2.3	1.4	10.5	4.9	91.9	0.6	0.4	123.4	2.9	1.7	2.0
2007 Q3	1.9	2.1	1.4	8.7	7.6	90.6	-2.0	0.3	115.0	3.4	0.2	2.0
2007 Q4	2.1	4.8	1.5	12.8	5.9	89.4	1.9	2.2	111.7	3.4	4.0	2.0
2008 Q1	2.2	4.2	1.6	7.2	8.1	88.0	1.3	1.2	99.9	1.4	3.7	2.0
2008 Q2	-1.5	3.2	1.6	6.0	6.3	88.7	-1.8	1.8	106.2	-2.9	5.7	2.0
2008 Q3	-2.2	3.2	1.4	3.1	3.0	91.5	-4.9	3.4	105.9	-6.4	5.8	1.8
2008 Q4	-6.6	-1.4	1.4	0.3	-1.1	92.2	-9.4	-2.1	90.8	-8.4	0.5	1.5
2009 Q1	-11.4	-1.1	1.3	4.4	-1.4	94.2	-17.8	-3.6	99.2	-6.5	-0.1	1.4
2009 Q2	-1.0	0.0	1.4	15.1	2.3	92.2	8.6	-1.6	96.4	-0.8	2.1	1.6
2009 Q3	1.3	1.1	1.5	12.8	4.1	91.3	0.2	-1.4	89.5	0.6	3.5	1.6
2009 Q4	2.2	1.6	1.4	9.2	5.0	90.6	5.7	-1.5	93.1	1.4	3.0	1.6
2010 Q1	1.6	1.8	1.4	9.8	4.4	89.8	3.4	1.0	93.4	1.8	4.0	1.5
2010 Q2	3.8	2.0	1.2	9.7	3.4	91.0	5.5	-1.4	88.5	3.5	3.2	1.5
2010 Q3	1.9	1.6	1.4	8.8	4.2	88.4	7.6	-1.9	83.5	2.3	2.3	1.6
2010 Q4	2.5	2.6	1.3	9.2	7.5	87.4	-3.2	1.3	81.7	0.5	4.0	1.5
2011 Q1	3.3	3.6	1.4	9.8	6.2	86.4	-5.6	-0.1	82.8	3.0	6.7	1.6
2011 Q2	0.1	3.2	1.5	6.4	5.4	85.3	-2.6	-0.7	80.6	0.6	4.7	1.6
2011 Q3	0.0	1.4	1.3	5.5	5.3	87.3	10.5	0.3	77.0	1.1	3.7	1.6
2011 Q4	-1.1	3.5	1.3	6.7	3.0	87.2	-0.6	-0.6	77.0	0.7	3.3	1.6
2012 Q1	-0.6	2.8	1.3	7.3	3.2	86.2	5.1	2.2	82.4	2.6	2.1	1.6
2012 Q2	-1.4	2.3	1.3	6.0	3.9	88.0	-3.2	-1.5	79.8	-0.2	2.0	1.6
2012 Q3	-0.5	1.6	1.3	6.5	2.2	86.2	-1.4	-1.8	77.9	4.8	2.3	1.6
2012 Q4	-1.7	2.4	1.3	7.3	3.5	85.9	1.0	0.1	86.6	-0.9	4.0	1.6

Appendix 5: Baseline Scenario - International (Cont.)

Date	Euro area real GDP growth	Euro area inflation	Euro area bilateral dollar exchange rate (USD/euro)	Developing Asia real GDP growth	Developing Asia inflation	Developing Asia bilateral dollar exchange rate (F/USD, index)	Japan real GDP growth	Japan inflation	Japan bilateral dollar exchange rate (yen/USD)	U.K. real GDP growth	U.K. inflation	U.K. bilateral dollar exchange rate (USD/pound)
2013 Q1	-1.4	1.2	1.3	6.5	4.6	86.1	4.7	0.6	94.2	2.6	2.9	1.5
2013 Q2	2.0	0.4	1.3	6.4	2.8	87.1	3.3	0.0	99.2	2.2	1.7	1.5
2013 Q3	1.4	1.3	1.4	7.6	3.5	86.5	3.5	2.7	98.3	3.6	2.1	1.6
2013 Q4	0.9	0.2	1.4	6.8	4.0	85.8	-0.2	2.6	105.3	1.9	1.5	1.7
2014 Q1	1.9	0.8	1.4	5.9	1.4	86.8	3.7	1.0	103.0	3.4	1.9	1.7
2014 Q2	0.8	0.0	1.4	7.4	2.6	86.6	-7.3	8.3	101.3	3.4	1.4	1.7
2014 Q3	1.6	0.3	1.3	6.7	2.4	87.0	0.6	1.8	109.7	2.8	0.8	1.6
2014 Q4	2.0	-0.5	1.2	5.8	1.1	88.1	1.9	-0.8	119.9	2.7	-0.4	1.6
2015 Q1	2.9	-1.0	1.1	6.0	0.9	88.0	5.3	0.4	120.0	1.8	-1.2	1.5
2015 Q2	1.7	1.9	1.1	6.9	2.7	88.4	0.6	0.8	122.1	2.3	0.8	1.6
2015 Q3	1.5	-0.2	1.1	6.5	2.8	91.0	0.1	0.3	119.8	1.7	0.8	1.5
2015 Q4	1.9	-0.2	1.1	5.6	1.3	92.2	-1.8	-0.8	120.3	3.0	0.0	1.5
2016 Q1	2.8	-1.4	1.1	6.5	3.0	91.8	2.8	-0.1	112.4	1.3	-0.1	1.4
2016 Q2	1.1	1.3	1.1	6.7	2.8	94.2	0.1	-0.7	102.8	0.6	0.8	1.3
2016 Q3	1.4	1.3	1.1	6.0	1.3	93.7	1.3	-0.1	101.2	1.9	2.2	1.3
2016 Q4	3.0	1.7	1.1	5.8	1.9	97.5	0.7	2.2	116.8	3.0	2.0	1.2
2017 Q1	2.7	2.7	1.1	6.2	1.1	95.2	3.3	-0.4	111.4	1.7	3.6	1.3
2017 Q2	2.7	0.4	1.1	6.1	2.0	94.6	2.1	-0.1	112.4	1.0	3.2	1.3
2017 Q3	2.7	1.0	1.2	6.8	2.4	93.5	2.7	0.8	112.6	2.1	2.5	1.3
2017 Q4	2.7	1.6	1.2	5.8	3.0	91.0	1.5	2.0	112.7	1.6	2.9	1.4
2018 Q1	1.5	2.1	1.2	7.1	2.2	89.0	-1.3	2.5	106.2	0.3	2.3	1.4
2018 Q2	1.7	2.1	1.2	5.9	1.4	93.5	2.8	-2.7	110.7	1.7	2.0	1.3
2018 Q3	0.6	2.6	1.2	5.1	3.3	97.1	-2.5	3.1	113.5	2.5	2.9	1.3
2018 Q4	1.6	0.9	1.1	5.9	2.6	96.2	0.9	0.7	109.7	1.4	1.9	1.3
2019 Q1	1.6	1.6	1.2	5.9	2.6	96.6	0.8	1.1	109.9	1.4	2.1	1.3
2019 Q2	1.7	1.6	1.2	5.9	2.5	97.0	0.8	1.1	110.1	1.4	2.1	1.3
2019 Q3	1.7	1.6	1.2	5.9	2.5	97.4	0.8	1.1	110.3	1.5	2.1	1.3
2019 Q4	1.6	1.6	1.2	5.8	2.6	97.7	0.7	1.1	110.4	1.5	2.1	1.3
2020 Q1	1.6	1.6	1.2	5.8	2.7	97.4	0.7	1.1	110.0	1.5	2.0	1.4
2020 Q2	1.5	1.7	1.2	5.7	2.8	97.1	0.7	1.1	109.6	1.5	2.0	1.4
2020 Q2	1.5	1.7	1.2	5.7	2.8	96.8	0.7	1.0	109.2	1.5	2.0	1.4
2020 Q3	1.4	1.7	1.2	5.7	2.9	96.5	0.7	1.0	108.7	1.5	2.0	1.4
2020 Q4 2021 Q1	1.4	1.8	1.2	5.7	2.9	96.5	0.7	1.0	108.7	1.5	2.0	1.4
2021 Q1 2021 Q2	1.4	1.8	1.2	5.7	2.8	96.5	0.6	1.0	108.7	1.6	2.0	1.4
2021 Q2 2021 Q3	1.4	1.9	1.2	5.7	2.8	96.5	0.6	1.0	108.7	1.6	2.0	1.4
2021 Q3 2021 Q4	1.3	1.9	1.2	5.6	2.9	96.5	0.6	1.0	108.7	1.6	2.0	1.4
2021 Q4 2022 Q1	1.3	1.9	1.2	5.6	2.9	96.5	0.6	1.0	108.7	1.6	2.0	1.4

Appendix 6: Adverse Scenario - Domestic

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Dow Jones Total Stock Market Index (Level)	House Price Index (Level)	Commercial Real Estate Price Index (Level)	Market Volatility Index (Level)
2004 Q1	2.2	5.2	1.9	5.3	5.7	3.4	0.9	3.0	4.1	5.5	5.6	4.0	11,039.4	148.1	153.0	21.6
2004 Q2	3.1	6.5	4.7	7.6	5.6	3.2	1.1	3.7	4.7	6.1	6.1	4.0	11,144.6	153.9	163.3	20.0
2004 Q3	3.8	6.6	2.6	4.7	5.4	2.6	1.5	3.5	4.4	5.8	5.9	4.4	10,893.8	159.4	175.1	19.3
2004 Q4	4.1	7.3	5.1	8.8	5.4	4.4	2.0	3.5	4.3	5.4	5.7	4.9	11,951.5	165.3	178.2	16.6
2005 Q1	4.5	7.9	-4.6	-2.4	5.3	2.0	2.5	3.9	4.4	5.4	5.8	5.4	11,637.3	172.2	179.0	14.7
2005 Q2	1.9	4.7	3.9	6.4	5.1	2.7	2.9	3.9	4.2	5.5	5.7	5.9	11,856.7	179.0	185.2	17.7
2005 Q3	3.6	7.4	1.2	5.6	5.0	6.2	3.4	4.0	4.3	5.5	5.8	6.4	12,282.9	185.2	190.2	14.2
2005 Q4	2.5	5.9	5.2	8.6	5.0	3.8	3.8	4.4	4.6	5.9	6.2	7.0	12,497.2	190.6	198.1	16.5
2006 Q1	5.4	8.4	8.0	10.2	4.7	2.1	4.4	4.6	4.7	6.0	6.2	7.4	13,121.6	193.7	203.3	14.6
2006 Q2	0.9	4.4	1.0	4.3	4.6	3.7	4.7	5.0	5.2	6.5	6.6	7.9	12,808.9	193.1	212.1	23.8
2006 Q3	0.6	3.5	1.0	4.0	4.6	3.8	4.9	4.8	5.0	6.4	6.6	8.3	13,322.5	191.7	220.1	18.6
2006 Q4	3.5	5.0	5.4	4.7	4.4	-1.6	4.9	4.6	4.7	6.1	6.2	8.3	14,215.8	191.1	221.8	12.7
2007 Q1	0.9	5.0	3.4	7.4	4.5	4.0	5.0	4.6	4.8	6.1	6.2	8.3	14,354.0	189.0	229.4	19.6
2007 Q2	2.3	5.0	1.0	4.3	4.5	4.6	4.7	4.7	4.9	6.3	6.4	8.3	15,163.1	183.6	239.1	18.9
2007 Q3	2.2	4.3	0.4	2.6	4.7	2.6	4.3	4.5	4.8	6.5	6.6	8.2	15,317.8	177.9	247.5	30.8
2007 Q4	2.5	4.1	0.3	4.3	4.8	5.0	3.4	3.8	4.4	6.4	6.2	7.5	14,753.6	172.2	248.7	31.1
2008 Q1	-2.3	-0.8	1.1	4.6	5.0	4.4	2.1	2.8	3.9	6.5	5.9	6.2	13,284.1	165.1	235.2	32.2
2008 Q2	2.1	4.3	7.5	12.0	5.3	5.3	1.6	3.2	4.1	6.8	6.1	5.1	13,016.4	157.2	223.7	24.1
2008 Q3	-2.1	0.8	-8.1	-4.3	6.0	6.3	1.5	3.1	4.1	7.2	6.3	5.0	11,826.0	150.0	230.6	46.7
2008 Q4	-8.4	-7.2	3.5	-2.5	6.9	-8.9	0.3	2.2	3.7	9.4	5.9	4.1	9,056.7	142.4	219.4	80.9
2009 Q1	-4.4	-4.5	-1.7	-4.0	8.3	-2.7	0.2	1.9	3.2	9.0	5.1	3.3	8,044.2	138.1	209.0	56.7
2009 Q2	-0.6	-1.2	4.4	6.3	9.3	2.1	0.2	2.3	3.7	8.2	5.0	3.3	9,342.8	138.1	179.9	42.3
2009 Q3	1.5	1.9	-4.4	-1.8	9.6	3.5	0.2	2.5	3.8	6.8	5.2	3.3	10,812.8	138.7	160.1	31.3
2009 Q4	4.5	5.9	-0.1	3.0	9.9	3.2	0.1	2.3	3.7	6.1	4.9	3.3	11,385.1	139.1	159.3	30.7
2010 Q1	1.5	2.6	2.3	3.7	9.8	0.6	0.1	2.4	3.9	5.8	5.0	3.3	12,032.5	139.2	153.3	27.3
2010 Q2	3.7	5.7	6.8	7.2	9.6	-0.1	0.1	2.3	3.6	5.6	4.9	3.3	10,645.8	138.3	165.3	45.8
2010 Q3	3.0	4.2	2.9	3.6	9.5	1.2	0.2	1.6	2.9	5.1	4.4	3.3	11,814.0	135.6	166.7	32.9
2010 Q4	2.0	4.3	2.3	4.8	9.5	3.3	0.1	1.5	3.0	5.0	4.4	3.3	13,131.5	134.3	168.4	23.5
2011 Q1	-1.0	1.2	4.1	7.8	9.0	4.3	0.1	2.1	3.5	5.4	4.8	3.3	13,908.5	133.1	171.2	29.4
2011 Q2	2.9	5.6	-0.9	3.1	9.1	4.6	0.0	1.8	3.3	5.1	4.7	3.3	13,843.5	132.6	173.1	22.7
2011 Q3	-0.1	2.5	1.8	3.7	9.0	2.6	0.0	1.1	2.5	4.9	4.3	3.3	11,676.5	133.3	169.6	48.0
2011 Q4	4.7	5.4	1.2	2.6	8.6	1.8	0.0	1.0	2.1	5.0	4.0	3.3	13,019.3	133.3	176.0	45.5
2012 Q1	3.2	5.8	7.7	10.7	8.3	2.3	0.1	0.9	2.1	4.7	3.9	3.3	14,627.5	134.7	179.1	23.0
2012 Q2	1.7	3.3	3.7	4.7	8.2	0.8	0.1	0.8	1.8	4.5	3.8	3.3	14,100.2	138.0	179.8	26.7
2012 Q3	0.5	2.6	-2.8	-1.7	8.0	1.8	0.1	0.7	1.6	4.2	3.6	3.3	14,894.7	140.8	185.6	20.5
2012 Q4	0.5	2.5	11.5	14.1	7.8	2.7	0.1	0.7	1.7	3.9	3.4	3.3	14,834.9	143.8	185.3	22.7

Appendix 6: Adverse Scenario - Domestic (Cont.)

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Dow Jones Total Stock Market Index (Level)	House Price Index (Level)	Commercial Real Estate Price Index (Level)	Market Volatility Index (Level)
2013 Q1	3.6	5.3	-15.1	-13.9	7.7	1.6	0.1	0.8	1.9	4.0	3.5	3.3	16,396.2	147.4	187.7	19.0
2013 Q2	0.5	1.7	3.0	3.3	7.5	-0.4	0.1	0.9	2.0	4.1	3.7	3.3	16,771.3	151.4	196.8	20.5
2013 Q3	3.2	5.2	1.7	3.4	7.2	2.2	0.0	1.5	2.7	4.9	4.4	3.3	17,718.3	155.1	206.5	17.0
2013 Q4	3.2	5.7	1.6	3.3	6.9	1.5	0.1	1.4	2.8	4.8	4.3	3.3	19,413.2	158.2	211.6	20.3
2014 Q1	-1.0	0.5	6.2	8.3	6.7	2.5	0.0	1.6	2.8	4.6	4.4	3.3	19,711.2	160.2	209.4	21.4
2014 Q2	5.1	7.8	4.9	7.0	6.2	2.1	0.0	1.7	2.7	4.3	4.2	3.3	20,568.7	161.3	215.7	17.0
2014 Q3	4.9	6.9	4.5	5.7	6.1	1.1	0.0	1.7	2.5	4.2	4.1	3.3	20,458.8	163.5	220.1	17.0
2014 Q4	1.9	2.7	5.0	4.6	5.7	-0.9	0.0	1.6	2.3	4.2	4.0	3.3	21,424.6	166.0	228.9	26.3
2015 Q1	3.3	3.0	5.0	3.2	5.5	-2.6	0.0	1.5	2.0	4.0	3.7	3.3	21,707.6	168.1	242.8	22.4
2015 Q2	3.3	5.7	3.1	5.1	5.4	2.7	0.0	1.5	2.2	4.2	3.8	3.3	21,630.9	170.2	244.9	18.9
2015 Q3	1.0	2.4	3.4	4.7	5.1	1.5	0.0	1.6	2.3	4.5	4.0	3.3	19,959.3	172.6	249.9	40.7
2015 Q4	0.4	0.5	0.9	0.7	5.0	0.1	0.1	1.6	2.2	4.6	3.9	3.3	21,100.9	175.1	249.9	24.4
2016 Q1	1.5	1.2	2.7	3.0	4.9	-0.1	0.3	1.4	2.0	4.6	3.7	3.5	21,179.4	177.3	241.6	28.1
2016 Q2	2.3	5.1	-0.6	1.7	4.9	2.7	0.3	1.3	1.8	4.1	3.6	3.5	21,621.5	179.4	245.3	25.8
2016 Q3	1.9	3.5	1.5	3.3	4.9	1.8	0.3	1.2	1.6	3.7	3.4	3.5	22,468.6	182.0	261.8	18.1
2016 Q4	1.8	3.9	2.7	4.7	4.8	2.7	0.4	1.7	2.2	4.1	3.8	3.5	23,276.7	184.9	264.6	22.5
2017 Q1	1.8	3.9	4.5	6.6	4.6	3.0	0.6	2.0	2.5	4.2	4.2	3.8	24,508.3	187.3	259.7	13.1
2017 Q2	3.0	4.2	2.2	3.0	4.4	0.1	0.9	1.8	2.3	4.0	4.0	4.0	25,125.0	189.9	269.2	16.0
2017 Q3	2.8	4.8	2.2	3.9	4.3	2.1	1.0	1.8	2.3	3.9	3.9	4.3	26,148.5	193.2	274.1	16.0
2017 Q4	2.3	5.1	2.3	5.1	4.1	3.3	1.2	2.1	2.4	3.9	3.9	4.3	27,673.2	196.2	282.6	13.1
2018 Q1	2.2	4.3	4.4	7.0	4.1	3.5	1.6	2.5	2.8	4.2	4.3	4.5	27,383.0	199.3	276.9	37.3
2018 Q2	4.2	7.6	1.8	3.8	3.9	1.7	1.8	2.8	2.9	4.6	4.5	4.8	28,313.8	201.7	292.6	23.6
2018 Q3	3.4	4.9	2.4	4.0	3.8	2.0	2.0	2.8	2.9	4.6	4.6	5.0	30,189.6	203.9	285.5	16.1
2018 Q4	2.7	4.6	2.7	4.4	3.8	1.8	2.3	2.9	3.0	5.0	4.8	5.3	25,724.5	205.2	287.1	36.1
2019 Q1	-1.6	0.2	-3.7	-2.6	4.3	1.3	0.3	0.5	0.9	4.1	3.4	3.3	24,068.1	201.4	283.3	44.4
2019 Q2	-4.0	-1.9	-4.1	-2.4	5.1	2.0	0.2	0.7	1.0	4.6	3.6	3.2	21,695.0	197.7	279.5	43.1
2019 Q3	-2.8	-0.9	-2.3	-0.6	5.7	1.9	0.1	0.7	1.1	4.8	3.7	3.1	20,526.9	194.2	274.5	39.2
2019 Q4	-1.6	0.4	-1.1	0.7	6.2	2.0	0.1	0.8	1.2	4.9	3.8	3.1	20,044.8	189.6	267.0	34.9
2020 Q1	-1.0	1.0	-0.6	1.4	6.6	2.2	0.1	0.8	1.3	4.7	3.7	3.1	20,200.1	185.4	259.4	30.5
2020 Q2	0.2	2.4	0.2	1.9	6.8	2.0	0.1	0.9	1.3	4.6	3.7	3.1	20,609.0	181.3	251.9	27.3
2020 Q3	0.9	3.0	0.5	2.5	7.0	2.1	0.1	1.0	1.3	4.4	3.6	3.1	21,023.5	177.5	244.4	25.3
2020 Q4	2.5	4.6	1.5	3.4	7.0	2.1	0.1	1.0	1.4	4.3	3.5	3.1	21,633.3	175.7	239.3	23.5
2021 Q1	2.9	4.9	2.3	4.3	6.9	2.2	0.1	1.1	1.6	4.3	3.6	3.1	22,247.8	175.8	236.8	22.5
2021 Q2	3.1	5.2	1.9	3.9	6.7	2.2	0.1	1.2	1.7	4.2	3.7	3.1	23,032.8	177.5	236.8	21.4
2021 Q3	3.3	5.3	1.9	3.9	6.6	2.1	0.1	1.2	1.8	4.1	3.7	3.1	23,792.1	179.3	236.9	20.8
2021 Q4	3.4	5.4	1.9	3.8	6.4	2.1	0.1	1.3	1.9	4.0	3.6	3.1	24,621.4	181.7	237.9	20.3
2022 Q1	3.4	5.3	1.8	3.7	6.3	2.1	0.1	1.3	1.9	3.8	3.6	3.1	25,537.2	184.2	239.1	20.1

Appendix 7: Adverse Scenario – International

Date	Euro area real GDP growth	Euro area inflation	Euro area bilateral dollar exchange rate (USD/euro)	Developing Asia real GDP growth	Developing Asia inflation	Developing Asia bilateral dollar exchange rate (F/USD, index)	Japan real GDP growth	Japan inflation	Japan bilateral dollar exchange rate (yen/USD)	U.K. real GDP growth	U.K. inflation	U.K. bilateral dollar exchange rate (USD/pound)
2004 Q1	2.3	2.2	1.2	5.6	4.0	101.4	3.1	0.8	104.2	2.2	1.3	1.8
2004 Q2	2.2	2.6	1.2	6.9	4.1	102.8	-0.3	-0.4	109.4	1.5	1.0	1.8
2004 Q3	1.2	2.0	1.2	8.2	4.1	102.7	2.6	-0.1	110.2	0.7	1.1	1.8
2004 Q4	1.5	2.4	1.4	6.4	0.8	98.9	-0.8	1.9	102.7	1.0	2.4	1.9
2005 Q1	0.6	1.4	1.3	10.5	2.9	98.6	1.9	-1.2	107.2	3.8	2.5	1.9
2005 Q2	2.8	2.2	1.2	8.6	1.5	98.9	2.7	-1.0	110.9	4.5	1.9	1.8
2005 Q3	3.0	3.1	1.2	9.3	2.4	98.6	4.0	-1.0	113.3	4.8	2.7	1.8
2005 Q4	2.5	2.4	1.2	11.7	1.6	98.1	0.7	0.1	117.9	6.1	1.4	1.7
2006 Q1	3.7	1.7	1.2	11.0	2.4	96.8	0.6	1.2	117.5	1.1	1.9	1.7
2006 Q2	4.3	2.5	1.3	7.0	3.2	96.7	1.1	0.4	114.5	0.9	3.0	1.8
2006 Q3	2.6	2.1	1.3	10.3	2.2	96.4	-0.7	0.4	118.0	0.3	3.3	1.9
2006 Q4	4.5	0.9	1.3	11.3	3.6	94.6	5.3	-0.5	119.0	1.4	2.6	2.0
2007 Q1	3.0	2.3	1.3	13.9	3.6	94.0	2.9	-0.7	117.6	4.0	2.6	2.0
2007 Q2	2.6	2.3	1.4	10.5	4.9	91.9	0.6	0.4	123.4	2.9	1.7	2.0
2007 Q3	1.9	2.1	1.4	8.7	7.6	90.6	-2.0	0.3	115.0	3.4	0.2	2.0
2007 Q4	2.1	4.8	1.5	12.8	5.9	89.4	1.9	2.2	111.7	3.4	4.0	2.0
2008 Q1	2.2	4.2	1.6	7.2	8.1	88.0	1.3	1.2	99.9	1.4	3.7	2.0
2008 Q2	-1.5	3.2	1.6	6.0	6.3	88.7	-1.8	1.8	106.2	-2.9	5.7	2.0
2008 Q3	-2.2	3.2	1.4	3.1	3.0	91.5	-4.9	3.4	105.9	-6.4	5.8	1.8
2008 Q4	-6.6	-1.4	1.4	0.3	-1.1	92.2	-9.4	-2.1	90.8	-8.4	0.5	1.5
2009 Q1	-11.4	-1.1	1.3	4.4	-1.4	94.2	-17.8	-3.6	99.2	-6.5	-0.1	1.4
2009 Q2	-1.0	0.0	1.4	15.1	2.3	92.2	8.6	-1.6	96.4	-0.8	2.1	1.6
2009 Q3	1.3	1.1	1.5	12.8	4.1	91.3	0.2	-1.4	89.5	0.6	3.5	1.6
2009 Q4	2.2	1.6	1.4	9.2	5.0	90.6	5.7	-1.5	93.1	1.4	3.0	1.6
2010 Q1	1.6	1.8	1.4	9.8	4.4	89.8	3.4	1.0	93.4	1.8	4.0	1.5
2010 Q2	3.8	2.0	1.2	9.7	3.4	91.0	5.5	-1.4	88.5	3.5	3.2	1.5
2010 Q3	1.9	1.6	1.4	8.8	4.2	88.4	7.6	-1.9	83.5	2.3	2.3	1.6
2010 Q4	2.5	2.6	1.3	9.2	7.5	87.4	-3.2	1.3	81.7	0.5	4.0	1.5
2011 Q1	3.3	3.6	1.4	9.8	6.2	86.4	-5.6	-0.1	82.8	3.0	6.7	1.6
2011 Q2	0.1	3.2	1.5	6.4	5.4	85.3	-2.6	-0.7	80.6	0.6	4.7	1.6
2011 Q3	0.0	1.4	1.3	5.5	5.3	87.3	10.5	0.3	77.0	1.1	3.7	1.6
2011 Q4	-1.1	3.5	1.3	6.7	3.0	87.2	-0.6	-0.6	77.0	0.7	3.3	1.6
2012 Q1	-0.6	2.8	1.3	7.3	3.2	86.2	5.1	2.2	82.4	2.6	2.1	1.6
2012 Q2	-1.4	2.3	1.3	6.0	3.9	88.0	-3.2	-1.5	79.8	-0.2	2.0	1.6
2012 Q3	-0.5	1.6	1.3	6.5	2.2	86.2	-1.4	-1.8	77.9	4.8	2.3	1.6
2012 Q4	-1.7	2.4	1.3	7.3	3.5	85.9	1.0	0.1	86.6	-0.9	4.0	1.6

Appendix 7: Adverse Scenario - International (Cont.)

Date	Euro area real GDP growth	Euro area inflation	Euro area bilateral dollar exchange rate (USD/euro)	Developing Asia real GDP growth	Developing Asia inflation	Developing Asia bilateral dollar exchange rate (F/USD, index)	Japan real GDP growth	Japan inflation	Japan bilateral dollar exchange rate (yen/USD)	U.K. real GDP growth	U.K. inflation	U.K. bilateral dollar exchange rate (USD/pound)
2013 Q1	-1.4	1.2	1.3	6.5	4.6	86.1	4.7	0.6	94.2	2.6	2.9	1.5
2013 Q2	2.0	0.4	1.3	6.4	2.8	87.1	3.3	0.0	99.2	2.2	1.7	1.5
2013 Q3	1.4	1.3	1.4	7.6	3.5	86.5	3.5	2.7	98.3	3.6	2.1	1.6
2013 Q4	0.9	0.2	1.4	6.8	4.0	85.8	-0.2	2.6	105.3	1.9	1.5	1.7
2014 Q1	1.9	0.8	1.4	5.9	1.4	86.8	3.7	1.0	103.0	3.4	1.9	1.7
2014 Q2	0.8	0.0	1.4	7.4	2.6	86.6	-7.3	8.3	101.3	3.4	1.4	1.7
2014 Q3	1.6	0.3	1.3	6.7	2.4	87.0	0.6	1.8	109.7	2.8	0.8	1.6
2014 Q4	2.0	-0.5	1.2	5.8	1.1	88.1	1.9	-0.8	119.9	2.7	-0.4	1.6
2015 Q1	2.9	-1.0	1.1	6.0	0.9	88.0	5.3	0.4	120.0	1.8	-1.2	1.5
2015 Q2	1.7	1.9	1.1	6.9	2.7	88.4	0.6	0.8	122.1	2.3	0.8	1.6
2015 Q3	1.5	-0.2	1.1	6.5	2.8	91.0	0.1	0.3	119.8	1.7	0.8	1.5
2015 Q4	1.9	-0.2	1.1	5.6	1.3	92.2	-1.8	-0.8	120.3	3.0	0.0	1.5
2016 Q1	2.8	-1.4	1.1	6.5	3.0	91.8	2.8	-0.1	112.4	1.3	-0.1	1.4
2016 Q2	1.1	1.3	1.1	6.7	2.8	94.2	0.1	-0.7	102.8	0.6	0.8	1.3
2016 Q3	1.4	1.3	1.1	6.0	1.3	93.7	1.3	-0.1	101.2	1.9	2.2	1.3
2016 Q4	3.0	1.7	1.1	5.8	1.9	97.5	0.7	2.2	116.8	3.0	2.0	1.2
2017 Q1	2.7	2.7	1.1	6.2	1.1	95.2	3.3	-0.4	111.4	1.7	3.6	1.3
2017 Q2	2.7	0.4	1.1	6.1	2.0	94.6	2.1	-0.1	112.4	1.0	3.2	1.3
2017 Q3	2.7	1.0	1.2	6.8	2.4	93.5	2.7	0.8	112.6	2.1	2.5	1.3
2017 Q4	2.7	1.6	1.2	5.8	3.0	91.0	1.5	2.0	112.7	1.6	2.9	1.4
2018 Q1	1.5	2.1	1.2	7.1	2.2	89.0	-1.3	2.5	106.2	0.3	2.3	1.4
2018 Q2	1.7	2.1	1.2	5.9	1.4	93.5	2.8	-2.7	110.7	1.7	2.0	1.3
2018 Q3	0.6	2.6	1.2	5.1	3.3	97.1	-2.5	3.1	113.5	2.5	2.9	1.3
2018 Q4	1.6	0.9	1.1	5.9	2.6	96.2	0.9	0.7	109.7	1.4	1.9	1.3
2019 Q1	-2.6	1.6	1.1	1.9	1.0	97.9	-2.0	-0.1	108.8	-2.8	1.5	1.3
2019 Q2	-3.3	1.0	1.1	2.1	0.2	99.8	-3.5	-0.5	108.5	-3.4	1.1	1.3
2019 Q3	-2.3	0.5	1.1	3.4	0.1	101.1	-4.2	-0.7	108.8	-2.6	0.7	1.3
2019 Q4	-1.6	0.2	1.1	4.2	0.1	102.0	-4.6	-1.1	108.0	-1.8	0.6	1.3
2020 Q1	-0.6	0.3	1.1	5.5	0.6	101.9	-2.0	-0.6	108.8	-0.7	0.7	1.3
2020 Q2	0.2	0.5	1.1	6.1	0.6	100.9	-1.0	-0.4	108.7	0.2	0.8	1.3
2020 Q3	0.8	0.8	1.1	6.3	0.9	100.0	-0.4	-0.2	108.5	0.9	1.0	1.3
2020 Q4	1.3	1.0	1.2	6.3	1.2	99.2	0.1	0.0	108.5	1.4	1.1	1.3
2021 Q1	1.6	1.1	1.2	6.2	1.4	98.6	0.4	0.2	108.6	1.8	1.2	1.3
2021 Q2	1.7	1.3	1.2	6.1	1.5	98.2	0.7	0.3	108.7	2.0	1.3	1.3
2021 Q3	1.7	1.4	1.2	6.1	1.7	97.8	0.8	0.4	108.8	2.1	1.4	1.3
2021 Q4	1.7	1.5	1.2	6.0	1.9	97.4	0.9	0.5	108.8	2.1	1.5	1.3
2022 Q1	1.6	1.6	1.2	5.9	2.0	97.1	0.9	0.5	108.8	2.1	1.5	1.3

Appendix 8: Severely Adverse Scenario - Domestic

Date	Real GDP growth	Nominal GDP growth	•	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Dow Jones Total Stock Market Index (Level)	House Price Index (Level)	Commercial Real Estate Price Index (Level)	Market Volatility Index (Level)
2004 Q1	2.2	5.2	1.9	5.3	5.7	3.4	0.9	3.0	4.1	5.5	5.6	4.0	11,039.4	148.1	153.0	21.6
2004 Q2	3.1	6.5	4.7	7.6	5.6	3.2	1.1	3.7	4.7	6.1	6.1	4.0	11,144.6	153.9	163.3	20.0
2004 Q3	3.8	6.6	2.6	4.7	5.4	2.6	1.5	3.5	4.4	5.8	5.9	4.4	10,893.8	159.4	175.1	19.3
2004 Q4	4.1	7.3	5.1	8.8	5.4	4.4	2.0	3.5	4.3	5.4	5.7	4.9	11,951.5	165.3	178.2	16.6
2005 Q1	4.5	7.9	-4.6	-2.4	5.3	2.0	2.5	3.9	4.4	5.4	5.8	5.4	11,637.3	172.2	179.0	14.7
2005 Q2	1.9	4.7	3.9	6.4	5.1	2.7	2.9	3.9	4.2	5.5	5.7	5.9	11,856.7	179.0	185.2	17.7
2005 Q3	3.6	7.4	1.2	5.6	5.0	6.2	3.4	4.0	4.3	5.5	5.8	6.4	12,282.9	185.2	190.2	14.2
2005 Q4	2.5	5.9	5.2	8.6	5.0	3.8	3.8	4.4	4.6	5.9	6.2	7.0	12,497.2	190.6	198.1	16.5
2006 Q1	5.4	8.4	8.0	10.2	4.7	2.1	4.4	4.6	4.7	6.0	6.2	7.4	13,121.6	193.7	203.3	14.6
2006 Q2	0.9	4.4	1.0	4.3	4.6	3.7	4.7	5.0	5.2	6.5	6.6	7.9	12,808.9	193.1	212.1	23.8
2006 Q3	0.6	3.5	1.0	4.0	4.6	3.8	4.9	4.8	5.0	6.4	6.6	8.3	13,322.5	191.7	220.1	18.6
2006 Q4	3.5	5.0	5.4	4.7	4.4	-1.6	4.9	4.6	4.7	6.1	6.2	8.3	14,215.8	191.1	221.8	12.7
2007 Q1	0.9	5.0	3.4	7.4	4.5	4.0	5.0	4.6	4.8	6.1	6.2	8.3	14,354.0	189.0	229.4	19.6
2007 Q2	2.3	5.0	1.0	4.3	4.5	4.6	4.7	4.7	4.9	6.3	6.4	8.3	15,163.1	183.6	239.1	18.9
2007 Q3	2.2	4.3	0.4	2.6	4.7	2.6	4.3	4.5	4.8	6.5	6.6	8.2	15,317.8	177.9	247.5	30.8
2007 Q4	2.5	4.1	0.3	4.3	4.8	5.0	3.4	3.8	4.4	6.4	6.2	7.5	14,753.6	172.2	248.7	31.1
2008 Q1	-2.3	-0.8	1.1	4.6	5.0	4.4	2.1	2.8	3.9	6.5	5.9	6.2	13,284.1	165.1	235.2	32.2
2008 Q2	2.1	4.3	7.5	12.0	5.3	5.3	1.6	3.2	4.1	6.8	6.1	5.1	13,016.4	157.2	223.7	24.1
2008 Q3	-2.1	0.8	-8.1	-4.3	6.0	6.3	1.5	3.1	4.1	7.2	6.3	5.0	11,826.0	150.0	230.6	46.7
2008 Q4	-8.4	-7.2	3.5	-2.5	6.9	-8.9	0.3	2.2	3.7	9.4	5.9	4.1	9,056.7	142.4	219.4	80.9
2009 Q1	-4.4	-4.5	-1.7	-4.0	8.3	-2.7	0.2	1.9	3.2	9.0	5.1	3.3	8,044.2	138.1	209.0	56.7
2009 Q2	-0.6	-1.2	4.4	6.3	9.3	2.1	0.2	2.3	3.7	8.2	5.0	3.3	9,342.8	138.1	179.9	42.3
2009 Q3	1.5	1.9	-4.4	-1.8	9.6	3.5	0.2	2.5	3.8	6.8	5.2	3.3	10,812.8	138.7	160.1	31.3
2009 Q4	4.5	5.9	-0.1	3.0	9.9	3.2	0.1	2.3	3.7	6.1	4.9	3.3	11,385.1	139.1	159.3	30.7
2010 Q1	1.5	2.6	2.3	3.7	9.8	0.6	0.1	2.4	3.9	5.8	5.0	3.3	12,032.5	139.2	153.3	27.3
2010 Q2	3.7	5.7	6.8	7.2	9.6	-0.1	0.1	2.3	3.6	5.6	4.9	3.3	10,645.8	138.3	165.3	45.8
2010 Q3	3.0	4.2	2.9	3.6	9.5	1.2	0.2	1.6	2.9	5.1	4.4	3.3	11,814.0	135.6	166.7	32.9
2010 Q4	2.0	4.3	2.3	4.8	9.5	3.3	0.1	1.5	3.0	5.0	4.4	3.3	13,131.5	134.3	168.4	23.5
2011 Q1	-1.0	1.2	4.1	7.8	9.0	4.3	0.1	2.1	3.5	5.4	4.8	3.3	13,908.5	133.1	171.2	29.4
2011 Q2	2.9	5.6	-0.9	3.1	9.1	4.6	0.0	1.8	3.3	5.1	4.7	3.3	13,843.5	132.6	173.1	22.7
2011 Q3	-0.1	2.5	1.8	3.7	9.0	2.6	0.0	1.1	2.5	4.9	4.3	3.3	11,676.5	133.3	169.6	48.0
2011 Q4	4.7	5.4	1.2	2.6	8.6	1.8	0.0	1.0	2.1	5.0	4.0	3.3	13,019.3	133.3	176.0	45.5
2012 Q1	3.2	5.8	7.7	10.7	8.3	2.3	0.1	0.9	2.1	4.7	3.9	3.3	14,627.5	134.7	179.1	23.0
2012 Q2	1.7	3.3	3.7	4.7	8.2	0.8	0.1	0.8	1.8	4.5	3.8	3.3	14,100.2	138.0	179.8	26.7
2012 Q3	0.5	2.6	-2.8	-1.7	8.0	1.8	0.1	0.7	1.6	4.2	3.6	3.3	14,894.7	140.8	185.6	20.5
2012 Q4	0.5	2.5	11.5	14.1	7.8	2.7	0.1	0.7	1.7	3.9	3.4	3.3	14,834.9	143.8	185.3	22.7

Appendix 8: Severely Adverse Scenario - Domestic (Cont.)

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Dow Jones Total Stock Market Index (Level)	House Price Index (Level)	Commercial Real Estate Price Index (Level)	Market Volatility Index (Level)
2013 Q1	3.6	5.3	-15.1	-13.9	7.7	1.6	0.1	0.8	1.9	4.0	3.5	3.3	16,396.2	147.4	187.7	19.0
2013 Q2	0.5	1.7	3.0	3.3	7.5	-0.4	0.1	0.9	2.0	4.1	3.7	3.3	16,771.3	151.4	196.8	20.5
2013 Q3	3.2	5.2	1.7	3.4	7.2	2.2	0.0	1.5	2.7	4.9	4.4	3.3	17,718.3	155.1	206.5	17.0
2013 Q4	3.2	5.7	1.6	3.3	6.9	1.5	0.1	1.4	2.8	4.8	4.3	3.3	19,413.2	158.2	211.6	20.3
2014 Q1	-1.0	0.5	6.2	8.3	6.7	2.5	0.0	1.6	2.8	4.6	4.4	3.3	19,711.2	160.2	209.4	21.4
2014 Q2	5.1	7.8	4.9	7.0	6.2	2.1	0.0	1.7	2.7	4.3	4.2	3.3	20,568.7	161.3	215.7	17.0
2014 Q3	4.9	6.9	4.5	5.7	6.1	1.1	0.0	1.7	2.5	4.2	4.1	3.3	20,458.8	163.5	220.1	17.0
2014 Q4	1.9	2.7	5.0	4.6	5.7	-0.9	0.0	1.6	2.3	4.2	4.0	3.3	21,424.6	166.0	228.9	26.3
2015 Q1	3.3	3.0	5.0	3.2	5.5	-2.6	0.0	1.5	2.0	4.0	3.7	3.3	21,707.6	168.1	242.8	22.4
2015 Q2	3.3	5.7	3.1	5.1	5.4	2.7	0.0	1.5	2.2	4.2	3.8	3.3	21,630.9	170.2	244.9	18.9
2015 Q3	1.0	2.4	3.4	4.7	5.1	1.5	0.0	1.6	2.3	4.5	4.0	3.3	19,959.3	172.6	249.9	40.7
2015 Q4	0.4	0.5	0.9	0.7	5.0	0.1	0.1	1.6	2.2	4.6	3.9	3.3	21,100.9	175.1	249.9	24.4
2016 Q1	1.5	1.2	2.7	3.0	4.9	-0.1	0.3	1.4	2.0	4.6	3.7	3.5	21,179.4	177.3	241.6	28.1
2016 Q2	2.3	5.1	-0.6	1.7	4.9	2.7	0.3	1.3	1.8	4.1	3.6	3.5	21,621.5	179.4	245.3	25.8
2016 Q3	1.9	3.5	1.5	3.3	4.9	1.8	0.3	1.2	1.6	3.7	3.4	3.5	22,468.6	182.0	261.8	18.1
2016 Q4	1.8	3.9	2.7	4.7	4.8	2.7	0.4	1.7	2.2	4.1	3.8	3.5	23,276.7	184.9	264.6	22.5
2017 Q1	1.8	3.9	4.5	6.6	4.6	3.0	0.6	2.0	2.5	4.2	4.2	3.8	24,508.3	187.3	259.7	13.1
2017 Q2	3.0	4.2	2.2	3.0	4.4	0.1	0.9	1.8	2.3	4.0	4.0	4.0	25,125.0	189.9	269.2	16.0
2017 Q3	2.8	4.8	2.2	3.9	4.3	2.1	1.0	1.8	2.3	3.9	3.9	4.3	26,148.5	193.2	274.1	16.0
2017 Q4	2.3	5.1	2.3	5.1	4.1	3.3	1.2	2.1	2.4	3.9	3.9	4.3	27,673.2	196.2	282.6	13.1
2018 Q1	2.2	4.3	4.4	7.0	4.1	3.5	1.6	2.5	2.8	4.2	4.3	4.5	27,383.0	199.3	276.9	37.3
2018 Q2	4.2	7.6	1.8	3.8	3.9	1.7	1.8	2.8	2.9	4.6	4.5	4.8	28,313.8	201.7	292.6	23.6
2018 Q3	3.4	4.9	2.4	4.0	3.8	2.0	2.0	2.8	2.9	4.6	4.6	5.0	30,189.6	203.9	285.5	16.1
2018 Q4	2.7	4.6	2.7	4.4	3.8	1.8	2.3	2.9	3.0	5.0	4.8	5.3	25,724.5	205.2	287.1	36.1
2019 Q1	-5.0	-3.5	-5.1	-4.2	4.7	1.2	0.3	0.3	0.8	5.3	3.9	3.3	17,836.0	199.2	279.5	67.8
2019 Q2	-9.4	-7.7	-7.1	-5.8	6.3	1.6	0.2	0.5	0.9	6.1	4.2	3.2	14,694.1	192.5	272.0	70.0
2019 Q3	-7.2	-5.7	-4.8	-3.4	7.5	1.7	0.1	0.6	1.0	6.5	4.4	3.1	13,317.2	185.9	261.9	61.3
2019 Q4	-5.0	-3.4	-3.2	-1.6	8.4	1.8	0.1	0.6	1.1	6.5	4.5	3.1	12,862.3	177.7	246.9	49.9
2020 Q1	-3.8	-2.1	-2.4	-0.7	9.2	1.9	0.1	0.7	1.2	6.2	4.3	3.1	13,461.8	170.0	231.8	38.4
2020 Q2	-1.5	0.5	-1.2	0.4	9.7	1.8	0.1	0.7	1.2	5.8	4.2	3.1	14,421.0	162.8	216.7	31.2
2020 Q3	-0.3	1.6	-0.6	1.2	10.0	2.0	0.1	0.7	1.2	5.5	4.1	3.1	15,479.0	155.8	201.7	26.9
2020 Q4	2.9	4.8	1.2	3.0	9.9	2.0	0.1	0.7	1.2	5.1	3.9	3.1	16,846.6	152.0	191.6	23.3
2021 Q1	3.6	5.4	2.3	4.3	9.7	2.1	0.1	0.9	1.5	5.0	3.9	3.1	17,788.4	151.1	186.6	22.5
2021 Q2	4.1	5.9	2.2	4.2	9.5	2.1	0.1	1.0	1.6	4.7	3.8	3.1	19,352.4	152.7	186.6	21.4
2021 Q3	4.4	6.2	2.3	4.3	9.2	2.1	0.1	1.1	1.6	4.4	3.8	3.1	21,038.8	154.3	186.7	20.8
2021 Q4	4.6	6.4	2.5	4.3	8.9	2.0	0.1	1.2	1.7	4.0	3.6	3.1	22,940.3	157.0	188.7	20.3
2022 Q1	4.6	6.3	2.4	4.2	8.6	2.0	0.1	1.2	1.8	3.7	3.5	3.1	25,136.9	159.9	191.2	20.1

Appendix 9: Severely Adverse Scenario - International

Date	Euro area real GDP growth	Euro area inflation	Euro area bilateral dollar exchange rate (USD/euro)	Developing Asia real GDP growth	Developing Asia inflation	Developing Asia bilateral dollar exchange rate (F/USD, index)	Japan real GDP growth	Japan inflation	Japan bilateral dollar exchange rate (yen/USD)	U.K. real GDP growth	U.K. inflation	U.K. bilateral dollar exchange rate (USD/pound)
2004 Q1	2.3	2.2	1.2	5.6	4.0	101.4	3.1	0.8	104.2	2.2	1.3	1.8
2004 Q2	2.2	2.6	1.2	6.9	4.1	102.8	-0.3	-0.4	109.4	1.5	1.0	1.8
2004 Q3	1.2	2.0	1.2	8.2	4.1	102.7	2.6	-0.1	110.2	0.7	1.1	1.8
2004 Q4	1.5	2.4	1.4	6.4	0.8	98.9	-0.8	1.9	102.7	1.0	2.4	1.9
2005 Q1	0.6	1.4	1.3	10.5	2.9	98.6	1.9	-1.2	107.2	3.8	2.5	1.9
2005 Q2	2.8	2.2	1.2	8.6	1.5	98.9	2.7	-1.0	110.9	4.5	1.9	1.8
2005 Q3	3.0	3.1	1.2	9.3	2.4	98.6	4.0	-1.0	113.3	4.8	2.7	1.8
2005 Q4	2.5	2.4	1.2	11.7	1.6	98.1	0.7	0.1	117.9	6.1	1.4	1.7
2006 Q1	3.7	1.7	1.2	11.0	2.4	96.8	0.6	1.2	117.5	1.1	1.9	1.7
2006 Q2	4.3	2.5	1.3	7.0	3.2	96.7	1.1	0.4	114.5	0.9	3.0	1.8
2006 Q3	2.6	2.1	1.3	10.3	2.2	96.4	-0.7	0.4	118.0	0.3	3.3	1.9
2006 Q4	4.5	0.9	1.3	11.3	3.6	94.6	5.3	-0.5	119.0	1.4	2.6	2.0
2007 Q1	3.0	2.3	1.3	13.9	3.6	94.0	2.9	-0.7	117.6	4.0	2.6	2.0
2007 Q2	2.6	2.3	1.4	10.5	4.9	91.9	0.6	0.4	123.4	2.9	1.7	2.0
2007 Q3	1.9	2.1	1.4	8.7	7.6	90.6	-2.0	0.3	115.0	3.4	0.2	2.0
2007 Q4	2.1	4.8	1.5	12.8	5.9	89.4	1.9	2.2	111.7	3.4	4.0	2.0
2008 Q1	2.2	4.2	1.6	7.2	8.1	88.0	1.3	1.2	99.9	1.4	3.7	2.0
2008 Q2	-1.5	3.2	1.6	6.0	6.3	88.7	-1.8	1.8	106.2	-2.9	5.7	2.0
2008 Q3	-2.2	3.2	1.4	3.1	3.0	91.5	-4.9	3.4	105.9	-6.4	5.8	1.8
2008 Q4	-6.6	-1.4	1.4	0.3	-1.1	92.2	-9.4	-2.1	90.8	-8.4	0.5	1.5
2009 Q1	-11.4	-1.1	1.3	4.4	-1.4	94.2	-17.8	-3.6	99.2	-6.5	-0.1	1.4
2009 Q2	-1.0	0.0	1.4	15.1	2.3	92.2	8.6	-1.6	96.4	-0.8	2.1	1.6
2009 Q3	1.3	1.1	1.5	12.8	4.1	91.3	0.2	-1.4	89.5	0.6	3.5	1.6
2009 Q4	2.2	1.6	1.4	9.2	5.0	90.6	5.7	-1.5	93.1	1.4	3.0	1.6
2010 Q1	1.6	1.8	1.4	9.8	4.4	89.8	3.4	1.0	93.4	1.8	4.0	1.5
2010 Q2	3.8	2.0	1.2	9.7	3.4	91.0	5.5	-1.4	88.5	3.5	3.2	1.5
2010 Q3	1.9	1.6	1.4	8.8	4.2	88.4	7.6	-1.9	83.5	2.3	2.3	1.6
2010 Q4	2.5	2.6	1.3	9.2	7.5	87.4	-3.2	1.3	81.7	0.5	4.0	1.5
2011 Q1	3.3	3.6	1.4	9.8	6.2	86.4	-5.6	-0.1	82.8	3.0	6.7	1.6
2011 Q2	0.1	3.2	1.5	6.4	5.4	85.3	-2.6	-0.7	80.6	0.6	4.7	1.6
2011 Q3	0.0	1.4	1.3	5.5	5.3	87.3	10.5	0.3	77.0	1.1	3.7	1.6
2011 Q4	-1.1	3.5	1.3	6.7	3.0	87.2	-0.6	-0.6	77.0	0.7	3.3	1.6
2012 Q1	-0.6	2.8	1.3	7.3	3.2	86.2	5.1	2.2	82.4	2.6	2.1	1.6
2012 Q2	-1.4	2.3	1.3	6.0	3.9	88.0	-3.2	-1.5	79.8	-0.2	2.0	1.6
2012 Q3	-0.5	1.6	1.3	6.5	2.2	86.2	-1.4	-1.8	77.9	4.8	2.3	1.6
2012 Q4	-1.7	2.4	1.3	7.3	3.5	85.9	1.0	0.1	86.6	-0.9	4.0	1.6

Appendix 9: Severely Adverse Scenario - International (Cont.)

Date	Euro area real GDP growth	Euro area inflation	Euro area bilateral dollar exchange rate (USD/euro)	Developing Asia real GDP growth	Developing Asia inflation	Developing Asia bilateral dollar exchange rate (F/USD, index)	Japan real GDP growth	Japan inflation	Japan bilateral dollar exchange rate (yen/USD)	U.K. real GDP growth	U.K. inflation	U.K. bilateral dollar exchange rate (USD/pound)
2013 Q1	-1.4	1.2	1.3	6.5	4.6	86.1	4.7	0.6	94.2	2.6	2.9	1.5
2013 Q2	2.0	0.4	1.3	6.4	2.8	87.1	3.3	0.0	99.2	2.2	1.7	1.5
2013 Q3	1.4	1.3	1.4	7.6	3.5	86.5	3.5	2.7	98.3	3.6	2.1	1.6
2013 Q4	0.9	0.2	1.4	6.8	4.0	85.8	-0.2	2.6	105.3	1.9	1.5	1.7
2014 Q1	1.9	0.8	1.4	5.9	1.4	86.8	3.7	1.0	103.0	3.4	1.9	1.7
2014 Q2	0.8	0.0	1.4	7.4	2.6	86.6	-7.3	8.3	101.3	3.4	1.4	1.7
2014 Q3	1.6	0.3	1.3	6.7	2.4	87.0	0.6	1.8	109.7	2.8	0.8	1.6
2014 Q4	2.0	-0.5	1.2	5.8	1.1	88.1	1.9	-0.8	119.9	2.7	-0.4	1.6
2015 Q1	2.9	-1.0	1.1	6.0	0.9	88.0	5.3	0.4	120.0	1.8	-1.2	1.5
2015 Q2	1.7	1.9	1.1	6.9	2.7	88.4	0.6	0.8	122.1	2.3	0.8	1.6
2015 Q3	1.5	-0.2	1.1	6.5	2.8	91.0	0.1	0.3	119.8	1.7	0.8	1.5
2015 Q4	1.9	-0.2	1.1	5.6	1.3	92.2	-1.8	-0.8	120.3	3.0	0.0	1.5
2016 Q1	2.8	-1.4	1.1	6.5	3.0	91.8	2.8	-0.1	112.4	1.3	-0.1	1.4
2016 Q2	1.1	1.3	1.1	6.7	2.8	94.2	0.1	-0.7	102.8	0.6	0.8	1.3
2016 Q3	1.4	1.3	1.1	6.0	1.3	93.7	1.3	-0.1	101.2	1.9	2.2	1.3
2016 Q4	3.0	1.7	1.1	5.8	1.9	97.5	0.7	2.2	116.8	3.0	2.0	1.2
2017 Q1	2.7	2.7	1.1	6.2	1.1	95.2	3.3	-0.4	111.4	1.7	3.6	1.3
2017 Q2	2.7	0.4	1.1	6.1	2.0	94.6	2.1	-0.1	112.4	1.0	3.2	1.3
2017 Q3	2.7	1.0	1.2	6.8	2.4	93.5	2.7	0.8	112.6	2.1	2.5	1.3
2017 Q4	2.7	1.6	1.2	5.8	3.0	91.0	1.5	2.0	112.7	1.6	2.9	1.4
2018 Q1	1.5	2.1	1.2	7.1	2.2	89.0	-1.3	2.5	106.2	0.3	2.3	1.4
2018 Q2	1.7	2.1	1.2	5.9	1.4	93.5	2.8	-2.7	110.7	1.7	2.0	1.3
2018 Q3	0.6	2.6	1.2	5.1	3.3	97.1	-2.5	3.1	113.5	2.5	2.9	1.3
2018 Q4	1.6	0.9	1.1	5.9	2.6	96.2	0.9	0.7	109.7	1.4	1.9	1.3
2019 Q1	-5.4	1.5	1.1	-0.8	0.0	98.8	-3.9	-0.8	108.1	-5.6	1.0	1.3
2019 Q2	-6.5	0.5	1.1	-0.4	-1.3	101.7	-6.4	-1.5	107.4	-6.6	0.4	1.2
2019 Q3	-4.9	-0.3	1.1	1.7	-1.5	103.6	-7.5	-1.9	107.8	-5.3	-0.2	1.3
2019 Q4	-3.8	-0.8	1.1	3.1	-1.6	104.9	-8.2	-2.5	106.4	-4.0	-0.3	1.3
2020 Q1	-2.1	-0.6	1.1	5.3	-0.8	105.0	-3.8	-1.7	108.1	-2.2	-0.2	1.3
2020 Q2	-0.6	-0.2	1.1	6.4	-0.8	103.5	-2.1	-1.4	108.1	-0.6	0.0	1.3
2020 Q3	0.4	0.1	1.1	6.7	-0.3	102.2	-1.1	-1.0	108.1	0.5	0.3	1.3
2020 Q4	1.2	0.5	1.1	6.6	0.1	101.0	-0.3	-0.7	108.3	1.4	0.5	1.3
2021 Q1	1.6	0.7	1.1	6.5	0.4	100.1	0.3	-0.4	108.5	1.9	0.7	1.3
2021 Q2	1.9	0.9	1.1	6.4	0.7	99.3	0.7	-0.2	108.7	2.3	0.9	1.3
2021 Q3	2.0	1.0	1.1	6.3	0.9	98.6	0.9	0.0	108.9	2.5	1.0	1.3
2021 Q4	1.9	1.2	1.1	6.2	1.2	98.1	1.0	0.1	108.9	2.5	1.1	1.3
2022 Q1	1.9	1.3	1.2	6.2	1.5	97.5	1.1	0.3	108.9	2.5	1.2	1.3

Appendix 10: Global Market Shock - Adverse

Securitized Products

Trading, PE & Other Fair Value AssetsSecuritized Products

								RMBS							
	Non-Agency Prime	Sub primo	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
Relative MV Shock Bas			Option Akivis	Other ArtA	Fillie	HELOC	KIVIB3 CDO	KIVID3 CD3	Credit basket	Filliex	ABA / TABA	Loans	Wildle Loans	KIVIDS	Olispecified
AAA Total	cu on current	nating (70)													-
> 9Y	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-30.6%	-38.3%	-8.1%	-8.1%
> 6Y and <= 9Y	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-21.4%	-38.3%	-7.9%	-7.9%
> 3Y and <= 6Y	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-21.4%	-38.3%	-7.9%	-7.9%
<= 3Y	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-21.4%	-38.3%	-7.9%	-7.9%
Unspecified Vintage	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-8.1%	-30.6%	-38.3%	-8.1%	-8.1%
AA Total															
> 9Y	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-30.6%	-38.3%	-16.8%	-16.8%
> 6Y and <= 9Y	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-21.4%	-38.3%	-16.4%	-16.4%
> 3Y and <= 6Y	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-21.4%	-38.3%	-16.4%	-16.4%
<= 3Y	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-16.4%	-21.4%	-38.3%	-16.4%	-16.4%
Unspecified Vintage	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%	-30.6%	-38.3%	-16.8%	-16.8%
A Total															
> 9Y	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-30.6%	-38.3%	-17.9%	-17.9%
> 6Y and <= 9Y	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-21.4%	-38.3%	-17.5%	-17.5%
> 3Y and <= 6Y	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-21.4%	-38.3%	-17.5%	-17.5%
<= 3Y	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-17.5%	-21.4%	-38.3%	-17.5%	-17.5%
Unspecified Vintage	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-17.9%	-30.6%	-38.3%	-17.9%	-17.9%
BBB Total															
> 9Y	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-30.6%	-38.3%	-19.9%	-19.9%
> 6Y and <= 9Y	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-21.4%	-38.3%	-19.3%	-19.3%
> 3Y and <= 6Y	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-21.4%	-38.3%	-19.3%	-19.3%
<= 3Y	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-19.3%	-21.4%	-38.3%	-19.3%	-19.3%
Unspecified Vintage	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-19.9%	-30.6%	-38.3%	-19.9%	-19.9%
BB Total								,							
> 9Y	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-30.6%	-38.3%	-22.9%	-22.9%
> 6Y and <= 9Y	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-21.4%	-38.3%	-22.9%	-22.9%
> 3Y and <= 6Y	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-21.4%	-38.3%	-22.9%	-22.9%
<= 3Y	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-21.4%	-38.3%	-22.9%	-22.9%
Unspecified Vintage	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-30.6%	-38.3%	-22.9%	-22.9%
D. T			•						,		•		•		•
B Total >9Y	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-30.6%	-38.3%	-22.9%	-22.9%
> 6Y and <= 9Y	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-21.4%	-38.3%	-22.9%	-22.9%
> 3Y and <= 6Y	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-21.4%	-38.3%	-22.9%	-22.9%
<= 3Y	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-21.4%	-38.3%	-22.9%	-22.9%
Unspecified Vintage	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-30.6%	-38.3%	-22.9%	-22.9%
			•					•	•		•	•			•
<b total<br="">> 9Y	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	22.09/	20.6%	-38.3%	-22.9%	-22.9%
> 9Y > 6Y and <= 9Y	-22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-30.6% -21.4%	-38.3% -38.3%	-22.9% -22.9%	-22.9% -22.9%
> 3Y and <= 9Y > 3Y and <= 6Y	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9% -22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-21.4%	-38.3%	-22.9%	-22.9%
<= 3Y	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-21.4%	-38.3%	-22.9%	-22.9%
Unspecified Vintage	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-30.6%	-38.3%	-22.9%	-22.9%
															4
NR Total	22.00/	22.00/	1 22.00/	22.00/	22.00/	22.00/	22.00/	22.00/	22.00/	22.00/	22.00/	20.5%	20.20/	22.00/	22.00/
> 9Y	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-30.6%	-38.3%	-22.9%	-22.9%
> 6Y and <= 9Y > 3Y and <= 6Y	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-21.4% -21.4%	-38.3% -38.3%	-22.9% -22.9%	-22.9% -22.9%
> 3Y and <= 6Y <= 3Y	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-22.9% -22.9%	-21.4% -21.4%	-38.3% -38.3%	-22.9% -22.9%	-22.9% -22.9%
Unspecified Vintage	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-22.9%	-30.6%	-38.3%	-22.9%	-22.9%
onspecified vintage	-22.3/0	-22.3/0	-22.3/0	-22.3/0	-22.370	-22.3/0	-22.3/0	-22.3/0	-22.3/0	-22.3/0	-22.370	-30.076	-30.370	-22.370	-22.3/0

Securitized Products

Trading, PE & Other Fair Value Assets

Securitized Products

j				ABS							CMBS				Corporate	CDO / CLO	Ware	house	<u></u>
							ou /							ou (ou (au (
	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
Relative MV Shock Base	d on Curren	t Rating (%)					•							•		•			
AAA Total																			
>9Y	-0.7%	-3.3%	-3.1%	-3.4%	-3.4%	-3.4%	-3.4%	-2.7%	-1.7%	-2.7%	-1.7%	-1.7%	-28.1%	-2.7%	-1.5%	-1.5%	-5.2%	5.2%	-0.7%
> 6Y and <= 9Y	-0.7%	-3.3%	-2.9%	-3.3%	-3.3%	-3.3%	-3.3%	-11.7%	-7.1%	-11.7%	-7.1%	-7.1%	-29.4%	-11.7%	-4.4%	-4.4%	-4.6%	4.6%	-0.7%
> 3Y and <= 6Y	-0.7%	-3.3%	-2.9%	-3.3%	-3.3%	-3.3%	-3.3%	-11.7%	-7.1%	-11.7%	-7.1%	-7.1%	-29.4%	-11.7%	-4.4%	-4.4%	-4.6%	4.6%	-0.7%
<= 3Y	-0.7%	-3.3%	-2.9%	-3.3%	-3.3%	-3.3%	-3.3%	-11.7%	-7.1%	-11.7%	-7.1%	-7.1%	-29.4%	-11.7%	-4.4%	-4.4%	-4.6%	4.6%	-0.7%
Unspecified Vintage	-0.7%	-3.3%	-3.1%	-3.4%	-3.4%	-3.4%	-3.4%	-11.7%	-7.1%	-11.7%	-7.1%	-7.1%	-29.4%	-11.7%	-4.4%	-4.4%	-5.2%	5.2%	-0.7%
AA Total																			
>9Y	-1.1%	-5.0%	-7.5%	-7.5%	-7.5%	-7.5%	-7.5%	-6.6%	-4.0%	-6.6%	-4.0%	-4.0%	-28.1%	-6.6%	-6.6%	-6.6%	-5.2%	5.2%	-0.7%
> 6Y and <= 9Y	-1.1%	-5.0%	-7.0%	-7.0%	-7.0%	-7.0%	-7.0%	-29.2%	-17.5%	-29.2%	-17.5%	-17.5%	-29.4%	-29.2%	-14.0%	-14.0%	-4.6%	4.6%	-0.7%
> 3Y and <= 6Y	-1.1%	-5.0%	-7.0%	-7.0%	-7.0%	-7.0%	-7.0%	-29.2%	-17.5%	-29.2%	-17.5%	-17.5%	-29.4%	-29.2%	-14.0%	-14.0%	-4.6%	4.6%	-0.7%
<= 3Y	-1.1%	-5.0%	-7.0%	-7.0%	-7.0%	-7.0%	-7.0%	-29.2%	-17.5%	-29.2%	-17.5%	-17.5%	-29.4%	-29.2%	-14.0%	-14.0%	-4.6%	4.6%	-0.7%
Unspecified Vintage	-1.1%	-5.0%	-7.5%	-7.5%	-7.5%	-7.5%	-7.5%	-29.2%	-17.5%	-29.2%	-17.5%	-17.5%	-29.4%	-29.2%	-14.0%	-14.0%	-5.2%	5.2%	-0.7%
A Total																			1
>9Y	-2.2%	-5.0%	-8.5%	-8.5%	-8.5%	-8.5%	-8.5%	-8.4%	-5.1%	-8.4%	-5.1%	-5.1%	-28.1%	-8.4%	-10.5%	-10.5%	-5.2%	5.2%	-0.7%
> 6Y and <= 9Y	-2.2%	-5.0%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-37.2%	-22.3%	-37.2%	-22.3%	-22.3%	-29.4%	-37.2%	-20.6%	-20.6%	-4.6%	4.6%	-0.7%
> 3Y and <= 6Y	-2.2%	-5.0%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-37.2%	-22.3%	-37.2%	-22.3%	-22.3%	-29.4%	-37.2%	-20.6%	-20.6%	-4.6%	4.6%	-0.7%
<= 3Y	-2.2%	-5.0%	-7.9%	-7.9%	-7.9%	-7.9%	-7.9%	-37.2%	-22.3%	-37.2%	-22.3%	-22.3%	-29.4%	-37.2%	-20.6%	-20.6%	-4.6%	4.6%	-0.7%
Unspecified Vintage	-2.2%	-5.0%	-8.5%	-8.5%	-8.5%	-8.5%	-8.5%	-37.2%	-22.3%	-37.2%	-22.3%	-22.3%	-29.4%	-37.2%	-20.6%	-20.6%	-5.2%	5.2%	-0.7%
BBB Total																			1
>9Y	-2.2%	-9.5%	-10.2%	-10.4%	-10.4%	-10.4%	-10.4%	-9.8%	-5.8%	-9.8%	-5.8%	-5.8%	-28.1%	-9.8%	-11.2%	-11.2%	-5.2%	5.2%	-11.0%
> 6Y and <= 9Y	-2.2%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.5%	-21.5%	-4.6%	4.6%	-11.0%
> 3Y and <= 6Y	-2.2%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.5%	-21.5%	-4.6%	4.6%	-11.0%
<= 3Y	-2.2%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.5%	-21.5%	-4.6%	4.6%	-11.0%
Unspecified Vintage	-2.2%	-9.5%	-10.2%	-10.4%	-10.4%	-10.4%	-10.4%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.5%	-21.5%	-5.2%	5.2%	-11.0%
BB Total																			1
> 9Y	-2.8%	-9.5%	-10.2%	-10.4%	-10.4%	-10.4%	-10.4%	-9.8%	-5.8%	-9.8%	-5.8%	-5.8%	-28.1%	-9.8%	-11.9%	-11.9%	-5.2%	5.2%	-11.0%
> 6Y and <= 9Y	-2.8%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-4.6%	4.6%	-11.0%
> 3Y and <= 6Y	-2.8%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-4.6%	4.6%	-11.0%
<= 3Y	-2.8%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-4.6%	4.6%	-11.0%
Unspecified Vintage	-2.8%	-9.5%	-10.2%	-10.4%	-10.4%	-10.4%	-10.4%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-5.2%	5.2%	-11.0%
B Total				-						•	-					•			1
> 9Y	-2.8%	-9.5%	-10.2%	-10.4%	-10.4%	-10.4%	-10.4%	-9.8%	-5.8%	-9.8%	-5.8%	-5.8%	-28.1%	-9.8%	-11.9%	-11.9%	-5.2%	5.2%	-11.0%
>6Y and <= 9Y	-2.8%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-4.6%	4.6%	-11.0%
> 3Y and <= 6Y	-2.8%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-4.6%	4.6%	-11.0%
<= 3Y	-2.8%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-4.6%	4.6%	-11.0%
Unspecified Vintage	-2.8%	-9.5%	-10.2%	-10.4%	-10.4%	-10.4%	-10.4%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-5.2%	5.2%	-11.0%
<b td="" total<=""><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td>•</td><td>-</td><td></td><td>•</td><td></td><td></td><td>•</td><td></td><td>•</td><td></td>				-						•	-		•			•		•	
> 9Y	-2.8%	-9.5%	-10.2%	-10.4%	-10.4%	-10.4%	-10.4%	-9.8%	-5.8%	-9.8%	-5.8%	-5.8%	-28.1%	-9.8%	-11.9%	-11.9%	-5.2%	5.2%	-11.0%
>6Y and <= 9Y	-2.8%	-9.5%	-10.2%	-10.4%	-10.4%	-9.5%	-9.5%	-43.1%	-25.9%	-9.8%	-25.9%	-25.9%	-29.4%	-9.8%	-11.9%	-21.9%	-4.6%	4.6%	-11.0%
> 3Y and <= 6Y	-2.8%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-4.6%	4.6%	-11.0%
<= 3Y	-2.8%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-4.6%	4.6%	-11.0%
Unspecified Vintage	-2.8%	-9.5%	-10.2%	-10.4%	-10.4%	-10.4%	-10.4%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-5.2%	5.2%	-11.0%
NR Total					•			l		-			-			•		-	
>9Y	-2.8%	-9.5%	-10.2%	-10.4%	-10.4%	-10.4%	-10.4%	-9.8%	-5.8%	-9.8%	-5.8%	-5.8%	-27.8%	-9.8%	-11.9%	-11.9%	-5.2%	5.2%	-11.0%
> 6Y and <= 9Y	-2.8%	-9.5%	-10.2%	-10.4%	-10.4%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-11.9%	-11.9%	-4.6%	4.6%	-11.0%
> 3Y and <= 6Y	-2.8%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-4.6%	4.6%	-11.0%
<= 3Y	-2.8%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-9.5%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-4.6%	4.6%	-11.0%
Unspecified Vintage	-2.8%	-9.5%	-10.2%	-10.4%	-10.4%	-10.4%	-10.4%	-43.1%	-25.9%	-43.1%	-25.9%	-25.9%	-29.4%	-43.1%	-21.9%	-21.9%	-5.2%	5.2%	-11.0%
	=																±:=::		

Municipals

Trading, PE & Other Fair Value Assets

Munis

	Spread Widening (bps)
Bonds	
AAA	7.0
AA	11.0
Α	21.0
BBB	42.0
ВВ	84.0
В	126.0
<b< td=""><td>168.0</td></b<>	168.0
NR	168.0
Loans	
AAA	7.0
AA	11.0
Α	21.0
BBB	42.0
ВВ	84.0
В	126.0
<b< td=""><td>168.0</td></b<>	168.0
NR	168.0
CDS	_
AAA	5.3
AA	8.4
Α	12.9
BBB	22.2
ВВ	65.7
В	97.3
<b< td=""><td>114.1</td></b<>	114.1
NR	114.1
Indices	
AAA	5.3
AA	8.4
Α	12.9
BBB	22.2
ВВ	65.7
В	97.3
<b< td=""><td>114.1</td></b<>	114.1
NR	114.1
Other (III)	
Other / Unspecified Munis	
AAA	7.0
AA	11.0
A	21.0
BBB	42.0
BB	84.0
В	126.0
<b< td=""><td>168.0</td></b<>	168.0
NR	168.0

Agencies

Trading, PE & Other Fair Value Assets

Agencies

US Residential Agency Products

US Residential Agency Products
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

Widening (bps)
<u> </u>

556.6
112.6
44.5
50.0
53.5
556.6
112.6
45.0
53.5
45.0
44.5
45.0

US Commercial Agency Products

Cash Agency CMBS	
Agency CMBS Derivatives	
Commercial Other / Unspecified	

96.6	
96.6	
96.6	

Non-US Agency Products

AAA		
AA		
A		
ввв		
ВВ		
В		
<b< th=""><td></td><td></td></b<>		
BBB BB B <b< th=""><td></td><td></td></b<>		

41.8
52.3
173.2
294.1
835.0
1,043.8
1,252.5
1,252.5

Rates DV01

DFAST 2019 Market Shocks: Adverse Scenario

Rates DV01

							MATURIT	Υ					
Rates Shocks (bps)	1M	3M	6M	9M	1Y	2Y	ЗҮ	5Y	7Y	10Y	15Y	20Y	30Y
AUD Directional Risks													
Governments	(16.9)	(16.1)	(14.9)	(14.0)	(13.2)	(11.3)	(10.9)	(11.9)	(13.6)	(15.4)	(15.8)	(14.6)	(11.5)
Agencies	(16.9)	(16.1)	(14.9)	(14.0)	(13.2)	(11.3)	(10.9)	(11.9)	(13.6)	(15.4)	(15.8)	(14.6)	(11.5
Municipals	(16.9)	(16.1)	(14.9)	(14.0)	(13.2)	(11.3)	(10.9)	(11.9)	(13.6)	(15.4)	(15.8)	(14.6)	(11.5
Swaps / Discounting Curve	(3.8)	(3.3)	(2.8)	(2.2)	(1.8)	(0.2)	0.8	1.8	2.0	1.6	0.4	(0.6)	(2.0)
Instruments shocked by MV**													
Other	(3.8)	(3.3)	(2.8)	(2.2)	(1.8)	(0.2)	0.8	1.8	2.0	1.6	0.4	(0.6)	(2.0
AUD Basis Risks (Do not include the sy	wan/discounting	curve specific	ed above)										
OIS Basis	wap, aiscounting	Curve specific											
1m Basis													
3m Basis													
6m Basis													
					<u> </u>	ļ	-						
12m Basis			ļ										
Other Basis			l										L
AD Directional Risks													
Governments	(47.3)	(47.6)	(48.1)	(48.5)	(48.9)	(50.5)	(51.7)	(53.7)	(54.9)	(55.6)	(54.6)	(51.7)	(43.
Agencies	(47.3)	(47.6)	(48.1)	(48.5)	(48.9)	(50.5)	(51.7)	(53.7)	(54.9)	(55.6)	(54.6)	(51.7)	(43.
Municipals	(47.3)	(47.6)	(48.1)	(48.5)	(48.9)	(50.5)	(51.7)	(53.7)	(54.9)	(55.6)	(54.6)	(51.7)	(43.
Swaps / Discounting Curve	(21.8)	(25.2)	(29.9)	(34.0)	(37.6)	(38.0)	(38.2)	(39.0)	(39.5)	(40.0)	(38.0)	(38.0)	(38.
Instruments shocked by MV**	(==.0)	(==:=)	(2010)	(0)	(0.10)	(00.0)	(00.2)	(0010)	(00.0)	()	(00.0)	(55.5)	(00.
Other	(21.8)	(25.2)	(29.9)	(34.0)	(37.6)	(38.0)	(38.2)	(39.0)	(39.5)	(40.0)	(38.0)	(38.0)	(38.0
	(==:=)	(==:=)	(==:=)	(=)	(0.10)	(00.0)	(00.2)	(00.0)	(00.0)	(1010)	(00.0)	(00.0)	(00.0
CAD Basis Risks (Do not include the sy	wap/discounting	curve specifie	ed above)										
OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													
	•	•	•	•	•	•	•	•	•	•	•	•	•
CHF Directional Risks													
Governments	(6.9)	(6.4)	(5.8)	(5.5)	(5.3)	(6.1)	(8.1)	(12.4)	(15.7)	(18.5)	(19.8)	(19.8)	(19.
Agencies	(6.9)	(6.4)	(5.8)	(5.5)	(5.3)	(6.1)	(8.1)	(12.4)	(15.7)	(18.5)	(19.8)	(19.8)	(19.
Municipals	(6.9)	(6.4)	(5.8)	(5.5)	(5.3)	(6.1)	(8.1)	(12.4)	(15.7)	(18.5)	(19.8)	(19.8)	(19.
Swaps / Discounting Curve	(5.0)	(5.0)	(4.0)	(4.0)	(4.0)	(5.5)	(6.0)	(7.0)	(8.0)	(11.0)	(13.0)	(13.0)	(13.
Instruments shocked by MV**													
Other	(5.0)	(5.0)	(4.0)	(4.0)	(4.0)	(5.5)	(6.0)	(7.0)	(8.0)	(11.0)	(13.0)	(13.0)	(13.
CHF Basis Risks (Do not include the sv OIS Basis	vap/discounting of	curve specifie	d above)	ı	1	1	1	T .	1	ı	1	I	1
1m Basis	<u> </u>	+	1	1	1	1	1	1	+	1	1		1
	<u> </u>	-		1	 	 	 		-		1		
3m Basis		1	L				ļ						1
6m Basis													

Rates DV01 (Continued)

DKK Directional Risks													
Governments	(24.6)	(24.8)	(24.9)	(24.9)	(24.7)	(23.3)	(21.2)	(17.0)	(13.9)	(11.2)	(9.5)	(9.1)	(8.9)
Agencies	(24.6)	(24.8)	(24.9)	(24.9)	(24.7)	(23.3)	(21.2)	(17.0)	(13.9)	(11.2)	(9.5)	(9.1)	(8.9)
Municipals	(24.6)	(24.8)	(24.9)	(24.9)	(24.7)	(23.3)	(21.2)	(17.0)	(13.9)	(11.2)	(9.5)	(9.1)	(8.9)
Swaps / Discounting Curve	(17.4)	(16.8)	(15.8)	(14.9)	(14.1)	(11.4)	(9.4)	(7.3)	(6.7)	(7.6)	(6.0)	(6.0)	(6.0)
Instruments shocked by MV**	(=111)	(20.0)	(2010)	(= 110)	(=)	(==: :)	(2.1)	(110)	(011)	(110)	(0.0)	(0.0)	(2.2)
Other	(17.4)	(16.8)	(15.8)	(14.9)	(14.1)	(11.4)	(9.4)	(7.3)	(6.7)	(7.6)	(6.0)	(6.0)	(6.0)
	(=:::,	(==:=)	(20.0)	(=)	(=)	(,	(2)	(110)	(0.17)	(110)	(0.0)	(0.0)	(===)
DKK Basis Risks (Do not include the swap	/discounting	curve specifie	d above)										
OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													
<u></u>	•	•	•	•	•	•	•	•			•	•	
EUR Directional Risks													
Governments: Austria	(23.8)	(23.6)	(23.4)	(23.0)	(22.7)	(21.1)	(19.4)	(16.3)	(13.9)	(11.4)	(9.3)	(8.3)	(7.5)
Governments: Belgium	(28.2)	(26.9)	(25.2)	(23.7)	(22.4)	(19.0)	(17.5)	(17.2)	(18.3)	(20.1)	(22.0)	(22.8)	(23.4)
Governments: Finland	(13.6)	(14.8)	(16.4)	(17.8)	(19.1)	(22.7)	(24.7)	(25.9)	(25.5)	(24.1)	(22.5)	(22.2)	(22.5)
Governments: France	(21.9)	(22.2)	(22.5)	(22.8)	(23.0)	(23.4)	(23.2)	(22.3)	(21.4)	(20.5)	(20.1)	(20.2)	(20.4)
Governments: Germany	(27.9)	(27.1)	(26.1)	(25.2)	(24.5)	(22.5)	(21.7)	(21.6)	(22.3)	(23.5)	(24.9)	(25.6)	(26.3)
Governments: Greece	269.4	399.8	595.4	791.1	986.7	1,640.0	1,640.0	1,353.9	1,109.9	927.0	784.7	712.4	641.3
Governments: Ireland	39.0	39.5	39.5	40.2	41.0	45.5	46.7	47.6	50.4	58.5	62.0	63.0	66.0
Governments: Italy	37.0	37.5	37.5	38.2	39.0	43.2	44.4	45.2	47.9	55.6	58.9	59.9	62.7
Governments: Netherlands	(36.0)	(34.0)	(31.4)	(29.1)	(27.1)	(21.5)	(18.8)	(17.6)	(18.8)	(21.4)	(24.9)	(27.0)	(29.2)
Governments: Portugal	21.0	21.4	21.9	22.1	22.3	22.1	23.0	24.1	27.0	29.3	31.6	34.5	32.8
Governments: Spain	25.3	25.7	26.2	26.5	26.8	26.5	27.6	29.0	32.4	35.2	38.0	41.4	39.3
Governments: Other	(35.2)	(33.4)	(31.0)	(28.9)	(27.1)	(22.0)	(19.6)	(18.5)	(19.4)	(21.6)	(24.5)	(26.2)	(28.0)
Agencies	(36.0)	(34.0)	(31.4)	(29.1)	(27.1)	(21.5)	(18.8)	(17.6)	(18.8)	(21.4)	(24.9)	(27.0)	(29.2)
Municipals	(36.0)	(34.0)	(31.4)	(29.1)	(27.1)	(21.5)	(18.8)	(17.6)	(18.8)	(21.4)	(24.9)	(27.0)	(29.2)
Swaps / Discounting Curve	(15.3)	(16.3)	(17.7)	(18.8)	(19.6)	(21.3)	(21.3)	(19.3)	(16.9)	(14.1)	(11.7)	(10.6)	(9.6)
Instruments shocked by MV**													
Other	(15.3)	(16.3)	(17.7)	(18.8)	(19.6)	(21.3)	(21.3)	(19.3)	(16.9)	(14.1)	(11.7)	(10.6)	(9.6)
	•	•		•	•	•	•	•	•	•			
EUR Basis Risks (Do not include the swap													
OIS Basis	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(14.4)	(12.2)	(11.6)	(11.0)	(10.6)	(9.9)	(9.4)	(9.3)
1m Basis	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	0.0	0.0	0.0	0.1	0.1	0.1	0.1
3m Basis													
6m Basis	(1.9)	(1.5)	(1.4)	(1.3)	(1.3)	(8.0)	(0.2)	0.1	0.4	0.6	0.7	0.7	0.5
12m Basis	(5.1)	(4.0)	(3.7)	(3.5)	(3.4)	(1.9)	(0.5)	0.3	0.9	1.4	1.5	1.4	1.0
Other Basis													
GBP Directional Risks													
Governments	(29.9)	(29.8)	(29.7)	(29.7)	(29.8)	(30.9)	(32.3)	(34.6)	(35.6)	(35.0)	(32.1)	(29.3)	(25.8)
Agencies	(29.9)	(29.8)	(29.7)	(29.7)	(29.8)	(30.9)	(32.3)	(34.6)	(35.6)	(35.0)	(32.1)	(29.3)	(25.8)
Municipals	(29.9)	(29.8)	(29.7)	(29.7)	(29.8)	(30.9)	(32.3)	(34.6)	(35.6)	(35.0)	(32.1)	(29.3)	(25.8)
Swaps / Discounting Curve	(22.6)	(24.4)	(26.6)	(28.3)	(28.5)	(29.0)	(30.0)	(31.9)	(29.8)	(27.5)	(25.1)	(22.7)	(17.3)
Instruments shocked by MV**		45.0	(((4	4	45.5	1		1	4	
Other	(22.6)	(24.4)	(26.6)	(28.3)	(28.5)	(29.0)	(30.0)	(31.9)	(29.8)	(27.5)	(25.1)	(22.7)	(17.3)
CDD Danie Dieles (De met instead office of	/dia												
GBP Basis Risks (Do not include the swap	discounting (15.5)			(15.5)	(15.5)	(14.4)	(12.2)	(11.6)	(11.0)	(10.6)	(0.0)	(9.4)	(0.3)
OIS Basis		(15.5)	(15.5)	. ,	(15.5)			, ,	, ,	(10.6)	(9.9)	, ,	(9.3)
1m Basis	(2.0)	(2.7)	(2.7)	(2.8)	(2.9)	(3.0)	(2.8)	(2.8)	(2.8)	(2.8)	(2.8)	(2.6)	(2.3)
3m Basis	1.8	2.4	2.4	2.5	2.5	2.3	2.0	1.9	2.0	2.1		2.2	2.2
6m Basis 12m Basis	3.9	5.2	5.3	2.5 5.4	2.5 5.5	6.0	5.9	1.9 5.5	5.4	5.3	2.2 5.1	2.2 4.9	2.2 4.5
Other Basis	3.9	5.2	5.5	5.4	5.5	0.0	5.9	5.5	5.4	5.5	3.1	4.9	7.5

Rates DV01 (Continued)

IDV Discoving at Distance													
JPY Directional Risks	(42.0)	(42.2)	(42.5)	(42.0)	(42.2)	(4.4.2)	(45.0)	(45.5)	(47.0)	(20.6)	(26.5)	(22.2)	(45.4)
Governments	(12.0)	(12.3)	(12.6)	(12.9)	(13.2)	(14.2)	(15.0)	(16.5)	(17.9)	(20.6)	(26.5)	(33.2)	(46.1)
Agencies	(12.0)	(12.3)	(12.6)	(12.9)	(13.2)	(14.2)	(15.0)	(16.5)	(17.9)	(20.6)	(26.5)	(33.2)	(46.1)
Municipals	(12.0)	(12.3)	(12.6)	(12.9)	(13.2)	(14.2)	(15.0)	(16.5)	(17.9)	(20.6)	(26.5)	(33.2)	(46.1)
Swaps / Discounting Curve	0.7	0.1	(0.9)	(1.8)	(2.7)	(6.1)	(9.1)	(14.2)	(14.5)	(15.0)	(16.5)	(17.0)	(19.0)
Instruments shocked by MV**													
Other	0.7	0.1	(0.9)	(1.8)	(2.7)	(6.1)	(9.1)	(14.2)	(14.5)	(15.0)	(16.5)	(17.0)	(19.0)
JPY Basis Risks (Do not include the swa	ap/discounting c	urve specifie	d above)										
OIS Basis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1m TIBOR Basis	(0.4)	(0.3)	(0.2)	0.2	0.1	0.2	0.2	0.3	0.3	0.4	0.7	0.9	1.1
3m TIBOR Basis													
6m TIBOR Basis	(0.5)	(0.3)	(0.3)	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2
12m TIBOR Basis	(6.5)	(0.5)	(0.5)	0.2	0.2	0.1	0.1	0.2	0.2	0.5	0.5	0.5	0.2
1m LIBOR Basis	(0.4)	(0.3)	(0.2)	0.2	0.1	0.2	0.2	0.3	0.3	0.4	0.7	0.9	1.1
3m LIBOR Basis	(0.4)	(0.3)	(0.2)	0.2	0.1	0.2	0.2	0.5	0.5	0.4	0.7	0.5	1.1
	(0.5)	(0.0)	(0.0)		0.0			0.0	0.0	0.0	0.0	0.0	0.0
6m LIBOR Basis	(0.5)	(0.3)	(0.3)	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2
12m LIBOR Basis													
Other Basis													
NOK Directional Risks													
Governments	(10.9)	(10.0)	(8.7)	(7.4)	(6.2)	(2.1)	0.7	3.4	3.6	2.2	(0.5)	(2.3)	(4.3)
Agencies	(10.9)	(10.0)	(8.7)	(7.4)	(6.2)	(2.1)	0.7	3.4	3.6	2.2	(0.5)	(2.3)	(4.3)
Municipals	(10.9)	(10.0)	(8.7)	(7.4)	(6.2)	(2.1)	0.7	3.4	3.6	2.2	(0.5)	(2.3)	(4.3)
Swaps / Discounting Curve	19.8	16.9	14.3	13.3	13.3	19.4	27.9	39.0	41.8	37.8	26.5	16.6	3.8
Instruments shocked by MV**													
Other	19.8	16.9	14.3	13.3	13.3	19.4	27.9	39.0	41.8	37.8	26.5	16.6	3.8
other	15.0	10.5	14.5	15.5	13.5	1 13.7	27.3	33.0	41.0	57.0	20.5	10.0	3.0
NOK Basis Risks (Do not include the sw	an/discounting	curve specific	ed above)										
OIS Basis	I	l specific	eu above,										
1m Basis													
3m Basis													
6m Basis													
12m Basis													
12m Basis Other Basis													
Other Basis	(22.7)	(20.7)	(18.2)	(16.1)	(14.4)	(10.4)	(9.0)	(9.0)	(9.8)	(10.6)	(11.2)	(11.3)	(11.5)
Other Basis NZD Directional Risks Governments	(22.7)	(20.7)				(10.4)	(9.0)		(9.8) (9.8)	(10.6)			(11.5)
Other Basis NZD Directional Risks Governments Agencies	(22.7)	(20.7)	(18.2)	(16.1)	(14.4)	(10.4)	(9.0)	(9.0)	(9.8)	(10.6)	(11.2)	(11.3)	(11.5)
Other Basis NZD Directional Risks Governments Agencies Municipals	(22.7) (22.7)	(20.7) (20.7)	(18.2) (18.2)	(16.1) (16.1)	(14.4) (14.4)	(10.4) (10.4)	(9.0) (9.0)	(9.0) (9.0)	(9.8) (9.8)	(10.6) (10.6)	(11.2) (11.2)	(11.3) (11.3)	(11.5) (11.5)
NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve	(22.7)	(20.7)	(18.2)	(16.1)	(14.4)	(10.4)	(9.0)	(9.0)	(9.8)	(10.6)	(11.2)	(11.3)	(11.5)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV**	(22.7) (22.7) (6.7)	(20.7) (20.7) (3.7)	(18.2) (18.2) 0.3	(16.1) (16.1) 3.7	(14.4) (14.4) 6.6	(10.4) (10.4) 14.7	(9.0) (9.0) 19.0	(9.0) (9.0) 21.7	(9.8) (9.8) 21.6	(10.6) (10.6) 20.3	(11.2) (11.2) 18.7	(11.3) (11.3) 17.9	(11.5) (11.5) 17.1
NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve	(22.7) (22.7)	(20.7) (20.7)	(18.2) (18.2)	(16.1) (16.1)	(14.4) (14.4)	(10.4) (10.4)	(9.0) (9.0)	(9.0) (9.0)	(9.8) (9.8)	(10.6) (10.6)	(11.2) (11.2)	(11.3) (11.3)	(11.5) (11.5)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other	(22.7) (22.7) (6.7)	(20.7) (20.7) (3.7)	(18.2) (18.2) 0.3	(16.1) (16.1) 3.7	(14.4) (14.4) 6.6	(10.4) (10.4) 14.7	(9.0) (9.0) 19.0	(9.0) (9.0) 21.7	(9.8) (9.8) 21.6	(10.6) (10.6) 20.3	(11.2) (11.2) 18.7	(11.3) (11.3) 17.9	(11.5) (11.5) 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw	(22.7) (22.7) (6.7)	(20.7) (20.7) (3.7)	(18.2) (18.2) 0.3	(16.1) (16.1) 3.7	(14.4) (14.4) 6.6	(10.4) (10.4) 14.7	(9.0) (9.0) 19.0	(9.0) (9.0) 21.7	(9.8) (9.8) 21.6	(10.6) (10.6) 20.3	(11.2) (11.2) 18.7	(11.3) (11.3) 17.9	(11.5) (11.5) 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis	(22.7) (22.7) (6.7)	(20.7) (20.7) (3.7)	(18.2) (18.2) 0.3	(16.1) (16.1) 3.7	(14.4) (14.4) 6.6	(10.4) (10.4) 14.7	(9.0) (9.0) 19.0	(9.0) (9.0) 21.7	(9.8) (9.8) 21.6	(10.6) (10.6) 20.3	(11.2) (11.2) 18.7	(11.3) (11.3) 17.9	(11.5) (11.5) 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis	(22.7) (22.7) (6.7)	(20.7) (20.7) (3.7)	(18.2) (18.2) 0.3	(16.1) (16.1) 3.7	(14.4) (14.4) 6.6	(10.4) (10.4) 14.7	(9.0) (9.0) 19.0	(9.0) (9.0) 21.7	(9.8) (9.8) 21.6	(10.6) (10.6) 20.3	(11.2) (11.2) 18.7	(11.3) (11.3) 17.9	(11.5) (11.5) 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis	(22.7) (22.7) (6.7)	(20.7) (20.7) (3.7)	(18.2) (18.2) 0.3	(16.1) (16.1) 3.7	(14.4) (14.4) 6.6	(10.4) (10.4) 14.7	(9.0) (9.0) 19.0	(9.0) (9.0) 21.7	(9.8) (9.8) 21.6	(10.6) (10.6) 20.3	(11.2) (11.2) 18.7	(11.3) (11.3) 17.9	(11.5) (11.5) 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis	(22.7) (22.7) (6.7)	(20.7) (20.7) (3.7)	(18.2) (18.2) 0.3	(16.1) (16.1) 3.7	(14.4) (14.4) 6.6	(10.4) (10.4) 14.7	(9.0) (9.0) 19.0	(9.0) (9.0) 21.7	(9.8) (9.8) 21.6	(10.6) (10.6) 20.3	(11.2) (11.2) 18.7	(11.3) (11.3) 17.9	(11.5) (11.5) 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis 3m Basis Sm Basis	(22.7) (22.7) (6.7)	(20.7) (20.7) (3.7)	(18.2) (18.2) 0.3	(16.1) (16.1) 3.7	(14.4) (14.4) 6.6	(10.4) (10.4) 14.7	(9.0) (9.0) 19.0	(9.0) (9.0) 21.7	(9.8) (9.8) 21.6	(10.6) (10.6) 20.3	(11.2) (11.2) 18.7	(11.3) (11.3) 17.9	(11.5) (11.5) 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis 3m Basis 6m Basis 6m Basis	(22.7) (22.7) (6.7)	(20.7) (20.7) (3.7)	(18.2) (18.2) 0.3	(16.1) (16.1) 3.7	(14.4) (14.4) 6.6	(10.4) (10.4) 14.7	(9.0) (9.0) 19.0	(9.0) (9.0) 21.7	(9.8) (9.8) 21.6	(10.6) (10.6) 20.3	(11.2) (11.2) 18.7	(11.3) (11.3) 17.9	(11.5) (11.5) 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis Im Basis Im Basis Im Basis Im Basis	(22.7) (22.7) (6.7)	(20.7) (20.7) (3.7)	(18.2) (18.2) 0.3	(16.1) (16.1) 3.7	(14.4) (14.4) 6.6	(10.4) (10.4) 14.7	(9.0) (9.0) 19.0	(9.0) (9.0) 21.7	(9.8) (9.8) 21.6	(10.6) (10.6) 20.3	(11.2) (11.2) 18.7	(11.3) (11.3) 17.9	(11.5) (11.5) 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis Im Basis Im Basis Im Basis Im Basis Im Basis	(22.7) (22.7) (6.7)	(20.7) (20.7) (3.7)	(18.2) (18.2) 0.3	(16.1) (16.1) 3.7	(14.4) (14.4) 6.6	(10.4) (10.4) 14.7	(9.0) (9.0) 19.0	(9.0) (9.0) 21.7	(9.8) (9.8) 21.6	(10.6) (10.6) 20.3	(11.2) (11.2) 18.7	(11.3) (11.3) 17.9	(11.5) (11.5) 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis 3m Basis 6m Basis 12m Basis 12m Basis Other Basis	(22.7) (22.7) (6.7)	(20.7) (20.7) (3.7)	(18.2) (18.2) 0.3	(16.1) (16.1) 3.7	(14.4) (14.4) 6.6	(10.4) (10.4) 14.7	(9.0) (9.0) 19.0	(9.0) (9.0) 21.7	(9.8) (9.8) 21.6	(10.6) (10.6) 20.3	(11.2) (11.2) 18.7	(11.3) (11.3) 17.9	(11.5) (11.5) 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis	(22.7) (22.7) (6.7) (6.7)	(20.7) (20.7) (3.7) (3.7) curve specifie	(18.2) (18.2) 0.3 0.3 ed above)	(16.1) (16.1) 3.7 3.7	(14.4) (14.4) 6.6 6.6	(10.4) (10.4) 14.7 14.7	(9.0) (9.0) 19.0 19.0	(9.0) (9.0) 21.7 21.7	(9.8) (9.8) 21.6 21.6	(10.6) (10.6) 20.3 20.3	(11.2) (11.2) 18.7 18.7	(11.3) (11.3) 17.9 17.9	(11.5) (11.5) 17.1 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis Other Basis	(22.7) (22.7) (6.7) (6.7) (6.7)	(20.7) (20.7) (3.7) (3.7) curve specific	(18.2) (18.2) 0.3 0.3 ed above)	(16.1) (16.1) 3.7 3.7 (34.9)	(14.4) (14.4) 6.6 6.6	(10.4) (10.4) 14.7 14.7	(9.0) (9.0) 19.0 19.0	(9.0) (9.0) 21.7 21.7	(9.8) (9.8) 21.6 21.6 (31.1)	(10.6) (10.6) 20.3 20.3	(11.2) (11.2) 18.7 18.7 (25.2)	(11.3) (11.3) 17.9 17.9	(11.5) (11.5) (11.5) 17.1 17.1
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis Other Basis Governments Agencies	(22.7) (22.7) (6.7) (6.7) (6.7) (ap/discounting of the countin	(20.7) (20.7) (3.7) (3.7) curve specifie	(18.2) (18.2) 0.3 0.3 ed above)	(16.1) (16.1) 3.7 3.7 (34.9) (34.9)	(14.4) (14.4) 6.6 6.6 (35.8) (35.8)	(10.4) (10.4) 14.7 14.7 (37.7) (37.7)	(9.0) (9.0) 19.0 19.0 (37.5) (37.5)	(9.0) (9.0) 21.7 21.7 (34.5) (34.5)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1)	(10.6) (10.6) 20.3 20.3 (27.4) (27.4)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis Other Basis Municipals	(22.7) (22.7) (6.7) (6.7) (6.7) (31.0) (31.0) (31.0)	(32.2) (32.2) (32.2)	(18.2) (18.2) 0.3 0.3 ed above) (33.7) (33.7) (33.7)	(16.1) (16.1) 3.7 3.7 3.7 (34.9) (34.9) (34.9)	(14.4) (14.4) 6.6 6.6 (35.8) (35.8) (35.8)	(10.4) (10.4) 14.7 14.7 (37.7) (37.7) (37.7)	(9.0) (9.0) 19.0 19.0 (37.5) (37.5) (37.5)	(9.0) (9.0) (9.1) 21.7 21.7 (34.5) (34.5) (34.5)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1) (31.1)	(10.6) (10.6) 20.3 20.3 20.3 (27.4) (27.4) (27.4)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2) (25.2)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3) (25.3)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7) (26.7) (26.7)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis SEK Directional Risks Governments Agencies Municipals Swaps / Discounting Curve	(22.7) (22.7) (6.7) (6.7) (6.7) (ap/discounting of the countin	(20.7) (20.7) (3.7) (3.7) curve specifie	(18.2) (18.2) 0.3 0.3 ed above)	(16.1) (16.1) 3.7 3.7 (34.9) (34.9)	(14.4) (14.4) 6.6 6.6 (35.8) (35.8)	(10.4) (10.4) 14.7 14.7 (37.7) (37.7)	(9.0) (9.0) 19.0 19.0 (37.5) (37.5)	(9.0) (9.0) 21.7 21.7 (34.5) (34.5)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1)	(10.6) (10.6) 20.3 20.3 (27.4) (27.4)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis Other Basis Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV**	(22.7) (22.7) (6.7) (6.7) (6.7) (a) (a) (a) (a) (a) (a) (a) (a) (a) (a	(32.2) (32.2) (32.2) (32.2) (32.2) (22.5)	(18.2) (18.2) 0.3 0.3 ed above) (33.7) (33.7) (33.7) (22.5)	(16.1) (16.1) 3.7 3.7 3.7 (34.9) (34.9) (34.9) (22.5)	(14.4) (14.4) 6.6 6.6 6.6 (35.8) (35.8) (35.8) (22.3)	(37.7) (37.7) (37.7) (17.6)	(37.5) (37.5) (37.5) (16.4)	(9.0) (9.0) (21.7 21.7 21.7 (34.5) (34.5) (34.5) (34.5) (17.8)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1) (31.1) (20.0)	(27.4) (27.4) (21.9)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2) (25.2) (25.2) (22.4)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3) (25.3) (22.0)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7) (26.7) (26.7) (21.2)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis SEK Directional Risks Governments Agencies Municipals Swaps / Discounting Curve	(22.7) (22.7) (6.7) (6.7) (6.7) (31.0) (31.0) (31.0)	(32.2) (32.2) (32.2)	(18.2) (18.2) 0.3 0.3 ed above) (33.7) (33.7) (33.7)	(16.1) (16.1) 3.7 3.7 3.7 (34.9) (34.9) (34.9)	(14.4) (14.4) 6.6 6.6 (35.8) (35.8) (35.8)	(10.4) (10.4) 14.7 14.7 (37.7) (37.7) (37.7)	(9.0) (9.0) 19.0 19.0 (37.5) (37.5) (37.5)	(9.0) (9.0) (9.1) 21.7 21.7 (34.5) (34.5) (34.5)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1) (31.1)	(10.6) (10.6) 20.3 20.3 20.3 (27.4) (27.4) (27.4)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2) (25.2)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3) (25.3)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7) (26.7) (26.7)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis 3m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis Other Basis Other Basis Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV**	(22.7) (22.7) (6.7) (6.7) (6.7) (a) (a) (a) (a) (a) (a) (a) (a) (a) (a	(32.2) (32.2) (32.2) (32.2) (32.2) (22.5)	(18.2) (18.2) 0.3 0.3 ed above) (33.7) (33.7) (33.7) (22.5)	(16.1) (16.1) 3.7 3.7 3.7 (34.9) (34.9) (34.9) (22.5)	(14.4) (14.4) 6.6 6.6 6.6 (35.8) (35.8) (35.8) (22.3)	(37.7) (37.7) (37.7) (17.6)	(37.5) (37.5) (37.5) (16.4)	(9.0) (9.0) (21.7 21.7 21.7 (34.5) (34.5) (34.5) (34.5) (17.8)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1) (31.1) (20.0)	(27.4) (27.4) (21.9)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2) (25.2) (25.2) (22.4)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3) (25.3) (22.0)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7) (26.7) (26.7) (21.2)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis Other Basis SEK Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other	(22.7) (22.7) (6.7) (6.7) (6.7) (6.7) (31.0) (31.0) (31.0) (22.0)	(32.2) (32.2) (32.2) (32.2) (22.5)	(18.2) (18.2) 0.3 0.3 ed above) (33.7) (33.7) (33.7) (22.5)	(16.1) (16.1) 3.7 3.7 3.7 (34.9) (34.9) (34.9) (22.5)	(14.4) (14.4) 6.6 6.6 6.6 (35.8) (35.8) (35.8) (22.3)	(37.7) (37.7) (37.7) (17.6)	(37.5) (37.5) (37.5) (16.4)	(9.0) (9.0) (21.7 21.7 21.7 (34.5) (34.5) (34.5) (34.5) (17.8)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1) (31.1) (20.0)	(27.4) (27.4) (21.9)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2) (25.2) (25.2) (22.4)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3) (25.3) (22.0)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7) (26.7) (26.7) (21.2)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis Other Basis SEK Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other	(22.7) (22.7) (6.7) (6.7) (6.7) (6.7) (31.0) (31.0) (31.0) (22.0)	(32.2) (32.2) (32.2) (32.2) (22.5)	(18.2) (18.2) 0.3 0.3 ed above) (33.7) (33.7) (33.7) (22.5)	(16.1) (16.1) 3.7 3.7 3.7 (34.9) (34.9) (34.9) (22.5)	(14.4) (14.4) 6.6 6.6 6.6 (35.8) (35.8) (35.8) (22.3)	(37.7) (37.7) (37.7) (17.6)	(37.5) (37.5) (37.5) (16.4)	(9.0) (9.0) (21.7 21.7 21.7 (34.5) (34.5) (34.5) (34.5) (17.8)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1) (31.1) (20.0)	(27.4) (27.4) (21.9)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2) (25.2) (25.2) (22.4)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3) (25.3) (22.0)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7) (26.7) (26.7) (21.2)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis Im Basis Im Basis Other Basis 12m Basis Other Basis SEK Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other SEK Basis Risks (Do not include the swa OIS Basis	(22.7) (22.7) (6.7) (6.7) (6.7) (6.7) (31.0) (31.0) (31.0) (22.0)	(32.2) (32.2) (32.2) (32.2) (22.5)	(18.2) (18.2) 0.3 0.3 ed above) (33.7) (33.7) (33.7) (22.5)	(16.1) (16.1) 3.7 3.7 3.7 (34.9) (34.9) (34.9) (22.5)	(14.4) (14.4) 6.6 6.6 6.6 (35.8) (35.8) (35.8) (22.3)	(37.7) (37.7) (37.7) (17.6)	(37.5) (37.5) (37.5) (16.4)	(9.0) (9.0) (21.7 21.7 21.7 (34.5) (34.5) (34.5) (34.5) (17.8)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1) (31.1) (20.0)	(27.4) (27.4) (21.9)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2) (25.2) (25.2) (22.4)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3) (25.3) (22.0)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7) (26.7) (26.7) (21.2)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis 3m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis SEK Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other SEK Basis Risks (Do not include the swa OIS Basis Im Basis	(22.7) (22.7) (6.7) (6.7) (6.7) (6.7) (31.0) (31.0) (31.0) (22.0)	(32.2) (32.2) (32.2) (32.2) (22.5)	(18.2) (18.2) 0.3 0.3 ed above) (33.7) (33.7) (33.7) (22.5)	(16.1) (16.1) 3.7 3.7 3.7 (34.9) (34.9) (34.9) (22.5)	(14.4) (14.4) 6.6 6.6 6.6 (35.8) (35.8) (35.8) (22.3)	(37.7) (37.7) (37.7) (17.6)	(37.5) (37.5) (37.5) (16.4)	(9.0) (9.0) (21.7 21.7 21.7 (34.5) (34.5) (34.5) (34.5) (17.8)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1) (31.1) (20.0)	(27.4) (27.4) (21.9)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2) (25.2) (25.2) (22.4)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3) (25.3) (22.0)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7) (26.7) (26.7) (26.7)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis SEK Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other SEK Basis Risks (Do not include the swa OIS Basis 1m Basis Agencies	(22.7) (22.7) (6.7) (6.7) (6.7) (6.7) (31.0) (31.0) (31.0) (22.0)	(32.2) (32.2) (32.2) (32.2) (22.5)	(18.2) (18.2) 0.3 0.3 ed above) (33.7) (33.7) (33.7) (22.5)	(16.1) (16.1) 3.7 3.7 3.7 (34.9) (34.9) (34.9) (22.5)	(14.4) (14.4) 6.6 6.6 6.6 (35.8) (35.8) (35.8) (22.3)	(37.7) (37.7) (37.7) (17.6)	(37.5) (37.5) (37.5) (16.4)	(9.0) (9.0) (21.7 21.7 21.7 (34.5) (34.5) (34.5) (34.5) (17.8)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1) (31.1) (20.0)	(27.4) (27.4) (21.9)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2) (25.2) (25.2) (22.4)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3) (25.3) (22.0)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7) (26.7) (26.7) (21.2)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis Im Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis SEK Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other SEK Basis Risks (Do not include the swa OIS Basis 1m Basis 1m Basis 3m Basis 3m Basis 6m Basis	(22.7) (22.7) (6.7) (6.7) (6.7) (6.7) (31.0) (31.0) (31.0) (22.0)	(32.2) (32.2) (32.2) (32.2) (22.5)	(18.2) (18.2) 0.3 0.3 ed above) (33.7) (33.7) (33.7) (22.5)	(16.1) (16.1) 3.7 3.7 3.7 (34.9) (34.9) (34.9) (22.5)	(14.4) (14.4) 6.6 6.6 6.6 (35.8) (35.8) (35.8) (22.3)	(37.7) (37.7) (37.7) (17.6)	(37.5) (37.5) (37.5) (16.4)	(9.0) (9.0) (21.7 21.7 21.7 (34.5) (34.5) (34.5) (34.5) (17.8)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1) (31.1) (20.0)	(27.4) (27.4) (21.9)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2) (25.2) (25.2) (22.4)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3) (25.3) (22.0)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7) (26.7) (26.7) (21.2)
Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis SEK Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other SEK Basis Risks (Do not include the swa OIS Basis 1m Basis Agencies	(22.7) (22.7) (6.7) (6.7) (6.7) (6.7) (31.0) (31.0) (31.0) (22.0)	(32.2) (32.2) (32.2) (32.2) (22.5)	(18.2) (18.2) 0.3 0.3 ed above) (33.7) (33.7) (33.7) (22.5)	(16.1) (16.1) 3.7 3.7 3.7 (34.9) (34.9) (34.9) (22.5)	(14.4) (14.4) 6.6 6.6 6.6 (35.8) (35.8) (35.8) (22.3)	(37.7) (37.7) (37.7) (17.6)	(37.5) (37.5) (37.5) (16.4)	(9.0) (9.0) (21.7 21.7 21.7 (34.5) (34.5) (34.5) (34.5) (17.8)	(9.8) (9.8) 21.6 21.6 21.6 (31.1) (31.1) (31.1) (20.0)	(27.4) (27.4) (21.9)	(11.2) (11.2) 18.7 18.7 (25.2) (25.2) (25.2) (25.2) (22.4)	(11.3) (11.3) 17.9 17.9 (25.3) (25.3) (25.3) (22.0)	(11.5) (11.5) (11.5) 17.1 17.1 (26.7) (26.7) (26.7) (21.2)

USD Directional Risks													
Governments	(40.0)	(40.0)	(39.5)	(39.0)	(39.0)	(38.7)	(38.6)	(38.5)	(38.5)	(38.5)	(38.5)	(34.6)	(30.8)
Agencies	(40.0)	(40.0)	(39.5)	(39.0)	(39.0)	(38.7)	(38.6)	(38.5)	(38.5)	(38.5)	(38.5)	(34.6)	(30.8)
Municipals	(40.0)	(40.0)	(39.5)	(39.0)	(39.0)	(38.7)	(38.6)	(38.5)	(38.5)	(38.5)	(38.5)	(34.6)	(30.8)
Swaps / Discounting Curve	(28.0)	(28.0)	(27.8)	(27.8)	(27.5)	(27.5)	(27.4)	(27.0)	(27.0)	(26.5)	(26.5)	(26.5)	(26.5)
Instruments shocked by MV**	, ,	, ,	, ,	, ,	, ,	, ,	, ,	, ,		, ,		, ,	, ,
Other	(28.0)	(28.0)	(27.8)	(27.8)	(27.5)	(27.5)	(27.4)	(27.0)	(27.0)	(26.5)	(26.5)	(26.5)	(26.5)
USD Basis Risks (Do not include the swap	/discounting	curso crocific	nd abovo)										
Prime Basis	(11.9)	(11.8)	(11.2)	(11.4)	(11.6)	(8.3)	(5.2)	(4.2)	(1.2)	(0.8)	(0.8)	(0.8)	(0.8)
CP Basis	(13.7)	(13.5)	(12.9)	(13.0)	(13.3)	(9.7)	(8.6)	(5.6)	(2.9)	(4.0)	(4.1)	(4.2)	(4.1)
OIS Basis	(16.7)	(16.5)	(16.0)	(15.8)	(15.5)	(15.4)	(8.0)	(6.0)	(3.8)	(3.5)	(3.5)	(3.5)	(3.5)
1m Basis	(20.0)	(18.7)	(15.6)	(11.4)	(10.2)	(5.7)	(3.8)	(1.5)	(0.4)	0.6	0.6	2.1	2.6
3m Basis	(20.0)	(10.7)	(13.0)	(22.1)	(10.2)	(3.7)	(5.5)	(2.3)	(5)	0.0	0.0		2.0
6m Basis	10.5	10.4	9.9	10.0	10.2	7.9	7.1	5.7	5.2	5.1	5.3	5.3	5.3
12m Basis	21.7	21.5	20.5	20.7	21.2	16.9	14.9	11.9	10.7	11.1	8.4	7.5	5.5
Other Basis			20.5	20.7		10.5	15		20.7			,.5	5.5
				1	1								
Absolute increase in Muni SIFMA/Libor	23.0	23.0	20.0	20.0	19.2	19.5	20.1	21.3	21.2	20.1	15.1	12.1	8.5
Ratio (Pts) Other Advanced Economies Directional R	lisks												
Governments	(40.0)	(40.0)	(39.5)	(39.0)	(39.0)	(38.7)	(38.6)	(38.5)	(38.5)	(38.5)	(38.5)	(34.6)	(30.8)
Agencies	(40.0)	(40.0)	(39.5)	(39.0)	(39.0)	(38.7)	(38.6)	(38.5)	(38.5)	(38.5)	(38.5)	(34.6)	(30.8)
Municipals	(40.0)	(40.0)	(39.5)	(39.0)	(39.0)	(38.7)	(38.6)	(38.5)	(38.5)	(38.5)	(38.5)	(34.6)	(30.8)
Swaps / Discounting Curve	(28.0)	(28.0)	(27.8)	(27.8)	(27.5)	(27.5)	(27.4)	(27.0)	(27.0)	(26.5)	(26.5)	(26.5)	(26.5)
Instruments shocked by MV**													
Other	(28.0)	(28.0)	(27.8)	(27.8)	(27.5)	(27.5)	(27.4)	(27.0)	(27.0)	(26.5)	(26.5)	(26.5)	(26.5)
Directional Risks: Emerging Europe BGN	47.8	47.9	48.2	48.5	48.8	49.7	50.1	49.4	46.9	41.6	32.9	26.3	18.7
CZK	(23.9)	(24.9)	(26.0)	(26.9)	(27.6)	(28.8)	(28.4)	(25.6)	(22.4)	(18.5)	(14.7)	(12.6)	(10.6)
HRK	47.8	47.9	48.2	48.5	48.8	49.7	50.1	49.4	46.9	41.6	32.9	26.3	18.7
HUF	47.8	47.9	48.2	48.5	48.8	49.7	50.1	49.4	46.9	41.6	32.9	26.3	18.7
PLN	(24.5)	(20.5)	(14.9)	(9.7)	(4.8)	12.0	24.8	41.8	51.3	57.4	58.3	55.7	49.9
RON	47.8	47.9	48.2	48.5	48.8	49.7	50.1	49.4	46.9	41.6	32.9	26.3	18.7
RUB	200.0	198.9	197.2	195.5	193.9	187.2	180.5	167.1	153.8	133.7	100.3	66.9	0.0
Other Emerging Europe	(23.9)	(24.9)	(26.0)	(26.9)	(27.6)	(28.8)	(28.4)	(25.6)	(22.4)	(18.5)	(14.7)	(12.6)	(10.6)
Directional Risks: Latin America & Caribb	ean												
ARS	200.0	198.9	197.2	195.5	193.9	187.2	180.5	167.1	153.8	133.7	100.3	66.9	0.0
BRL	200.0	198.9	197.2	195.5	193.9	187.2	180.5	167.1	153.8	133.7	100.3	66.9	0.0
CLP	12.0	10.4	8.5	7.1	6.0	4.2	3.8	3.5	2.8	1.4	(0.3)	(1.2)	(2.2)
COP	7.0	10.0	13.0	15.0	17.8	68.5	79.1	72.7	67.2	68.9	81.2	93.2	109.3
MXN	18.0	21.5	25.5	27.0	31.5	36.7	39.5	42.5	47.5	50.1	54.5	65.0	70.5
PEN	18.0	21.5	25.5	27.0	31.5	36.7	39.5	42.5	47.5	50.1	54.5	65.0	70.5
PEN VEF	18.0 200.0	21.5 198.9	25.5 197.2	27.0 195.5	31.5 193.9	36.7 187.2	39.5 180.5	42.5 167.1	47.5 153.8	50.1 133.7	54.5 100.3	65.0 66.9	0.0

Directional Risks: Asia Ex-Japan													
CNY	50.3	54.0	59.6	64.9	70.2	90.2	108.2	138.8	163.0	189.8	217.8	234.1	251.0
HKD	12.6	8.0	3.3	0.5	(1.1)	(2.3)	(2.0)	(2.9)	(4.6)	(6.4)	(8.1)	(8.9)	(9.7)
IDR	38.0	42.7	48.6	53.2	56.8	64.4	66.3	65.9	66.3	69.4	76.0	81.0	86.7
INR	38.0	42.7	48.6	53.2	56.8	64.4	66.3	65.9	66.3	69.4	76.0	81.0	86.7
KRW	11.1	13.1	15.9	18.4	20.7	28.0	33.1	39.1	41.9	43.7	44.4	44.4	44.4
MYR	55.3	59.4	65.6	71.4	77.2	99.2	119.0	152.7	179.3	208.8	239.6	257.5	276.1
PHP	50.3	54.0	59.6	64.9	70.2	90.2	108.2	138.8	163.0	189.8	217.8	234.1	251.0
SGD	(8.4)	(7.9)	(7.2)	(6.6)	(6.1)	(4.4)	(3.2)	(2.0)	(1.6)	(1.7)	(2.2)	(2.7)	(3.4)
ТНВ	38.0	42.7	48.6	53.2	56.8	64.4	66.3	65.9	66.3	69.4	76.0	81.0	86.7
TWD	11.1	13.1	15.9	18.4	20.7	28.0	33.1	39.1	41.9	43.7	44.4	44.4	44.4
Other Asia Ex-Japan	55.3	59.4	65.6	71.4	77.2	99.2	119.0	152.7	179.3	208.8	239.6	257.5	276.1
Directional Risks: Middle East/North Afri	C3												
ILS	(10.4)	(9.2)	(7.7)	(6.4)	(5.3)	(2.6)	(1.9)	(3.4)	(6.4)	(11.2)	(17.2)	(20.9)	(24.9)
TRY	11.7	10.8	11.0	11.5	11.5	12.5	13.7	21.5	24.9	27.4	29.4	30.3	31.3
Other Middle East/Africa	11.7	10.8	11.0	11.5	11.5	12.5	13.7	21.5	24.9	27.4	29.4	30.3	31.3
Directional Risks: Sub-Saharan Africa													
ZAR	(9.1)	(6.1)	(2.3)	0.8	3.2	8.5	10.2	10.3	10.0	10.1	10.8	11.3	11.8
Other Sub-Saharan Africa	(9.1)	(6.1)	(2.3)	0.8	3.2	8.5	10.2	10.3	10.0	10.1	10.8	11.3	11.8

Relative Normal Interest Rate Shocks

Rates Vega
Relative Normal Interest Rate Shocks (%)

								MATU	IRITY						
		1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	25Y	30Y
	AUD	1101	3141	Civi	3101			3.		, ,	101	13.		231	
	1M	13.4%	13.8%	13.8%	13.8%	14.2%	11.3%	9.6%	7.9%	6.7%	5.3%	4.8%	4.4%	4.1%	4.0%
	3M	12.2%	12.6%	12.6%	12.6%	12.9%	10.5%	9.2%	7.9%	6.7%	5.4%	4.8%	4.3%	4.0%	4.0%
	6M	11.6%	11.6%	11.6%	11.9%	11.9%	10.4%	9.4%	7.9%	6.8%	5.5%	4.7%	4.4%	4.1%	3.9%
	9M	10.8%	10.8%	10.8%	11.1%	11.1%	9.8%	8.9%	7.9%	6.9%	5.5%	4.9%	4.4%	4.1%	4.1%
	1Y	9.4%	9.6%	9.6%	9.6%	9.9%	8.9%	8.6%	7.6%	6.7%	5.4%	4.9%	4.4%	4.1%	3.9%
≿	2Y	7.1%	7.3%	7.3%	7.3%	7.3%	7.7%	7.3%	6.8%	5.9%	5.3%	4.5%	4.1%	3.8%	3.9%
EXPIRY	3Y	6.7%	6.7%	6.8%	6.8%	6.8%	6.6%	6.6%	5.8%	5.1%	4.8%	4.0%	3.5%	3.3%	3.4%
 	5Y	4.9%	4.9%	4.9%	5.1%	5.1%	4.9%	4.6%	4.0%	4.2%	3.6%	3.0%	2.8%	2.6%	2.7%
_	7Y	3.4%	3.4%	3.4%	3.5%	3.5%	3.2%	3.2%	3.7%	3.4%	3.0%	2.4%	2.1%	2.2%	2.2%
	10Y	4.2%	4.2%	4.2%	4.2%	4.2%	4.1%	3.2%	3.4%	2.6%	2.5%	2.0%	1.7%	1.8%	1.7%
	15Y	2.9%	2.9%	2.9%	2.9%	2.9%	2.7%	2.8%	2.5%	2.2%	1.9%	1.5%	1.5%	1.5%	1.3%
	20Y	2.6%	2.6%	2.6%	2.6%	2.6%	2.5%	2.5%	2.3%	2.0%	1.8%	1.7%	1.6%	1.5%	1.6%
	30Y	3.6%	3.6%	3.6%	3.6%	3.6%	3.7%	3.5%	3.5%	3.0%	2.6%	2.1%	1.9%	1.6%	1.7%
		0.07.		0.07.	0.07.				0.0,	0.0,1					
	EUR														
	1M	25.7%	26.5%	26.5%	26.5%	27.2%	24.0%	16.7%	10.6%	9.1%	8.3%	7.6%	7.3%	7.0%	7.0%
	3M	24.6%	25.4%	25.4%	25.4%	26.1%	22.2%	15.9%	10.3%	8.9%	8.1%	7.4%	6.9%	6.6%	6.5%
	6M	20.0%	20.7%	20.7%	20.7%	21.3%	15.9%	12.2%	9.0%	7.9%	7.1%	6.4%	6.3%	6.0%	6.0%
	9M	16.6%	17.1%	17.1%	17.1%	17.6%	13.2%	10.7%	8.2%	7.4%	6.5%	5.8%	5.8%	5.4%	5.3%
	1Y	13.4%	13.9%	13.9%	13.9%	14.3%	10.7%	8.9%	7.3%	6.6%	5.8%	5.1%	5.0%	4.6%	4.5%
<u></u>	2Y	7.9%	8.2%	8.2%	8.2%	8.5%	7.3%	6.7%	6.1%	5.6%	5.1%	4.5%	4.4%	4.1%	3.9%
1 ≝	3Y	5.6%	5.8%	5.8%	5.8%	6.0%	5.6%	5.4%	5.1%	4.8%	4.4%	3.8%	3.7%	3.4%	3.3%
EXPIRY	5Y	4.1%	4.2%	4.2%	4.2%	4.4%	4.4%	4.4%	4.3%	4.0%	3.6%	3.2%	3.1%	2.8%	2.7%
_	7Y	3.7%	3.7%	3.7%	3.9%	3.9%	3.7%	3.6%	3.4%	3.1%	2.7%	2.3%	2.0%	1.9%	1.7%
	10Y	3.2%	3.2%	3.2%	3.2%	3.2%	3.0%	3.1%	2.8%	2.4%	2.1%	1.9%	1.8%	1.5%	1.6%
	15Y	2.6%	2.6%	2.6%	2.7%	2.7%	2.8%	2.9%	2.8%	2.7%	2.4%	2.0%	2.0%	1.6%	1.7%
	20Y	2.6%	2.6%	2.8%	2.8%	2.8%	3.0%	3.0%	2.8%	2.7%	2.4%	2.2%	1.9%	1.8%	1.6%
	30Y	2.7%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.0%	2.9%	2.5%	2.3%	2.0%	2.1%	1.9%
	30.	2.770	2.370	2.370	2.370	2.370	3.170	3.170	3.070	2.370	2.370	2.570	2.070	2.170	
	GBP														
	1M	14.9%	15.3%	15.3%	15.7%	15.7%	10.8%	9.3%	7.6%	7.1%	6.6%	6.1%	5.7%	5.6%	5.4%
	3M	13.6%	13.6%	13.6%	13.9%	13.9%	10.2%	9.0%	7.5%	7.1%	6.6%	6.0%	5.8%	5.6%	5.5%
	6M	11.9%	11.9%	12.2%	12.2%	12.5%	9.8%	8.5%	7.4%	6.9%	6.5%	6.0%	5.8%	5.6%	5.5%
	9M	10.4%	10.4%	10.7%	10.7%	10.9%	9.1%	8.2%	7.4%	6.9%	6.5%	6.0%	5.9%	5.6%	5.6%
	1Y	9.9%	9.9%	10.1%	10.1%	10.3%	9.0%	8.1%	7.4%	7.0%	6.6%	6.1%	5.8%	5.6%	5.6%
≿	2Y	8.0%	8.0%	8.2%	8.2%	8.2%	7.8%	7.5%	7.1%	6.7%	6.6%	6.2%	5.9%	5.7%	5.5%
EXPIRY	3Y	6.9%	7.0%	7.0%	7.2%	7.2%	7.1%	6.9%	6.7%	6.6%	6.4%	6.0%	5.7%	5.5%	5.4%
=	5Y	5.9%	5.9%	5.9%	6.0%	6.0%	6.2%	6.2%	6.2%	6.0%	5.8%	5.4%	5.2%	5.0%	4.9%
	7Y	5.3%	5.3%	5.3%	5.4%	5.4%	5.6%	5.6%	5.6%	5.6%	5.4%	5.0%	4.8%	4.6%	4.5%
	10Y	4.8%	4.8%	4.9%	4.9%	4.9%	5.3%	5.3%	5.4%	5.2%	4.9%	4.6%	4.4%	4.2%	4.2%
	15Y	4.6%	4.6%	4.6%	4.8%	4.8%	4.9%	5.0%	5.1%	5.1%	4.7%	4.4%	4.3%	4.1%	4.0%
	20Y	4.7%	4.7%	4.8%	4.8%	4.8%	5.0%	5.1%	5.1%	5.1%	4.7%	4.4%	4.2%	4.2%	4.2%
	30Y	5.0%	5.0%	5.0%	5.0%	5.0%	5.3%	5.4%	5.5%	5.2%	5.0%	4.7%	4.5%	4.5%	4.5%
	JPY														
	1M	20.5%	20.5%	20.5%	20.5%	20.5%	17.1%	15.5%	13.2%	12.3%	10.6%	9.5%	10.8%	12.6%	14.4%
	3M	19.7%	19.7%	19.7%	18.4%	18.4%	17.5%	14.8%	12.7%	11.6%	9.8%	9.1%	9.9%	12.1%	13.8%
	6M	18.9%	18.9%	18.9%	18.9%	18.9%	16.4%	15.1%	11.9%	10.9%	9.2%	8.5%	9.4%	11.1%	12.7%
	9M	17.9%	17.9%	17.9%	17.9%	17.9%	15.5%	13.6%	12.2%	9.8%	8.2%	8.1%	8.9%	10.1%	11.7%
	1Y	17.4%	17.4%	16.4%	16.4%	16.4%	14.1%	12.4%	11.8%	9.4%	7.9%	7.8%	8.5%	9.6%	10.8%
₹	2Y	14.6%	14.6%	14.6%	14.6%	13.8%	12.5%	11.1%	9.1%	7.9%	6.2%	6.8%	7.4%	8.1%	9.1%
_ =	3Y	13.6%	12.9%	12.9%	12.9%	12.9%	11.1%	9.8%	7.9%	6.7%	5.4%	6.1%	6.6%	6.9%	7.9%
Ä	5Y	10.6%	10.6%	10.0%	10.0%	10.0%	9.1%	7.6%	6.2%	5.3%	4.8%	5.2%	5.3%	5.9%	6.5%
	7Y	7.9%	7.9%	7.9%	7.5%	7.5%	6.9%	6.2%	5.3%	4.7%	4.1%	4.5%	4.7%	5.0%	5.5%
	10Y	6.5%	6.1%	6.1%	6.1%	6.1%	5.6%	5.1%	4.6%	3.9%	3.7%	4.2%	4.6%	4.9%	5.1%
	15Y	5.1%	5.1%	5.1%	4.8%	4.8%	4.5%	4.4%	3.6%	3.2%	3.1%	3.6%	4.0%	4.2%	4.5%
	20Y	4.2%	4.2%	4.2%	4.2%	4.2%	3.9%	3.8%	3.4%	3.4%	3.1%	3.3%	3.6%	3.8%	4.1%
	30Y	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.8%	3.7%	3.6%	3.6%	3.8%	4.1%	4.3%	4.6%
	50.	3.570	3.570	3.570	3.570	3.570	3.570	3.070	3.770	3.070	3.070	3.070	7.1/0	4.570	4.070

Relative Normal Interest Rate Shocks (Continued)

	USD														
	1M	12.5%	12.5%	12.3%	12.3%	12.0%	9.6%	8.0%	6.7%	6.1%	5.7%	5.0%	4.7%	4.7%	4.6%
	3M 6M	12.8%	12.5% 11.1%	12.5% 11.1%	12.3%	12.3%	9.4% 8.3%	8.2%	6.9%	6.5% 6.1%	5.9% 5.6%	5.3%	4.9%	4.8% 4.6%	4.7% 4.5%
	9M	11.3% 9.7%	9.7%	9.5%	10.9%	10.9% 9.3%	7.7%	7.3% 6.9%	6.5% 6.2%			5.0%	4.7% 4.8%	4.6%	4.5%
	1Y	8.5%	9.7% 8.5%	9.5% 8.4%	9.5% 8.4%	9.3% 8.2%	7.7%	6.5%	5.9%	5.8% 5.5%	5.3% 5.1%	5.0% 4.6%	4.4%	4.8%	4.5%
>	2Y	6.6%	6.6%	6.5%	6.5%	6.4%	5.7%	5.5%	5.2%	4.9%	4.5%	4.0%	3.8%	3.7%	3.6%
EXPIRY	3Y	5.9%	5.8%	5.7%	5.7%	5.5%	5.1%	5.0%	4.6%	4.3%	3.8%	3.4%	3.2%	3.1%	3.0%
× ×	5Y	5.0%	5.0%	4.9%	4.8%	4.7%	4.4%	4.1%	3.8%	3.3%	3.0%	2.6%	2.4%	2.2%	2.1%
ш	7Y	4.4%	4.4%	4.3%	4.2%	4.1%	3.9%	3.6%	3.2%	2.8%	2.4%	2.1%	1.9%	1.7%	1.6%
	10Y	4.1%	4.1%	4.0%	3.9%	3.9%	3.5%	3.3%	2.8%	2.5%	2.1%	1.8%	1.5%	1.4%	1.2%
	15Y	3.9%	3.9%	3.7%	3.6%	3.6%	3.2%	3.0%	2.5%	2.2%	1.9%	1.5%	1.2%	1.2%	1.0%
	20Y	3.8%	3.8%	3.7%	3.5%	3.5%	3.1%	2.9%	2.6%	2.1%	1.7%	1.4%	1.1%	0.9%	0.9%
	30Y	3.9%	3.9%	3.8%	3.8%	3.6%	3.3%	3.0%	2.5%	2.1%	1.6%	1.3%	0.9%	0.7%	0.7%
	US MBS Vega Other Advan	ced Econom					I	T							T
1	1M	13.4%	13.8%	13.8%	13.8%	14.2%	11.3%	9.6%	7.9%	6.7%	5.3%	4.8%	4.4%	4.1%	4.0%
	3M	12.2%	12.6%	12.6%	12.6%	12.9%	10.5%	9.2%	7.9%	6.7%	5.4%	4.8%	4.3%	4.0%	4.0%
	6M	11.6%	11.6%	11.6%	11.9%	11.9%	10.4%	9.4%	7.9%	6.8%	5.5%	4.7%	4.4%	4.1%	3.9%
	9M 1Y	10.8% 9.4%	10.8%	10.8%	11.1%	11.1% 9.9%	9.8% 8.9%	8.9% 8.6%	7.9% 7.6%	6.9%	5.5% 5.4%	4.9% 4.9%	4.4% 4.4%	4.1% 4.1%	4.1% 3.9%
>			9.6%	9.6%	9.6%					6.7%					
EXPIRY	2Y 3Y	7.1% 6.7%	7.3% 6.7%	7.3% 6.8%	7.3% 6.8%	7.3% 6.8%	7.7% 6.6%	7.3% 6.6%	6.8% 5.8%	5.9% 5.1%	5.3% 4.8%	4.5% 4.0%	4.1% 3.5%	3.8%	3.9% 3.4%
Α	5Y	4.9%	4.9%	4.9%	5.1%	5.1%	4.9%	4.6%	4.0%	4.2%	3.6%	3.0%	2.8%	2.6%	2.7%
ш	7Y	3.4%	3.4%	3.4%	3.5%	3.5%	3.2%	3.2%	3.7%		3.0%	2.4%	2.1%	2.2%	2.7%
			4.2%							3.4%					
	10Y 15Y	4.2% 2.9%	2.9%	4.2% 2.9%	4.2% 2.9%	4.2% 2.9%	4.1% 2.7%	3.2% 2.8%	3.4% 2.5%	2.6% 2.2%	2.5% 1.9%	2.0% 1.5%	1.7% 1.5%	1.8% 1.5%	1.7% 1.3%
	20Y	2.6%	2.6%	2.6%	2.6%	2.6%	2.7%	2.5%	2.3%	2.2%	1.8%	1.7%	1.6%	1.5%	1.6%
	30Y	3.6%	3.6%	3.6%	3.6%	3.6%	3.7%	3.5%	3.5%	3.0%	2.6%	2.1%	1.9%	1.6%	1.7%
	30.	3.070	3.070	3.070	3.070	3.070	3.770	3.370	3.370	3.070	2.070	2.170	1.570	1.070	1.770
	Total Emergi	ng Europe													
	1M	7.1%	6.9%	6.9%	6.9%	6.9%	8.2%	8.4%	8.6%	8.7%	8.2%	8.4%	9.2%	9.3%	9.5%
	3M	7.6%	7.6%	7.6%	7.5%	7.5%	8.4%	8.3%	8.3%	8.5%	8.1%	8.3%	9.0%	9.2%	9.3%
	6M	8.4%	8.4%	8.3%	8.3%	8.3%	8.7%	8.3%	8.1%	8.3%	7.7%	7.9%	8.7%	8.8%	8.9%
	9M	8.7%	8.7%	8.6%	8.6%	8.4%	8.7%	8.2%	7.9%	7.9%	7.2%	7.7%	8.3%	8.3%	8.4%
_	1Y	8.8%	8.8%	8.8%	8.6%	8.6%	8.6%	8.0%	7.6%	7.6%	6.9%	7.4%	8.2%	8.0%	8.1%
~	2Y	8.3%	8.3%	8.2%	8.0%	8.0%	7.8%	7.3%	6.8%	6.6%	5.9%	6.4%	7.1%	7.0%	6.9%
EXPIRY	3Y	8.0%	7.8%	7.8%	7.7%	7.5%	7.4%	6.7%	6.1%	5.9%	5.1%	5.6%	6.2%	6.0%	6.0%
ш	5Y	7.6%	7.4%	7.4%	7.2%	7.1%	7.1%	6.4%	5.6%	4.9%	4.4%	4.5%	5.0%	5.0%	5.2%
	7Y	6.8%	6.8%	6.7%	6.7%	6.5%	6.3%	6.1%	5.1%	4.4%	3.9%	4.0%	4.5%	4.6%	4.6%
	10Y 15Y	5.7% 4.4%	5.7% 4.4%	5.5% 4.4%	5.5% 4.2%	5.5% 4.2%	5.3% 4.1%	5.0% 3.9%	4.2% 3.4%	3.8%	3.5% 3.1%	3.8% 3.5%	4.2% 3.8%	4.1% 3.8%	4.3% 3.8%
	20Y	3.6%	3.6%	3.4%	3.4%	3.4%	3.5%	3.5%	3.4%	3.1%	3.1%	3.2%	3.6%	3.6%	3.8%
	30Y	2.8%	2.8%	2.8%	2.8%	2.8%	3.0%	3.0%	3.1%	3.1%	2.9%	3.0%	3.4%	3.5%	3.6%
	Total Latam	& Caribbean													
	1M	16.6%	16.5%	16.5%	16.4%	16.4%	14.4%	13.8%	11.5%	12.7%	12.8%	12.1%	12.4%	12.2%	12.3%
	3M	16.3%	16.3%	16.2%	16.1%	16.1%	13.9%	13.2%	11.1%	12.2%	12.4%	12.0%	12.4%	12.3%	12.3%
	6M	18.3%	18.4%	18.3%	18.2%	17.9%	16.4%	16.9%	14.6%	12.2%	10.7%	10.6%	11.0%	10.7%	10.7%
	9M	17.2%	17.2%	17.1%	17.0%	16.8%	16.1%	15.8%	12.8%	11.9%	9.9%	10.0%	10.4%	10.2%	10.1%
>	1Y 2Y	15.5% 11.7%	15.5% 11.6%	15.5% 11.5%	15.3% 11.4%	15.1% 11.4%	15.9% 12.1%	14.5% 11.9%	11.0% 10.1%	11.4% 9.6%	8.9% 7.9%	9.1% 8.3%	9.6% 8.9%	9.3% 8.6%	9.2% 8.4%
~	2Y 3Y	11.7%	11.6%	11.5%	11.4%	11.4%	12.1%	11.9%	9.0%	9.6% 8.2%	7.9%	7.3%	7.8%	7.6%	8.4% 7.5%
EXPIRY	5Y	12.4%	12.3%	12.1%	11.1%	11.0%	11.4%	9.5%	7.9%	6.6%	7.0% 5.9%	5.9%	6.4%	6.4%	6.5%
ш	7Y	11.0%	10.8%	10.7%	10.5%	10.3%	9.6%	8.5%	7.1%	5.9%	5.2%	5.1%	5.5%	5.5%	5.7%
	10Y	9.2%	9.2%	9.1%	8.9%	8.7%	8.2%	7.3%	6.6%	5.4%	4.5%	4.7%	5.1%	5.1%	5.4%
		6.7%													
١												1 72%			
	15Y 20Y	5.1%	6.5% 5.1%	6.5% 5.1%	6.3% 5.0%	6.3% 5.0%	5.8% 4.8%	5.3% 4.5%	4.7% 4.4%	4.1% 4.3%	3.8% 3.7%	4.2% 3.8%	4.6% 4.4%	4.6% 4.5%	4.7% 4.6%

Relative Normal Interest Rate Shocks (Continued)

20Y

30Y

4.8%

3.9%

4.8%

3.9%

4.8%

3.9%

4.8%

3.9%

					`		,								
	Total Asia Ex-	-Japan													
	1M	55.3%	55.3%	55.6%	56.0%	56.6%	49.2%	42.1%	34.8%	33.4%	29.8%	29.1%	30.7%	30.8%	31.3%
	3M	47.4%	47.4%	47.4%	47.7%	48.0%	43.5%	38.8%	33.5%	32.8%	28.9%	28.5%	30.2%	30.5%	31.3%
	6M	46.5%	46.5%	46.5%	46.5%	46.5%	41.9%	37.1%	32.0%	30.5%	26.3%	27.0%	28.4%	28.2%	28.2%
	9M	43.9%	43.9%	43.9%	43.6%	43.6%	39.3%	35.0%	30.2%	28.9%	24.5%	26.0%	28.0%	27.5%	26.7%
	1Y	41.3%	41.0%	41.0%	40.8%	40.5%	37.2%	33.0%	28.7%	27.0%	22.6%	25.5%	26.3%	25.5%	24.5%
۳×	2Y	35.0%	34.7%	34.7%	34.5%	34.5%	31.0%	27.8%	24.2%	22.9%	19.2%	21.2%	22.2%	20.7%	19.6%
Ы	3Y	31.6%	31.4%	31.1%	30.9%	30.7%	27.4%	24.6%	20.6%	19.1%	16.7%	17.0%	18.4%	17.9%	17.7%
EXPIR	5Y	27.3%	27.1%	26.6%	26.2%	25.7%	23.1%	20.6%	16.8%	15.0%	13.2%	13.2%	14.2%	14.0%	14.5%
	7Y	22.5%	22.2%	21.8%	21.4%	20.9%	19.7%	17.8%	15.2%	13.2%	11.8%	11.7%	12.5%	12.2%	12.7%
	10Y	18.4%	18.1%	17.9%	17.5%	17.3%	16.6%	15.5%	13.2%	11.1%	10.0%	10.5%	11.3%	11.0%	11.5%
	15Y	13.2%	12.9%	12.9%	12.7%	12.5%	12.0%	11.3%	9.4%	8.7%	8.3%	8.7%	9.8%	9.6%	9.9%
	20Y	10.4%	10.4%	10.4%	10.1%	10.1%	10.0%	9.7%	8.5%	8.3%	7.4%	7.6%	8.9%	8.8%	9.1%
	30Y	8.9%	8.5%	8.5%	8.5%	8.2%	8.2%	7.8%	7.5%	7.6%	6.8%	7.4%	8.0%	8.2%	8.5%
	Total ME/N	A frica													
	Total ME/N.	6.9%	6.9%	6.9%	6.9%	6.9%	6.2%	6.6%	7.7%	9.1%	9.4%	9.4%	10.0%	9.8%	9.9%
	3M	6.3%	6.3%	6.3%	6.3%	6.3%	5.9%	6.4%	7.6%	8.7%	9.0%	9.1%	9.8%	9.6%	9.5%
	6M	6.0%	6.0%	6.0%	6.0%	6.0%	6.2%	6.2%	7.5%	8.5%	8.5%	8.7%	9.3%	9.1%	9.0%
	9M	5.9%	5.9%	5.9%	5.4%	5.4%	6.0%	6.1%	7.2%	8.1%	7.9%	8.3%	8.9%	8.8%	8.7%
	1Y	5.8%	5.8%	5.4%	5.4%	5.4%	5.9%	6.0%	7.2%	7.9%	7.5%	8.0%	8.6%	8.3%	8.2%
>	2Y	5.9%	5.9%	5.9%	5.9%	5.6%	5.8%	6.2%	6.5%	7.0%	6.3%	6.7%	7.3%	7.0%	6.8%
- R	3Y	6.4%	6.2%	6.2%	6.0%	6.0%	6.5%	6.5%	6.3%	6.4%	5.5%	5.7%	6.3%	6.2%	6.1%
EXPIRY	5Y	8.2%	8.0%	8.0%	7.9%	7.8%	7.3%	6.9%	6.1%	5.4%	4.7%	4.7%	5.1%	5.0%	5.2%
ш	7Y	8.2%	8.1%	7.9%	7.8%	7.7%	7.3%	6.8%	5.6%	4.6%	4.2%	4.2%	4.4%	4.5%	4.6%
	10Y	6.3%	6.3%	6.2%	6.1%	6.1%	5.7%	5.2%	4.5%	3.8%	3.5%	3.7%	3.9%	4.1%	4.2%
	15Y	4.5%	4.4%	4.4%	4.3%	4.2%	4.1%	3.8%	3.4%	2.9%	2.9%	3.3%	3.6%	3.7%	3.7%
	20Y	3.5%	3.5%	3.5%	3.5%	3.4%	3.4%	3.3%	3.1%	3.0%	2.9%	3.0%	3.4%	3.5%	3.6%
	30Y	3.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.0%	3.3%	3.3%	3.2%	3.3%	3.4%	3.8%	3.9%
	Total Sub-Sa					•		•				!			,
	1M	27.0%	27.0%	26.8%	26.6%	26.4%	19.8%	18.0%	15.4%	14.5%	13.1%	11.0%	11.4%	11.2%	11.9%
	3M	19.9%	19.7%	19.5%	19.5%	19.3%	16.3%	15.0%	13.4%	12.7%	11.3%	10.6%	11.4%	10.8%	11.5%
	6M	16.1%	16.1%	16.0%	15.9%	15.7%	13.7%	12.6%	12.7%	12.2%	10.8%	10.5%	10.7%	10.8%	11.4%
	9M	14.8%	14.8%	14.6%	14.5%	14.4%	14.3%	12.9%	12.4%	11.9%	10.3%	10.2%	10.5%	10.6%	11.1%
	1Y	14.5%	14.4%	14.3%	14.1%	14.0%	14.5%	13.1%	12.0%	11.6%	9.8%	9.8%	10.3%	10.3%	10.6%
≿	2Y	13.1%	13.0%	12.8%	12.7%	12.5%	11.6%	10.7%	9.8%	9.4%	8.0%	8.5%	9.0%	9.0%	9.2%
9 6	3Y	11.2%	11.1%	11.0%	10.8%	10.6%	10.2%	9.4%	8.3%	7.8%	6.8%	7.3%	7.9%	8.0%	7.7%
EXPIRY	5Y	9.6%	9.5%	9.4%	9.2%	9.0%	8.7%	7.9%	6.7%	6.0%	5.3%	5.4%	5.9%	5.9%	6.0%
	7Y	9.0%	9.0%	8.8%	8.7%	8.5%	7.9%	7.3%	6.2%	5.5%	5.2%	5.2%	5.7%	5.7%	5.9%
	10Y	7.7%	7.6%	7.5%	7.4%	7.3%	6.9%	6.5%	5.6%	4.7%	4.4%	4.7%	5.1%	5.1%	5.4%
	15Y	5.5%	5.4%	5.4%	5.3%	5.3%	4.7%	4.9%	4.0%	3.5%	3.7%	4.1%	4.5%	4.5%	4.7%
	25.	3.370	3.470	3.470	3.370	3.370	7.770	7.570	7.070	3.370	3.770	7.1/0	4.570	7.570	7.770

4.3%

3.9%

4.7%

3.9%

4.4%

4.1%

4.0%

4.0%

3.9%

3.9%

3.7%

3.8%

3.8%

3.8%

4.4%

4.3%

4.4%

4.5%

4.6%

4.4%

Absolute Normal Interest Rate Shocks

Rates Vega
Absolute Normal Interest Rate Shocks (bps)

		1M	3M	6M	9M	1Y	2Y	MATU 3Y	JRITY 5Y	7Y	10Y	15Y	20Y	25Y	30Y
	AUD	TIVI	3141	Olvi	Sivi		21	31	31	, , , , , , , , , , , , , , , , , , ,	101	131	201	231	301
	1M	3.4	3.5	3.5	3.5	3.6	3.6	3.6	3.5	3.3	3.0	2.6	2.4	2.2	2.1
	3M	3.5	3.6	3.6	3.6	3.7	3.7	3.7	3.6	3.4	3.1	2.7	2.4	2.2	2.1
	6M	3.7	3.7	3.7	3.8	3.8	3.9	3.9	3.7	3.5	3.2	2.7	2.5	2.3	2.1
	9M	3.8	3.8	3.8	3.9	3.9	4.0	3.9	3.8	3.6	3.2	2.8	2.5	2.3	2.2
	1Y	3.8	3.9	3.9	3.9	4.0	4.0	4.0	3.8	3.6	3.2	2.8	2.5	2.3	2.1
EXPIRY	2Y	3.8	3.9	3.9	3.9	3.9	4.0	3.9	3.7	3.5	3.1	2.6	2.3	2.1	2.0
	3Y	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.4	3.2	2.8	2.3	2.0	1.8	1.7
<u> </u>	5Y	3.0	3.0	3.0	3.1	3.1	3.0	3.0	2.7	2.5	2.1	1.7	1.5	1.3	1.2
	7Y	2.5	2.5	2.5	2.6	2.6	2.5	2.4	2.2	2.0	1.7	1.3	1.1	1.0	0.9
	10Y	2.1	2.1	2.1	2.1	2.1	2.0	2.0	1.8	1.5	1.3	1.0	0.8	0.7	0.6
	15Y	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.4	1.2	1.0	0.7	0.6	0.5	0.4
	20Y	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.2	1.0	0.8	0.6	0.5	0.4	0.4
	30Y	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.1	0.9	0.7	0.5	0.4	0.3	0.3
	EUR	2.4	2.5	2.5	2.5	2.6	2.6	2.6	2.5		2.0	2.6	2.4	2.2	
	1M 3M	3.4 3.5	3.5 3.6	3.5 3.6	3.5 3.6	3.6 3.7	3.6 3.7	3.6 3.7	3.5 3.6	3.3 3.4	3.0	2.6 2.7	2.4	2.2	2.1 2.1
	6M	3.3	3.6	3.6	3.6	3.7	3.7	3.7	3.6	3.4	2.9	2.7	2.4	2.2	2.1
	9M	3.2	3.3	3.3	3.3	3.4	3.4	3.4	3.3	3.1	2.8	2.4	2.4	2.2	2.0
	1Y	3.0	3.1	3.1	3.1	3.2	3.2	3.2	3.1	2.9	2.6	2.2	2.1	1.9	1.8
≿	2Y	3.0	3.1	3.1	3.1	3.2	3.2	3.2	3.1	2.9	2.6	2.2	2.1	1.9	1.8
EXPIRY	3Y	2.8	2.9	2.9	2.9	3.0	3.0	3.0	2.9	2.7	2.4	2.0	1.9	1.7	1.6
	5Y	2.6	2.7	2.7	2.7	2.8	2.8	2.8	2.7	2.5	2.2	1.8	1.7	1.5	1.4
	7Y	2.5	2.5	2.5	2.6	2.6	2.5	2.4	2.2	2.0	1.7	1.3	1.1	1.0	0.9
	10Y	2.1	2.1	2.1	2.1	2.1	2.0	2.0	1.8	1.5	1.3	1.1	1.0	0.8	0.8
	15Y	1.6	1.6	1.6	1.7	1.7	1.7	1.8	1.7	1.6	1.4	1.1	1.0	0.8	0.8
	20Y	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.6	1.5	1.3	1.1	0.9	0.8	0.7
	30Y	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.5	1.4	1.2	1.0	0.8	0.8	0.7
	GBP			1	1							1			
	1M	3.9	4.0	4.0	4.1	4.1	4.2	4.3	4.2	4.1	3.9	3.6	3.3	3.2	3.0
	3M	4.1	4.1	4.1	4.2	4.2	4.3	4.4	4.3	4.2	4.0	3.6	3.4	3.2	3.1
	6M 9M	4.2 4.3	4.2 4.3	4.3 4.4	4.3 4.4	4.4 4.5	4.5	4.5 4.6	4.5 4.6	4.3 4.4	4.1 4.2	3.7 3.8	3.5 3.6	3.3 3.4	3.2 3.3
	1Y	4.3	4.4	4.4	4.4	4.6	4.6 4.7	4.6	4.6	4.4	4.2	3.8	3.6	3.4	3.3
>	2Y	4.6	4.6	4.7	4.7	4.7	4.8	4.9	4.8	4.6	4.4	4.0	3.7	3.5	3.3
EXPIRY	3Y	4.5	4.6	4.6	4.7	4.7	4.8	4.8	4.7	4.6	4.3	3.9	3.6	3.4	3.3
 	5Y	4.3	4.3	4.3	4.4	4.4	4.5	4.5	4.4	4.2	3.9	3.5	3.3	3.1	3.0
	7Y	4.0	4.0	4.0	4.1	4.1	4.1	4.1	4.0	3.9	3.6	3.2	3.0	2.8	2.7
	10Y	3.6	3.6	3.7	3.7	3.7	3.8	3.8	3.7	3.5	3.2	2.9	2.7	2.5	2.4
	15Y	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.3	3.2	2.9	2.6	2.4	2.2	2.1
	20Y	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.1	3.0	2.7	2.4	2.2	2.1	2.0
	30Y	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.0	2.8	2.6	2.3	2.1	2.0	1.9
	JPY		•										•		
	1M	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.4	1.7	1.7	1.8	2.4	2.8	3.2
	3M	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.4	1.7	1.7	1.8	2.3	2.8	3.2
	6M	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.7	1.7	1.8	2.3	2.7	3.1
	9M	1.6	1.6	1.6	1.6	1.6	1.5	1.4	1.5	1.6	1.6	1.8	2.3	2.6	3.0
_	1Y	1.7	1.7	1.6	1.6	1.6	1.5	1.4	1.5	1.6	1.6	1.8	2.3	2.6	2.9
I R	2Y	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.4	1.5	1.4	1.7	2.1	2.3	2.6
EXPI	3Y	1.9	1.8	1.8	1.8	1.8	1.6	1.5	1.4	1.4	1.3	1.6	2.0	2.1	2.4
ш	5Y	1.9	1.9	1.8	1.8	1.8	1.7	1.5	1.4	1.3	1.3	1.5	1.7	1.9	2.1
	7Y 10Y	1.8 1.8	1.8 1.7	1.8 1.7	1.7 1.7	1.7 1.7	1.6	1.5 1.5	1.4	1.3 1.2	1.2	1.4 1.4	1.6 1.6	1.7 1.7	1.9 1.8
	10Y 15Y	1.8	1.7	1.7	1.7	1.7	1.6	1.5	1.4	1.2	1.1	1.4		1.7	1.8
	20Y	1.6	1.6	1.6	1.5	1.5	1.4	1.4	1.3	1.1	1.1	1.3	1.5 1.5	1.6	1.7
	30Y	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.5	1.7	1.8	1.7
	301	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.3	1./	1.0	1.5

Absolute Normal Interest Rate Shocks (Continued)

	USD														
	1M	5.0	5.0	4.9	4.9	4.8	4.7	4.5	4.2	3.9	3.7	3.3	3.1	3.0	2.9
ŀ	3M	5.1	5.0	5.0	4.9	4.9	4.7	4.6	4.2	4.0	3.7	3.3	3.1	3.0	2.9
H															
ŀ	6M	5.2	5.1	5.1	5.0	5.0	4.8	4.6	4.3	4.0	3.7	3.3	3.1	3.0	2.9
l l	9M	5.2	5.2	5.1	5.1	5.0	4.8	4.6	4.3	4.0	3.6	3.3	3.1	3.0	2.9
	1Y	5.2	5.2	5.1	5.1	5.0	4.8	4.6	4.2	3.9	3.6	3.2	3.0	2.9	2.8
EXPIRY	2Y	5.1	5.1	5.0	5.0	4.9	4.6	4.4	4.0	3.7	3.3	2.9	2.7	2.6	2.5
_	3Y	4.9	4.8	4.7	4.7	4.6	4.3	4.1	3.6	3.3	2.9	2.5	2.3	2.2	2.1
Ä	5Y	4.2	4.2	4.1	4.0	3.9	3.7	3.4	3.0	2.6	2.3	1.9	1.7	1.6	1.5
	7Y	3.7	3.7	3.6	3.5	3.4	3.2	2.9	2.5	2.2	1.8	1.5	1.3	1.2	1.1
	10Y	3.2	3.2	3.1	3.0	3.0	2.7	2.5	2.1	1.8	1.5	1.2	1.0	0.9	0.8
	15Y	2.8	2.8	2.7	2.6	2.6	2.3	2.1	1.7	1.5	1.2	0.9	0.7	0.7	0.6
l	20Y	2.6	2.6	2.5	2.4	2.4	2.1	1.9	1.6	1.3	1.0	0.8	0.6	0.5	0.5
ľ	30Y	2.4	2.4	2.3	2.3	2.2	2.0	1.8	1.4	1.2	0.9	0.7	0.5	0.4	0.4
	US MBS Vega Other Advan														
	1M	3.4	3.5	3.5	3.5	3.6	3.6	3.6	3.5	3.3	3.0	2.6	2.4	2.2	2.1
	3M	3.5	3.6	3.6	3.6	3.7	3.7	3.7	3.6	3.4	3.1	2.7	2.4	2.2	2.1
	6M	3.7	3.7	3.7	3.8	3.8	3.9	3.9	3.7	3.5	3.2	2.7	2.5	2.3	2.1
	9M	3.8	3.8	3.8	3.9	3.9	4.0	3.9	3.8	3.6	3.2	2.8	2.5	2.3	2.2
	1Y	3.8	3.9	3.9	3.9	4.0	4.0	4.0	3.8	3.6	3.2	2.8	2.5	2.3	2.1
EXPIRY	2Y	3.8	3.9	3.9	3.9	3.9	4.0	3.9	3.7	3.5	3.1	2.6	2.3	2.1	2.0
=	3Y	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.4	3.2	2.8	2.3	2.0	1.8	1.7
$\overline{\mathbf{x}}$	5Y	3.0	3.0	3.0	3.1	3.1	3.0	3.0	2.7	2.5	2.1	1.7	1.5	1.3	1.2
	7Y	2.5	2.5	2.5	2.6	2.6	2.5	2.4	2.2	2.0	1.7	1.3	1.1	1.0	0.9
ŀ	10Y	2.1	2.1	2.1	2.1	2.1	2.0	2.0	1.8	1.5	1.3	1.0	0.8	0.7	0.6
ŀ	15Y	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.4	1.2	1.0	0.7	0.6	0.5	0.4
ŀ							1.4	1.4	1.4	1.0	0.8	0.6	0.5	0.4	0.4
ŀ	20Y	1.5	1.5	1.5	1.5	1.5									
	30Y	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.1	0.9	0.7	0.5	0.4	0.3	0.3
	30Y	1.3													
	30Y Total Emergi	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.1	0.9	0.7	0.5	0.4	0.3	0.3
-	30Y Total Emergi 1M	1.3 ng Europe 3.8	3.7	3.7	3.7	3.7	1.3	5.2	5.4	0.9 5.4	5.1	0.5 5.2	5.8	0.3 5.9	6.0
	30Y Total Emergi	1.3 ng Europe 3.8 4.2	1.3 3.7 4.2	3.7 4.2	3.7 4.1	1.3 3.7 4.1	1.3 4.9 5.1	5.2 5.2	5.4 5.3	0.9 5.4 5.3	0.7 5.1 5.0	0.5 5.2 5.1	0.4 5.8 5.7	0.3 5.9 5.8	6.0 5.9
	30Y Total Emergi 1M 3M 6M	1.3 ng Europe 3.8 4.2 4.9	1.3 3.7 4.2 4.9	3.7 4.2 4.8	3.7 4.1 4.8	3.7 4.1 4.8	1.3 4.9 5.1 5.4	5.2 5.2 5.3	5.4 5.3 5.2	0.9 5.4 5.3 5.2	0.7 5.1 5.0 4.8	0.5 5.2 5.1 4.9	5.8 5.7 5.5	0.3 5.9 5.8 5.6	6.0 5.9 5.6
	30Y Total Emergi 1M 3M 6M 9M	1.3 ng Europe 3.8 4.2 4.9 5.2	3.7 4.2 4.9 5.2	3.7 4.2 4.8 5.1	3.7 4.1 4.8 5.1	3.7 4.1 4.8 5.0	1.3 4.9 5.1 5.4 5.5	5.2 5.2 5.3 5.3	5.4 5.3 5.2 5.1	5.4 5.3 5.2 5.0	5.1 5.0 4.8 4.5	5.2 5.1 4.9 4.8	5.8 5.7 5.5 5.3	5.9 5.8 5.6 5.3	6.0 5.9 5.6 5.3
	30Y Total Emergi 1M 3M 6M 9M	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3	1.3 3.7 4.2 4.9 5.2 5.3	1.3 3.7 4.2 4.8 5.1 5.3	3.7 4.1 4.8 5.1 5.2	3.7 4.1 4.8 5.0 5.2	1.3 4.9 5.1 5.4 5.5	5.2 5.2 5.3 5.3 5.3	5.4 5.3 5.2 5.1 4.9	5.4 5.3 5.2 5.0 4.8	5.1 5.0 4.8 4.5 4.3	5.2 5.1 4.9 4.8 4.6	5.8 5.7 5.5 5.3 5.2	5.9 5.8 5.6 5.3 5.1	0.3 6.0 5.9 5.6 5.3 5.1
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2	1.3 3.7 4.2 4.9 5.2 5.3 5.2	3.7 4.2 4.8 5.1 5.3 5.1	3.7 4.1 4.8 5.1 5.2 5.0	3.7 4.1 4.8 5.0 5.2 5.0	1.3 4.9 5.1 5.4 5.5 5.5 5.5	5.2 5.2 5.3 5.3 5.2 4.8	5.4 5.3 5.2 5.1 4.9	5.4 5.3 5.2 5.0 4.8 4.1	5.1 5.0 4.8 4.5 4.3 3.6	5.2 5.1 4.9 4.8 4.6 4.0	5.8 5.7 5.5 5.3 5.2 4.5	5.9 5.8 5.6 5.3 5.1 4.4	6.0 5.9 5.6 5.3 5.1 4.3
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9	3.7 4.1 4.8 5.1 5.2 5.0 4.8	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8	5.2 5.2 5.3 5.3 5.2 4.8 4.3	5.4 5.3 5.2 5.1 4.9 4.3 3.8	5.4 5.3 5.2 5.0 4.8 4.1 3.6	5.1 5.0 4.8 4.5 4.3 3.6 3.1	5.2 5.1 4.9 4.8 4.6 4.0 3.5	5.8 5.7 5.5 5.3 5.2 4.5 3.9	5.9 5.8 5.6 5.3 5.1 4.4 3.8	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3	3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2	5.2 5.2 5.3 5.3 5.2 4.8 4.3 3.8	5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3	5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9	5.1 5.0 4.8 4.5 4.3 3.6 3.1 2.6	5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8	5.8 5.7 5.5 5.3 5.2 4.5 3.9	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1	6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7	3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7	3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7	5.2 5.2 5.3 5.3 5.2 4.8 4.3 3.8 3.6	5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3 3.0	5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6	5.1 5.0 4.8 4.5 4.3 3.6 3.1 2.6 2.4	5.2 5.1 4.9 4.6 4.0 3.5 2.8 2.5	5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8	6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0	3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 3.0	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 3.0	5.2 5.2 5.3 5.3 5.2 4.8 4.3 3.8 2.9	5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3 3.0 2.5	5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3	5.1 5.0 4.8 4.5 4.3 3.6 3.1 2.6 2.4 2.2	5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4	5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1 2.8	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 3.0 2.7	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7	1.3 4.9 5.1 5.5 5.5 5.5 5.1 4.8 4.2 3.7 3.0 2.7	5.2 5.2 5.3 5.3 5.3 5.2 4.8 4.3 3.8 3.6 2.9 2.6	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3 3.0 2.5 2.3	5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0	0.7 5.1 5.0 4.8 4.5 4.3 3.6 3.1 2.6 2.4 2.2 2.2	5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2	5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1 2.8 2.1	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 3.0 2.7 2.0	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 3.0 2.7 2.1	5.2 5.2 5.3 5.3 5.2 4.8 3.8 3.6 2.9 2.6 2.1	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.0 2.5 2.3 2.0	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 1.9	0.7 5.1 5.0 4.8 4.5 4.3 3.6 3.1 2.6 2.4 2.2 2.0 1.8	0.5 5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 1.7	5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1 2.8	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 3.0 2.7	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 3.0 2.7	5.2 5.2 5.3 5.3 5.3 5.2 4.8 4.3 3.8 3.6 2.9 2.6	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3 3.0 2.5 2.3	5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0	0.7 5.1 5.0 4.8 4.5 4.3 3.6 3.1 2.6 2.4 2.2 2.2	5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2	5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam a	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1 1.1	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1 2.8 2.1	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0 1.1	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 3.0 2.7 2.0 1.1	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0 1.1	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 3.0 2.7 2.1 1.2	5.2 5.2 5.3 5.3 5.2 4.8 3.8 3.6 2.9 2.6 2.1	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3 3.0 2.5 2.3 2.0 1.2	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2	0.7 5.1 5.0 4.8 4.5 4.3 3.6 2.4 2.2 2.0 1.8 1.1	5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2 1.7	0.4 5.8 5.7 5.5 5.3 5.2 4.5 3.1 2.8 2.6 2.2 1.8 1.2	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1 1.7	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 4	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1 1.1	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1 2.8 2.1 1.1	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0 1.1	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 3.0 2.7 2.0 1.1	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0 1.1	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 3.0 2.7 2.1 1.2	5.2 5.2 5.3 5.3 5.2 4.8 4.3 3.8 3.6 2.9 2.6 2.1 1.2	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.0 2.5 2.3 2.0 1.2	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2	0.7 5.1 5.0 4.8 4.5 4.3 3.6 3.1 2.6 2.4 2.2 2.0 1.8 1.1	0.5 5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2 1.7 1.1	0.4 5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2 1.8 1.2	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1 1.7 1.2	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 6 3M	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1 1.1	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1 2.8 2.1 1.1	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0 1.1	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 3.0 2.7 2.0 1.1	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0 1.1	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 3.0 2.7 2.1 1.2	1.2 5.2 5.2 5.3 5.3 5.2 4.8 4.3 3.8 3.6 2.9 2.6 2.1 1.2	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3 3.0 2.5 2.3 2.0 1.2	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2	0.7 5.1 5.0 4.8 4.5 4.3 3.6 3.1 2.6 2.4 2.2 2.0 1.8 1.1	0.5 5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2 1.7 1.1	0.4 5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2 1.8 1.2	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1 1.7 1.2	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2
EXPIRY	30Y Total Emergical IM 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam and IM 6M	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1 1.1 8 Caribbean 23.1 23.6 24.1	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1 2.8 2.1 1.1	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0 1.1	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 2.0 1.1 22.9 23.4 23.9	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0 1.1	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 3.0 2.7 2.1 1.2	1.2 5.2 5.3 5.3 5.3 5.2 4.8 3.6 2.9 2.6 2.1 1.2	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3 3.0 2.5 2.3 2.0 1.2	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2	0.7 5.1 5.0 4.8 4.5 4.3 3.6 2.4 2.2 2.0 1.8 1.1	0.5 5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2 1.7 1.1	0.4 5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2 1.8 1.2	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1 1.7 1.2	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam a 1M 3M 6M 9M	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1 1.1 & Caribbean 23.1 23.6 24.1 24.1	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1 2.8 2.1 1.1	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0 1.1	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 3.0 2.7 2.0 1.1 22.9 23.4 23.9 23.8	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0 1.1 22.8 23.3 23.6 23.5	1.3 4.9 5.1 5.4 5.5 5.5 5.5 5.1 3.7 3.0 2.7 2.1 1.2 22.2 22.2 22.1 21.7	1.2 5.2 5.3 5.3 5.3 5.2 4.8 3.8 3.6 2.9 2.6 2.1 1.2 21.0 20.9 20.5 20.1	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.0 2.5 2.3 2.0 1.2 20.2 20.1 19.7 19.1	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2	0.7 5.1 5.0 4.8 4.5 4.3 3.6 2.4 2.2 2.0 1.8 1.1 15.5 15.5 15.7	0.5 5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 1.7 1.1 15.0 15.2 15.7 15.9	0.4 5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2 1.8 1.2	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 1.7 1.2	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 6 6M 3M 6M 9M 1Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1 1.1 8. Caribbean 23.1 23.6 24.1 24.1 23.6	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.1 2.8 2.1 1.1 23.0 23.6 24.2 24.1 23.6	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0 1.1 23.0 23.5 24.1 24.0 23.5	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 3.0 2.7 2.0 1.1 22.9 23.4 23.9 23.8 23.8	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0 1.1 22.8 23.3 23.6 23.5 23.5	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 3.0 2.7 2.1 1.2 22.2 22.1 21.7 21.3	1.2 5.2 5.2 5.3 5.3 5.3 5.2 4.8 4.3 3.8 2.9 2.6 2.1 1.2 21.0 20.9 20.5 20.1 19.7	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3 3.0 2.5 2.3 2.0 1.2 20.2 20.1 19.7 19.1 18.5	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2 18.6 18.5 18.5 18.5 18.2 17.7	0.7 5.1 5.0 4.8 4.5 4.3 3.6 3.1 2.6 2.4 2.2 2.0 1.8 1.1 15.5 15.5 15.5 15.5	5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2 1.7 1.1	5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2 1.8 1.2	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1 1.7 1.2 15.6 15.8 16.2 16.4 16.3	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2 15.7 15.8 16.1 15.9
EXPIRY	30Y Total Emergin 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 6 1M 3M 6M 9M 9M 1Y 2Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1 1.1 8 Caribbean 23.1 23.6 24.1 24.1 24.1 24.1 24.1 24.1 20.0	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1 2.8 2.1 1.1 23.0 23.6 24.2 24.1 23.6 19.9	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0 1.1 23.0 23.5 24.1 24.0 23.5 19.7	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 2.0 1.1 22.9 23.4 23.9 23.8 23.3 19.6	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0 1.1 22.8 23.3 23.6 23.5 23.0 19.6	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 2.1 1.2 22.2 22.1 21.7 21.3 19.3	1.2 5.2 5.3 5.3 5.3 5.2 4.8 4.3 3.8 3.6 2.9 2.6 2.1 1.2 21.0 20.9 20.5 20.1 19.7	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3 3.0 2.5 2.3 2.0 1.2 20.2 20.1 19.7 19.1 18.5 16.1	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2 18.6 18.5 18.5 18.5 18.5 18.5	0.7 5.1 5.0 4.8 4.5 4.3 3.6 2.4 2.2 2.0 1.8 1.1 15.5 15.7 15.5 15.7 15.5 15.7	5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2 1.7 1.1	0.4 5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2 1.8 1.2 15.6 15.9 16.4 16.7 16.6 15.0	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1 1.7 1.2 15.6 15.8 16.2 16.4 16.3 14.5	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2 15.7 15.8 16.1 16.1 16.1 15.9 14.0
EXPIRY	30Y Total Emergical IM 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 6 6M 9M 1Y 2Y 3Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1 1.1 8 Caribbean 23.1 23.6 24.1 24.1 23.6 20.0 18.5	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1 2.8 2.1 1.1 23.0 23.6 24.2 24.1 23.6 29.9 18.4	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0 1.1 23.0 23.5 24.1 24.0 23.5 19.7 18.2	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 3.0 2.7 2.0 1.1 22.9 23.4 23.9 23.8 23.3 19.6 18.0	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0 1.1 22.8 23.3 23.6 23.5 23.0 19.6 17.9	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 3.0 2.7 2.1 1.2 22.2 22.1 21.7 21.3 19.3 17.5	1.2 5.2 5.3 5.3 5.3 5.2 4.8 4.3 3.8 3.6 2.9 2.6 2.1 1.2 21.0 20.9 20.5 20.1 19.7 17.7	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.0 2.5 2.0 1.2 20.1 19.7 19.1 18.5 16.1 14.3	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2 18.6 18.5 18.5 18.2 17.7 15.4 13.1	0.7 5.1 5.0 4.8 4.5 4.3 3.6 2.4 2.2 2.0 1.8 1.1 15.5 15.7 15.5 15.7 15.5 15.7	0.5 5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2 1.7 1.1 15.0 15.2 15.7 15.9 15.7 13.9 11.5	0.4 5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2 1.8 1.2 15.6 15.9 16.4 16.7 16.6 15.0 12.5	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1 1.7 1.2 15.6 15.8 16.2 16.4 16.3 14.5 12.2	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2 15.7 15.8 16.1 16.1 15.9 14.0 11.8
EXPIRY	30Y Total Emergin 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 6 1M 3M 6M 9M 9M 1Y 2Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1 1.1 8 Caribbean 23.1 23.6 24.1 24.1 24.1 24.1 24.1 24.1 20.0	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1 2.8 2.1 1.1 23.0 23.6 24.2 24.1 23.6 19.9	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0 1.1 23.0 23.5 24.1 24.0 23.5 19.7	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 2.0 1.1 22.9 23.4 23.9 23.8 23.3 19.6	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0 1.1 22.8 23.3 23.6 23.5 23.0 19.6 17.9 17.2	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 2.1 1.2 22.2 22.1 21.7 21.3 19.3	1.2 5.2 5.3 5.3 5.3 5.2 4.8 4.3 3.8 3.6 2.9 2.6 2.1 1.2 21.0 20.9 20.5 20.1 19.7	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3 3.0 2.5 2.3 2.0 1.2 20.2 20.1 19.7 19.1 18.5 16.1	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2 18.6 18.5 18.5 18.5 18.5 18.5	0.7 5.1 5.0 4.8 4.5 4.3 3.6 2.4 2.2 2.0 1.8 1.1 15.5 15.7 15.5 15.7 15.5 15.7	5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2 1.7 1.1	0.4 5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2 1.8 1.2 15.6 15.9 16.4 16.7 16.6 15.0	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1 1.7 1.2 15.6 15.8 16.2 16.4 16.3 14.5	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2 15.7 15.8 16.1 16.1 16.1 15.9 14.0
EXPIRY	30Y Total Emergical IM 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 6 6M 9M 1Y 2Y 3Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1 1.1 8 Caribbean 23.1 23.6 24.1 24.1 23.6 20.0 18.5	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 3.1 2.8 2.1 1.1 23.0 23.6 24.2 24.1 23.6 29.9 18.4	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0 1.1 23.0 23.5 24.1 24.0 23.5 19.7 18.2	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 3.0 2.7 2.0 1.1 22.9 23.4 23.9 23.8 23.3 19.6 18.0	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0 1.1 22.8 23.3 23.6 23.5 23.0 19.6 17.9	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 3.0 2.7 2.1 1.2 22.2 22.1 21.7 21.3 19.3 17.5	1.2 5.2 5.3 5.3 5.3 5.2 4.8 4.3 3.8 3.6 2.9 2.6 2.1 1.2 21.0 20.9 20.5 20.1 19.7 17.7	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.0 2.5 2.0 1.2 20.1 19.7 19.1 18.5 16.1 14.3	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2 18.6 18.5 18.5 18.2 17.7 15.4 13.1	0.7 5.1 5.0 4.8 4.5 4.3 3.6 2.4 2.2 2.0 1.8 1.1 15.5 15.7 15.5 15.7 15.5 15.7	0.5 5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2 1.7 1.1 15.0 15.2 15.7 15.9 15.7 13.9 11.5	0.4 5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2 1.8 1.2 15.6 15.9 16.4 16.7 16.6 15.0 12.5	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1 1.7 1.2 15.6 15.8 16.2 16.4 16.3 14.5 12.2	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2 15.7 15.8 16.1 16.1 15.9 14.0 11.8
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 6 6M 3M 6M 9M 1Y 2Y 30Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1 1.1 8. Caribbean 23.1 23.6 24.1 23.6 20.0 18.5 18.5	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.1 2.8 2.1 1.1 23.0 23.6 24.2 24.1 23.6 19.9 18.4 18.1	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0 1.1 23.0 23.5 24.1 24.0 23.5 19.7 18.2 17.8	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 3.0 2.7 2.0 1.1 22.9 23.4 23.9 23.8 23.8 23.8 19.6 18.0 17.5	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0 1.1 22.8 23.3 23.6 23.5 23.0 19.6 17.9 17.2	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 2.7 2.1 1.2 22.2 22.1 21.7 21.3 19.3 17.5 15.8	1.2 5.2 5.3 5.3 5.3 5.2 4.8 4.3 3.8 2.9 2.6 2.1 1.2 21.0 20.9 20.5 20.1 19.7 17.7 17.7 16.1 14.5	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.0 2.5 2.0 1.2 20.1 19.7 19.1 18.5 16.1 14.3 12.4	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2 18.6 18.5 18.5 18.5 18.5 18.1 10.4	0.7 5.1 5.0 4.8 4.5 4.3 3.6 3.1 2.6 2.4 2.2 2.0 1.8 1.1 15.5 15.5 15.5 15.5 15.2 13.1 11.0 8.2	5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2 1.7 1.1 15.0 15.2 15.7 13.9 11.5 8.2	5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2 1.8 1.2 15.6 15.9 16.4 16.7 16.6 15.0 12.5 9.0	5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1 1.7 1.2 15.6 15.8 16.2 16.4 16.3 14.5 12.2 8.9	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2 15.7 15.8 16.1 15.9 14.0 11.8 8.8
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 109 15Y 20Y 30Y Total Latam a 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 7Y 10Y 15Y 20Y 30Y	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 2.1 1.1 & Caribbean 23.1 23.6 24.1 24.1 24.1 24.1 24.1 24.1 24.1 24.1 24.1 24.1 25.6 20.0 18.5 18.2	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.1 2.8 2.1 1.1 23.0 23.6 24.2 24.1 23.6 19.9 18.4 18.1 16.4	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.0 2.8 2.0 1.1 23.0 23.5 24.1 24.0 23.5 19.7 18.2 17.8 16.2	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 2.0 1.1 22.9 23.4 23.9 23.8 23.3 19.6 18.0 17.5 15.9	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 2.7 2.0 1.1 22.8 23.3 23.6 23.5 23.0 19.6 17.9 17.2 15.6	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 2.1 1.2 22.2 22.1 21.7 21.3 19.3 17.5 15.8 14.4	1.2 5.2 5.3 5.3 5.3 5.2 4.8 4.3 3.8 3.6 2.9 2.6 2.1 1.2 21.0 20.9 20.5 20.1 19.7 17.7 16.1 14.5 13.3	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3 3.0 2.5 2.3 2.0 1.2 20.1 19.7 19.1 18.5 16.1 14.3 14.3 14.3 14.3	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2 18.6 18.5 18.5 18.5 18.5 18.10 17.7 15.4 13.1 10.4 9.4	0.7 5.1 5.0 4.8 4.5 4.3 3.6 3.1 2.6 2.4 2.2 2.0 1.8 1.1 15.5 15.7 15.5 15.7 15.5 15.7 11.0 8.2 7.7	5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2 1.7 1.1 15.0 15.2 15.7 15.9 15.7 13.9 11.5 8.2 7.6	0.4 5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2 1.8 1.2 15.6 15.9 16.4 16.7 16.6 15.0 12.5 8.3	0.3 5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1 1.7 1.2 15.6 15.8 16.2 16.4 16.3 14.5 12.2 8.9 8.1	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2 15.7 15.8 16.1 16.1 16.1 15.9 14.0 11.8 8.8 8.1
EXPIRY	30Y Total Emergical IM 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latan and IM 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 10Y 10Y 10Y 10Y 10Y 10Y 10Y 10Y 10	1.3 ng Europe 3.8 4.2 4.9 5.2 5.3 5.2 5.0 4.4 3.8 3.1 2.8 2.1 1.1 8 Caribbean 23.1 23.6 24.1 24.1 23.6 20.0 18.5 18.2 16.6 14.7	1.3 3.7 4.2 4.9 5.2 5.3 5.2 4.9 4.3 3.8 2.1 1.1 23.0 23.6 24.2 24.1 23.6 19.9 18.4 18.1 16.4 14.6	1.3 3.7 4.2 4.8 5.1 5.3 5.1 4.9 4.3 3.7 3.0 2.8 2.0 1.1 23.0 23.5 24.1 24.0 23.5 24.1 24.0 21.5 19.7 18.2 17.8 16.2 14.4	1.3 3.7 4.1 4.8 5.1 5.2 5.0 4.8 4.2 3.7 2.0 1.1 22.9 23.4 23.9 23.8 23.3 19.6 18.0 17.5 15.9 14.2	1.3 3.7 4.1 4.8 5.0 5.2 5.0 4.7 4.1 3.6 3.0 2.7 2.0 1.1 22.8 23.3 23.6 23.5 23.0 19.6 17.9 17.2 15.6 13.9	1.3 4.9 5.1 5.4 5.5 5.5 5.1 4.8 4.2 3.7 3.0 2.7 2.1 1.2 22.2 22.1 21.7 21.3 19.3 17.5 15.8 14.4 13.0	1.2 5.2 5.3 5.3 5.3 5.2 4.8 4.3 3.8 3.6 2.9 2.6 2.1 1.2 21.0 20.9 20.5 20.1 19.7 17.7 16.1 14.5 13.3 12.1	1.1 5.4 5.3 5.2 5.1 4.9 4.3 3.8 3.3 3.0 2.5 2.3 2.0 1.2 20.1 19.7 19.1 18.5 16.1 14.3 12.4 11.5 10.5	0.9 5.4 5.3 5.2 5.0 4.8 4.1 3.6 2.9 2.6 2.3 2.0 1.9 1.2 18.6 18.5 18.5 18.5 18.2 17.7 15.4 13.1 10.4 9.4 8.6	0.7 5.1 5.0 4.8 4.5 4.3 3.6 2.4 2.2 2.0 1.8 1.1 15.5 15.7 15.5 15.7 15.5 15.7 7.7 7	0.5 5.2 5.1 4.9 4.8 4.6 4.0 3.5 2.8 2.5 2.4 2.2 1.7 1.1 15.0 15.2 15.7 15.9 15.7 13.9 11.5 8.2 7.6 7.8	0.4 5.8 5.7 5.5 5.3 5.2 4.5 3.9 3.1 2.8 2.6 2.2 1.8 1.2 15.6 15.9 16.4 16.7 16.6 15.0 12.5 9.0 8.3 8.3	0.3 5.9 5.8 5.6 5.3 5.1 4.4 3.8 3.1 2.8 2.4 2.1 1.7 1.2 15.6 16.2 16.4 16.3 14.5 12.2 8.9 8.1 7.9	0.3 6.0 5.9 5.6 5.3 5.1 4.3 3.7 3.1 2.7 2.4 2.0 1.7 1.2 15.7 15.8 16.1 16.1 15.9 14.0 11.8 8.8 8.1 7.9

Absolute Normal Interest Rate Shocks (Continued)

	Total Asia Ex	-Japan													
	1M	16.4	16.4	16.5	16.6	16.8	16.8	16.4	16.9	16.7	15.4	15.3	16.2	15.5	15.1
	3M	16.2	16.2	16.2	16.3	16.4	16.3	15.9	16.1	15.8	14.5	14.7	15.6	14.8	14.3
	6M	15.8	15.8	15.8	15.8	15.8	15.6	15.0	15.0	14.6	13.2	13.9	14.6	13.8	13.2
	9M	15.4	15.4	15.4	15.3	15.3	14.9	14.2	13.9	13.5	11.9	13.0	13.8	12.9	12.0
	1Y	15.1	15.0	15.0	14.9	14.8	14.3	13.5	13.0	12.5	10.9	12.2	12.9	12.0	11.1
RY	2Y	13.9	13.8	13.8	13.7	13.7	12.7	11.6	10.6	10.1	8.7	9.5	10.0	9.2	8.6
EXPIRY	3Y	13.2	13.1	13.0	12.9	12.8	11.6	10.4	9.1	8.4	7.5	7.7	8.0	7.5	7.2
EX	5Y	12.1	12.0	11.8	11.6	11.4	10.2	9.0	7.4	6.6	5.9	5.8	5.9	5.6	5.6
	7Y	10.3	10.2	10.0	9.8	9.6	8.7	7.8	6.5	5.6	5.1	4.9	5.0	4.7	4.7
	10Y	8.3	8.2	8.1	7.9	7.8	7.2	6.6	5.6	4.7	4.3	4.2	4.3	4.0	4.0
	15Y	5.6	5.5	5.5	5.4	5.3	4.9	4.6	3.9	3.4	3.1	3.1	3.3	3.1	3.1
	20Y	3.5	3.5	3.5	3.4	3.4	3.2	3.1	2.7	2.6	2.3	2.3	2.6	2.5	2.5
	30Y	2.5	2.4	2.4	2.4	2.3	2.2	2.1	2.0	2.0	1.8	1.9	2.0	2.0	2.0
	Total ME/N.				1										
	1M	0.6	0.6	0.6	0.6	0.6	1.0	1.6	2.9	4.3	5.5	6.6	7.7	7.3	7.1
	3M	0.7	0.7	0.7	0.7	0.7	1.1	1.7	3.0	4.3	5.4	6.5	7.6	7.2	6.9
	6M	0.9	0.9	0.9	0.9	0.9	1.4	1.9	3.2	4.4	5.3	6.4	7.3	6.9	6.6
	9M	1.1	1.1	1.1	1.0	1.0	1.6	2.1	3.3	4.4	5.1	6.2	7.1	6.7	6.4
_	1Y	1.3	1.3	1.2	1.2	1.2	1.8	2.3	3.5	4.5	5.0	6.1	6.9	6.4	6.1
2	2Y	2.3	2.3	2.3	2.3	2.2	2.7	3.2	3.9	4.6	4.7	5.5	6.1	5.6	5.2
EXPIRY	3Y	3.4	3.3	3.3	3.2	3.2	3.7	4.0	4.3	4.7	4.4	5.0	5.4	5.0	4.7
ш	5Y	5.6	5.5	5.5	5.4	5.3	5.3	5.2	4.9	4.6	4.2	4.4	4.4	4.1	4.0
	7Y	6.5	6.4	6.3	6.2	6.1	6.0	5.8	5.1	4.3	4.0	3.9	3.8	3.6	3.5
	10Y	6.0	6.0	5.9	5.8	5.8	5.6	5.1	4.4	3.8 2.7	3.6	3.3	3.2	3.1 2.3	3.0 2.2
	15Y 20Y	4.6 2.0	4.5 2.0	4.5 2.0	2.0	4.3 1.9	4.2 1.9	3.9 1.8	3.5 1.7	1.6	2.4 1.5	2.4 1.5	2.4 1.6	1.6	1.6
	30Y	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.4	1.3	1.3	1.3	1.4	1.4
	Total Sub-Sa	haran Africa		12.7		12.5				16.1				14.3	
	1M 3M	12.8 11.4	11.3	11.2	12.6 11.2	11.1	13.8 13.4	13.7 13.2	15.9 15.2	15.6	14.5 13.9	14.4 15.2	15.0 15.8	15.0	13.8 14.4
	6M	13.0	13.0	12.9	12.8	12.7	14.6	14.1	15.2	15.6	13.9	15.2	15.8	14.9	14.4
	9M	14.9	14.9	14.7	14.6	14.5	16.4	15.4	15.6	15.4	13.5	14.9	15.7	14.9	13.9
	1Y	16.4	16.3	16.2	16.0	15.9	17.7	16.4	15.6	15.4	13.1	14.4	15.4	14.0	13.4
>	2Y	18.7	18.5	18.3	18.1	17.9	16.5	15.1	13.5	13.1	11.2	12.7	13.2	12.3	11.5
<u>~</u>	3Y	17.0	16.8	16.6	16.4	16.1	15.5	14.0	12.1	11.4	9.9	10.9	11.4	10.7	10.0
EXPIRY	5Y	14.7	14.6	14.4	14.1	13.9	13.4	12.3	10.5	9.3	8.1	8.3	8.8	8.5	8.4
-	7Y	14.5	14.4	14.2	13.9	13.7	12.7	11.7	10.1	8.7	7.9	7.7	8.1	7.9	8.0
	10Y	13.0	12.9	12.7	12.6	12.4	11.7	11.0	9.5	8.0	7.4	7.6	7.9	7.7	7.9
	15Y	8.5	8.4	8.3	8.2	8.1	7.6	7.6	6.3	5.4	5.6	6.0	6.3	6.1	6.1
	20Y	5.7	5.6	5.6	5.6	5.5	5.6	5.7	5.3	5.1	5.0	4.7	5.0	4.8	4.7
	30V	1.7	1.7	1.7	1.7	1.7	1.7	1.9	2.1	2.3	2.5	2.4	2.6	2.6	2.5

Other Rates

Absolute Change in Inflation (bps)

			<u> </u>										
						1	MATURIT	1					
Currency	1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	30Y
AUD	(5.8)	(5.9)	(6.0)	(6.0)	(6.1)	(6.2)	(6.2)	(6.1)	(5.9)	(5.8)	(5.7)	(5.7)	(5.7)
EUR	(24.8)	(23.9)	(22.6)	(21.4)	(20.4)	(16.8)	(14.3)	(11.1)	(9.4)	(8.1)	(7.0)	(6.1)	(4.5)
GBP	(7.1)	(7.7)	(8.4)	(9.1)	(9.6)	(10.8)	(11.1)	(10.4)	(9.0)	(7.1)	(4.8)	(3.6)	(2.4)
JPY	(4.8)	(4.9)	(5.0)	(5.0)	(5.1)	(5.2)	(5.2)	(5.1)	(4.9)	(4.8)	(4.7)	(4.7)	(4.7)
USD	(25.8)	(24.9)	(23.6)	(22.4)	(21.4)	(17.8)	(15.3)	(12.1)	(10.4)	(9.1)	(8.0)	(7.1)	(5.5)
Other	(25.8)	(24.9)	(23.6)	(22.4)	(21.4)	(17.8)	(15.3)	(12.1)	(10.4)	(9.1)	(8.0)	(7.1)	(5.5)

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

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

•		MATURITY.													
						I	MATURIT	Y							
Currency	1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	30Y		
AUD	(10.0)	(10.0)	(9.5)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(8.0)	(6.0)	(4.0)		
EUR	(33.0)	(33.0)	(32.0)	(28.0)	(21.0)	(19.0)	(18.0)	(17.0)	(17.0)	(15.0)	(12.0)	(9.0)	(5.0)		
GBP	(17.0)	(17.0)	(15.0)	(14.0)	(12.0)	(12.0)	(12.0)	(10.0)	(10.0)	(10.0)	(8.0)	(5.0)	(5.0)		
JPY	(24.0)	(24.0)	(22.0)	(18.0)	(15.0)	(14.0)	(14.0)	(13.0)	(13.0)	(12.0)	(10.0)	(8.0)	(5.0)		
Other	(33.0)	(33.0)	(32.0)	(28.0)	(21.0)	(19.0)	(18.0)	(17.0)	(17.0)	(15.0)	(12.0)	(9.0)	(5.0)		

Appendix 11: Global Market Shock - Severely Adverse

Securitized Products

Trading, PE & Other Fair Value AssetsSecuritized Products

								RMBS							
	Non-Agency				Unspec Non-							Prime Whole		European	Other/
	Prime		Option ARMS	Other AltA	Prime	HELOC	RMBS CDO	RMBS CDS	Credit Basket	PrimeX	ABX / TABX	Loans	Whole Loans	RMBS	Unspecified
Relative MV Shock Base	ed on Current	Rating (%)													
AAA Total									1		1	1			_
> 9Y	-21.4%	-21.4%	-21.4%	-21.4%	-21.4%	-21.4%	-26.8%	-18.2%	-18.2%	-18.2%	-18.2%	-36.6%	-54.8%	-26.8%	-26.8%
> 6Y and <= 9Y	-21.4%	-21.4%	-21.4%	-21.4%	-21.4%	-21.4%	-26.8%	-18.2%	-18.2%	-18.2%	-18.2%	-29.3%	-37.1%	-26.8%	-26.8%
> 3Y and <= 6Y	-20.9%	-20.9%	-20.9%	-20.9%	-20.9%	-20.9%	-26.1%	-17.8%	-17.8%	-17.8%	-17.8%	-28.8%	-36.7%	-26.1%	-26.1%
<= 3Y	-19.4%	-19.4%	-19.4%	-19.4%	-19.4%	-19.4%	-24.3%	-16.5%	-16.5%	-16.5%	-16.5%	-27.5%	-35.5%	-24.3%	-24.3%
Unspecified Vintage	-21.4%	-21.4%	-21.4%	-21.4%	-21.4%	-21.4%	-26.8%	-18.2%	-18.2%	-18.2%	-18.2%	-36.6%	-54.8%	-26.8%	-26.8%
AA Total															
> 9Y	-21.4%	-23.4%	-23.4%	-23.4%	-23.4%	-23.4%	-29.3%	-19.9%	-19.9%	-18.2%	-19.9%	-36.6%	-54.8%	-26.8%	-29.3%
> 6Y and <= 9Y	-22.6%	-29.3%	-29.3%	-29.3%	-29.3%	-29.3%	-36.6%	-24.9%	-24.9%	-19.2%	-24.9%	-29.3%	-37.1%	-28.3%	-36.6%
> 3Y and <= 6Y	-26.5%	-29.3%	-29.3%	-29.3%	-29.3%	-29.3%	-36.6%	-24.9%	-24.9%	-22.5%	-24.9%	-28.8%	-36.7%	-33.1%	-36.6%
<= 3Y	-23.2%	-29.3%	-29.3%	-29.3%	-29.3%	-29.3%	-36.6%	-24.9%	-24.9%	-19.7%	-24.9%	-27.5%	-35.5%	-29.0%	-36.6%
Unspecified Vintage	-26.5%	-29.3%	-29.3%	-29.3%	-29.3%	-29.3%	-36.6%	-24.9%	-24.9%	-22.5%	-24.9%	-36.6%	-54.8%	-33.1%	-36.6%
A Total															
> 9Y	-22.0%	-29.2%	-29.2%	-29.2%	-29.2%	-29.2%	-36.5%	-24.8%	-24.8%	-18.7%	-24.8%	-36.6%	-54.8%	-27.5%	-36.5%
> 6Y and <= 9Y	-30.0%	-36.5%	-36.5%	-36.5%	-36.5%	-36.5%	-45.6%	-31.0%	-31.0%	-25.5%	-31.0%	-29.3%	-37.1%	-37.5%	-45.6%
> 3Y and <= 6Y	-30.0%	-36.5%	-36.5%	-36.5%	-36.5%	-36.5%	-45.6%	-31.0%	-31.0%	-25.5%	-31.0%	-28.8%	-36.7%	-37.5%	-45.6%
<= 3Y	-44.0%	-44.0%	-44.0%	-44.0%	-44.0%	-44.0%	-55.0%	-37.4%	-37.4%	-37.4%	-37.4%	-27.5%	-35.5%	-55.0%	-55.0%
Unspecified Vintage	-44.0%	-44.0%	-44.0%	-44.0%	-44.0%	-44.0%	-55.0%	-37.4%	-37.4%	-37.4%	-37.4%	-36.6%	-54.8%	-55.0%	-55.0%
															1
BBB Total															
> 9Y	-22.0%	-35.6%	-35.6%	-35.6%	-35.6%	-35.6%	-44.4%	-30.2%	-30.2%	-18.7%	-30.2%	-36.6%	-54.8%	-27.5%	-44.4%
> 6Y and <= 9Y	-39.0%	-44.4%	-44.4%	-44.4%	-44.4%	-44.4%	-55.6%	-37.8%	-37.8%	-33.1%	-37.8%	-29.3%	-37.1%	-48.7%	-55.6%
> 3Y and <= 6Y	-39.0%	-44.4%	-44.4%	-44.4%	-44.4%	-44.4%	-55.6%	-37.8%	-37.8%	-33.1%	-37.8%	-28.8%	-36.7%	-48.7%	-55.6%
<= 3Y	-63.9%	-63.9%	-63.9%	-63.9%	-63.9%	-63.9%	-79.9%	-54.3%	-54.3%	-54.3%	-54.3%	-27.5%	-35.5%	-79.9%	-79.9%
Unspecified Vintage	-63.9%	-63.9%	-63.9%	-63.9%	-63.9%	-63.9%	-79.9%	-54.3%	-54.3%	-54.3%	-54.3%	-36.6%	-54.8%	-79.9%	-79.9%
BB Total															
> 9Y	-22.0%	-45.5%	-45.5%	-45.5%	-45.5%	-45.5%	-56.9%	-38.7%	-38.7%	-18.7%	-38.7%	-36.6%	-54.8%	-27.5%	-56.9%
> 6Y and <= 9Y	-50.3%	-56.9%	-56.9%	-56.9%	-56.9%	-56.9%	-71.1%	-48.4%	-48.4%	-42.8%	-48.4%	-29.3%	-37.1%	-62.9%	-71.1%
> 3Y and <= 6Y	-50.3%	-56.9%	-56.9%	-56.9%	-56.9%	-56.9%	-71.1%	-48.4%	-48.4%	-42.8%	-48.4%	-28.8%	-36.7%	-62.9%	-71.1%
<= 3Y	-75.9%	-75.9%	-75.9%	-75.9%	-75.9%	-75.9%	-85.0%	-64.5%	-64.5%	-64.5%	-64.5%	-27.5%	-35.5%	-85.0%	-85.0%
Unspecified Vintage	-75.9%	-75.9%	-75.9%	-75.9%	-75.9%	-75.9%	-85.0%	-64.5%	-64.5%	-64.5%	-64.5%	-36.6%	-54.8%	-85.0%	-85.0%
B Total															
> 9Y	-24.7%	-46.2%	-46.2%	-46.2%	-46.2%	-46.2%	-57.8%	-39.3%	-39.3%	-21.0%	-39.3%	-36.6%	-54.8%	-30.9%	-57.8%
> 6Y and <= 9Y	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-85.0%	-70.7%	-70.7%	-70.7%	-70.7%	-29.3%	-37.1%	-85.0%	-85.0%
> 3Y and <= 6Y	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-85.0%	-70.7%	-70.7%	-70.7%	-70.7%	-28.8%	-36.7%	-85.0%	-85.0%
<= 3Y	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-85.0%	-70.7%	-70.7%	-70.7%	-70.7%	-27.5%	-35.5%	-85.0%	-85.0%
Unspecified Vintage	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-85.0%	-70.7%	-70.7%	-70.7%	-70.7%	-36.6%	-54.8%	-85.0%	-85.0%
	03.270	03.270	05.270	03.270	03.270	03.270	05.070	70.770	70.770	70.770	70.770	30.070	31.070	03.070	03.070
<b td="" total<=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>,</td><td></td><td></td><td></td><td></td>											,				
> 9Y	-30.6%	-54.8%	-54.8%	-54.8%	-54.8%	-54.8%	-68.5%	-46.6%	-46.6%	-26.1%	-46.6%	-36.6%	-54.8%	-38.3%	-68.5%
> 6Y and <= 9Y	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-85.0%	-70.7%	-70.7%	-70.7%	-70.7%	-29.3%	-37.1%	-85.0%	-85.0%
> 3Y and <= 6Y	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-85.0%	-70.7%	-70.7%	-70.7%	-70.7%	-28.8%	-36.7%	-85.0%	-85.0%
<= 3Y	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-85.0%	-70.7%	-70.7%	-70.7%	-70.7%	-27.5%	-35.5%	-85.0%	-85.0%
Unspecified Vintage	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-85.0%	-70.7%	-70.7%	-70.7%	-70.7%	-36.6%	-54.8%	-85.0%	-85.0%
NR Total															
> 9Y	-30.6%	-54.8%	-54.8%	-54.8%	-54.8%	-54.8%	-68.5%	-46.6%	-46.6%	-26.1%	-46.6%	-36.6%	-54.8%	-38.3%	-68.5%
> 6Y and <= 9Y	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-85.0%	-70.7%	-70.7%	-70.7%	-70.7%	-29.3%	-37.1%	-85.0%	-85.0%
> 3Y and <= 6Y	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-85.0%	-70.7%	-70.7%	-70.7%	-70.7%	-28.8%	-36.7%	-85.0%	-85.0%
<= 3Y	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-85.0%	-70.7%	-70.7%	-70.7%	-70.7%	-27.5%	-35.5%	-85.0%	-85.0%
Unspecified Vintage	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-83.2%	-85.0%	-70.7%	-70.7%	-70.7%	-70.7%	-36.6%	-54.8%	-85.0%	-85.0%

Securitized Products

Trading, PE & Other Fair Value Assets

Securitized Products

•				ADC				ı			CNADC				C	CDO /CIO	14/	h	1
				ABS							CMBS				Corporate	CDO / CLO	Ware	house	
			Student			Index	Other /	Cash Non-				Index		Other /		Other /		Total	Other /
	Autos	Credit Cards	Loans	ABS CDS	Credit Basket	Tranches	Unspecified	Agency CMBS	CMBS CDS	CMBS CDO	Credit Basket	Tranches	Whole Loans		CLO	Unspecified	Total Size	Protection	Unspecified
Relative MV Shock Base	d on Current	Rating (%)					•									•			
AAA Total																			
> 9Y	-7.0%	-7.0%	-10.7%	-10.7%	-10.7%	-10.7%	-10.7%	-8.3%	-7.0%	-10.3%	-7.0%	-7.0%	-26.6%	-10.3%	-11.4%	-11.4%	-54.8%	54.8%	-26.8%
> 6Y and <= 9Y	-7.0%	-7.0%	-10.7%	-10.7%	-10.7%	-10.7%	-10.7%	-12.8%	-10.8%	-16.0%	-10.8%	-10.8%	-30.2%	-16.0%	-11.4%	-11.4%	-37.1%	37.1%	-26.8%
> 3Y and <= 6Y	-7.0%	-7.0%	-11.5%	-11.5%	-11.5%	-11.5%	-11.5%	-20.1%	-17.1%	-25.1%	-17.1%	-17.1%	-36.1%	-25.1%	-11.4%	-11.4%	-36.7%	36.7%	-26.1%
<= 3Y	-13.3%	-4.6%	-5.6%	-13.3%	-13.3%	-13.3%	-13.3%	-30.6%	-26.0%	-38.2%	-26.0%	-26.0%	-44.4%	-38.2%	-16.3%	-16.3%	-44.4%	44.4%	-38.2%
Unspecified Vintage	-13.3%	-7.0%	-11.5%	-13.3%	-13.3%	-13.3%	-13.3%	-30.6%	-26.0%	-38.2%	-26.0%	-26.0%	-44.4%	-38.2%	-16.3%	-16.3%	-54.8%	54.8%	-38.2%
AA Total																			
> 9Y	-7.4%	-12.8%	-11.9%	-12.8%	-12.8%	-12.8%	-12.8%	-15.0%	-12.7%	-18.7%	-12.7%	-12.7%	-26.6%	-18.7%	-35.2%	-35.2%	-54.8%	54.8%	-35.2%
> 6Y and <= 9Y	-7.4%	-12.8%	-11.9%	-12.8%	-12.8%	-12.8%	-12.8%	-29.6%	-25.2%	-37.0%	-25.2%	-25.2%	-30.2%	-37.0%	-35.2%	-35.2%	-37.1%	37.1%	-37.0%
> 3Y and <= 6Y	-7.4%	-12.8%	-12.5%	-12.8%	-12.8%	-12.8%	-12.8%	-39.7%	-33.7%	-49.6%	-33.7%	-33.7%	-36.1%	-49.6%	-35.2%	-35.2%	-36.7%	36.7%	-49.6%
<= 3Y	-13.3%	-12.8%	-11.9%	-13.3%	-13.3%	-13.3%	-13.3%	-60.8%	-51.7%	-76.0%	-51.7%	-51.7%	-44.4%	-76.0%	-45.9%	-45.9%	-44.4%	44.4%	-76.0%
Unspecified Vintage	-13.3%	-12.8%	-12.5%	-13.3%	-13.3%	-13.3%	-13.3%	-60.8%	-51.7%	-76.0%	-51.7%	-51.7%	-44.4%	-76.0%	-45.9%	-45.9%	-54.8%	54.8%	-76.0%
A Total								ĺ											ĺ
> 9Y	-10.3%	-15.6%	-14.7%	-15.6%	-15.6%	-15.6%	-15.6%	-28.4%	-24.2%	-35.6%	-24.2%	-24.2%	-26.6%	-35.6%	-46.2%	-46.2%	-54.8%	54.8%	-46.2%
>6Y and <= 9Y	-10.3%	-15.6%	-14.7%	-15.6%	-15.6%	-15.6%	-15.6%	-50.7%	-43.1%	-63.4%	-43.1%	-43.1%	-30.2%	-63.4%	-46.2%	-46.2%	-37.1%	37.1%	-63.4%
> 3Y and <= 6Y	-10.3%	-15.6%	-15.3%	-15.6%	-15.6%	-15.6%	-15.6%	-53.6%	-45.5%	-67.0%	-45.5%	-45.5%	-36.1%	-67.0%	-46.2%	-46.2%	-36.7%	36.7%	-67.0%
<= 3Y	-13.3%	-12.8%	-11.9%	-13.3%	-13.3%	-13.3%	-13.3%	-67.8%	-57.6%	-84.7%	-57.6%	-57.6%	-44.4%	-84.7%	-58.1%	-58.1%	-44.4%	44.4%	-84.7%
Unspecified Vintage	-13.3%	-15.6%	-15.3%	-15.6%	-15.6%	-15.6%	-15.6%	-67.8%	-57.6%	-84.7%	-57.6%	-57.6%	-44.4%	-84.7%	-58.1%	-58.1%	-54.8%	54.8%	-84.7%
BBB Total				•			•			<u>.</u>						•		<u>.</u>	
> 9Y	-15.0%	-20.0%	-19.2%	-20.0%	-20.0%	-20.0%	-20.0%	-34.3%	-29.2%	-42.9%	-29.2%	-29.2%	-26.6%	-42.9%	-51.2%	-51.2%	-54.8%	54.8%	-51.2%
> 6Y and <= 9Y	-15.0%	-20.0%	-19.2%	-20.0%	-20.0%	-20.0%	-20.0%	-66.2%	-56.2%	-82.7%	-56.2%	-56.2%	-30.2%	-82.7%	-51.2%	-51.2%	-34.8%	37.1%	-82.7%
> 3Y and <= 6Y	-15.0%	-20.0%	-19.8%	-20.0%	-20.0%	-20.0%	-20.0%	-53.6%	-45.5%	-67.0%	-45.5%	-45.5%	-36.1%	-67.0%	-51.2%	-51.2%	-36.7%	36.7%	-67.0%
<= 3Y	-18.2%	-17.7%	-16.9%	-18.2%	-18.2%	-18.2%	-18.2%	-67.8%	-57.6%	-84.7%	-57.6%	-57.6%	-44.4%	-84.7%	-62.5%	-62.5%	-44.4%	44.4%	-84.7%
Unspecified Vintage	-18.2%	-20.0%	-19.8%	-20.0%	-20.0%	-20.0%	-20.0%	-67.8%	-57.6%	-84.7%	-57.6%	-57.6%	-44.4%	-84.7%	-62.5%	-62.5%	-54.8%	54.8%	-84.7%
1 .		•		•	•								•			•		•	
BB Total > 9Y	-32.4%	-36.4%	-35.7%	-36.4%	-36.4%	-36.4%	-36.4%	-34.3%	-29.2%	-42.9%	-29.2%	-29.2%	-26.6%	-42.9%	-67.7%	-67.7%	-54.8%	54.8%	-67.7%
> 6Y and <= 9Y	-32.4%	-36.4%	-35.7%	-36.4%	-36.4%	-36.4%	-36.4%	-66.4%	-56.4%	-42.9%	-56.4%	-56.4%	-30.2%	-83.0%	-67.7%	-67.7%	-34.8%	37.1%	-83.0%
> 3Y and <= 6Y	-32.4%	-36.4%	-36.2%	-36.4%	-36.4%	-36.4%	-36.4%	-62.3%	-53.0%	-77.9%	-53.0%	-53.0%	-36.1%	-77.9%	-67.7%	-67.7%	-36.7%	36.7%	-77.9%
<= 3Y	-32.4%	-32.0%	-31.3%	-32.4%	-32.4%	-32.4%	-32.4%	-71.5%	-60.8%	-85.0%	-60.8%	-60.8%	-44.4%	-85.0%	-76.7%	-76.7%	-44.4%	44.4%	-85.0%
Unspecified Vintage	-32.4%	-36.4%	-36.2%	-36.4%	-36.4%	-36.4%	-36.4%	-71.5%	-60.8%	-85.0%	-60.8%	-60.8%	-44.4%	-85.0%	-76.7%	-76.7%	-54.8%	54.8%	-85.0%
		•		•	•			·	-				•	•		•			
B Total	-32.4%	25.40/	25.70/	25.40/	25.40/	25.40/	25.40/	57.40/	F7 00/	02.00/	F7.00/	57.00/	25.50/	02.00/	C7 70/	57.70	F 4 00/	54.00/	02.00/
> 9Y > 6Y and <= 9Y	-32.4%	-36.4% -36.4%	-35.7% -35.7%	-36.4% -36.4%	-36.4% -36.4%	-36.4% -36.4%	-36.4% -36.4%	-67.1% -66.4%	-57.0% -56.4%	-83.9% -83.0%	-57.0% -56.4%	-57.0% -56.4%	-26.6% -30.2%	-83.9% -83.0%	-67.7% -67.7%	-67.7% -67.7%	-54.8% -37.1%	54.8% 37.1%	-83.9% -85.0%
>3Y and <= 6Y	-32.4%	-36.4%	-36.2%	-36.4%	-36.4%	-36.4%	-36.4%	-62.3%	-53.0%	-83.0%	-53.0%	-53.0%	-36.1%	-83.0%	-67.7%	-67.7%	-36.7%	36.7%	-85.0%
<= 3Y	-32.4%	-30.4%	-31.3%	-30.4%	-32.4%	-30.4%	-32.4%	-77.7%	-66.0%	-85.0%	-66.0%	-66.0%	-44.4%	-85.0%	-76.7%	-76.7%	-44.4%	44.4%	-85.0%
Unspecified Vintage	-32.4%	-36.4%	-36.2%	-36.4%	-36.4%	-36.4%	-36.4%	-77.7%	-66.0%	-85.0%	-66.0%	-66.0%	-44.4%	-85.0%	-76.7%	-76.7%	-54.8%	54.8%	-85.0%
																•			
<b td="" total<=""><td>22.40/</td><td>25.40/</td><td>25.70/</td><td>25.40/</td><td>25.40/</td><td>25.40/</td><td>7 25 40/</td><td>75.40/</td><td>C4 70/</td><td>05.00/</td><td>C 4 70/ I</td><td>5470/</td><td>25.50/</td><td>05.00/</td><td>67.70/</td><td>57.70</td><td>F 4 00/</td><td>54.00/</td><td>05.00/</td>	22.40/	25.40/	25.70/	25.40/	25.40/	25.40/	7 25 40/	75.40/	C4 70/	05.00/	C 4 70/ I	5470/	25.50/	05.00/	67.70/	57.70	F 4 00/	54.00/	05.00/
> 9Y	-32.4% -32.4%	-36.4% -36.4%	-35.7% -35.7%	-36.4% -36.4%	-36.4% -36.4%	-36.4% -36.4%	-36.4% -36.4%	-76.1% -76.1%	-64.7% -64.7%	-85.0% -85.0%	-64.7% -64.7%	-64.7% -64.7%	-26.6% -30.2%	-85.0% -85.0%	-67.7% -67.7%	-67.7% -67.7%	-54.8% -37.1%	54.8% 37.1%	-85.0% -85.0%
> 6Y and <= 9Y > 3Y and <= 6Y	-32.4%	-36.4%	-35.7%	-36.4%	-36.4%	-36.4%	-36.4%	-76.1% -76.1%	-64.7%	-85.0% -85.0%	-64.7% -64.7%	-64.7%	-30.2%	-85.0% -85.0%	-67.7%	-67.7%	-37.1%	36.7%	-85.0% -85.0%
> 3Y and <= 6Y <= 3Y	-32.4%	-36.4%	-31.3%	-35.4%	-36.4%	-36.4%	-36.4%	-76.1%	-66.0%	-85.0% -85.0%	-66.0%	-64.7%	-36.1%	-85.0% -85.0%	-76.7%	-67.7%	-36.7%	36.7% 44.4%	-85.0% -85.0%
Unspecified Vintage	-32.4%	-32.0%	-36.2%	-36.4%	-36.4%	-36.4%	-36.4%	-77.7%	-66.0%	-85.0%	-66.0%	-66.0%	-44.4%	-85.0%	-76.7%	-76.7%	-54.8%	54.8%	-85.0%
·																	,-		
NR Total							1						1						
> 9Y	-32.4%	-36.4%	-35.7%	-36.4%	-36.4%	-36.4%	-36.4%	-76.1%	-64.7%	-85.0%	-64.7%	-64.7%	-26.6%	-85.0%	-67.7%	-67.7%	-54.8%	54.8%	-85.0%
> 6Y and <= 9Y	-32.4% -32.4%	-36.4%	-35.7%	-36.4%	-36.4%	-36.4%	-36.4%	-76.1%	-64.7%	-85.0%	-64.7%	-64.7%	-30.2%	-85.0%	-67.7%	-67.7%	-37.1%	37.1%	-85.0%
> 3Y and <= 6Y <= 3Y	-32.4%	-36.4% -32.0%	-36.2% -31.3%	-36.4% -32.4%	-36.4% -32.4%	-36.4% -32.4%	-36.4% -32.4%	-76.1% -77.7%	-64.7% -66.0%	-85.0% -85.0%	-64.7% -66.0%	-64.7% -66.0%	-36.1% -44.4%	-85.0% -85.0%	-67.7% -76.7%	-67.7% -76.7%	-36.7% -44.4%	36.7% 44.4%	-85.0% -85.0%
<= 3Y Unspecified Vintage	-32.4%	-32.0%	-31.3%	-32.4%	-32.4%	-32.4%	-32.4%	-77.7%	-66.0%	-85.0% -85.0%	-66.0%	-66.0%	-44.4%	-85.0% -85.0%	-76.7% -76.7%	-76.7%	-44.4% -54.8%	54.8%	-85.0% -85.0%
onspecified vilitage	-32.4/0	-30.476	-30.2/0	-30.4/6	-30.470	-30.476	-30.476	-//.//0	-00.076	-03.076	-00.076	-00.076	-44.470	-03.070	-70.7/6	-70.776	-34.070	J4.0/0	-63.076

Municipals

Trading, PE & Other Fair Value Assets

Munis

Bonds	Spread Widening (bps)
AAA	26.2
AA	32.0
A	57.3
ВВВ	205.0
ВВ	430.5
В	676.5
<b< td=""><td>963.5</td></b<>	963.5
NR	963.5
Loans	
AAA	26.2
AA	32.0
A	57.3
ввв	205.0
вв	430.5
В	676.5
<b< td=""><td>963.5</td></b<>	963.5
NR	963.5
CDS	T
AAA	23.8
AA	29.1
Α	52.1
BBB	186.4
ВВ	391.4
В	615.0
<b< td=""><td>875.9</td></b<>	875.9
NR	875.9
Indices	
AAA	23.8
AA	29.1
A	52.1
BBB	186.4
BB	391.4
В	615.0
<b< td=""><td>875.9</td></b<>	875.9
NR	875.9
IVIX	073.3
Other / Unspecified Munis	
AAA	23.8
AA	29.1
A	52.1
ввв	186.4
вв	391.4
В	615.0
<b< td=""><td>875.9</td></b<>	875.9
NR	875.9

Agencies

Trading, PE & Other Fair Value Assets

Agencies

US Residential Agency Products

US Residential Agency Products
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

OAS	Widening	(bps)

	<u> </u>
-	
556.6	
112.6	
44.5	
50.0	-
53.5	
556.6	
112.6	
45.0	
53.5	
45.0	
44.5	
45.0	

US Commercial Agency Products

Cash Agency CMBS
Agency CMBS Derivatives
Commercial Other / Unspecified

96.6	
96.6	
96.6	

Non-US Agency Products

AAA AA			
AA			
Α			
ввв			
вв			
В			
<b< th=""><td></td><td></td><td></td></b<>			
NR			

76.0
195.9
294.9
393.9
491.0
736.5
1,104.8
1,104.8

Rates DV01

DFAST 2019 Market Shocks: Severely Adverse Scenario

Rates DV01

	MATURITY												
Rates Shocks (bps)	1M	3M	6M	9M	1Y	2Y	ЗҮ	5Y	7Y	10Y	15Y	20Y	30Y
Governments	(38.0)	(36.0)	(34.0)	(32.0)	(32.0)	(30.0)	(28.0)	(26.0)	(25.0)	(24.0)	(21.0)	(20.0)	(20.0
Agencies	(38.0)	(36.0)	(34.0)	(32.0)	(32.0)	(30.0)	(28.0)	(26.0)	(25.0)	(24.0)	(21.0)	(20.0)	(20.0
Municipals	(38.0)	(36.0)	(34.0)	(32.0)	(32.0)	(30.0)	(28.0)	(26.0)	(25.0)	(24.0)	(21.0)	(20.0)	(20.0
Swaps / Discounting Curve	(30.0)	(29.0)	(28.0)	(27.0)	(27.0)	(25.0)	(23.0)	(21.5)	(20.0)	(19.0)	(18.5)	(18.0)	(18.0
Instruments shocked by MV**	(30.0)	(23.0)	(28.0)	(27.0)	(27.0)	(23.0)	(23.0)	(21.5)	(20.0)	(13.0)	(18.5)	(18.0)	(18.0
Other	(30.0)	(29.0)	(28.0)	(27.0)	(27.0)	(25.0)	(23.0)	(21.5)	(20.0)	(19.0)	(18.5)	(18.0)	(18.0
UD Basis Risks (Do not include the sv OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis	wap/discounting	curve specifi	ed above)										
AD Directional Risks Governments	(30.5)	(30.5)	(30.0)	(29.5)	(29.5)	(29.5)	(29.5)	(29.5)	(29.0)	(29.0)	(29.0)	(28.0)	(28.0
	(30.5)	(30.5)	(30.0)	(29.5)	(29.5)	(29.5)	(29.5)	(29.5)	(29.0)	(29.0)	(29.0)	(28.0)	(28.0
Agencies		· · ·											
Municipals	(30.5)	(30.5)	(30.0)	(29.5)	(29.5)	(29.5)	(29.5)	(29.5)	(29.0)	(29.0)	(29.0)	(28.0)	(28.
Swaps / Discounting Curve	(22.8)	(22.0)	(21.8)	(21.8)	(21.5)	(21.5)	(21.5)	(21.5)	(21.5)	(21.5)	(21.0)	(21.0)	(21.
Instruments shocked by MV**	(()	(=)	(=)	()	()	(= - =)	(= - =)	()	()	()	(= - =)	
Other	(22.8)	(22.0)	(21.8)	(21.8)	(21.5)	(21.5)	(21.5)	(21.5)	(21.5)	(21.5)	(21.0)	(21.0)	(21.0
CAD Basis Risks (Do not include the sv	wap/discounting	curve specifie	ed above)										
OIS Basis		1											
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													
:HF Directional Risks				1									
Governments	(12.2)	(9.8)	(6.7)	(4.2)	(4.0)	(4.5)	(5.4)	(6.6)	(6.6)	(6.4)	(6.1)	(5.9)	(5.8
Agencies	(12.2)	(9.8)	(6.7)	(4.2)	(4.0)	(4.5)	(5.4)	(6.6)	(6.6)	(6.4)	(6.1)	(5.9)	(5.8
Municipals	(12.2)	(9.8)	(6.7)	(4.2)	(4.0)	(4.5)	(5.4)	(6.6)	(6.6)	(6.4)	(6.1)	(5.9)	(5.8
Swaps / Discounting Curve	(5.0)	(4.0)	(2.0)	(1.0)	(1.2)	(1.0)	(1.0)	(1.0)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5
Instruments shocked by MV**													
Other	(5.0)	(4.0)	(2.0)	(1.0)	(1.2)	(1.0)	(1.0)	(1.0)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5
HF Basis Risks (Do not include the sw	vap/discounting	curve specifie	d above)									_	
	1							ļ			1		
			1	1	1					l			
OIS Basis 1m Basis				1									
1m Basis													
1m Basis 3m Basis													

DKK Directional Risks Governments Agencies													
	(25.9)	(27.1)	(28.4)	(29.5)	(30.2)	(31.3)	(30.9)	(29.1)	(27.6)	(26.1)	(24.8)	(24.1)	(23.5)
	(25.9)	(27.1)	(28.4)	(29.5)	(30.2)	(31.3)	(30.9)	(29.1)	(27.6)	(26.1)	(24.8)	(24.1)	(23.5)
Municipals	(25.9)	(27.1)	(28.4)	(29.5)	(30.2)	(31.3)	(30.9)	(29.1)	(27.6)	(26.1)	(24.8)	(24.1)	(23.5)
Swaps / Discounting Curve	(11.5)	(16.3)	(22.0)	(23.0)	(24.0)	(24.0)	(24.0)	(23.9)	(23.6)	(18.2)	(13.6)	(11.3)	(9.0)
Instruments shocked by MV**	(11.5)	(16.5)	(22.0)	(23.0)	(24.0)	(24.0)	(24.0)	(23.9)	(23.6)	(10.2)	(15.6)	(11.5)	(9.0)
Other	(11.5)	(16.3)	(22.0)	(23.0)	(24.0)	(24.0)	(24.0)	(23.9)	(23.6)	(18.2)	(13.6)	(11.3)	(9.0)
Other	(11.5)	(16.3)	(22.0)	(23.0)	(24.0)	(24.0)	(24.0)	(23.9)	(23.6)	(18.2)	(13.6)	(11.3)	(9.0)
DKK Basis Risks (Do not include the swa	np/discounting	curve specifie	d above)										
OIS Basis													
1m Basis													
3m Basis													
6m Basis													
12m Basis													
Other Basis													
			ļ.						ļ.				
EUR Directional Risks													
Governments: Austria	(56.7)	(61.4)	(66.8)	(70.6)	(73.0)	(74.4)	(69.4)	(56.4)	(46.2)	(36.6)	(28.6)	(24.5)	(20.5)
Governments: Belgium	(34.1)	(34.3)	(34.5)	(34.7)	(34.9)	(35.4)	(35.8)	(36.2)	(36.4)	(36.6)	(36.7)	(36.8)	(36.9)
Governments: Finland	(13.8)	(17.2)	(21.4)	(24.7)	(27.3)	(32.4)	(33.3)	(31.2)	(28.6)	(26.0)	(23.7)	(22.5)	(21.3)
Governments: France	(9.3)	(16.0)	(24.1)	(30.5)	(35.3)	(45.1)	(46.5)	(42.0)	(36.8)	(31.4)	(26.7)	(24.4)	(22.0)
Governments: Germany	(34.1)	(34.3)	(34.5)	(34.7)	(34.9)	(35.4)	(35.8)	(36.2)	(36.4)	(36.6)	(36.7)	(36.8)	(36.9)
Governments: Greece	595.0	595.0	595.4	791.1	986.7	1,640.0	1,640.0	1,353.9	1,109.9	927.0	784.7	712.4	641.3
Governments: Ireland	117.7	117.7	118.7	119.9	120.0	250.0	350.0	420.0	405.0	397.0	295.0	200.0	200.0
Governments: Italy	497.0	497.0	420.0	390.0	350.0	330.0	305.0	290.0	255.0	207.3	205.0	201.0	201.0
Governments: Netherlands	(4.2)	(11.9)	(21.4)	(28.8)	(34.7)	(46.8)	(49.4)	(45.7)	(40.7)	(35.4)	(30.8)	(28.4)	(26.1)
Governments: Portugal	316.0	316.0	316.0	320.0	350.0	350.0	350.0	350.0	325.0	325.0	325.0	325.0	325.0
Governments: Spain	354.0	354.0	340.0	320.0	311.0	295.0	285.0	268.0	220.0	188.0	175.0	175.0	175.0
Governments: Other	(5.4)	(11.5)	(19.1)	(24.9)	(29.3)	(37.6)	(38.1)	(32.6)	(26.9)	(21.1)	(16.2)	(13.6)	(11.1)
Agencies	(4.2)	(11.9)	(21.4)	(28.8)	(34.7)	(46.8)	(49.4)	(45.7)	(40.7)	(35.4)	(30.8)	(28.4)	(26.1)
Municipals	(4.2)	(11.9)	(21.4)	(28.8)	(34.7)	(46.8)	(49.4)	(45.7)	(40.7)	(35.4)	(30.8)	(28.4)	(26.1)
Swaps / Discounting Curve	(28.0)	(28.0)	(28.5)	(28.5)	(28.5)	(29.0)	(30.0)	(31.0)	(33.0)	(34.0)	(35.0)	(35.0)	(34.0)
	(28.0)	(28.0)	(28.3)	(28.3)	(28.5)	(29.0)	(30.0)	(31.0)	(33.0)	(34.0)	(33.0)	(33.0)	(34.0)
				(28.5)	(28.5)	(29.0)	(30.0)	(31.0)	(33.0)	(34.0)	(35.0)	(25.0)	(34.0)
Instruments shocked by MV**	(28.0)	(28.0)						(31.0)					
Other	(28.0)	(28.0)	(28.5)	(28.3)	(==:=)	(==:-)		•	(,	, ,	(33.0)	(35.0)	(34.0)
Other		, ,		(28.3)	(==:=)	(2010)		•	, , , , , , , , , , , , , , , , , , , ,		(33.0)	(35.0)	(34.0)
The state of the s		, ,		(12.0)	(11.0)	(11.0)	(10.0)	(9.5)	(9.0)	(8.0)	(6.0)	(5.0)	(5.0)
Other EUR Basis Risks (Do not include the swa	ap/discounting	curve specifie	d above)	,	, , ,	, ,	(10.0)	(9.5)		(8.0)		, , ,	, ,
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis	ap/discounting (13.0)	curve specifie	d above)	(12.0)	(11.0)	(11.0)			(9.0)		(6.0)	(5.0)	(5.0)
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis	(13.0) (0.1)	(13.0) (0.1)	(12.0) (0.1)	(12.0)	(11.0)	(11.0)	0.0	0.0	(9.0) 0.0	0.1	(6.0)	(5.0)	(5.0) 0.1
Other EUR Basis Risks (Do not include the swa OIS Basis Im Basis 3m Basis 6m Basis	(13.0) (0.1)	(13.0) (0.1)	(12.0) (0.1)	(12.0) (0.1)	(11.0) (0.1)	(11.0) (0.1) 8.0	7.0	6.0	(9.0) 0.0 5.0	5.0	(6.0) 0.1	(5.0) 0.1	(5.0) 0.1
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis	(13.0) (0.1)	(13.0) (0.1)	(12.0) (0.1)	(12.0)	(11.0)	(11.0)	0.0	0.0	(9.0) 0.0	0.1	(6.0)	(5.0)	(5.0) 0.1
Other EUR Basis Risks (Do not include the swa OIS Basis Im Basis 3m Basis 6m Basis	(13.0) (0.1)	(13.0) (0.1)	(12.0) (0.1)	(12.0) (0.1)	(11.0) (0.1)	(11.0) (0.1)	7.0	6.0	(9.0) 0.0 5.0	5.0	(6.0) 0.1	(5.0) 0.1	(5.0) 0.1
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis	(13.0) (0.1)	(13.0) (0.1)	(12.0) (0.1)	(12.0) (0.1)	(11.0) (0.1)	(11.0) (0.1)	7.0	6.0	(9.0) 0.0 5.0	5.0	(6.0) 0.1	(5.0) 0.1	(5.0) 0.1
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis	(13.0) (0.1)	(13.0) (0.1)	(12.0) (0.1)	(12.0) (0.1)	(11.0) (0.1)	(11.0) (0.1)	7.0	6.0	(9.0) 0.0 5.0	5.0	(6.0) 0.1	(5.0) 0.1	(5.0) 0.1
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis	(13.0) (0.1)	(13.0) (0.1)	(12.0) (0.1)	(12.0) (0.1)	(11.0) (0.1)	(11.0) (0.1)	7.0	6.0	(9.0) 0.0 5.0	5.0	(6.0) 0.1	(5.0) 0.1	(5.0) 0.1
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis	(13.0) (0.1) 11.0 21.0	(13.0) (0.1) 11.0 21.0	(12.0) (0.1) (11.0) 21.0	(12.0) (0.1) 10.0 20.0	(11.0) (0.1) 10.0 20.0	(11.0) (0.1) 8.0 18.0	7.0 17.0	6.0 14.0	(9.0) 0.0 5.0 10.0	0.1 5.0 7.0	(6.0) 0.1 4.0 6.0	(5.0) 0.1 3.0 4.0	(5.0) 0.1 1.0 3.0
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis	(13.0) (0.1) 11.0 21.0	(41.5)	(41.0)	(12.0) (0.1) 10.0 20.0	(11.0) (0.1) 10.0 20.0	(11.0) (0.1) 8.0 18.0	7.0 17.0 (40.0)	6.0 14.0	(9.0) 0.0 5.0 10.0	0.1 5.0 7.0	(6.0) 0.1 4.0 6.0	(5.0) 0.1 3.0 4.0	(5.0) 0.1 1.0 3.0
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis	(13.0) (0.1) 11.0 21.0 (41.8) (41.8)	(41.5) (41.5)	(41.0) (41.0)	(12.0) (0.1) 10.0 20.0 (40.6) (40.6)	(11.0) (0.1) 10.0 20.0 (40.3) (40.3)	(11.0) (0.1) 8.0 18.0 (40.0) (40.0)	0.0 7.0 17.0 (40.0) (40.0)	(39.0) (39.0)	(9.0) 0.0 5.0 10.0 (38.5) (38.5)	0.1 5.0 7.0 7.0 (38.0) (38.0)	(6.0) 0.1 4.0 6.0	(5.0) 0.1 3.0 4.0 (37.5) (37.5)	(5.0) 0.1 1.0 3.0 (37.5) (37.5)
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis GBP Directional Risks Governments Agencies Municipals Swaps / Discounting Curve	(41.8) (41.8) (41.8)	(13.0) (0.1) 11.0 21.0 (41.5) (41.5) (41.5)	(41.0) (41.0) (41.0) (41.0) (41.0)	(12.0) (0.1) 10.0 20.0 (40.6) (40.6) (40.6)	(11.0) (0.1) 10.0 20.0 (40.3) (40.3) (40.3)	(11.0) (0.1) 8.0 18.0 (40.0) (40.0) (40.0)	(40.0) (40.0) (40.0)	(39.0) (39.0) (39.0) (39.0)	(9.0) 0.0 5.0 10.0 (38.5) (38.5) (38.5)	0.1 5.0 7.0 (38.0) (38.0) (38.0)	(6.0) 0.1 4.0 6.0 (38.0) (38.0) (38.0)	(5.0) 0.1 3.0 4.0 (37.5) (37.5) (37.5)	(5.0) 0.1 1.0 3.0 (37.5) (37.5) (37.5)
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis GBP Directional Risks Governments Agencies Municipals	(41.8) (41.8) (41.8)	(13.0) (0.1) 11.0 21.0 (41.5) (41.5) (41.5)	(41.0) (41.0) (41.0) (41.0) (41.0)	(12.0) (0.1) 10.0 20.0 (40.6) (40.6) (40.6)	(11.0) (0.1) 10.0 20.0 (40.3) (40.3) (40.3)	(11.0) (0.1) 8.0 18.0 (40.0) (40.0) (40.0)	(40.0) (40.0) (40.0)	(39.0) (39.0) (39.0) (39.0)	(9.0) 0.0 5.0 10.0 (38.5) (38.5) (38.5)	0.1 5.0 7.0 (38.0) (38.0) (38.0)	(6.0) 0.1 4.0 6.0 (38.0) (38.0) (38.0)	(5.0) 0.1 3.0 4.0 (37.5) (37.5) (37.5)	(5.0) 0.1 1.0 3.0 (37.5) (37.5) (37.5)
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis GBP Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV**	(13.0) (0.1) 11.0 21.0 (41.8) (41.8) (41.8) (41.8) (34.0)	(41.5) (41.5) (41.5) (34.0)	(41.0) (41.0) (41.0) (33.7)	(12.0) (0.1) 10.0 20.0 (40.6) (40.6) (40.6) (33.5)	(11.0) (0.1) 10.0 20.0 (40.3) (40.3) (40.3) (33.2)	(11.0) (0.1) 8.0 18.0 (40.0) (40.0) (40.0) (33.0)	(40.0) (40.0) (40.0) (40.0) (33.0)	(39.0) (39.0) (39.0) (39.5)	(9.0) 0.0 5.0 10.0 (38.5) (38.5) (38.5) (38.5)	0.1 5.0 7.0 (38.0) (38.0) (38.0) (32.0)	(6.0) 0.1 4.0 6.0 (38.0) (38.0) (38.0) (38.0)	(5.0) 0.1 3.0 4.0 (37.5) (37.5) (37.5) (37.5) (31.8)	(5.0) 0.1 1.0 3.0 (37.5) (37.5) (37.5) (37.5) (31.8)
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis GBP Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV**	(41.8) (41.8) (41.8) (41.8) (34.0)	(41.5) (41.5) (41.5) (34.0)	(41.0) (41.0) (41.0) (33.7)	(12.0) (0.1) 10.0 20.0 (40.6) (40.6) (40.6) (33.5)	(11.0) (0.1) 10.0 20.0 (40.3) (40.3) (40.3) (33.2)	(11.0) (0.1) 8.0 18.0 (40.0) (40.0) (40.0) (33.0)	(40.0) (40.0) (40.0) (40.0) (33.0)	(39.0) (39.0) (39.0) (39.0) (32.5)	(9.0) 0.0 5.0 10.0 (38.5) (38.5) (38.5) (32.5)	0.1 5.0 7.0 (38.0) (38.0) (38.0) (32.0) (32.0)	(6.0) 0.1 4.0 6.0 (38.0) (38.0) (38.0) (32.0)	(5.0) 0.1 3.0 4.0 (37.5) (37.5) (37.5) (31.8)	(5.0) 0.1 1.0 3.0 (37.5) (37.5) (37.5) (31.8)
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis GBP Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other	(41.8) (41.8) (41.8) (34.0)	(41.5) (41.5) (41.5) (34.0)	(41.0) (41.0) (41.0) (33.7)	(12.0) (0.1) 10.0 20.0 (40.6) (40.6) (40.6) (33.5)	(11.0) (0.1) 10.0 20.0 (40.3) (40.3) (40.3) (33.2)	(11.0) (0.1) 8.0 18.0 (40.0) (40.0) (40.0) (33.0)	(40.0) (40.0) (40.0) (40.0) (33.0)	(39.0) (39.0) (39.0) (39.5)	(9.0) 0.0 5.0 10.0 (38.5) (38.5) (38.5) (38.5)	0.1 5.0 7.0 (38.0) (38.0) (38.0) (32.0)	(6.0) 0.1 4.0 6.0 (38.0) (38.0) (38.0) (38.0)	(5.0) 0.1 3.0 4.0 (37.5) (37.5) (37.5) (37.5) (31.8)	(5.0) 0.1 1.0 3.0 (37.5) (37.5) (37.5) (37.5) (31.8)
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis GBP Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other GBP Basis Risks (Do not include the swa	(41.8) (41.8) (41.8) (41.8) (34.0)	(41.5) (41.5) (41.5) (34.0)	(41.0) (41.0) (41.0) (33.7) (43.0)	(12.0) (0.1) 10.0 20.0 (40.6) (40.6) (40.6) (33.5)	(11.0) (0.1) 10.0 20.0 (40.3) (40.3) (40.3) (33.2)	(11.0) (0.1) 8.0 18.0 (40.0) (40.0) (40.0) (33.0)	(40.0) (40.0) (40.0) (40.0) (33.0)	(39.0) (39.0) (39.0) (39.0) (32.5)	(9.0) 0.0 5.0 10.0 (38.5) (38.5) (38.5) (32.5)	0.1 5.0 7.0 (38.0) (38.0) (38.0) (32.0) (32.0)	(6.0) 0.1 4.0 6.0 (38.0) (38.0) (38.0) (32.0)	(5.0) 0.1 3.0 4.0 (37.5) (37.5) (37.5) (31.8)	(5.0) 0.1 1.0 3.0 (37.5) (37.5) (37.5) (31.8) (31.8)
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other GBP Basis Risks (Do not include the swa OIS Basis	(13.0) (0.1) 11.0 21.0 (41.8) (41.8) (41.8) (41.8) (34.0) (34.0) (34.0)	(41.5) (41.5) (41.5) (41.5) (42.0) (34.0)	(41.0) (41.0) (41.0) (33.7) (43.0) (41.0) (41.0) (41.0)	(12.0) (0.1) 10.0 20.0 (40.6) (40.6) (40.6) (33.5) (33.5)	(11.0) (0.1) 10.0 20.0 (40.3) (40.3) (40.3) (33.2) (33.2)	(11.0) (0.1) 8.0 18.0 (40.0) (40.0) (40.0) (33.0) (33.0)	(40.0) (40.0) (40.0) (40.0) (33.0)	(39.0) (39.0) (39.0) (39.0) (32.5) (32.5)	(9.0) 0.0 5.0 10.0 (38.5) (38.5) (38.5) (32.5) (32.5)	0.1 5.0 7.0 (38.0) (38.0) (38.0) (32.0) (32.0)	(6.0) 0.1 4.0 6.0 (38.0) (38.0) (38.0) (32.0) (32.0)	(5.0) 0.1 3.0 4.0 (37.5) (37.5) (37.5) (37.5) (31.8) (31.8)	(5.0) 0.1 1.0 3.0 (37.5) (37.5) (37.5) (37.5) (31.8) (31.8)
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis GBP Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other GBP Basis Risks (Do not include the swa OIS Basis 1m Basis	(13.0) (0.1) 11.0 21.0 (41.8) (41.8) (41.8) (41.8) (34.0) (34.0) (34.0)	(41.5) (41.5) (41.5) (41.5) (42.0) (34.0)	(41.0) (41.0) (41.0) (33.7) (43.0) (41.0) (41.0) (41.0)	(12.0) (0.1) 10.0 20.0 (40.6) (40.6) (40.6) (33.5) (33.5)	(11.0) (0.1) 10.0 20.0 (40.3) (40.3) (40.3) (33.2) (33.2)	(11.0) (0.1) 8.0 18.0 (40.0) (40.0) (40.0) (33.0) (33.0)	(40.0) (40.0) (40.0) (40.0) (33.0)	(39.0) (39.0) (39.0) (39.0) (32.5) (32.5)	(9.0) 0.0 5.0 10.0 (38.5) (38.5) (38.5) (32.5) (32.5)	0.1 5.0 7.0 (38.0) (38.0) (38.0) (32.0) (32.0)	(6.0) 0.1 4.0 6.0 (38.0) (38.0) (38.0) (32.0) (32.0)	(5.0) 0.1 3.0 4.0 (37.5) (37.5) (37.5) (37.5) (31.8) (31.8)	(5.0) 0.1 1.0 3.0 (37.5) (37.5) (37.5) (37.5) (31.8) (31.8)
Other EUR Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis 6m Basis 12m Basis Other Basis Other Basis GBP Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other GBP Basis Risks (Do not include the swa OIS Basis 1m Basis 3m Basis	(41.8) (41.8) (41.8) (41.8) (41.8) (41.0) (34.0) (32.0) (32.0) (33.0)	(41.5) (41.5) (41.5) (41.5) (41.5) (42.5) (42.5) (42.5) (42.5) (43.6) (34.0) (34.0) (34.0)	(41.0) (41.0) (41.0) (41.0) (33.7) (33.7) (42.0) (2.7)	(12.0) (0.1) 10.0 20.0 (40.6) (40.6) (40.6) (33.5) (33.5)	(11.0) (0.1) 10.0 20.0 (40.3) (40.3) (40.3) (33.2) (33.2)	(11.0) (0.1) 8.0 18.0 (40.0) (40.0) (40.0) (33.0) (33.0) (11.0) (2.6)	(40.0) (40.0) (40.0) (40.0) (33.0) (33.0) (10.0) (2.6)	(39.0) (39.0) (39.0) (39.0) (32.5) (32.5)	(9.0) 0.0 5.0 10.0 (38.5) (38.5) (38.5) (32.5) (32.5)	(38.0) (38.0) (38.0) (38.0) (32.0) (32.0)	(6.0) 0.1 4.0 6.0 (38.0) (38.0) (38.0) (32.0) (8.0) (2.6)	(5.0) 0.1 3.0 4.0 (37.5) (37.5) (37.5) (31.8) (31.8)	(5.0) 0.1 1.0 3.0 (37.5) (37.5) (37.5) (31.8) (31.8)

JPY Directional Risks													
Governments	(4.1)	(4.3)	(4.5)	(4.7)	(4.9)	(5.4)	(5.8)	(6.2)	(6.4)	(6.6)	(6.7)	(6.8)	(6.9)
Agencies	(4.1)	(4.3)	(4.5)	(4.7)	(4.9)	(5.4)	(5.8)	(6.2)	(6.4)	(6.6)	(6.7)	(6.8)	(6.9)
Municipals	(4.1)	(4.3)	(4.5)	(4.7)	(4.9)	(5.4)	(5.8)	(6.2)	(6.4)	(6.6)	(6.7)	(6.8)	(6.9)
Swaps / Discounting Curve	(3.0)	(3.0)	(3.1)	(3.1)	(3.5)	(3.5)	(3.6)	(3.8)	(4.0)	(5.0)	(5.0)	(5.0)	(5.0)
Instruments shocked by MV**	(3.0)	(3.0)	(3.1)	(5.1)	(3.3)	(3.3)	(3.0)	(3.8)	(4.0)	(3.0)	(3.0)	(3.0)	(3.0)
Other	(3.0)	(3.0)	(3.1)	(3.1)	(3.5)	(3.5)	(3.6)	(3.8)	(4.0)	(5.0)	(5.0)	(5.0)	(5.0)
Other	(3.0)	(3.0)	(5.1)	(5.1)	(3.5)	(3.5)	(3.6)	(3.6)	(4.0)	(5.0)	(5.0)	(5.0)	(5.0)
JPY Basis Risks (Do not include the swa	an/discounting c	urve specifie	d above)										
OIS Basis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1m TIBOR Basis	(0.4)	(0.3)	(0.2)	0.2	0.1	0.2	0.2	0.3	0.3	0.4	0.7	0.9	1.1
3m TIBOR Basis	(0.4)	(0.5)	(0.2)	0.2	0.1	0.2	0.2	0.5	0.5	0.4	0.7	0.5	1.1
6m TIBOR Basis	(0.5)	(0.3)	(0.3)	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2
12m TIBOR Basis	(0.5)	(0.3)	(0.3)	0.2	0.2	0.1	0.1	0.2	0.2	0.5	0.3	0.5	0.2
1m LIBOR Basis	(0.4)	(0.3)	(0.2)	0.2	0.1	0.2	0.2	0.3	0.3	0.4	0.7	0.9	1.1
	(0.4)	(0.3)	(0.2)	0.2	0.1	0.2	0.2	0.5	0.5	0.4	0.7	0.9	1.1
3m LIBOR Basis	(0.5)	(0.2)	(0.3)	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2
6m LIBOR Basis	(0.5)	(0.3)	(0.3)	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2
12m LIBOR Basis													
Other Basis													
NOV Dive etile e el Diele													
NOK Directional Risks Governments	(44.2)	(44.3)	(44.2)	(43.8)	(43.3)	(40.4)	(37.1)	(31.7)	(28.2)	(25.0)	(22.4)	(21.0)	(19.7)
		(44.3)	(44.2)		(43.3)	(40.4)							. ,
Agencies	(44.2)			(43.8)	,		(37.1)	(31.7)	(28.2)	(25.0)	(22.4)	(21.0)	(19.7)
Municipals	(44.2)	(44.3)	(44.2)	(43.8)	(43.3)	(40.4)	(37.1)	(31.7)	(28.2)	(25.0)	(22.4)	(21.0)	(19.7)
Swaps / Discounting Curve	(31.4)	(31.4)	(31.4)	(31.0)	(31.0)	(30.0)	(27.0)	(25.0)	(24.0)	(19.3)	(14.0)	(11.3)	(8.5)
Instruments shocked by MV**													
Other	(31.4)	(31.4)	(31.4)	(31.0)	(31.0)	(30.0)	(27.0)	(25.0)	(24.0)	(19.3)	(14.0)	(11.3)	(8.5)
NOK Basis Risks (Do not include the sw	ap/discounting	Curve specific	a above)	1	1	ı	1			1	1	1	
OIS Basis						l							
1m Basis													
3m Basis													
3m Basis 6m Basis													
3m Basis 6m Basis 12m Basis													
3m Basis 6m Basis													
3m Basis 6m Basis 12m Basis													
3m Basis 6m Basis 12m Basis Other Basis													
3m Basis 6m Basis 12m Basis Other Basis		(25.0)	(25.5)	(25.0)	(25.0)	(27.0)	(20.0)	(21.0)	(22.0)	(25.0)	(25.0)	(35.0)	(25.0)
3m Basis 6m Basis 12m Basis Other Basis NZD Directional Risks Governments	(25.0)	(25.0)	(25.5)	(26.0)	(26.0)	(27.0)	(29.0)	(31.0)	(33.0)	(36.0)	(36.0)	(35.0)	(35.0)
3m Basis 6m Basis 12m Basis Other Basis NZD Directional Risks Governments Agencies	(25.0)	(25.0)	(25.5)	(26.0)	(26.0)	(27.0)	(29.0)	(31.0)	(33.0)	(36.0)	(36.0)	(35.0)	(35.0)
3m Basis 6m Basis 12m Basis Other Basis NZD Directional Risks Governments Agencies Municipals	(25.0) (25.0)	(25.0) (25.0)	(25.5) (25.5)	(26.0) (26.0)	(26.0) (26.0)	(27.0) (27.0)	(29.0) (29.0)	(31.0) (31.0)	(33.0) (33.0)	(36.0) (36.0)	(36.0) (36.0)	(35.0) (35.0)	(35.0) (35.0)
3m Basis 6m Basis 12m Basis Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve	(25.0)	(25.0)	(25.5)	(26.0)	(26.0)	(27.0)	(29.0)	(31.0)	(33.0)	(36.0)	(36.0)	(35.0)	(35.0)
3m Basis 6m Basis 12m Basis Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV**	(25.0) (25.0) (15.0)	(25.0) (25.0) (25.0) (15.0)	(25.5) (25.5) (16.0)	(26.0) (26.0) (16.0)	(26.0) (26.0) (17.0)	(27.0) (27.0) (17.5)	(29.0) (29.0) (18.0)	(31.0) (31.0) (19.5)	(33.0) (33.0) (21.0)	(36.0) (36.0) (21.0)	(36.0) (36.0) (21.0)	(35.0) (35.0) (21.0)	(35.0) (35.0) (21.0)
3m Basis 6m Basis 12m Basis Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve	(25.0) (25.0)	(25.0) (25.0)	(25.5) (25.5)	(26.0) (26.0)	(26.0) (26.0)	(27.0) (27.0)	(29.0) (29.0)	(31.0) (31.0)	(33.0) (33.0)	(36.0) (36.0)	(36.0) (36.0)	(35.0) (35.0)	(35.0) (35.0)
3m Basis 6m Basis 12m Basis Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other	(25.0) (25.0) (25.0) (15.0)	(25.0) (25.0) (15.0) (15.0)	(25.5) (25.5) (16.0) (16.0)	(26.0) (26.0) (16.0)	(26.0) (26.0) (17.0)	(27.0) (27.0) (17.5)	(29.0) (29.0) (18.0)	(31.0) (31.0) (19.5)	(33.0) (33.0) (21.0)	(36.0) (36.0) (21.0)	(36.0) (36.0) (21.0)	(35.0) (35.0) (21.0)	(35.0) (35.0) (21.0)
3m Basis 6m Basis 12m Basis Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw	(25.0) (25.0) (25.0) (15.0)	(25.0) (25.0) (15.0) (15.0)	(25.5) (25.5) (16.0) (16.0)	(26.0) (26.0) (16.0)	(26.0) (26.0) (17.0)	(27.0) (27.0) (17.5)	(29.0) (29.0) (18.0)	(31.0) (31.0) (19.5)	(33.0) (33.0) (21.0)	(36.0) (36.0) (21.0)	(36.0) (36.0) (21.0)	(35.0) (35.0) (21.0)	(35.0) (35.0) (21.0)
3m Basis 6m Basis 12m Basis Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw. OIS Basis	(25.0) (25.0) (25.0) (15.0)	(25.0) (25.0) (15.0) (15.0)	(25.5) (25.5) (16.0) (16.0)	(26.0) (26.0) (16.0)	(26.0) (26.0) (17.0)	(27.0) (27.0) (17.5)	(29.0) (29.0) (18.0)	(31.0) (31.0) (19.5)	(33.0) (33.0) (21.0)	(36.0) (36.0) (21.0)	(36.0) (36.0) (21.0)	(35.0) (35.0) (21.0)	(35.0) (35.0) (21.0)
3m Basis 6m Basis 12m Basis 12m Basis Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw. OIS Basis 1m Basis	(25.0) (25.0) (25.0) (15.0)	(25.0) (25.0) (15.0) (15.0)	(25.5) (25.5) (16.0) (16.0)	(26.0) (26.0) (16.0)	(26.0) (26.0) (17.0)	(27.0) (27.0) (17.5)	(29.0) (29.0) (18.0)	(31.0) (31.0) (19.5)	(33.0) (33.0) (21.0)	(36.0) (36.0) (21.0)	(36.0) (36.0) (21.0)	(35.0) (35.0) (21.0)	(35.0) (35.0) (21.0)
3m Basis 6m Basis 12m Basis 12m Basis Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw. OIS Basis 1m Basis 3m Basis	(25.0) (25.0) (25.0) (15.0)	(25.0) (25.0) (15.0) (15.0)	(25.5) (25.5) (16.0) (16.0)	(26.0) (26.0) (16.0)	(26.0) (26.0) (17.0)	(27.0) (27.0) (17.5)	(29.0) (29.0) (18.0)	(31.0) (31.0) (19.5)	(33.0) (33.0) (21.0)	(36.0) (36.0) (21.0)	(36.0) (36.0) (21.0)	(35.0) (35.0) (21.0)	(35.0) (35.0) (21.0)
3m Basis 6m Basis 12m Basis Other Basis Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw. OIS Basis 1m Basis 3m Basis 3m Basis 6m Basis	(25.0) (25.0) (25.0) (15.0)	(25.0) (25.0) (15.0) (15.0)	(25.5) (25.5) (16.0) (16.0)	(26.0) (26.0) (16.0)	(26.0) (26.0) (17.0)	(27.0) (27.0) (17.5)	(29.0) (29.0) (18.0)	(31.0) (31.0) (19.5)	(33.0) (33.0) (21.0)	(36.0) (36.0) (21.0)	(36.0) (36.0) (21.0)	(35.0) (35.0) (21.0)	(35.0) (35.0) (21.0)
3m Basis 6m Basis 12m Basis 12m Basis Other Basis NZD Directional Risks Governments Agencies Municipals Swaps / Discounting Curve Instruments shocked by MV** Other NZD Basis Risks (Do not include the sw. OIS Basis 1m Basis 3m Basis	(25.0) (25.0) (25.0) (15.0)	(25.0) (25.0) (15.0) (15.0)	(25.5) (25.5) (16.0) (16.0)	(26.0) (26.0) (16.0)	(26.0) (26.0) (17.0)	(27.0) (27.0) (17.5)	(29.0) (29.0) (18.0)	(31.0) (31.0) (19.5)	(33.0) (33.0) (21.0)	(36.0) (36.0) (21.0)	(36.0) (36.0) (21.0)	(35.0) (35.0) (21.0)	(35.0) (35.0) (21.0)

	n		D* - 1 -
SEK	Dire	ctiona	l Risks

JER Directional rusks													
Governments	(31.2)	(32.2)	(33.5)	(34.5)	(35.2)	(36.5)	(36.4)	(35.2)	(34.0)	(32.9)	(31.9)	(31.4)	(30.9)
Agencies	(31.2)	(32.2)	(33.5)	(34.5)	(35.2)	(36.5)	(36.4)	(35.2)	(34.0)	(32.9)	(31.9)	(31.4)	(30.9)
Municipals	(31.2)	(32.2)	(33.5)	(34.5)	(35.2)	(36.5)	(36.4)	(35.2)	(34.0)	(32.9)	(31.9)	(31.4)	(30.9)
Swaps / Discounting Curve	(19.0)	(19.2)	(22.0)	(22.2)	(22.2)	(23.0)	(23.0)	(23.5)	(24.0)	(23.0)	(22.2)	(22.2)	(22.2)
Instruments shocked by MV**													
Other	(19.0)	(19.2)	(22.0)	(22.2)	(22.2)	(23.0)	(23.0)	(23.5)	(24.0)	(23.0)	(22.2)	(22.2)	(22.2)

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

3EK Basis Kisks (Do not include the swap)	discounting c	urve specifie	u abovej					
OIS Basis								
1m Basis								
3m Basis								
6m Basis								
12m Basis								
Other Basis								

USD Directional Risks

002 21100010110110110													
Governments	(44.9)	(44.6)	(44.2)	(43.8)	(43.0)	(42.5)	(41.0)	(40.5)	(40.8)	(40.0)	(40.0)	(39.5)	(39.5)
Agencies	(44.9)	(44.6)	(44.2)	(43.8)	(43.0)	(42.5)	(41.0)	(40.5)	(40.8)	(40.0)	(40.0)	(39.5)	(39.5)
Municipals	(44.9)	(44.6)	(44.2)	(43.8)	(43.0)	(42.5)	(41.0)	(40.5)	(40.8)	(40.0)	(40.0)	(39.5)	(39.5)
Swaps / Discounting Curve	(38.8)	(38.5)	(38.0)	(37.6)	(37.3)	(36.2)	(35.0)	(34.5)	(34.4)	(34.0)	(34.0)	(33.0)	(33.0)
Instruments shocked by MV**													
Other	(38.8)	(38.5)	(38.0)	(37.6)	(37.3)	(36.2)	(35.0)	(34.5)	(34.4)	(34.0)	(34.0)	(33.0)	(33.0)

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

23.0

23.0

20.0

20.0

OJD Dasis Kisks (DO HOL HICIAGE LITE SWAP	, arscounting	curve specific	.u abovej										
Prime Basis	15.0	14.0	13.0	12.0	11.0	8.0	5.0	4.0	1.2	1.2	1.0	1.0	1.0
CP Basis	(13.7)	(13.5)	(12.9)	(13.0)	(13.3)	(9.7)	(8.6)	(5.6)	(2.9)	(2.0)	(2.0)	(2.0)	(2.0)
OIS Basis	(20.0)	(19.0)	(18.0)	(17.0)	(16.5)	(15.4)	(8.0)	(6.0)	(3.8)	(3.5)	(3.5)	(3.5)	(3.5)
1m Basis	(18.0)	(18.0)	(16.0)	(15.0)	(14.0)	(10.0)	(8.0)	(6.0)	(5.0)	(4.0)	(3.0)	(2.0)	(2.0)
3m Basis													
6m Basis	11.0	11.0	11.0	11.0	11.0	10.0	9.0	8.0	7.0	6.0	4.0	4.0	4.0
12m Basis	18.0	18.0	17.0	16.0	15.0	14.0	13.0	12.0	10.0	10.0	8.4	7.5	5.5
Other Basis													

19.5

20.1

21.3

21.2

20.1

15.1

12.1

19.2

Absolute increase in Muni SIFMA/Libor Ratio (Pts)

Other Advanced Economies Directional Risks

Governments	(44.9)	(44.6)	(44.2)	(43.8)	(43.0)	(42.5)	(41.0)	(40.5)	(40.8)	(40.0)	(40.0)	(39.5)	(39.5)
Agencies	(44.9)	(44.6)	(44.2)	(43.8)	(43.0)	(42.5)	(41.0)	(40.5)	(40.8)	(40.0)	(40.0)	(39.5)	(39.5)
Municipals	(44.9)	(44.6)	(44.2)	(43.8)	(43.0)	(42.5)	(41.0)	(40.5)	(40.8)	(40.0)	(40.0)	(39.5)	(39.5)
Swaps / Discounting Curve	(38.8)	(38.5)	(38.0)	(37.6)	(37.3)	(36.2)	(35.0)	(34.5)	(34.4)	(34.0)	(34.0)	(33.0)	(33.0)
Instruments shocked by MV**													
Other	(38.8)	(38.5)	(38.0)	(37.6)	(37.3)	(36.2)	(35.0)	(34.5)	(34.4)	(34.0)	(34.0)	(33.0)	(33.0)

8.5

Directional Risks: Emerging Europe													
BGN	316.0	316.0	316.0	320.0	350.0	350.0	350.0	350.0	250.0	227.0	190.0	150.0	150.0
CZK	316.0	316.0	316.0	320.0	350.0	350.0	350.0	350.0	250.0	227.0	190.0	150.0	150.0
HRK	316.0	316.0	316.0	320.0	350.0	350.0	350.0	350.0	250.0	227.0	190.0	150.0	150.0
HUF	316.0	316.0	316.0	320.0	350.0	350.0	350.0	350.0	250.0	227.0	190.0	150.0	150.0
PLN	316.0	316.0	316.0	320.0	350.0	350.0	350.0	350.0	250.0	227.0	190.0	150.0	150.0
RON	316.0	316.0	316.0	320.0	350.0	350.0	350.0	350.0	250.0	227.0	190.0	150.0	150.0
RUB	400.0	397.8	394.4	391.0	387.8	374.4	361.0	334.2	307.6	267.4	200.6	133.8	132.0
Other Emerging Europe	316.0	316.0	316.0	320.0	350.0	350.0	350.0	350.0	250.0	227.0	190.0	150.0	150.0
Directional Risks: Latin America & Caribb	ean	•		•			•						
ARS	200.0	198.9	197.2	195.5	193.9	187.2	180.5	167.1	153.8	133.7	100.3	66.9	0.0
BRL	200.0	198.9	197.2	195.5	193.9	187.2	180.5	167.1	153.8	133.7	100.3	66.9	0.0
CLP	60.2	54.8	47.9	42.2	37.5	25.8	20.7	17.9	17.9	18.5	19.2	19.5	19.9
COP	49.3	52.1	54.9	56.2	56.4	50.2	39.7	19.7	5.6	5.6	5.6	5.6	5.6
MXN	60.2	54.8	47.9	42.2	37.5	25.8	20.7	17.9	17.9	18.5	19.2	19.5	19.9
PEN	60.2	54.8	47.9	42.2	37.5	25.8	20.7	17.9	17.9	18.5	19.2	19.5	19.9
VEF	200.0	198.9	197.2	195.5	193.9	187.2	180.5	167.1	153.8	133.7	100.3	66.9	0.0
Other Latam & Caribbean	60.2	54.8	47.9	42.2	37.5	25.8	20.7	17.9	17.9	18.5	19.2	19.5	19.9
Directional Risks: Asia Ex-Japan													
CNY	(24.2)	(19.3)	(13.4)	(9.1)	(9.0)	(8.5)	(9.0)	(11.3)	(18.2)	(24.9)	(30.6)	(33.4)	(36.3)
HKD	(1.6)	(1.5)	(1.5)	(1.6)	(1.7)	(2.3)	(3.1)	(4.5)	(5.4)	(6.2)	(6.9)	(7.2)	(7.5)
IDR	(6.5)	(6.5)	(6.9)	(14.5)	(20.7)	(35.7)	(41.9)	(44.5)	(43.8)	(42.4)	(40.9)	(40.1)	(39.4)
INR	(10.0)	(10.5)	(11.0)	(14.5)	(20.7)	(35.7)	(41.9)	(44.5)	(43.8)	(42.4)	(40.9)	(40.1)	(39.4)
KRW	(18.9)	(20.5)	(22.5)	(24.2)	(25.6)	(29.4)	(31.3)	(32.8)	(33.3)	(33.5)	(33.6)	(33.7)	(33.8)
MYR	(14.0)	(15.7)	(17.7)	(19.2)	(20.2)	(21.7)	(21.1)	(18.3)	(15.9)	(13.6)	(11.6)	(10.6)	(9.6)
PHP	(24.2)	(19.3)	(13.4)	(9.1)	(6.0)	(1.5)	(3.3)	(11.3)	(18.2)	(24.9)	(30.6)	(33.4)	(36.3)
SGD	(18.9)	(20.5)	(22.5)	(24.2)	(25.6)	(29.4)	(31.3)	(32.8)	(33.3)	(33.5)	(33.6)	(33.7)	(33.8)
ТНВ	(18.9)	(20.5)	(22.5)	(24.2)	(25.6)	(29.4)	(31.3)	(32.8)	(33.3)	(33.5)	(33.6)	(33.7)	(33.8)
TWD	(18.9)	(20.5)	(22.5)	(24.2)	(25.6)	(29.4)	(31.3)	(32.8)	(33.3)	(33.5)	(33.6)	(33.7)	(33.8)
Other Asia Ex-Japan	(14.0)	(15.7)	(17.7)	(19.2)	(20.2)	(21.7)	(21.1)	(18.3)	(15.9)	(13.6)	(11.6)	(10.6)	(9.6)
Directional Risks: Middle East/North Afri	ca												
ILS	0.0	(0.1)	(0.6)	(1.2)	(1.9)	(5.6)	(9.3)	(15.3)	(19.2)	(22.6)	(25.4)	(26.9)	(28.3)
TRY	60.2	54.8	47.9	42.2	37.5	25.8	20.7	17.9	17.9	18.5	19.2	19.5	19.9
Other Middle East/Africa	60.2	54.8	47.9	42.2	37.5	25.8	20.7	17.9	17.9	18.5	19.2	19.5	19.9
Directional Risks: Sub-Saharan Africa													
ZAR	13.4	10.2	5.8	1.9	(1.7)	(12.8)	(20.4)	(29.4)	(34.3)	(38.2)	(41.4)	(42.9)	(44.5)
Other Sub-Saharan Africa	13.4	10.2	5.8	1.9	(1.7)	(12.8)	(20.4)	(29.4)	(34.3)	(38.2)	(41.4)	(42.9)	(44.5)

Relative Normal Interest Rate Shocks

Rates Vega
Relative Normal Interest Rate Shocks (%)

								MATU	IDITY						
		1M	3M	6M	9M	1Y	2Y	3Y	5Y	7Y	10Y	15Y	20Y	25Y	30Y
	AUD	2.00	5.01	0.0.	310.			3.	J.	, .	101	13.	201	291	30.
	1M	13.4%	13.8%	13.8%	13.8%	14.2%	11.3%	9.6%	7.9%	6.7%	5.3%	4.8%	4.4%	4.1%	4.0%
	3M	12.2%	12.6%	12.6%	12.6%	12.9%	10.5%	9.2%	7.9%	6.7%	5.4%	4.8%	4.3%	4.0%	4.0%
	6M	11.6%	11.6%	11.6%	11.9%	11.9%	10.4%	9.4%	7.9%	6.8%	5.5%	4.7%	4.4%	4.1%	3.9%
	9M	10.8%	10.8%	10.8%	11.1%	11.1%	9.8%	8.9%	7.9%	6.9%	5.5%	4.9%	4.4%	4.1%	4.1%
	1Y	9.4%	9.6%	9.6%	9.6%	9.9%	8.9%	8.6%	7.6%	6.7%	5.4%	4.9%	4.4%	4.1%	3.9%
EXPIRY	2Y	7.1%	7.3%	7.3%	7.3%	7.3%	7.7%	7.3%	6.8%	5.9%	5.3%	4.5%	4.1%	3.8%	3.9%
	3Y	6.7%	6.7%	6.8%	6.8%	6.8%	6.6%	6.6%	5.8%	5.1%	4.8%	4.0%	3.5%	3.3%	3.4%
<u> </u>	5Y	4.9%	4.9%	4.9%	5.1%	5.1%	4.9%	4.6%	4.0%	4.2%	3.6%	3.0%	2.8%	2.6%	2.7%
	7Y	3.4%	3.4%	3.4%	3.5%	3.5%	3.2%	3.2%	3.7%	3.4%	3.0%	2.4%	2.1%	2.2%	2.2%
	10Y	4.2%	4.2%	4.2%	4.2%	4.2%	4.1%	3.2%	3.4%	2.6%	2.5%	2.0%	1.7%	1.8%	1.7%
	15Y	2.9%	2.9%	2.9%	2.9%	2.9%	2.7%	2.8%	2.5%	2.2%	1.9%	1.5%	1.5%	1.5%	1.3%
	20Y	2.6%	2.6%	2.6%	2.6%	2.6%	2.5%	2.5%	2.3%	2.0%	1.8%	1.7%	1.6%	1.5%	1.6%
	30Y	3.6%	3.6%	3.6%	3.6%	3.6%	3.7%	3.5%	3.5%	3.0%	2.6%	2.1%	1.9%	1.6%	1.7%
	FLID														
	EUR 1M	25.7%	26.5%	26.5%	26.5%	27.2%	24.0%	16.7%	10.6%	9.1%	8.3%	7.6%	7.3%	7.0%	7.0%
	3M	25.7%	25.4%	25.4%	25.4%	26.1%	24.0%	15.9%	10.8%	9.1% 8.9%	8.3%	7.6%	6.9%	6.6%	6.5%
	6M	20.0%	20.7%	20.7%	20.7%	21.3%	15.9%	12.2%	9.0%	7.9%	7.1%	6.4%	6.3%	6.0%	6.0%
	9M	16.6%	17.1%	17.1%	17.1%	17.6%	13.2%	10.7%	8.2%	7.4%	6.5%	5.8%	5.8%	5.4%	5.3%
	1Y	13.4%	13.9%	13.9%	13.9%	14.3%	10.7%	8.9%	7.3%	6.6%	5.8%	5.1%	5.0%	4.6%	4.5%
≥ .	2Y	7.9%	8.2%	8.2%	8.2%	8.5%	7.3%	6.7%	6.1%	5.6%	5.1%	4.5%	4.4%	4.1%	3.9%
EXPIRY	3Y	5.6%	5.8%	5.8%	5.8%	6.0%	5.6%	5.4%	5.1%	4.8%	4.4%	3.8%	3.7%	3.4%	3.3%
=	5Y	4.1%	4.2%	4.2%	4.2%	4.4%	4.4%	4.4%	4.3%	4.0%	3.6%	3.2%	3.1%	2.8%	2.7%
	7Y	3.7%	3.7%	3.7%	3.9%	3.9%	3.7%	3.6%	3.4%	3.1%	2.7%	2.3%	2.0%	1.9%	1.7%
	10Y	3.2%	3.2%	3.2%	3.2%	3.2%	3.0%	3.1%	2.8%	2.4%	2.1%	1.9%	1.8%	1.5%	1.6%
	15Y	2.6%	2.6%	2.6%	2.7%	2.7%	2.8%	2.9%	2.8%	2.7%	2.4%	2.0%	2.0%	1.6%	1.7%
	20Y	2.6%	2.6%	2.8%	2.8%	2.8%	3.0%	3.0%	2.8%	2.7%	2.4%	2.2%	1.9%	1.8%	1.6%
	30Y	2.7%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.0%	2.9%	2.5%	2.3%	2.0%	2.1%	1.9%
	GBP									1					
	1M	14.9%	15.3%	15.3%	15.7%	15.7%	10.8%	9.3%	7.6%	7.1%	6.6%	6.1%	5.7%	5.6%	5.4%
	3M	13.6%	13.6%	13.6%	13.9%	13.9%	10.2%	9.0%	7.5%	7.1%	6.6%	6.0%	5.8%	5.6%	5.5%
	6M	11.9%	11.9%	12.2%	12.2%	12.5%	9.8%	8.5%	7.4%	6.9%	6.5%	6.0%	5.8%	5.6%	5.5%
	9M	10.4%	10.4%	10.7%	10.7%	10.9%	9.1%	8.2%	7.4%	6.9%	6.5%	6.0%	5.9%	5.6%	5.6%
_	1Y	9.9%	9.9%	10.1%	10.1%	10.3%	9.0%	8.1% 7.5%	7.4% 7.1%	7.0%	6.6%	6.1%	5.8%	5.6% 5.7%	5.6%
_≅	2Y 3Y	8.0% 6.9%	8.0% 7.0%	8.2% 7.0%	8.2% 7.2%	8.2% 7.2%	7.8% 7.1%	6.9%	6.7%	6.7% 6.6%	6.6% 6.4%	6.2% 6.0%	5.9% 5.7%	5.5%	5.5% 5.4%
EXPIRY	5Y	5.9%	5.9%	5.9%	6.0%	6.0%	6.2%	6.2%	6.2%	6.0%	5.8%	5.4%	5.2%	5.0%	4.9%
ш	7Y	5.3%	5.3%	5.3%	5.4%	5.4%	5.6%	5.6%	5.6%	5.6%	5.4%	5.0%	4.8%	4.6%	4.5%
	10Y	4.8%	4.8%	4.9%	4.9%	4.9%	5.3%	5.3%	5.4%	5.2%	4.9%	4.6%	4.4%	4.2%	4.2%
	15Y	4.6%	4.6%	4.6%	4.8%	4.8%	4.9%	5.0%	5.1%	5.1%	4.7%	4.4%	4.3%	4.1%	4.0%
	20Y	4.7%	4.7%	4.8%	4.8%	4.8%	5.0%	5.1%	5.1%	5.1%	4.7%	4.4%	4.2%	4.2%	4.2%
	30Y	5.0%	5.0%	5.0%	5.0%	5.0%	5.3%	5.4%	5.5%	5.2%	5.0%	4.7%	4.5%	4.5%	4.5%
	•	•	•				•			•					,
	JPY														
	1M	10.2%	10.2%	11.7%	11.7%	11.7%	10.5%	10.7%	8.5%	7.2%	6.9%	6.4%	5.4%	5.9%	5.9%
	3M	10.5%	10.5%	10.5%	10.5%	10.5%	10.0%	10.2%	8.2%	6.8%	6.4%	6.1%	5.6%	5.6%	6.1%
	6M	10.1%	10.1%	10.1%	10.1%	10.1%	10.5%	9.7%	8.5%	6.4%	6.0%	5.7%	5.3%	5.7%	5.7%
	9M	9.0%	9.0%	9.0%	9.0%	9.0%	9.3%	8.7%	8.1%	6.7%	5.7%	5.9%	5.1%	5.4%	5.4%
>	1Y	8.2%	8.2%	8.2%	9.2%	9.2%	8.5%	8.9%	7.8%	6.5%	5.9%	5.6%	5.2%	5.2%	5.6%
EXPIRY	2Y 3Y	7.3% 7.2%	7.3% 7.2%	7.3% 7.2%	8.1% 7.2%	8.1% 7.2%	7.8% 7.6%	7.4% 7.2%	7.2% 6.8%	6.3% 6.2%	5.8% 5.8%	5.6% 5.7%	5.3% 5.3%	5.3% 5.3%	5.6% 5.6%
2	5Y	6.1%	6.1%	6.7%	6.7%	6.7%	6.4%	6.6%	6.8%	5.7%	5.8%	5.7%	5.3%	5.6%	5.6%
	7Y	5.3%	5.7%	5.7%	5.7%	5.7%	5.6%	5.8%	5.7%	5.7%	5.7%	5.7%	5.5%	5.5%	5.8%
	10Y	5.0%	5.0%	5.0%	5.0%	5.0%	4.9%	5.1%	5.3%	5.5%	5.6%	5.7%	5.7%	5.7%	6.0%
	15Y	4.8%	4.8%	4.8%	4.8%	4.8%	5.1%	5.0%	5.0%	5.2%	5.4%	5.6%	5.6%	5.8%	5.8%
	20Y	4.5%	4.5%	4.5%	4.5%	4.8%	4.8%	4.9%	4.7%	4.7%	4.9%	5.3%	5.3%	5.3%	5.5%
	30Y	4.8%	4.8%	4.8%	4.8%	4.8%	5.1%	4.9%	4.7%	4.9%	5.2%	5.3%	5.3%	5.5%	5.5%
		•	•			-	•								

Relative Normal Interest Rate Shocks (Continued)

	USD														
	1M	12.5%	12.5%	12.3%	12.3%	12.0%	9.6%	8.0%	6.7%	6.1%	5.7%	5.0%	4.7%	4.7%	4.6%
ŀ	3M	12.8%	12.5%	12.5%	12.3%	12.3%	9.4%	8.2%	6.9%	6.5%	5.9%	5.3%	4.9%	4.8%	4.7%
ŀ				1				7.3%	6.5%			5.0%	4.7%		
	6M	11.3%	11.1%	11.1%	10.9%	10.9%	8.3%			6.1%	5.6%			4.6%	4.5%
- 1	9M	9.7%	9.7%	9.5%	9.5%	9.3%	7.7%	6.9%	6.2%	5.8%	5.3%	5.0%	4.8%	4.6%	4.5%
_	1Y	8.5%	8.5%	8.4%	8.4%	8.2%	7.0%	6.5%	5.9%	5.5%	5.1%	4.6%	4.4%	4.3%	4.2%
EXPIRY	2Y	6.6%	6.6%	6.5%	6.5%	6.4%	5.7%	5.5%	5.2%	4.9%	4.5%	4.0%	3.8%	3.7%	3.6%
ᆵ	3Y	5.9%	5.8%	5.7%	5.7%	5.5%	5.1%	5.0%	4.6%	4.3%	3.8%	3.4%	3.2%	3.1%	3.0%
줍	5Y	5.0%	5.0%	4.9%	4.8%	4.7%	4.4%	4.1%	3.8%	3.3%	3.0%	2.6%	2.4%	2.2%	2.1%
	7Y	4.4%	4.4%	4.3%	4.2%	4.1%	3.9%	3.6%	3.2%	2.8%	2.4%	2.1%	1.9%	1.7%	1.6%
	10Y	4.1%	4.1%	4.0%	3.9%	3.9%	3.5%	3.3%	2.8%	2.5%	2.1%	1.8%	1.5%	1.4%	1.2%
	15Y	3.9%	3.9%	3.7%	3.6%	3.6%	3.2%	3.0%	2.5%	2.2%	1.9%	1.5%	1.2%	1.2%	1.0%
- 1	20Y	3.8%	3.8%	3.7%	3.5%	3.5%	3.1%	2.9%	2.6%	2.1%	1.7%	1.4%	1.1%	0.9%	0.9%
ı	30Y	3.9%	3.9%	3.8%	3.8%	3.6%	3.3%	3.0%	2.5%	2.1%	1.6%	1.3%	0.9%	0.7%	0.7%
	US MBS Vega	ced Econom		I 42.00¢	12.00	14.2%	11.3%		7.9%	5 704	5.00	4.8%	4.4%	4.1%	4.0%
	1M	13.4%	13.8%	13.8%	13.8%			9.6%		6.7%	5.3%				
	3M	12.2%	12.6%	12.6%	12.6%	12.9%	10.5%	9.2%	7.9%	6.7%	5.4%	4.8%	4.3%	4.0%	4.0%
	6M	11.6%	11.6%	11.6%	11.9%	11.9%	10.4%	9.4%	7.9%	6.8%	5.5%	4.7%	4.4%	4.1%	3.9%
	9M	10.8%	10.8%	10.8%	11.1%	11.1%	9.8%	8.9%	7.9%	6.9%	5.5%	4.9%	4.4%	4.1%	4.1%
_	1Y	9.4%	9.6%	9.6%	9.6%	9.9%	8.9%	8.6%	7.6%	6.7%	5.4%	4.9%	4.4%	4.1%	3.9%
EXPIRY	2Y	7.1%	7.3%	7.3%	7.3%	7.3%	7.7%	7.3%	6.8%	5.9%	5.3%	4.5%	4.1%	3.8%	3.9%
<u>-</u>	3Y	6.7%	6.7%	6.8%	6.8%	6.8%	6.6%	6.6%	5.8%	5.1%	4.8%	4.0%	3.5%	3.3%	3.4%
줍	5Y	4.9%	4.9%	4.9%	5.1%	5.1%	4.9%	4.6%	4.0%	4.2%	3.6%	3.0%	2.8%	2.6%	2.7%
	7Y	3.4%	3.4%	3.4%	3.5%	3.5%	3.2%	3.2%	3.7%	3.4%	3.0%	2.4%	2.1%	2.2%	2.2%
	10Y	4.2%	4.2%	4.2%	4.2%	4.2%	4.1%	3.2%	3.4%	2.6%	2.5%	2.0%	1.7%	1.8%	1.7%
ı	15Y	2.9%	2.9%	2.9%	2.9%	2.9%	2.7%	2.8%	2.5%	2.2%	1.9%	1.5%	1.5%	1.5%	1.3%
ı	20Y	2.6%	2.6%	2.6%	2.6%	2.6%	2.5%	2.5%	2.3%	2.0%	1.8%	1.7%	1.6%	1.5%	1.6%
l	30Y	3.6%	3.6%	3.6%	3.6%	3.6%	3.7%	3.5%	3.5%	3.0%	2.6%	2.1%	1.9%	1.6%	1.7%
	30Y Total Emergi	3.6%	3.6%	3.6%	3.6%	3.6%	3.7%	3.5%	3.5%	3.0%	2.6%	2.1%	1.9%	1.6%	1.7%
	30Y Total Emergi 1M	3.6% ng Europe 22.7%	3.6%	3.6%	3.6% 22.1%	3.6%	3.7% 19.1%	3.5% 17.9%	3.5% 16.2%	3.0% 15.4%	2.6% 14.2%	2.1% 12.7%	1.9%	1.6%	1.7%
	30Y Total Emergi 1M 3M	3.6% ng Europe 22.7% 22.5%	3.6% 22.5% 22.5%	3.6% 22.3% 22.4%	3.6% 22.1% 22.2%	3.6% 22.1% 22.0%	3.7% 19.1% 19.3%	3.5% 17.9% 18.1%	3.5% 16.2% 16.5%	3.0% 15.4% 15.7%	2.6% 14.2% 14.4%	2.1% 12.7% 13.0%	1.9% 11.5% 11.7%	1.6% 10.9% 11.0%	1.7% 10.5% 10.6%
	30Y Total Emergi 1M 3M 6M	3.6% ng Europe 22.7% 22.5% 22.1%	3.6% 22.5% 22.5% 22.1%	3.6% 22.3% 22.4% 21.9%	3.6% 22.1% 22.2% 21.7%	3.6% 22.1% 22.0% 21.6%	3.7% 19.1% 19.3% 19.2%	3.5% 17.9% 18.1% 18.3%	3.5% 16.2% 16.5% 16.7%	3.0% 15.4% 15.7% 15.9%	2.6% 14.2% 14.4% 14.6%	2.1% 12.7% 13.0% 13.1%	1.9% 11.5% 11.7% 11.8%	1.6% 10.9% 11.0% 11.2%	1.7% 10.5% 10.6% 10.8%
	30Y Total Emergi 1M 3M 6M 9M	3.6% ng Europe 22.7% 22.5% 22.1% 22.0%	3.6% 22.5% 22.5% 22.1% 21.9%	3.6% 22.3% 22.4% 21.9% 21.7%	3.6% 22.1% 22.2% 21.7% 21.5%	3.6% 22.1% 22.0% 21.6% 21.4%	3.7% 19.1% 19.3% 19.2% 19.4%	3.5% 17.9% 18.1% 18.3% 18.4%	3.5% 16.2% 16.5% 16.7% 17.0%	3.0% 15.4% 15.7% 15.9% 16.0%	2.6% 14.2% 14.4% 14.6% 14.8%	2.1% 12.7% 13.0% 13.1% 13.2%	1.9% 11.5% 11.7% 11.8% 11.8%	1.6% 10.9% 11.0% 11.2% 11.2%	1.7% 10.5% 10.6% 10.8% 10.8%
	30Y Total Emergi 1M 3M 6M 9M	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 22.0%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8%	3.6% 22.3% 22.4% 21.9% 21.7% 21.7%	3.6% 22.1% 22.2% 21.7% 21.5% 21.5%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3%	3.5% 17.9% 18.1% 18.3% 18.4%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2%	2.6% 14.2% 14.4% 14.6% 14.8%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0%	11.5% 11.7% 11.8% 11.8%	1.6% 10.9% 11.0% 11.2% 11.2%	1.7% 10.5% 10.6% 10.8% 10.8%
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0%	22.5% 22.5% 22.1% 21.9% 21.8% 20.9%	22.3% 22.4% 21.9% 21.7% 21.7% 20.7%	3.6% 22.1% 22.2% 21.7% 21.5% 20.5%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5%	3.5% 17.9% 18.1% 18.3% 18.4% 18.4% 17.6%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6%	2.6% 14.2% 14.4% 14.6% 14.8% 14.8%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0%	11.5% 11.7% 11.8% 11.8% 11.8% 10.9%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8%
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 22.0% 21.0% 19.5%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 19.0%	3.6% 22.1% 22.2% 21.7% 21.5% 20.5% 18.8%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0%	3.5% 17.9% 18.1% 18.3% 18.4% 17.6% 16.6%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 14.2%	2.6% 14.2% 14.4% 14.6% 14.8% 14.2% 12.7%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0% 10.6%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6%
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 21.0% 19.5% 17.1%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 20.7% 19.0% 16.7%	3.6% 22.1% 22.2% 21.7% 21.5% 20.5% 18.8% 16.6%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0%	3.5% 17.9% 18.1% 18.3% 18.4% 17.6% 16.6% 14.2%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 12.5%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 14.2% 11.4%	2.6% 14.2% 14.4% 14.6% 14.8% 14.8% 14.2% 19.7% 9.7%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0% 10.6% 7.7%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5% 6.9%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3%	1.7% 10.5% 10.6% 10.8% 10.8% 10.0% 8.6% 6.2%
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 19.5% 17.1% 14.6%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 19.0% 16.7% 14.2%	3.6% 22.1% 22.2% 21.7% 21.5% 20.5% 18.8% 16.6% 14.0%	3.6% 22.1% 22.0% 21.6% 21.3% 20.2% 18.7% 16.2% 13.9%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 15.0% 12.3%	3.5% 17.9% 18.1% 18.3% 18.4% 17.6% 16.6% 14.2% 11.4%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 12.5% 10.1%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 14.2% 11.4% 8.8%	2.6% 14.2% 14.4% 14.6% 14.8% 14.2% 12.7% 9.7% 7.4%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0% 10.6% 7.7% 5.9%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.33% 4.8%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6%
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 21.0% 19.5% 17.1% 14.6% 11.9%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 19.0% 16.7% 14.2% 11.5%	3.6% 22.1% 22.2% 21.7% 21.5% 20.5% 18.8% 16.6% 14.0% 11.3%	3.6% 22.1% 22.0% 21.6% 21.4% 20.2% 18.7% 16.2% 13.9% 11.1%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 15.0% 12.3% 10.0%	3.5% 17.9% 18.1% 18.3% 18.4% 17.6% 16.6% 14.2% 11.4% 9.1%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 10.1% 7.8%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 14.2% 11.4% 8.8% 6.5%	2.6% 14.2% 14.4% 14.6% 14.8% 14.2% 12.7% 9.7% 7.4% 5.2%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0% 10.6% 7.7% 5.9% 4.3%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1% 3.7%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 3.4%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 3.4%
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 21.0% 119.5% 17.1% 14.6% 11.9% 8.2%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2%	3.6% 22.3% 22.4% 21.9% 21.7% 21.7% 20.7% 19.0% 16.7% 14.2% 11.5% 8.0%	3.6% 22.1% 22.2% 21.7% 21.5% 20.5% 18.8% 16.6% 14.0%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 11.1% 7.7%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 15.0% 12.3%	3.5% 17.9% 18.1% 18.3% 18.4% 17.6% 16.6% 14.2% 11.4% 9.1% 6.3%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 10.1% 5.8% 5.2%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 14.2% 11.4% 8.8%	2.6% 14.2% 14.4% 14.6% 14.8% 14.2% 12.7% 9.7% 7.4% 5.2% 3.9%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 10.6% 7.7% 5.9% 4.3% 3.0%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 3.44% 2.6%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 3.4% 2.5%
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 21.0% 11.5% 11.9% 14.6% 11.9% 8.2% 7.9%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2% 7.9%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 20.7% 16.7% 14.2% 11.5% 8.0% 7.8%	3.6% 22.1% 22.2% 21.7% 21.5% 20.5% 16.6% 14.0% 11.3% 7.8% 7.6%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 11.1% 7.7% 7.4%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 15.0% 10.0% 6.8% 6.6%	3.5% 17.9% 18.1% 18.3% 18.4% 17.6% 16.6% 14.2% 11.4% 9.1% 6.3% 6.0%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 10.1% 7.8% 5.2% 5.2%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 14.2% 11.4% 8.8% 6.5% 4.6% 4.4%	2.6% 14.2% 14.4% 14.6% 14.8% 14.2% 14.2% 5.2% 5.2% 3.9% 3.5%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 10.6% 7.7% 5.9% 4.3% 3.0% 3.0%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1% 3.7% 2.8% 2.6%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.33% 4.8% 3.4% 2.65% 2.3%	1.7% 10.5% 10.6% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 3.4% 2.55% 2.2%
	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 21.0% 119.5% 17.1% 14.6% 11.9% 8.2%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2%	3.6% 22.3% 22.4% 21.9% 21.7% 21.7% 20.7% 19.0% 16.7% 14.2% 11.5% 8.0%	3.6% 22.1% 22.2% 21.7% 21.5% 21.5% 20.5% 18.8% 16.6% 14.0% 7.8%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 11.1% 7.7%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 12.3% 10.0% 6.8%	3.5% 17.9% 18.1% 18.3% 18.4% 17.6% 16.6% 14.2% 11.4% 9.1% 6.3%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 10.1% 5.8% 5.2%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 11.4% 8.8% 6.5% 4.6%	2.6% 14.2% 14.4% 14.6% 14.8% 14.2% 12.7% 9.7% 7.4% 5.2% 3.9%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 10.6% 7.7% 5.9% 4.3% 3.0%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1% 3.7% 2.8%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 3.44% 2.6%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 3.4% 2.5%
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 6	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 19.5% 17.1% 14.6% 11.9% 8.2% 7.9% 10.6%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2% 7.9% 10.3%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 19.0% 16.7% 14.2% 11.5% 8.0% 7.8% 10.3%	3.6% 22.1% 22.2% 21.7% 21.5% 20.5% 20.5% 16.6% 14.0% 11.3% 7.8% 7.6% 10.0%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 11.1% 7.7% 7.4% 9.8%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 15.0% 10.0% 6.8% 6.6% 8.8%	3.5% 17.9% 18.1% 18.3% 18.4% 17.6% 16.6% 14.2% 11.4% 9.1% 6.3% 6.0% 8.1%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 12.5% 10.1% 7.8% 5.2% 6.9%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 14.2% 11.4% 8.8% 6.5% 4.6% 4.4% 5.7%	2.6% 14.2% 14.4% 14.6% 14.8% 14.8% 14.2% 5.7% 9.7% 7.4% 5.2% 3.9% 3.5% 4.8%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0% 15.9% 12.0% 15.9% 13.0% 15.9% 15.9% 15.9% 15.9% 15.9% 15.9% 15.9% 15.9% 15.9% 15.9% 15.9% 15.9% 15.9% 15.9% 15.9%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1% 3.7% 2.8% 2.6% 2.9%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 2.6% 2.6%	1.7% 10.5% 10.6% 10.8% 10.8% 10.0% 6.2% 4.6% 5.2% 2.5% 2.2% 2.4%
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 20Y 30Y Total Latam 4	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 19.5% 17.1% 14.6% 11.9% 8.2% 7.9% 10.6% & Caribbean 8.7%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2% 7.9% 10.3%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 19.0% 16.7% 14.2% 11.5% 8.0% 7.8% 10.3%	3.6% 22.1% 22.2% 21.7% 21.5% 20.5% 18.8% 16.6% 14.0% 11.3% 7.8% 7.6% 10.0%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 11.1% 7.7% 7.44% 9.8%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 12.3% 10.0% 6.6% 8.8%	3.5% 17.9% 18.1% 18.3% 18.4% 17.6% 16.6% 11.4% 9.1% 6.3% 6.0% 8.1%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 10.1% 7.8% 5.2% 6.9%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 14.2% 11.4% 8.8% 6.5% 4.6% 4.4% 5.7%	2.6% 14.2% 14.4% 14.6% 14.8% 14.2% 12.7% 9.7% 7.4% 5.29 3.59% 4.8%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0% 10.6% 7.7% 5.9% 4.3% 3.0% 3.0% 3.6%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1% 3.7% 2.8% 2.6% 2.9%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 3.4% 2.6% 2.3% 2.6%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 3.4% 2.5% 2.2% 2.4%
EXPIRY	30Y Total Emerging 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 1	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 21.0% 11.5% 17.1% 14.6% 11.9% 8.2% 7.9% 10.6% & Caribbean 8.7% 8.5%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2% 7.9% 10.3%	3.6% 22.3% 22.4% 21.9% 21.7% 21.7% 20.7% 19.0% 16.7% 14.2% 11.5% 8.0% 7.8% 10.3%	3.6% 22.1% 22.2% 21.7% 21.5% 21.5% 20.5% 18.8% 16.6% 14.0% 11.3% 7.8% 7.6% 10.0%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 17.7% 17.4% 9.8% 8.5% 8.3%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 12.3% 10.0% 6.8% 6.6% 8.8%	3.5% 17.9% 18.1% 18.3% 18.4% 18.4% 17.6% 16.6% 14.2% 11.4% 6.3% 6.0% 8.1%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 10.1% 7.8% 5.2% 6.9% 5.8% 5.8%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 11.42% 11.4% 8.8% 6.5% 4.6% 4.4% 5.7%	2.6% 14.2% 14.4% 14.6% 14.8% 14.8% 14.2% 12.7% 9.7% 7.4% 5.2% 3.9% 3.5% 4.8%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0% 10.6% 7.7% 5.9% 4.3% 3.0% 3.6% 6.3% 6.3%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1% 3.7% 2.8% 2.6% 2.9%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 2.6% 2.3% 2.6% 5.4% 5.4%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 2.5% 2.2% 2.4%
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam a 1M 3M 6M	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 21.0% 11.95% 17.1% 14.6% 11.9% 8.2% 7.9% 10.6% 8.7% 8.5% 9.7%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2% 7.9% 10.3%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 20.7% 19.0% 16.7% 14.2% 10.3% 8.0% 7.8% 10.3%	3.6% 22.1% 22.2% 21.7% 21.5% 21.5% 20.5% 18.8% 16.6% 14.0% 11.3% 7.6% 10.0%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 11.1% 7.7% 7.4% 9.8% 8.5% 8.3% 9.5%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 12.3% 16.6% 8.8% 7.4% 7.3% 8.9%	3.5% 17.9% 18.1% 18.3% 18.4% 18.4% 17.6% 16.6% 14.2% 11.4% 9.1% 6.3% 6.0% 8.1%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 12.5% 10.1% 7.8% 5.2% 6.9% 5.8% 8.0%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 11.4% 8.8% 6.5% 4.6% 4.4% 5.7% 6.6% 6.5% 6.6%	2.6% 14.2% 14.4% 14.6% 14.8% 14.8% 14.2% 9.7% 7.4% 5.2% 3.9% 3.5% 4.8%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0% 10.6% 7.7% 5.9% 4.3% 3.0% 3.0% 3.6% 6.3% 6.3% 5.4%	1.9% 11.5% 11.7% 11.8% 11.8% 11.8% 10.9% 5.1% 2.8% 2.6% 2.9% 5.8% 5.8% 5.0%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 2.6% 2.3% 2.6% 5.4% 5.4% 4.7%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 2.5% 2.2% 2.4%
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 1 1M 3M 6M 9M	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 21.0% 11.5% 17.1% 14.6% 11.9% 8.2% 7.9% 10.6% & Caribbean 8.7% 8.5% 9.7% 9.3%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 16.9% 14.6% 11.9% 8.2% 7.9% 10.3%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 20.7% 14.2% 11.5% 8.0% 7.8% 10.3% 8.5% 8.5% 9.6% 9.2%	3.6% 22.1% 22.2% 21.7% 21.5% 20.5% 16.6% 14.0% 11.3% 7.8% 7.6% 10.0%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 11.1% 7.7% 7.4% 9.8% 8.5% 8.3% 9.5% 9.1%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 15.0% 16.8% 6.6% 8.8% 7.4% 7.3% 8.9% 9.1%	3.5% 17.9% 18.1% 18.3% 18.4% 17.6% 16.6% 14.2% 11.4% 9.1% 6.3% 6.0% 8.1% 7.2% 7.2% 9.5% 9.3%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 12.5% 10.1% 7.8% 5.2% 6.9% 5.8% 5.8% 8.0% 7.3%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 14.2% 11.4% 8.8% 6.5% 4.6% 4.6% 6.6% 6.6% 6.6%	2.6% 14.2% 14.4% 14.6% 14.8% 14.8% 14.2% 5.2% 3.9% 3.5% 4.8% 7.3% 7.1% 6.2% 5.9%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0% 10.6% 7.7% 5.9% 4.3% 3.0% 3.0% 3.6% 6.3% 6.3% 5.4% 5.2%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1% 3.7% 2.8% 2.6% 2.9% 5.8% 5.0% 4.7%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 2.6% 2.6% 5.4% 5.4% 4.7% 4.4%	1.7% 10.5% 10.6% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 3.4% 2.5% 2.2% 2.4%
EXPIRY	30Y Total Emerging 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 6 1M 3M 6M 9M 1Y	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 22.0% 21.0% 19.5% 17.1% 14.6% 10.6% 8.2% 7.9% 10.6% & Caribbean 8.7% 8.5% 9.7% 9.3% 8.8%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 10.3% 10.3% 8.2% 7.9% 10.3% 8.5% 9.7% 9.3% 8.7%	3.6% 22.3% 22.4% 21.9% 21.7% 21.7% 20.7% 19.0% 16.7% 14.2% 10.3% 8.0% 7.8% 10.3%	3.6% 22.1% 22.2% 21.7% 21.5% 21.5% 20.5% 18.8% 16.6% 14.0% 11.3% 7.8% 7.6% 10.0% 8.5% 8.4% 9.6% 9.1% 8.66%	3.6% 22.1% 22.0% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 7.7% 7.4% 9.8% 8.5% 8.3% 9.5% 8.5% 8.5%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 19.3% 18.5% 17.0% 12.3% 10.0% 6.8% 6.6% 8.8% 7.4% 7.3% 8.9% 9.1% 9.2%	3.5% 17.9% 18.1% 18.3% 18.4% 18.4% 17.6% 16.6% 14.2% 11.4% 9.1% 6.3% 6.0% 8.1% 7.2% 7.2% 9.5% 9.3% 8.8%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 10.1% 7.8% 5.2% 5.2% 6.9% 5.8% 8.0% 7.3% 6.5%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 11.4% 8.8% 6.5% 4.6% 4.4% 5.7% 6.6% 6.6% 6.6% 6.6%	2.6% 14.2% 14.4% 14.6% 14.8% 14.8% 14.2% 5.2% 3.9% 3.5% 4.8% 7.3% 7.1% 6.2% 5.9% 5.4%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0% 10.6% 7.7% 5.9% 4.3% 3.0% 3.6% 6.3% 6.3% 5.4% 5.2% 4.7%	1.9% 11.5% 11.7% 11.8% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1% 2.8% 2.6% 2.9% 5.8% 5.8% 5.0% 4.7% 4.3%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 2.6% 2.3% 2.6% 5.4% 4.7% 4.4% 4.1%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 2.5% 2.2% 2.4% 5.2% 4.5% 4.5% 4.2% 3.9%
EXPIRY	30Y Total Emergian 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam and 1M 3M 6M 9M 1Y 2Y	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 21.0% 19.5% 17.1% 14.6% 11.9% 8.2% 7.9% 10.6% 8.7% 9.7% 9.3% 8.88% 7.6%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2% 7.9% 10.3%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 20.7% 19.0% 16.7% 14.2% 10.3% 8.0% 7.8% 10.3%	3.6% 22.1% 22.2% 21.7% 21.5% 21.5% 21.5% 18.8% 16.6% 14.0% 11.3% 7.8% 7.6% 10.0%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 7.7% 7.4% 9.8% 8.5% 8.3% 9.5% 9.1% 8.5% 7.3%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 12.3% 6.8% 6.6% 8.8% 7.4% 7.3% 8.9% 9.1% 9.2% 7.6%	3.5% 17.9% 18.1% 18.3% 18.4% 18.4% 17.6% 16.6% 14.2% 11.4% 6.3% 6.0% 8.1% 7.2% 9.5% 9.3% 8.8% 7.7%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 10.1% 5.2% 6.9% 5.8% 5.8% 8.0% 7.3% 6.5% 6.6%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 11.4% 8.8% 4.6% 4.4% 5.7% 6.6% 6.6% 6.6% 6.6% 6.6% 6.6% 6.6%	2.6% 14.2% 14.4% 14.6% 14.8% 14.8% 14.2% 5.2% 3.9% 7.4% 5.2% 3.9% 4.8% 7.3% 7.1% 6.2% 5.9% 5.4% 5.2%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0% 10.6% 7.7% 5.9% 4.3% 3.0% 3.6% 6.3% 6.3% 6.3% 5.4% 5.2% 4.7% 4.5%	1.9% 11.5% 11.7% 11.8% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1% 2.8% 2.6% 2.9% 5.8% 5.0% 4.7% 4.3% 4.1%	1.6% 10.9% 11.0% 11.2% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 2.6% 2.3% 2.6% 5.4% 4.7% 4.4% 4.1% 3.8%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 2.5% 2.2% 2.4% 5.2% 4.5% 4.5% 4.2% 3.9% 3.7%
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 6 6M 9M 1Y 2Y 3Y	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 21.0% 19.5% 17.1% 14.6% 11.9% 8.2% 7.9% 10.6% 8.2% 7.9% 9.7% 8.5% 9.7% 9.3% 8.8% 7.6% 7.6% 7.5%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2% 7.9% 10.3% 8.6% 8.5% 9.7% 9.3% 8.7% 7.6% 7.5%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 20.7% 19.0% 16.7% 14.2% 11.5% 8.0% 7.8% 10.3% 8.5% 8.5% 9.6% 9.2% 8.6% 7.5% 7.3%	3.6% 22.1% 22.2% 21.7% 21.5% 21.5% 20.5% 18.8% 16.6% 14.0% 11.3% 7.8% 7.6% 10.0% 8.5% 8.4% 9.6% 9.1% 8.6% 7.5% 7.5%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 11.1% 7.7% 7.4% 9.8% 8.5% 8.3% 9.5% 9.1% 8.5% 7.3% 7.2%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 15.0% 12.3% 10.0% 6.8% 6.6% 8.8% 7.4% 7.3% 8.9% 9.1% 9.2% 7.6% 7.3%	3.5% 17.9% 18.1% 18.3% 18.4% 18.4% 17.6% 16.6% 14.2% 11.4% 9.1% 6.3% 6.0% 8.1% 7.2% 7.2% 9.5% 9.3% 8.8% 7.7% 7.1%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 12.5% 10.1% 7.8% 5.2% 6.9% 5.8% 5.8% 8.0% 7.3% 6.5% 6.6% 6.0%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 14.2% 11.4% 8.8% 6.5% 4.6% 4.6% 6.6% 6.6% 6.6% 6.6% 6.6% 5.5%	2.6% 14.2% 14.4% 14.6% 14.8% 14.8% 14.2% 9.7% 7.4% 5.2% 3.9% 3.5% 4.8% 7.3% 7.1% 6.2% 5.9% 5.4% 5.2% 4.9%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.06 15.06 17.7% 15.9% 4.3% 3.0% 3.0% 3.6% 6.3% 6.3% 6.3% 5.4% 5.2% 4.7% 4.5% 4.2%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 6.9% 5.1% 3.7% 2.8% 2.6% 2.9% 5.8% 5.0% 4.7% 4.3% 4.1% 3.8%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 2.6% 2.3% 2.6% 5.4% 4.7% 4.4% 4.1% 3.8% 3.5%	1.7% 10.5% 10.6% 10.8% 10.8% 10.0% 6.2% 4.6% 3.4% 2.55% 2.2% 2.4% 5.2% 4.5% 4.5% 4.5% 3.9% 3.7% 3.4%
EXPIRY	30Y Total Emergin 1M 3M 6M 9M 1Y 2Y 3Y 5OM 1M 3M 6M 3M 6M 3M 6M 3M 6M 3M 6M 9M 1Y 2Y 3Y 3M 5M 6M 5M 3M 6M 5M 5M 5M 5M 5M 5M 5M 5M 5M 5M 5M 5M 5M	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 22.0% 21.0% 19.5% 17.1% 14.6% 10.6% 8.2% 7.9% 10.6% 8 Caribbean 8.7% 8.5% 9.7% 8.5% 9.7% 6.7%	3.6% 22.5% 22.5% 22.5% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2% 7.9% 10.3% 8.6% 8.5% 9.7% 9.3% 8.7% 7.6% 7.5% 6.7%	3.6% 22.3% 22.4% 22.4% 21.7% 21.7% 20.7% 19.0% 16.7% 14.2% 10.3% 8.0% 7.8% 10.3% 8.5% 8.5% 8.5% 9.6% 7.5% 8.6% 7.3% 6.6%	3.6% 22.1% 22.2% 21.7% 21.5% 21.5% 20.5% 16.6% 14.0% 11.3% 7.8% 7.6% 10.0% 8.5% 8.4% 9.6% 9.1% 8.6% 7.5% 7.3% 6.55%	3.6% 22.1% 22.0% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 11.1% 7.7% 7.4% 9.8% 8.5% 8.3% 9.5% 8.3% 9.1% 8.5% 7.2% 6.4%	3.7% 19.1% 19.3% 19.3% 19.4% 19.3% 18.5% 17.0% 15.0% 6.8% 6.6% 8.8% 7.4% 7.3% 8.9% 9.1% 9.2% 7.6% 7.3% 6.2%	3.5% 17.9% 18.1% 18.1% 18.4% 18.4% 17.6% 16.6% 14.2% 11.4% 6.3% 6.0% 8.1% 7.2% 7.2% 9.5% 9.3% 8.8% 7.7% 7.1% 5.55%	3.5% 16.2% 16.5% 16.5% 17.0% 17.1% 16.6% 15.4% 12.5% 10.1% 5.2% 5.2% 6.9% 5.8% 8.0% 7.3% 6.5% 6.6% 6.6% 6.0% 4.7%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 11.4% 8.8% 6.5% 4.6% 4.4% 5.7% 6.6% 6.6% 6.6% 6.6% 6.9% 4.3%	2.6% 14.2% 14.4% 14.4% 14.8% 14.8% 14.2% 5.2% 3.9% 3.5% 4.8% 7.3% 7.1% 6.2% 5.2% 5.9% 5.4% 5.2% 4.9% 4.2%	2.1% 12.7% 13.0% 13.1% 13.19 13.2% 13.0% 12.0% 10.6% 7.7% 5.9% 4.3% 3.0% 3.6% 6.3% 6.3% 6.3% 6.3% 4.7% 4.5% 4.5% 4.2% 3.5%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1% 2.8% 2.6% 2.9% 5.8% 5.0% 4.7% 4.3% 4.1% 3.8% 3.1%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 2.6% 2.3% 2.6% 5.4% 4.7% 4.4% 4.1% 3.8% 3.5% 2.8%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 2.2% 2.4% 2.5% 2.2% 4.5% 4.5% 4.5% 4.2% 3.9% 3.7% 3.4% 2.7%
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam 6 6M 9M 1Y 2Y 3Y	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 21.0% 19.5% 17.1% 14.6% 11.9% 8.2% 7.9% 10.6% 8.2% 7.9% 9.7% 8.5% 9.7% 9.3% 8.8% 7.6% 7.6% 7.5%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2% 7.9% 10.3% 8.6% 8.5% 9.7% 9.3% 8.7% 7.6% 7.5%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 20.7% 19.0% 16.7% 14.2% 11.5% 8.0% 7.8% 10.3% 8.5% 8.5% 9.6% 9.2% 8.6% 7.5% 7.3%	3.6% 22.1% 22.2% 21.7% 21.5% 21.5% 20.5% 18.8% 16.6% 14.0% 11.3% 7.8% 7.6% 10.0% 8.5% 8.4% 9.6% 9.1% 8.6% 7.5% 7.5%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 11.1% 7.7% 7.4% 9.8% 8.5% 8.3% 9.5% 9.1% 8.5% 7.3% 7.2%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 15.0% 12.3% 10.0% 6.8% 6.6% 8.8% 7.4% 7.3% 8.9% 9.1% 9.2% 7.6% 7.3%	3.5% 17.9% 18.1% 18.3% 18.4% 18.4% 17.6% 16.6% 14.2% 11.4% 9.1% 6.3% 6.0% 8.1% 7.2% 7.2% 9.5% 9.3% 8.8% 7.7% 7.1%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 12.5% 10.1% 7.8% 5.2% 6.9% 5.8% 5.8% 8.0% 7.3% 6.5% 6.6% 6.0%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 14.2% 11.4% 8.8% 6.5% 4.6% 4.6% 6.6% 6.6% 6.6% 6.6% 6.6% 5.5%	2.6% 14.2% 14.4% 14.6% 14.8% 14.8% 14.2% 9.7% 7.4% 5.2% 3.9% 3.5% 4.8% 7.3% 7.1% 6.2% 5.9% 5.4% 5.2% 4.9%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.06 15.06 17.7% 15.9% 4.3% 3.0% 3.0% 3.6% 6.3% 6.3% 6.3% 5.4% 5.2% 4.7% 4.5% 4.2%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 6.9% 5.1% 3.7% 2.8% 2.6% 2.9% 5.8% 5.0% 4.7% 4.3% 4.1% 3.8%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 2.6% 2.3% 2.6% 5.4% 4.7% 4.4% 4.1% 3.8% 3.5%	1.7% 10.5% 10.6% 10.8% 10.8% 10.0% 6.2% 4.6% 3.4% 2.55% 2.2% 2.4% 5.2% 4.5% 4.5% 4.5% 3.9% 3.7% 3.4%
EXPIRY	30Y Total Emergin 1M 3M 6M 9M 1Y 2Y 3Y 5OM 1M 3M 6M 3M 6M 3M 6M 3M 6M 3M 6M 9M 1Y 2Y 3Y 3M 5M 6M 5M 3M 6M 5M 5M 5M 5M 5M 5M 5M 5M 5M 5M 5M 5M 5M	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 22.0% 21.0% 19.5% 17.1% 14.6% 10.6% 8.2% 7.9% 10.6% 8 Caribbean 8.7% 8.5% 9.7% 8.5% 9.7% 6.7%	3.6% 22.5% 22.5% 22.5% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2% 7.9% 10.3% 8.6% 8.5% 9.7% 9.3% 8.7% 7.6% 7.5% 6.7%	3.6% 22.3% 22.4% 22.4% 21.7% 21.7% 20.7% 19.0% 16.7% 14.2% 10.3% 8.0% 7.8% 10.3% 8.5% 8.5% 8.5% 9.6% 7.5% 8.6% 7.3% 6.6%	3.6% 22.1% 22.2% 21.7% 21.5% 21.5% 20.5% 16.6% 14.0% 11.3% 7.8% 7.6% 10.0% 8.5% 8.4% 9.6% 9.1% 8.6% 7.5% 7.3% 6.55%	3.6% 22.1% 22.0% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 11.1% 7.7% 7.4% 9.8% 8.5% 8.3% 9.5% 8.3% 9.1% 8.5% 7.2% 6.4%	3.7% 19.1% 19.3% 19.3% 19.4% 19.3% 18.5% 17.0% 15.0% 6.8% 6.6% 8.8% 7.4% 7.3% 8.9% 9.1% 9.2% 7.6% 7.3% 6.2%	3.5% 17.9% 18.1% 18.1% 18.4% 18.4% 17.6% 16.6% 14.2% 11.4% 6.3% 6.0% 8.1% 7.2% 7.2% 9.5% 9.3% 8.8% 7.7% 7.1% 5.55%	3.5% 16.2% 16.5% 16.5% 17.0% 17.1% 16.6% 15.4% 12.5% 10.1% 5.2% 5.2% 6.9% 5.8% 8.0% 7.3% 6.5% 6.6% 6.6% 6.0% 4.7%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 11.4% 8.8% 6.5% 4.6% 4.4% 5.7% 6.6% 6.6% 6.6% 6.6% 6.9% 4.3%	2.6% 14.2% 14.4% 14.4% 14.8% 14.8% 14.2% 5.2% 3.9% 3.5% 4.8% 7.3% 7.1% 6.2% 5.2% 5.9% 5.4% 5.2% 4.9% 4.2%	2.1% 12.7% 13.0% 13.1% 13.19 13.2% 13.0% 12.0% 10.6% 7.7% 5.9% 4.3% 3.0% 3.6% 6.3% 6.3% 6.3% 6.3% 4.7% 4.5% 4.5% 4.2% 3.5%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1% 2.8% 2.6% 2.9% 5.8% 5.0% 4.7% 4.3% 4.1% 3.8% 3.1%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 2.6% 2.3% 2.6% 5.4% 4.7% 4.4% 4.1% 3.8% 3.5% 2.8%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 2.2% 2.24% 5.2% 4.5% 4.5% 4.5% 4.5% 3.9% 3.7% 3.4% 2.7%
EXPIRY	30Y Total Emergians 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam and and and and and and and and and and	3.6% ng Europe 22.7% 22.5% 22.1% 22.0% 21.0% 21.0% 11.5% 17.18 14.6% 11.9% 8.2% 7.9% 9.3% 8.7% 9.3% 9.3% 8.88% 7.6% 7.5% 5.4%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2% 7.9% 10.3% 8.6% 8.5% 9.7% 9.3% 9.7% 9.3% 5.4%	3.6% 22.3% 22.4% 21.9% 21.7% 21.7% 20.7% 19.0% 16.7% 14.2% 10.3% 8.0% 7.8% 10.3% 8.5% 9.6% 9.2% 8.6% 7.5% 7.3% 6.6% 5.2%	3.6% 22.1% 22.2% 21.7% 21.5% 21.5% 21.5% 18.8% 16.6% 14.0% 11.3% 7.8% 7.6% 10.0% 8.5% 8.4% 9.6% 9.1% 8.6% 7.5% 7.3% 6.5% 5.2%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 7.7% 7.4% 9.8% 8.5% 8.3% 9.5% 9.1% 8.5% 7.3% 7.2% 6.4% 5.1%	3.7% 19.1% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 12.3% 16.6% 8.8% 6.6% 8.8% 7.4% 7.3% 8.9% 9.1% 9.2% 7.6% 7.3% 6.2% 4.8%	3.5% 17.9% 18.1% 18.3% 18.4% 18.4% 17.6% 16.6% 14.2% 11.4% 6.3% 6.0% 8.1% 7.2% 7.2% 9.5% 9.3% 8.8% 7.7% 7.1% 5.5% 4.3%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 15.4% 10.1% 5.2% 5.2% 5.2% 6.9% 5.8% 8.0% 7.3% 6.5% 6.6% 6.0% 4.7% 3.6%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 11.4% 8.8% 4.6% 4.4% 5.7% 6.6% 6.6% 6.6% 6.6% 6.6% 6.6% 3.3%	2.6% 14.2% 14.4% 14.6% 14.8% 14.8% 14.2% 5.2% 3.9% 3.5% 4.8% 7.1% 6.2% 5.9% 5.4% 5.2% 4.9% 4.2% 3.0%	2.1% 12.7% 13.0% 13.19 13.2% 13.0% 12.0% 10.6% 7.7% 5.99% 4.3% 3.0% 3.6% 6.3% 6.3% 5.4% 5.2% 4.7% 4.5% 4.5% 4.5% 2.5%	1.9% 11.5% 11.7% 11.8% 11.8% 11.8% 10.9% 9.5% 6.9% 5.1% 2.8% 2.6% 2.9% 5.8% 5.0% 4.7% 4.3% 4.1% 3.8% 3.1% 2.1%	1.6% 10.9% 11.0% 11.2% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 2.6% 2.3% 2.6% 5.4% 4.7% 4.1% 3.8% 3.8% 3.5% 2.8% 2.0%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.6% 6.2% 4.6% 2.5% 2.2% 2.4% 5.2% 4.5% 4.2% 3.9% 3.7% 3.4% 2.7% 1.9%
EXPIRY	30Y Total Emergi 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 15Y 20Y 30Y Total Latam a 1M 3M 6M 9M 1Y 2Y 3Y 5Y 7Y 10Y 10Y 10Y 10Y 10Y 10Y 10Y 10Y 10Y 10	3.6% ng Europe 22.7% 22.5% 22.1% 22.1% 22.0% 21.0% 21.0% 11.1% 14.6% 11.9% 8.2% 7.9% 10.6% 8.7% 8.79% 9.7% 9.3% 8.85% 9.7% 9.3% 8.88% 7.6% 7.5% 6.7% 5.4% 4.1%	3.6% 22.5% 22.5% 22.1% 21.9% 21.8% 20.9% 19.3% 16.9% 14.6% 11.9% 8.2% 7.9% 10.3% 8.6% 8.5% 9.7% 9.3% 8.7% 6.7% 5.4% 4.1%	3.6% 22.3% 22.4% 21.9% 21.7% 20.7% 20.7% 19.0% 16.7% 14.2% 11.5% 8.0% 7.8% 10.3% 8.5% 8.5% 9.6% 9.6% 9.2% 8.6% 7.5% 7.3% 6.6% 5.2% 4.0%	3.6% 22.1% 22.2% 21.7% 21.5% 21.5% 20.5% 18.8% 16.6% 14.0% 11.3% 7.6% 10.0% 8.5% 8.4% 9.6% 9.1% 8.6% 7.5% 7.5% 7.3% 6.5% 5.2% 3.9%	3.6% 22.1% 22.0% 21.6% 21.4% 21.3% 20.2% 18.7% 16.2% 13.9% 11.1% 7.7% 7.4% 9.8% 8.5% 8.3% 9.5% 9.1% 8.5% 6.4% 5.1% 3.8%	3.7% 19.1% 19.3% 19.3% 19.2% 19.4% 19.3% 18.5% 17.0% 12.3% 10.0% 6.8% 6.6% 8.8% 7.4% 7.3% 8.9% 9.1% 9.2% 7.6% 7.3% 6.2% 4.8% 3.6%	3.5% 17.9% 18.1% 18.3% 18.4% 17.6% 16.6% 14.2% 11.4% 9.1% 6.3% 6.0% 8.1% 7.2% 7.2% 9.5% 9.3% 8.8% 7.7% 7.1% 5.5% 4.3% 3.2%	3.5% 16.2% 16.5% 16.7% 17.0% 17.1% 16.6% 12.5% 10.1% 7.8% 5.2% 5.2% 6.9% 5.8% 8.0% 7.3% 6.5% 6.6% 6.0% 4.7% 3.6% 2.9%	3.0% 15.4% 15.7% 15.9% 16.0% 16.2% 15.6% 14.2% 11.4% 8.8% 6.5% 4.6% 4.6% 6.5% 6.6% 6.6% 6.6% 6.6% 6.6% 6.6% 6	2.6% 14.2% 14.4% 14.6% 14.8% 14.8% 14.2% 9.7% 7.4% 5.2% 3.9% 3.5% 4.8% 7.1% 6.2% 5.9% 5.4% 5.2% 4.9% 4.2% 3.0% 2.0%	2.1% 12.7% 13.0% 13.1% 13.2% 13.0% 12.0% 10.6% 7.7% 5.9% 4.3% 3.0% 3.0% 3.6% 6.3% 6.3% 6.3% 5.4% 5.2% 4.7% 4.5% 4.5% 4.5% 4.5% 1.6%	1.9% 11.5% 11.7% 11.8% 11.8% 10.9% 5.1% 3.7% 2.8% 2.6% 2.9% 5.8% 5.0% 4.7% 4.3% 4.1% 3.8% 3.1% 2.1%	1.6% 10.9% 11.0% 11.2% 11.2% 10.1% 8.9% 6.3% 4.8% 2.6% 2.3% 2.6% 5.4% 4.7% 4.4% 4.1% 3.8% 3.5% 2.8% 2.0% 1.3%	1.7% 10.5% 10.6% 10.8% 10.8% 10.8% 10.0% 8.69% 4.69% 2.55% 2.2% 2.49% 5.2% 4.55% 4.59% 3.9% 3.77% 3.4% 2.77% 1.99%

Relative Normal Interest Rate Shocks (Continued)

	Total Asia Ex	-Japan													
	1M	11.5%	11.8%	11.8%	11.8%	11.8%	10.3%	8.7%	6.8%	6.4%	5.8%	5.1%	4.7%	4.8%	4.8%
Ī	3M	9.9%	9.9%	10.2%	10.2%	10.2%	9.3%	8.3%	6.9%	6.6%	5.8%	5.2%	4.8%	4.9%	5.0%
Ī	6M	10.0%	10.0%	10.0%	10.0%	10.0%	9.1%	8.4%	6.8%	6.5%	5.8%	5.0%	4.7%	4.7%	4.7%
Ī	9M	9.4%	9.7%	9.7%	9.7%	9.7%	9.0%	8.1%	7.0%	6.4%	5.8%	5.0%	4.9%	4.7%	4.9%
Ī	1Y	9.0%	9.0%	9.0%	9.0%	9.0%	8.6%	7.8%	6.8%	6.3%	5.6%	5.2%	4.7%	4.7%	4.6%
Υ	2Y	7.6%	7.6%	7.6%	7.6%	7.6%	7.3%	6.9%	6.4%	5.9%	5.3%	4.7%	4.2%	4.0%	3.9%
EXPI	3Y	6.5%	6.5%	6.5%	6.5%	6.5%	6.4%	6.1%	5.4%	5.2%	4.5%	4.0%	3.7%	3.6%	3.7%
Ä	5Y	5.0%	5.0%	5.0%	5.0%	5.0%	4.8%	4.8%	4.3%	3.9%	3.6%	3.0%	2.9%	2.8%	2.6%
	7Y	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	3.9%	3.7%	3.3%	2.8%	2.4%	2.2%	2.1%	2.2%
	10Y	3.5%	3.5%	3.5%	3.5%	3.3%	3.5%	3.3%	3.1%	2.6%	2.3%	2.0%	1.8%	1.7%	1.7%
	15Y	3.3%	3.1%	3.1%	3.1%	3.1%	2.9%	2.9%	2.4%	2.3%	2.1%	1.7%	1.5%	1.2%	1.3%
	20Y	3.6%	3.6%	3.6%	3.6%	3.6%	3.4%	3.5%	2.8%	2.6%	2.3%	1.7%	1.4%	1.4%	1.1%
	30Y	3.9%	3.9%	3.9%	3.9%	3.9%	3.7%	3.7%	3.0%	2.7%	2.3%	1.6%	1.6%	1.2%	1.3%
	Total ME/N.	Africa 20.7%	20.7%	21.8%	23.0%	24.1%	14.2%	10.3%	7.5%	6.1%	4.8%	3.8%	3.2%	3.2%	3.2%
F	3M	17.1%	18.1%	19.0%	19.9%	19.9%	13.3%	10.3%	7.5%	6.3%	5.0%	4.1%	3.5%	3.5%	3.5%
F	6M	14.1%	14.8%	15.5%	16.1%	16.8%	12.3%	9.8%	7.7%	6.4%	5.3%	4.1%	3.7%	3.7%	3.7%
F	9M	12.3%	12.9%	13.4%	13.9%	14.5%	11.2%	9.3%	7.7%	6.6%	5.4%	4.4%	3.9%	3.9%	3.8%
F	1Y	11.2%	11.2%	11.6%	12.1%	12.5%	10.4%	8.9%	7.6%	6.7%	5.6%	4.4%	4.1%	4.0%	4.0%
≿ l	2Y	7.4%	7.4%	7.6%	8.2%	8.4%	7.8%	7.6%	7.0%	6.4%	5.5%	4.6%	4.2%	4.1%	4.2%
<u>=</u>	3Y	5.4%	5.6%	5.8%	6.0%	6.2%	6.5%	6.4%	6.2%	5.7%	5.0%	4.2%	4.0%	3.8%	3.9%
EXPIRY	5Y	3.8%	3.9%	4.1%	4.2%	4.4%	4.5%	4.5%	4.5%	4.2%	3.8%	3.2%	3.1%	3.1%	3.0%
۳ ۲	7Y	2.9%	2.9%	3.0%	3.1%	3.1%	3.4%	3.4%	3.3%	3.1%	2.8%	2.6%	2.4%	2.4%	2.4%
ľ	10Y	2.0%	2.0%	2.1%	2.1%	2.2%	2.3%	2.4%	2.4%	2.3%	2.1%	2.0%	1.8%	1.9%	1.8%
f	15Y	1.5%	1.5%	1.6%	1.6%	1.7%	1.7%	1.8%	1.8%	2.0%	2.0%	1.8%	1.7%	1.5%	1.5%
f	20Y	2.5%	2.5%	2.5%	2.7%	2.7%	2.9%	2.9%	3.0%	2.8%	2.5%	2.2%	1.9%	1.8%	1.6%
	30Y	2.7%	2.7%	2.9%	2.9%	2.9%	3.2%	3.2%	3.3%	3.1%	2.7%	2.3%	1.8%	1.6%	1.4%
	Total Sub-Sa 1M	haran Africa	15.0%	15.2%	15.4%	15.6%	10.9%	10.0%	7.3%	6.7%	6.2%	4.8%	4.5%	4.4%	4.7%
-	3M	12.9%	13.1%	13.2%	13.4%	13.4%	9.6%	9.1%	6.9%	6.3%	5.9%	4.6%	4.3%	4.4%	4.7%
-	6M	9.8%	9.9%	10.0%	10.2%	10.3%	7.9%	7.6%	6.8%	6.3%	6.0%	4.0%	4.4%	4.2%	4.7%
-	9M	8.2%	8.3%	8.4%	8.5%	8.6%	7.7%	7.5%	7.0%	6.6%	6.0%	4.7%	4.6%	4.4%	4.7%
-	1Y	7.7%	7.7%	7.8%	7.9%	7.9%	7.5%	7.3%	7.0%	6.7%	6.1%	5.0%	4.7%	4.6%	4.9%
<u>≻</u>	2Y	6.4%	6.5%	6.6%	6.6%	6.7%	6.7%	6.8%	6.7%	6.4%	5.8%	4.9%	4.6%	4.6%	4.8%
<u></u>	3Y	5.9%	5.9%	5.9%	6.0%	6.0%	6.1%	6.2%	6.1%	5.8%	5.2%	4.5%	4.2%	4.2%	4.2%
EXPIR	5Y	4.9%	4.9%	4.9%	5.0%	5.0%	5.0%	4.9%	4.6%	4.3%	3.9%	3.3%	3.1%	2.9%	2.8%
-	7Y	3.9%	3.9%	3.9%	4.0%	4.0%	3.9%	3.8%	3.6%	3.3%	3.1%	2.6%	2.4%	2.2%	2.1%
ŀ	10Y	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	2.9%	2.7%	2.4%	2.1%	1.8%	1.6%	1.5%	1.4%
F	15Y	2.7%	2.7%	2.7%	2.7%	2.6%	2.4%	2.4%	2.2%	2.0%	1.7%	1.4%	1.2%	1.1%	1.1%
ľ	20Y	3.1%	3.1%	3.1%	3.1%	3.1%	2.7%	2.6%	2.3%	2.1%	1.6%	1.4%	1.2%	1.1%	1.1%
-	30Y	7.3%	7.3%	7.3%	7.1%	7.1%	6.9%	6.3%	4.9%	3.9%	2.9%	2.2%	1.8%	1.5%	1.4%

Absolute Normal Interest Rate Shocks

Rates Vega
Absolute Normal Interest Rate Shocks (bps)

	1														
		1M	3M	6M	9M	1Y	2Y	MATU 3Y	JRITY 5Y	7Y	10Y	15Y	20Y	25Y	30Y
	AUD	TIVI	Sivi	Olvi	3101		21	31	31	71	101	131	201	231	301
	1M	3.4	3.5	3.5	3.5	3.6	3.6	3.6	3.5	3.3	3.0	2.6	2.4	2.2	2.1
	3M	3.5	3.6	3.6	3.6	3.7	3.7	3.7	3.6	3.4	3.1	2.7	2.4	2.2	2.1
	6M	3.7	3.7	3.7	3.8	3.8	3.9	3.9	3.7	3.5	3.2	2.7	2.5	2.3	2.1
	9M	3.8	3.8	3.8	3.9	3.9	4.0	3.9	3.8	3.6	3.2	2.8	2.5	2.3	2.2
	1Y	3.8	3.9	3.9	3.9	4.0	4.0	4.0	3.8	3.6	3.2	2.8	2.5	2.3	2.1
EXPIRY	2Y	3.8	3.9	3.9	3.9	3.9	4.0	3.9	3.7	3.5	3.1	2.6	2.3	2.1	2.0
	3Y	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.4	3.2	2.8	2.3	2.0	1.8	1.7
□ □	5Y	3.0	3.0	3.0	3.1	3.1	3.0	3.0	2.7	2.5	2.1	1.7	1.5	1.3	1.2
	7Y 10Y	2.5	2.5	2.5	2.6	2.6	2.5	2.4	2.2	2.0	1.7	1.3	1.1	1.0	0.9
	10Y 15Y	2.1 1.7	2.1 1.7	2.1 1.7	2.1 1.7	2.1 1.7	2.0 1.6	2.0 1.6	1.8	1.5 1.2	1.3	1.0 0.7	0.8	0.7 0.5	0.6 0.4
	20Y	1.7	1.7	1.5	1.5	1.7	1.4	1.4	1.4	1.0	0.8	0.7	0.6 0.5	0.5	0.4
	30Y	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.1	0.9	0.7	0.5	0.4	0.3	0.3
	301	1.5	1.5	1.5	1.5	1.5	1.5	1.2	1.1	0.5	0.7	0.5	0.4	0.5	0.5
	EUR														
	1M	3.4	3.5	3.5	3.5	3.6	3.6	3.6	3.5	3.3	3.0	2.6	2.4	2.2	2.1
	3M	3.5	3.6	3.6	3.6	3.7	3.7	3.7	3.6	3.4	3.1	2.7	2.4	2.2	2.1
	6M	3.3	3.4	3.4	3.4	3.5	3.5	3.5	3.4	3.2	2.9	2.5	2.4	2.2	2.1
	9M	3.2	3.3	3.3	3.3	3.4	3.4	3.4	3.3	3.1	2.8	2.4	2.3	2.1	2.0
	1Y	3.0	3.1	3.1	3.1	3.2	3.2	3.2	3.1	2.9	2.6	2.2	2.1	1.9	1.8
≨	2Y	3.0	3.1	3.1	3.1	3.2	3.2	3.2	3.1	2.9	2.6	2.2	2.1	1.9	1.8
EXPIRY	3Y	2.8	2.9	2.9	2.9	3.0	3.0	3.0	2.9	2.7	2.4	2.0	1.9	1.7	1.6
<u> </u>	5Y	2.6	2.7	2.7	2.7	2.8	2.8	2.8	2.7	2.5	2.2	1.8	1.7	1.5	1.4
	7Y 10Y	2.5 2.1	2.5	2.5 2.1	2.6 2.1	2.6 2.1	2.5 2.0	2.4	2.2	2.0	1.7	1.3 1.1	1.1	1.0 0.8	0.9
	15Y	1.6	1.6	1.6	1.7	1.7	1.7	1.8	1.8 1.7	1.5 1.6	1.4	1.1	1.0	0.8	0.8
	20Y	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.6	1.5	1.3	1.1	0.9	0.8	0.7
	30Y	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.5	1.4	1.2	1.0	0.9	0.8	0.7
	GBP														
	1M	3.9	4.0	4.0	4.1	4.1	4.2	4.3	4.2	4.1	3.9	3.6	3.3	3.2	3.0
	3M	4.1	4.1	4.1	4.2	4.2	4.3	4.4	4.3	4.2	4.0	3.6	3.4	3.2	3.1
	6M	4.2	4.2	4.3	4.3	4.4	4.5	4.5	4.5	4.3	4.1	3.7	3.5	3.3	3.2
	9M	4.3	4.3	4.4	4.4	4.5	4.6	4.6	4.6	4.4	4.2	3.8	3.6	3.4	3.3
_	1Y	4.4	4.4	4.5	4.5	4.6	4.7	4.7	4.7	4.5	4.3	3.9	3.6	3.4	3.3
EXPIRY	2Y	4.6	4.6	4.7	4.7	4.7	4.8	4.9	4.8	4.6	4.4	4.0	3.7	3.5	3.3
≥	3Y 5Y	4.5 4.3	4.6 4.3	4.6 4.3	4.7 4.4	4.7 4.4	4.8 4.5	4.8 4.5	4.7 4.4	4.6 4.2	4.3 3.9	3.9 3.5	3.6 3.3	3.4 3.1	3.3
ш	7Y	4.0	4.0	4.0	4.1	4.1	4.1	4.1	4.0	3.9	3.6	3.2	3.0	2.8	2.7
	10Y	3.6	3.6	3.7	3.7	3.7	3.8	3.8	3.7	3.5	3.2	2.9	2.7	2.5	2.4
	15Y	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.3	3.2	2.9	2.6	2.4	2.2	2.1
	20Y	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.1	3.0	2.7	2.4	2.2	2.1	2.0
	30Y	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.0	2.8	2.6	2.3	2.1	2.0	1.9
													. —		
	JPY														-
	1M	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.1	1.2	1.2	1.3	1.3
	3M	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.1	1.2	1.3	1.3	1.4
	6M	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.3	1.4	1.4
	9M 1Y	0.8	0.8	0.8	0.8	0.8	0.9	0.9 1.0	1.0	1.1	1.1	1.3 1.3	1.3 1.4	1.4	1.4 1.5
>	1Y 2Y	0.8	0.8	0.8	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.4	1.4	1.6
EXPIRY	3Y	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.3	1.4	1.6	1.6	1.6
×	5Y	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.4	1.4	1.5	1.7	1.7	1.8	1.8
_	7Y	1.2	1.3	1.3	1.3	1.3	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.9	2.0
	10Y	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.0	2.1
	15Y	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.2
	20Y	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.8	1.8	1.9	2.1	2.2	2.2	2.3
	30Y	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.3
		•													

Absolute Normal Interest Rate Shocks (Continued)

	USD						1								
	1M	5.0	5.0	4.9	4.9	4.8	4.7	4.5	4.2	3.9	3.7	3.3	3.1	3.0	2.9
	3M	5.1	5.0	5.0	4.9	4.9	4.7	4.6	4.2	4.0	3.7	3.3	3.1	3.0	2.9
	6M	5.2	5.1	5.1	5.0	5.0	4.8	4.6	4.3	4.0	3.7	3.3	3.1	3.0	2.9
	9M	5.2	5.2	5.1	5.1	5.0	4.8	4.6	4.3	4.0	3.6	3.3	3.1	3.0	2.9
_	1Y	5.2	5.2	5.1	5.1	5.0	4.8	4.6	4.2	3.9	3.6	3.2	3.0	2.9	2.8
EXPIRY	2Y	5.1	5.1	5.0	5.0	4.9	4.6	4.4	4.0	3.7	3.3	2.9	2.7	2.6	2.5
<u>-</u>	3Y	4.9	4.8	4.7	4.7	4.6	4.3	4.1	3.6	3.3	2.9	2.5	2.3	2.2	2.1
⊕	5Y	4.2	4.2	4.1	4.0	3.9	3.7	3.4	3.0	2.6	2.3	1.9	1.7	1.6	1.5
	7Y	3.7	3.7	3.6	3.5	3.4	3.2	2.9	2.5	2.2	1.8	1.5	1.3	1.2	1.1
	10Y	3.2	3.2	3.1	3.0	3.0	2.7	2.5	2.1	1.8	1.5	1.2	1.0	0.9	0.8
	15Y	2.8	2.8	2.7	2.6	2.6	2.3	2.1	1.7	1.5	1.2	0.9	0.7	0.7	0.6
	20Y	2.6	2.6	2.5	2.4	2.4	2.1	1.9	1.6	1.3	1.0	0.8	0.6	0.5	0.5
	30Y	2.4	2.4	2.3	2.3	2.2	2.0	1.8	1.4	1.2	0.9	0.7	0.5	0.4	0.4
	US MBS Vega Other Advan														
	1M	3.4	3.5	3.5	3.5	3.6	3.6	3.6	3.5	3.3	3.0	2.6	2.4	2.2	2.1
	3M	3.5	3.6	3.6	3.6	3.7	3.7	3.7	3.6	3.4	3.1	2.7	2.4	2.2	2.1
	6M	3.7	3.7	3.7	3.8	3.8	3.9	3.9	3.7	3.5	3.2	2.7	2.5	2.3	2.1
	9M	3.8	3.8	3.8	3.9	3.9	4.0	3.9	3.8	3.6	3.2	2.8	2.5	2.3	2.2
_	1Y	3.8	3.9	3.9	3.9	4.0	4.0	4.0	3.8	3.6	3.2	2.8	2.5	2.3	2.1
EXPIRY	2Y	3.8	3.9	3.9	3.9	3.9	4.0	3.9	3.7	3.5	3.1	2.6	2.3	2.1	2.0
<u></u>	3Y	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.4	3.2	2.8	2.3	2.0	1.8	1.7
E	5Y	3.0	3.0	3.0	3.1	3.1	3.0	3.0	2.7	2.5	2.1	1.7	1.5	1.3	1.2
	7Y	2.5	2.5	2.5	2.6	2.6	2.5	2.4	2.2	2.0	1.7	1.3	1.1	1.0	0.9
	10Y	2.1	2.1	2.1	2.1	2.1	2.0	2.0	1.8	1.5	1.3	1.0	0.8	0.7	0.6
	15Y	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.4	1.2	1.0	0.7	0.6	0.5	0.4
	20Y	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.2	1.0	0.8	0.6	0.5	0.4	0.4
	30Y	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.1	0.9	0.7	0.5	0.4	0.3	0.3
	Total Emergi						,	•				,			
	1M	12.1	12.0	11.9	11.8	11.8	11.4	11.0	10.2	9.6	8.8	7.8	7.3	6.9	6.6
	3M	12.4	12.4	12.3	12.2	12.1	11.7	11.3	10.5	9.8	8.9	8.0	7.4	7.0	6.7
	6M	12.8	12.8	12.7	12.6	12.5	12.0	11.6	10.7	10.0	9.1	8.1	7.5	7.1	6.8
	9M	13.1	13.0	12.9	12.8	12.7	12.3	11.8	10.9	10.1	9.2	8.2	7.5	7.1	6.8
_	1Y	13.3	13.2	13.1	13.0	12.9	12.4	11.9	11.0	10.2	9.2	8.1	7.5	7.1	6.8
EXPIRY	2Y	13.1	13.0	12.9	12.8	12.6	12.1	11.5	10.5	9.7	8.7	7.5	6.9	6.4	6.2
ᆵ	3Y	12.2	12.1	11.9	11.8	11.7	11.1	10.6	9.5	8.7	7.7	6.6	6.0	5.6	5.3
G	5Y	9.9	9.8	9.7	9.6	9.4	8.9	8.4	7.4	6.7	5.8	4.8	4.3	3.9	3.7
	7Y	8.1	8.1	7.9	7.8	7.7	7.2	6.7	5.9	5.2	4.5	3.7	3.2	2.9	2.7
	10Y	6.5	6.5	6.3	6.2	6.1	5.7	5.3	4.6	4.0	3.3	2.7	2.3	2.0	1.9
	15Y	5.2	5.2	5.1	5.0	4.9	4.5	4.2	3.5	3.0	2.5	1.9	1.6	1.4	1.3
	20Y	4.6	4.6	4.5	4.4	4.3	4.0	3.6	3.1	2.6	2.1	1.6	1.3	1.1	1.0
	30Y	4.1	4.0	4.0	3.9	3.8	3.5	3.2	2.7	2.2	1.8	1.3	1.0	0.9	0.8
	Total Latam	& Caribbean	12.0	11.9	11.8	11.8	11.4	11.0	10.2	9.6	8.8	7.8	7.3	6.9	6.6
	1M 3M	12.1	12.4	12.3	12.2	12.1	11.4	11.0	10.2	9.8	8.9	8.0	7.4	7.0	6.7
		12.4	12.4	12.3	12.2	12.1	11.7	11.3	10.5	9.8	9.1	8.0	7.4	7.0	6.8
	6M														
	9M	13.1	13.0 13.2	12.9	12.8	12.7	12.3	11.8	10.9	10.1	9.2	8.2	7.5	7.1	6.8
>	1Y 2Y	13.3 13.1	13.2	13.1 12.9	13.0 12.8	12.9 12.6	12.4 12.1	11.9 11.5	11.0 10.5	10.2 9.7	9.2 8.7	8.1 7.5	7.5 6.9	7.1 6.4	6.8 6.2
~							-								
EXPIRY	3Y	12.2	12.1	11.9	11.8	11.7	11.1	10.6	9.5	8.7	7.7	6.6	6.0	5.6	5.3
ш	5Y	9.9	9.8	9.7	9.6	9.4	8.9	8.4	7.4	6.7	5.8	4.8	4.3	3.9	3.7
	7Y	8.1	8.1	7.9	7.8	7.7	7.2	6.7	5.9	5.2	4.5	3.7	3.2	2.9	2.7
	10Y	6.5	6.5	6.3	6.2	6.1	5.7	5.3	4.6	4.0	3.3	2.7	2.3	2.0	1.9
	10Y 15Y	5.2	5.2	5.1	5.0	4.9	4.5	4.2	3.5	3.0	2.5	1.9	1.6	1.4	1.3
	10Y														

Absolute Normal Interest Rate Shocks (Continued)

	Total Asia Ex	-Japan													
	1M	3.4	3.5	3.5	3.5	3.5	3.5	3.4	3.3	3.2	3.0	2.7	2.5	2.4	2.3
	3M	3.4	3.4	3.5	3.5	3.5	3.5	3.4	3.3	3.2	2.9	2.7	2.5	2.4	2.3
	6M	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.2	3.1	2.9	2.6	2.4	2.3	2.2
	9M	3.3	3.4	3.4	3.4	3.4	3.4	3.3	3.2	3.0	2.8	2.5	2.4	2.2	2.2
	1Y	3.3	3.3	3.3	3.3	3.3	3.3	3.2	3.1	2.9	2.7	2.5	2.3	2.2	2.1
≿	2Y	3.0	3.0	3.0	3.0	3.0	3.0	2.9	2.8	2.6	2.4	2.1	1.9	1.8	1.7
EXPIRY	3Y	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.4	2.3	2.0	1.8	1.6	1.5	1.5
×	5Y	2.2	2.2	2.2	2.2	2.2	2.1	2.1	1.9	1.7	1.6	1.3	1.2	1.1	1.0
	7Y	1.9	1.9	1.9	1.9	1.9	1.8	1.7	1.6	1.4	1.2	1.0	0.9	0.8	0.8
	10Y	1.6	1.6	1.6	1.6	1.5	1.5	1.4	1.3	1.1	1.0	0.8	0.7	0.6	0.6
	15Y	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.0	0.9	0.8	0.6	0.5	0.4	0.4
	20Y	1.2	1.2	1.2	1.2	1.2	1.1	1.1	0.9	0.8	0.7	0.5	0.4	0.4	0.3
	30Y	1.1	1.1	1.1	1.1	1.1	1.0	1.0	0.8	0.7	0.6	0.4	0.4	0.3	0.3
	Total ME/N.	Africa													
	1M	1.8	1.8	1.9	2.0	2.1	2.3	2.5	2.8	2.9	2.8	2.7	2.5	2.4	2.3
	3M	1.9	2.0	2.1	2.2	2.2	2.5	2.7	3.0	3.1	3.0	2.9	2.7	2.6	2.5
	6M	2.1	2.2	2.3	2.4	2.5	2.8	3.0	3.3	3.3	3.3	3.1	2.9	2.8	2.7
	9M	2.3	2.4	2.5	2.6	2.7	3.0	3.2	3.5	3.6	3.5	3.3	3.1	3.0	2.8
	1Y	2.5	2.5	2.6	2.7	2.8	3.2	3.4	3.7	3.8	3.7	3.5	3.3	3.1	3.0
EXPIRY	2Y	2.9	2.9	3.0	3.2	3.3	3.6	3.9	4.2	4.2	4.1	3.8	3.5	3.3	3.2
<u>-</u>	3Y	2.9	3.0	3.1	3.2	3.3	3.7	3.9	4.2	4.2	4.0	3.7	3.4	3.1	3.0
E	5Y	2.6	2.7	2.8	2.9	3.0	3.3	3.4	3.6	3.6	3.4	3.0	2.7	2.5	2.3
	7Y	2.3	2.3	2.4	2.5	2.5	2.8	2.9	3.0	2.9	2.7	2.4	2.1	1.9	1.8
	10Y	1.9	1.9	2.0	2.0	2.1	2.2	2.3	2.4	2.3	2.1	1.8	1.5	1.4	1.3
	15Y	1.5	1.5	1.6	1.6	1.7	1.8	1.9	1.9	1.8	1.6	1.3	1.1	0.9	0.9
	20Y	1.4	1.4	1.4	1.5	1.5	1.6	1.6	1.6	1.5	1.3	1.1	0.9	0.8	0.7
	30Y	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.4	1.3	1.1	0.9	0.7	0.6	0.5
	Total Sub-Sa							r							
	1M	7.1	7.1	7.2	7.3	7.4	7.6	7.6	7.6	7.4	6.9	6.3	5.9	5.6	5.4
	3M	7.4	7.5	7.6	7.7	7.7	7.9	8.0	7.9	7.7	7.3	6.6	6.2	5.8	5.6
	6M	7.9	8.0	8.1	8.2	8.3 8.7	8.4	8.5	8.4	8.1	7.6	6.9 7.2	6.4	6.1	5.9
	9M	8.3	8.4 8.7	8.5	8.6		8.8	8.9	8.8	8.5 8.7	7.9 8.1		6.7	6.3 6.4	6.1 6.2
>	1Y	8.7		8.8	8.9	9.0	9.2	9.2	9.0			7.3	6.8		
~	2Y	9.2	9.3	9.4 9.0	9.4	9.5	9.6	9.6	9.3 8.8	8.9	8.2	7.3 6.7	6.7	6.3	6.0
EXPIRY	3Y	8.9	9.0		9.1 7.7	9.1	9.2	9.2		8.4	7.6		6.1	5.7	5.4 3.9
ш	5Y	7.6	7.6	7.6		7.7	7.7	7.6	7.2	6.7	6.0	5.1	4.6	4.2	2.9
	7Y	6.3	6.3 5.1	6.3	6.4	6.4 5.1	6.3	6.2	5.8 4.5	5.3	4.7 3.5	3.9 2.9	3.4	3.1 2.2	2.9
	10Y	5.1		5.1	5.1		5.0	4.9		4.1			2.4		
	15Y 20Y	4.1 3.6	4.1 3.6	4.1 3.6	4.1 3.6	4.0 3.6	4.0 3.5	3.8 3.3	3.5 3.0	3.1 2.7	2.6 2.2	2.1 1.7	1.7 1.4	1.5 1.2	1.4 1.1
									2.6				1.4		
	30Y	3.2	3.2	3.2	3.1	3.1	3.0	2.9	2.6	2.3	1.9	1.4	1.1	0.9	0.8

Other Rates

Absolute Change in Inflation (bps)

			<u> </u>										
	MATURITY												
Currency	1M	3M	6M	9M	1Y	2Y	3Y	5Y	7 Y	10Y	15Y	20Y	30Y
AUD	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)	(4.3)
EUR	(26.5)	(26.5)	(26.0)	(25.1)	(25.0)	(23.5)	(22.3)	(20.0)	(18.4)	(15.5)	(14.0)	(13.6)	(13.0)
GBP	(35.0)	(34.8)	(34.8)	(34.0)	(33.0)	(31.9)	(30.0)	(28.5)	(27.6)	(25.0)	(22.5)	(20.0)	(18.6)
JPY	(3.3)	(3.3)	(3.3)	(3.3)	(3.1)	(3.0)	(3.0)	(3.0)	(3.0)	(2.0)	(2.0)	(2.0)	(2.0)
USD	(38.8)	(38.5)	(37.5)	(37.0)	(36.0)	(36.0)	(35.7)	(32.3)	(30.9)	(29.9)	(29.2)	(28.9)	(28.5)
Other	(38.8)	(38.5)	(37.5)	(37.0)	(36.0)	(36.0)	(35.7)	(32.3)	(30.9)	(29.9)	(29.2)	(28.9)	(28.5)

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

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

	MATURITY												
Currency	1M	3M	6M	9M	1Y	2Y	3Y	5Y	7 Y	10Y	15Y	20Y	30Y
AUD	(10.0)	(10.0)	(9.5)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(9.0)	(8.0)	(6.0)	(4.0)
EUR	(33.0)	(33.0)	(32.0)	(28.0)	(21.0)	(19.0)	(18.0)	(17.0)	(17.0)	(15.0)	(12.0)	(9.0)	(5.0)
GBP	(17.0)	(17.0)	(15.0)	(14.0)	(12.0)	(12.0)	(12.0)	(10.0)	(10.0)	(10.0)	(8.0)	(5.0)	(5.0)
JPY	(24.0)	(24.0)	(22.0)	(18.0)	(15.0)	(14.0)	(14.0)	(13.0)	(13.0)	(12.0)	(10.0)	(8.0)	(5.0)
Other	(33.0)	(33.0)	(32.0)	(28.0)	(21.0)	(19.0)	(18.0)	(17.0)	(17.0)	(15.0)	(12.0)	(9.0)	(5.0)

Appendix 12: Data Notes

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

U.S. real GDP growth*: Percent change in real gross domestic product, chained (2009) dollars, expressed at an annualized rate, Bureau of Economic Analysis (NIPA table 1.1.6, line 1).

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

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

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

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

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

U.S. 3-month Treasury rate: Quarterly average of 3-month Treasury bill secondary market rate on a discount basis, H.15 Release, Selected Interest Rates, Federal Reserve Board (series RIFSGFSM03_N.B).

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

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

U.S. BBB corporate yield: Merrill Lynch 10-year BBB corporate bond yield, Z.1 Release (Financial

Accounts of the United States), Federal Reserve Board (series FL073163013.Q).

U.S. mortgage rate: Quarterly average of weekly series for the interest rate of a conventional, conforming, 30-year fixed-rate mortgage, obtained from the Primary Mortgage Market Survey of the Federal Home Loan Mortgage Corporation.

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

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

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

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

U.S. Market Volatility Index (VIX): VIX converted to quarterly frequency using the maximum close-of day value in any quarter, Chicago Board Options Exchange via Bloomberg Finance LP. Euro area real GDP growth*: Percent change in real gross domestic product at an annualized rate, staff calculations based on Statistical Office of the European Communities via Haver, extended back using ECB Area Wide Model dataset (ECB Working Paper series no. 42).

Euro area inflation: Percent change in the quarterly average of the harmonized index of consumer prices at an annualized rate, staff calculations based on Statistical Office of the European Communities via Haver.

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

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

Japan real GDP growth*: Percent change in gross domestic product at an annualized rate from 1980 to present and percent change in gross domestic expenditure at an annualized rate prior to 1980, Cabinet Office of Japan via Haver.

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

U.K. real GDP growth*: Percent change in gross domestic

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

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

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