

Mission

The mission of the Financial Stability (E) Task Force is to consider and address, as appropriate, issues concerning domestic or global financial stability as they pertain to the U.S. insurance industry, and the role of state insurance regulators.

2021 Proposed Charges

1. The Financial Stability (E) Task Force will:

- A. Continue its mission to assess domestic and global financial stability issues, as outlined in its Macroprudential Initiative (MPI) and recommend appropriate regulatory policy and solvency tools, including:
 1. Pursuing completion of MPI referenced projects:
 - a. Completing the 2020 Liquidity Stress Test (LST) Framework,
 - b. Developing recommendations regarding group capital stress testing scenarios to the Group Capital Calculation (E) Working Group,
 - c. Complete gap analysis of NAIC counterparty financial disclosures, and make recommendations to the Blanks (E) Working Group,
 - d. Designate a sub-group to recommend a risk assessment system (i.e., policies, procedures, and tools) to enhance regulators' ability to monitor industry trends from a macroprudential perspective, and
 - e. Document the NAIC's macroprudential policies, procedures, and tools.
 2. Make recommendations regarding NAIC resources to support state insurance regulators' macroprudential risk assessment framework.
- B. Coordinate state insurance regulators' response(s) to national and international financial stability policy matters effecting the U.S. insurance industry.
 1. Monitor domestic macroprudential policy discussions at the Financial Stability Oversight Council (FSOC) and contribute, as appropriate. In particular:
 - Monitor and evaluate the potential impact of the FSOC Activities-Based Approach (ABA) including designation activities and coordinate the appropriate state insurance regulatory response(s).
 2. Monitor international macroprudential activities at forums like the International Association of Insurance Supervisors (IAIS) and the Financial Stability Council (FSB) and contribute, as appropriate. In particular:
 - a. Monitor and evaluate the potential impact of the Financial Stability Board (FSB) and/or IAIS policy discussions related to ~~Internationally Active Insurance Groups (IAIGs)~~ the U.S. insurance industry and coordinate the appropriate state insurance regulatory response(s).

COMMENT	LST STUDY GROUP REGULATOR RESPONSE/CHANGE MADE	SOURCE
<p>1. The source of the Baseline scenario should be identified consistently (Section 4.1 and Section 5.1.2). The exposed document appears to identify inconsistently the source of the Baseline scenario, most notably the economic assumptions within that scenario. We understand that the intent is for insurers to use their internal Baseline scenarios and assumptions, and the language of Section 4.1 is consistent with this intent. The references to the Fed’s Baseline scenario in Section 5.1.2, however, create potential confusion. We believe that the references to the Fed’s Baseline scenario are intended solely to determine the degree of stress within the Adverse scenario. Assuming that this is the case, we recommend appropriate clarifications within Section 5.1.2 and Annex 2i.</p>	<p>Add the references to the Fed’s Baseline scenario are intended solely to determine the degree of stress within the Adverse scenario.</p>	<p>ACLI</p>
<p>2. A provision permitting prudent modeling simplifications should be added (Section 5). For both the Adverse scenario and the Interest Rate Spike scenario, we request that regulators explicitly allow for a simplification whereby shocks may be reflected on day 1 of the stress period vs. at specific points in time during the stress period if the practice can be demonstrated or reasonably assumed to be more conservative.</p>	<p>Regulators are supportive of this concept.</p>	<p>ACLI</p>
<p>3. The degree of stress within the Adverse scenario should be described consistently (Section 5.1). The exposed document appears to characterize inconsistently the degree of stress to be applied under the Adverse scenario. In a couple of places, the level of stress is characterized as akin to the 2007-09 financial crisis. Our understanding, which is outlined in Section 5.1.2 and Annex 2i, is that regulators desire to utilize the 2017 Fed CCAR Adverse scenario, which applies a more moderated degree of stress. We would appreciate clarifications where appropriate and a single, harmonized approach to the Adverse scenario within the framework document.</p>	<p>Changed description.</p>	<p>ACLI</p>
<p>4. To promote consistency, the prescribed Fed-generated scenario stress should be translated into basis point shocks (Section 5.1.2). Section 5.1.2 requires insurers to run the Adverse liquidity stress scenario using specific values from the Fed’s stress-testing exercise for banks. It is our understanding that the intent is: (1) for the companies to use internal baselines for the Baseline scenario and (2) for the direction and magnitude of the Adverse stress scenario to be consistent with that of the prescribed Fed-generated scenario as measured from the original scenario date, and the direction and magnitude of the Adverse stress scenario would be applied to the Baseline scenario. We believe that the relevant economic and regulatory prescribed assumptions should be translated into basis point shocks to ensure more uniformity in insurers’ interpretations of the stressed economic environment.</p> <p>We understand that regulators have suggested that the projected path of ten-year Treasury rates should be translated to quarterly percentage increases, with a 10 bps minimum increase. Although this guidance is helpful, we have questions about the appropriateness of extending this construct to a variety of metrics. Overall, it would be helpful to establish a process that ensures that the Adverse stress scenario is constructed and applied consistently across the industry. We would be pleased to offer our assistance in this process.</p>	<p>ACLI is working on its proposal - we will finalize as lead state guidance for 2020 LST.</p>	<p>ACLI</p>

COMMENT	LST STUDY GROUP REGULATOR RESPONSE/CHANGE MADE	SOURCE
<p>5. A provision directing companies to produce assumptions consistent with stated Moody's values should be added for asset classes not covered by Moody's (Sections 5.1.7, 5.1.8, 5.1.9). Sections 5.1.7, 5.1.8 and 5.1.9 refer to Moody's tables for use in determining credit migrations, defaults, and recoveries. Other asset classes (structured credit, CMBS, MBS, other ABS, etc.) are not explicitly addressed. The framework document should more clearly direct companies to create "own" assumptions consistent with the Moody's tables. This may be related to the requested clarification of "illustrative value" (see 9c, below).</p>	<p>Added language for companies to create "own" assumptions consistent with the Moody's tables or reference Moodys structured tables.</p>	<p>ACLI</p>
<p>6. Detailed specifications for the "What If" modification of the Adverse scenario should be provided (Section 5.1.10). Section 5.1.10 describes the "What If" modification of the Adverse scenario. The exposed framework document indicates that the "What If" modification "allows for insurers to use established funding commitments" including existing Federal Home Loan Bank (FHLB) commitments. It further allows the rollover of expiring facilities "but eliminates the ability of the insurer to access additional/extraordinary internal and external funding sources to satisfy any liquidity deficiency under stress." We understand that, since the exposure, regulators would like to alter the "What If" modification to limit all external funding sources, including existing FHLB obligations and rollovers, and to prohibit any internal extraordinary transactions to make the scenario more stressful. We urge the regulators to reconsider this approach and, instead, maintain the language as drafted in the current framework exposure. Our view is that the suggested treatment of existing FHLB obligations, which would eliminate one of the primary tools that insurers have established to manage liquidity stresses, is not plausible even under a severe stress. Further, we believe all internal funding mechanisms, including extraordinary actions, should be allowed to the extent regulatory approval is not required, as that is how internal transfers would realistically play out during a crisis.</p>	<p>LST Study Group regulators empasized the need for this "what if" data for macroprudential purposes. Again, the "What If" is not meant to represent how internal transfers would realistically play out during a crisis - that is what the adverse stress scenario itself is meant to represent. The "What If" variation is to establish quantitative concepts for "outer limits" asset sales by category to provide context for macroprudential concerns and discussions.</p>	<p>ACLI</p>
<p>7. The requirement to provide the insurer's worst-case scenario information should be eliminated in future reporting (Section 5.3). Section 5.3 requires insurers to provide a narrative of their most severe internal liquidity stress scenario. We observe that companies will have provided essentially the same information on or before June 1st via the COVID-19 special reporting, but we understand the desire of regulators to have this information through the cashflow template at the group level for educational purposes. After this year, the educational purpose will have been largely fulfilled and regulators should consider that many companies provide information on their binding scenario(s) to their domestic regulators through ORSA and other means. We ask that this requirement be eliminated in future reporting after this year.</p>	<p>Regulators will consider when working on future LST requirements.</p>	<p>ACLI</p>
<p>8. Reporting for the What If modification of the Adverse scenario should be clarified (Section 7). For the "What If" modification of the Adverse scenario, the framework document is currently unclear as to which reporting templates are to be submitted and whether they are to be submitted at the legal entity or group level. Our understanding is that regulators want only the asset sales template at the group level. Assuming that our understanding is correct, we would appreciate appropriate clarifications within the framework document.</p>	<p>Clarified template reporting expectations in Section 7.</p>	<p>ACLI</p>
<p>B. Recommended Baseline and Adverse stress spreads for structured credit instruments. Section 5.1.4 directs the industry to recommend year-end Baseline structured spreads. There is also a need to include uniform structured spreads for the Adverse stress scenario. ACLI is still developing a recommendation, and we aim to deliver a proposal in the coming weeks.</p>		<p>ACLI</p>

COMMENT	LST STUDY GROUP REGULATOR RESPONSE/CHANGE MADE	SOURCE
<p>C. Conclusion. We believe that the LST framework may require a fair amount of refinement, even after it is “finalized” at the end of April. We recommend establishing a Q&A process whereby questions can be submitted and addressed throughout the course of the 2021 exercise.</p>	<p>The LST Study Group will continue to meet as needed during 2021 to address any issues. Lead State guidance will be developed as needed once the LST Framework has been "finalized" at the end of April.</p>	<p>ACLI</p>
<p>Regarding the scope of companies to which the LST applies, you could consider whether some sort of exception application or exclusion testing may be appropriate. We support the option shown on page 10 indicating that the “lead state regulators should have the ability to consult with the Task Force and require the LST from an insurer not meeting the scope criteria,” since an Annual Statement based scope definition may inadvertently miss companies with high liquidity risk exposure. The reverse may also be true, i.e. an insurer with a relatively low liquidity risk profile may be inadvertently included. The use of a more simplified exclusion test, that could be performed using the insurer’s existing tools, may therefore be appropriate.</p>	<p>Consider in the future, once insights and experience have been gained from actual LST filings.</p>	<p>RRC</p>
<p>We also support the specific requirements that the Chief Investment Officer provide oversight and commentary regarding the approach to determining asset market values upon sale in an adverse liquidity scenario (p. 27). This will be particularly important for illiquid securities, since market prices in a crisis will be hard to establish. You could also consider whether a certification from the CIO might also help ensure that careful consideration is given to the appropriateness of the asset valuation results.</p>	<p>Since this is a stress testing cash flow estimate and the lead state regulators will be working closely with the insurers on the 2020 LST, regulators believe a CIO certification should not be needed. However, regulators stressed the need for this function's review of the asset valuation and sales assumptions in the 2020 LST and disclosure of material changes from such review. Future consideration could occur if regulators are not satisfied with the results of the 2020 LST project.</p>	<p>RRC</p>
<p>Companies are requesting a September 30, 2021 Filing Deadline.</p>	<p>No specific date deadline has been discussed; only "3rd Quarter." Regulators support this request since we are "finalizing" the 2020 LST Framework doc in mid-May and there will likely still be Lead State guidance provided after that fact. However they indicated that as a result, less flexibility will be able to be allowed for insurers needing more time given the need to review and assess results prior to the Dec. national meeting.</p>	<p>ACLI</p>

<u>COMMENT</u>	<u>LST STUDY GROUP REGULATOR RESPONSE/CHANGE MADE</u>	<u>SOURCE</u>
Various edits throughout the LST Framework for clarity and flow.	Edits were made and are marked in track changes.	Review
<p>9.a. Section 2.2, Time Horizons, includes the following statement: “We do acknowledge liquidity risk may exist in shorter time horizons, but this is viewed as a cash management/Treasury function as part of the daily operations of individual insurers that would not affect the industry as a whole. Many insurers do have shorter term time horizons (7 days for example) as part of their internal liquidity stress testing framework. A 7 day time horizon may be appropriately applied to specifically ‘identified activities’ within an entity, such as posting collateral.” We recommend removing the struck-through language as the NAIC has determined that a 7-day time horizon is inappropriate. The IAIS reached the same conclusion in their liquidity consultation.</p>	<p><i>Consider edited version as follows :</i> We do acknowledge liquidity risk does exist with respect to shorter time horizons and that many insurers do consider shorter time horizons (7-days for example) as part of their internal liquidity stress testing framework. This is viewed as a cash management/Treasury function impacting the daily operations of individual insurers, however, that would not affect the industry as a whole. Hence, these considerations are typically reviewed as part of individual/microprudential surveillance efforts in the U.S.</p>	ACLI
<p>9.b. In Section 4.1, Baseline Assumptions for Cash Flows, language in the framework document reads, “These cash flow projections should be consistent with those used for internal financial planning and analysis (FP&A), risk management, etc.” We recognize the value of having consistency between assumptions in the Baseline scenario and assumptions that are used for internal purposes. However, we think the current language is overly specific in identifying the models with which the Baseline scenario should be consistent. We suggest the following clarification: “These cash flow projections should be consistent with those used for internal baseline liquidity forecasts, such as those used for financial planning and analysis (FP&A), risk management, etc.”</p>	Change made as requested.	ACLI
<p>9.c. In Section 5, Introduction, the term “illustrative value” is used in the following sentence: “If there is no specific value included in the 2020 LST Framework and instead there is an illustrative value, the company should use a value consistent with the illustrative value.” This term is not used elsewhere in the framework document and should be clarified or modified.</p>	<p>Inserted language: “For example, guidance is given below on using Moody’s values for migration, default and recoveries. However, insurers may use S&P data or other appropriate data values.”</p>	ACLI
<p>9.d. In Section 5.1.2, our understanding is that the intent is to use Q4 2020 actuals, with the first projection quarter being Q1 2021. This should be updated accordingly.</p>	Agree. Added clarification to 5.1.2	ACLI

<u>COMMENT</u>	<u>LST STUDY GROUP REGULATOR RESPONSE/CHANGE MADE</u>	<u>SOURCE</u>
<p>9.e. In Section 6, Available and Expected Asset Sales, new language in the framework reads “Regulators expect robust disclosures around the chief investment officer’s assumptions and decisions on expected asset sales.” Although we recognize the value of the involvement of senior investment professionals in the LST, we do not think it is necessary to require the involvement of a specific individual. We would appreciate more generic language on this topic, such as “the company’s assumptions...” or “the investment team’s assumptions...” or “the chief investment officer or CIO delegate’s assumptions...”.</p>	<p>Agree. Added clarification to 6.</p>	<p>ACLI</p>
<p>9.f. In Section 7, the reporting instructions should expressly indicate the scenarios for which the cash flow sources and uses templates are required. It is our understanding that the templates would be required for the Baseline scenario, for the Adverse scenario, and for the Interest Rate Spike scenario at both the individual entity level and the group level and for the “Worst Case” scenario at the group level only. As noted above, it would not be required for the “What If” modification of the Adverse scenario.</p>	<p>Revised section 7 to spell out these expectations. Including for the "what if" variation of the adverse liquidity stress test for insurers scenario and the company's own worst case scenario. Further refinements to the templates, particularly for the company's own worst case scenario, will likely occur as lead state guidance.</p>	<p>ACLI</p>
<p>9.g. In Section 7, we do not understand why certain boxes are greyed out in the Liquidity Sources and Uses template.</p>	<p>Inserted updated templates.</p>	<p>ACLI</p>
<p>9.h. The Section 7 description of the narrative requirements of internal stress testing systems and processes should be aligned with Section 2.3. Section 2.3 indicates that "insurers should provide a narrative description of their internal liquidity stress testing system and processes, including for example their materiality thresholds for stressed cash flows and methodology for converting foreign currencies to US dollars (see Section 7 Reporting)" [emphasis added]. The italicized portion of the sentence above is not found in the corresponding bullet in Section 7. More generally, our understanding is that regulators would like, where appropriate, to have some understanding of how FX rates are used in internal processes. We think that is appropriate and would not support mandated currency conversions.</p>	<p>Added specific language from Section 2.3 in Section 7. Regulators indicated they would not specify FX methodologies - and thus insurers can use their own processes. However, regulators DID express the need for US dollar results.</p>	<p>ACLI</p>

<u>COMMENT</u>	<u>LST STUDY GROUP REGULATOR RESPONSE/CHANGE MADE</u>	<u>SOURCE</u>
<p>9.i. In Section 7, we request confirmation of the required practices around margin and collateral. For margin, the Sources and Uses template includes Initial Margin (IM) and Variation (VM) as a source. We request confirmation of this intent, noting that it is inconsistent with some internal practices, which exclude all margin received from sources unless trades are settled. For collateral, the reporting templates exclude “Other Collateral Received” (Sources) and “Other Collateral Sent” (Uses), and we would appreciate clarification and confirmation that non-cash collateral is to be excluded from the reporting templates.</p>	<p>The categories are included in the template because an insurer may consider these as sources and uses in the base case template. However in stress scenarios, these categories may not be considered as a source or use.</p>	<p>ACLI</p>
<p>9.j. Annex 1 outlines the original scope criteria with annual statement references. While these criteria are relevant for the current exercise, it may be appropriate to update the references for future iterations of the LST.</p>	<p>Agree, these references should be updated as needed for future LST iterations.</p>	<p>ACLI</p>
<p>9.k. Annex 2iii provides both placeholder categories and references for structured spreads. ACLI’s recommendation will be forthcoming. Once these are finalized, Annex 2iii should be updated.</p>	<p>ACLI is refining the recommendation per recent discussions - we will finalize as lead state guidance for 2020 LST.</p>	<p>ACLI</p>
<p>A provision permitting prudent modeling simplifications should be added (Section 5). For both the Adverse scenario and the Interest Rate Spike scenario, we request that regulators explicitly allow for a simplification whereby shocks may be reflected on day 1 of the stress period vs. at specific points in time during the stress period if the practice can be demonstrated or reasonably assumed to be more conservative.</p>	<p>Regulators agreed to allow this option.</p>	<p>ACLI</p>

COMMENT	LST STUDY GROUP REGULATOR RESPONSE/CHANGE MADE	SOURCE
<p>Detailed specifications for the “What If” modification of the Adverse scenario should be provided (Section 5.1.10). Section 5.1.10 describes the “What If” modification of the Adverse scenario. The exposed framework document indicates that the “What If” modification “allows for insurers to use established funding commitments” including existing Federal Home Loan Bank (FHLB) commitments. It further allows the rollover of expiring facilities “but eliminates the ability of the insurer to access additional/extraordinary internal and external funding sources to satisfy any liquidity deficiency under stress.” We understand that, since the exposure, regulators would like to alter the “What If” modification to limit all external funding sources, including existing FHLB obligations and rollovers, and to prohibit any internal extraordinary transactions to make the scenario more stressful.</p> <p>We urge the regulators to reconsider this approach and, instead, maintain the language as drafted in the current framework exposure. Our view is that the suggested treatment of existing FHLB obligations, which would eliminate one of the primary tools that insurers have established to manage liquidity stresses, is not plausible even under a severe stress. Further, we believe all internal funding mechanisms, including extraordinary actions, should be allowed to the extent regulatory approval is not required, as that is how internal transfers would realistically play out during a crisis.</p>	<p>1. Prohibit any internal extraordinary transactions (i.e., actions taken in response to the stress rather than ongoing agreements or in response to a liquidity deficiency). Intragroup "Keep well" agreements would be considered extraordinary transactions.</p> <p>2. Restrict ALL External Funding Sources including FHLB; thus no new FHLB draws/obligations and no rollovers of existing FHLB facilities.</p> <p><u>Rationale for 1:</u> The "What If" is not meant to represent how internal transfers would realistically play out during a crisis - that is what the adverse stress scenario itself is meant to represent. The "What If" variation is to establish quantitative concepts for "outer limits" asset sales by category to provide context for macroprudential concerns and discussions. We do not specify a stress scenario or event that precludes the internal transfer - we simply indicate the internal transfers are not able to occur (despite the unrealistic nature).</p> <p>Since the Group Level templates simply add up the Legal Entity Level templates (not required to be submitted for the 2020 LST), we need the Legal Entity Assets templates to reflect the asset sales using ONLY that Legal Entity's existing resources in order to establish this outer limits asset sales figures for the group (and when aggregated, for the industry).</p> <p><u>Rationale for 2:</u> Again, this is supposed to be the "outer limit" of asset sales that could occur - not a reasonable amount or including a reasonable use of FHLB resources. While amounts from existing FHLB sources will not be canceled, rollovers may not occur.</p>	<p>ACLI</p>



National Association *of*
Insurance Commissioners

FOR EXPOSURE

**NAIC 2020 LIQUIDITY STRESS TEST FRAMEWORK
For Life Insurers Meeting the Scope Criteria**

~~April-May~~ 2021

DRAFT

Table of Contents

INTRODUCTION

Macroprudential Implications of a Liquidity Stress

Beginning mid-year 2017, the NAIC embarked on a project to develop a liquidity stress testing framework. While the NAIC has existing tools and processes for assessing liquidity risk at a legal entity level (i.e., 'inward' impacts to the insurer), there was recognition that the NAIC toolbox could be further enhanced with the addition of more granular data in the annual statement and a tool that would enable an assessment of macroprudential impacts on the broader financial markets (i.e., 'outward' impacts) of a liquidity stress impacting a large number of insurers simultaneously.

Post-financial crisis, there were several attempts to assess potential market impacts emanating from a liquidity stress in the insurance sector. Many of these analyses relied heavily on anecdotal assumptions and observations from behaviors of other financial sectors. To provide more evidence-based analyses, the NAIC decided to develop a Liquidity Stress Test (LST) Framework for large life insurers that would aim to capture the outward impacts on the broader financial markets (~~i.e., outward impacts~~) of aggregate asset sales under a liquidity stress.

The stress test will be run annually and the findings, on an aggregate basis, reported annually as part of the NAIC's continuous macroprudential monitoring efforts. The NAIC's pursuit of the liquidity stress test should not suggest any pre-judgement of the outcomes. The NAIC believes there is value to the exercise whether it points to vulnerabilities of certain asset classes or markets or, alternatively, suggests that even a severe liquidity stress impacting the insurance sector is unlikely to have material impacts on financial markets. The NAIC liquidity stress testing framework is intended to supplement, not replace, a firm-specific liquidity risk management framework. The NAIC has not yet discussed steps that might be taken to address any identified vulnerabilities but acknowledges that any recommendations may require collaboration with other financial regulators.

The NAIC's revised proposed liquidity stress testing framework is contained in the pages that follow ~~and is exposed for comment until~~ April 1, 2021. The NAIC recognizes that, at least in the

early years, the stress testing process and analyses will be iterative. We expect refinements as the framework is developed, especially after the first year's implementation.

BACKGROUND

NAIC Macroprudential Initiative

The NAIC's Macroprudential Initiative (MPI) commenced in 2017. It recognized the post-financial crisis reforms that became part of our Solvency Modernization Initiative (SMI) that continue to serve us well today. However, in the ensuing years since those reforms, insurers have had to contend with sustained low interest rates, changing demographics and rapid advancements in communication and technology. They have responded by offering new products, adjusting investment strategies, making structural changes, and expanding into new global markets. There are new market players, new distribution channels, and a complex web of interconnections between financial market players.

What has not changed since the financial crisis is the scrutiny on the insurance sector in terms of understanding how insurers react to financial stress, and how that reaction can impact, via various transmission channels, policyholders, other insurers, financial market participants, and the broader public.

The proposed work on macroprudential measures is reflective of the state insurance regulators' commitment to ensure that the companies they regulate remain financially strong for the protection of policyholders, while serving as a stabilizing force to contribute to financial stability, including in stressed financial markets. To that end, the NAIC's three-year strategic plan (2018-2020), "State Ahead", reflects the objective of "Evaluating Gaps and regulatory opportunities arising from macroprudential surveillance, and develop appropriate regulatory responses."

The NAIC's work on macroprudential surveillance is overseen by the Financial Stability Task Force of the NAIC Executive Committee. In April 2017, the Task Force was asked to consider new and improved tools to better monitor and respond to both the impact of external financial and economic risks on supervised firms, as well as the risks emanating from or amplified by these

firms that might be transmitted externally. The Task Force, in turn, focused its efforts on potential enhancements to identify and monitor liquidity risk, among other areas. More specifically, the Task Force was requested to further develop the U.S. regulatory framework on liquidity risk with a focus on life insurers due to the long-term cash-buildup involved in many life insurance contracts and the potential for large scale liquidation of assets.

Liquidity Assessment Subgroup

To carry out its work on assessing liquidity considerations, the Task Force established the Liquidity Assessment Subgroup (“Subgroup”) mid-year 2017.

Mandate

The charges and workplan of the Subgroup reflect the following assignments:

- Review existing public and regulator-only data related to liquidity risk, identify any gaps based on regulatory needs and determine the scope of application, and propose recommendations to enhance disclosures.
- Develop a liquidity stress testing framework proposal for consideration by the Financial Condition (E) Committee, including the proposed universe of companies to which the framework will apply (e.g., large life insurers).
- Once the stress testing framework is completed, consider potential further enhancements or additional disclosures.

In addition, a small informal study group comprised of regulators, industry participants and NAIC staff was formed to consider the specific data needs and technical aspects of the project. The study group is NOT an official NAIC working group. All recommendations from the study group must be vetted and considered by the Liquidity Assessment Subgroup and/or the Financial Stability (EX) Task Force according to NAIC procedures.

Data Gaps

Prior to undertaking work on the Liquidity Stress Test, the Subgroup constructed an inventory list of existing life insurer disclosures as of 2018 that contribute to an understanding of liquidity risk. When assessing the current state, the Subgroup recognized the availability of significant detailed investment-related disclosures but contrasted it to the relatively sparse liability-related disclosures. To remedy this imbalance, a blanks proposal was constructed to significantly increase the disclosures for life insurance products.

Specifically, the Analysis of Operations by Line of Business schedule was expanded from a single exhibit to five exhibits, one each for Individual Life, Group Life, Individual Annuity, Group Annuity, and Accident and Health. The Analysis of Increase in Reserves schedule was similarly expanded. Within each of the five new exhibits, columns were added for more detailed product reporting. For example, columns were added to the Individual and Group Life exhibits to capture universal life insurance and universal life insurance with secondary guarantees, and columns were added to the Individual and Group Annuity exhibits to capture variable annuities and variable annuities with guaranteed benefits. In addition, two new lines were added to the now five exhibits of the Analysis of Increase in Reserves schedule: one capturing the cash surrender value of the products outstanding and another capturing the amount of policy loans available (less amounts already loaned). A new addition was also proposed to the Life Notes to Financial Statement. The new Note 33 considered the type of liquidity concerns disclosed in Note 32 for annuities and deposit-type contracts and added disclosures for life insurance products not covered in Note 32.

These proposals were exposed and commented upon several times at the Liquidity Assessment Subgroup, the Financial Stability (EX) Task Force, and at the Blanks (E) Working Group. Ultimately, they were adopted by NAIC Plenary for inclusion in the 2019 Life Annual Statement Blank. As an interim step, The Financial Stability Task Force performed a data call requesting a few key lines of information from the newly adopted 2019 format of the Analysis of Operations by Line of Business schedule and the Analysis of Increase in Reserves schedule, as well as the new Note 33, but populated with 2018 year-end data. This data call was completed in July 2019.

Discussions with Insurers

During the latter part of 2017 and first quarter of 2018, the Subgroup conducted calls with several large life insurers who agreed to share their internal liquidity risk assessment processes. The dialogue provided extremely helpful input and informed the establishment of the initial direction of the Liquidity Stress Testing Framework. Feedback from these discussions include:

- Scope criteria should be risk-focused, not solely based on size.
- Stress test framework should align with internal management reporting and leverage the ORSA.
- Stress test should be principle-based and complement a company's internal stress testing methodology.
- Regulatory guidance should be provided to help define liquidity sources and uses, products/activities with liquidity risk, time horizons, level of aggregation, reporting frequency, and establishing stress scenarios.
- Public disclosure of results should be carefully considered to avoid exacerbating a liquidity crisis.

Regarding the specifics of liquidity assessments/stress test approaches, significant diversity in practice existed. Key observations in this regard included:

- Liquidity tests are performed at the material entity level and at the holding company level. Definitions of material entities differ.
- Most firms determine some sort of coverage ratio (Liquidity Sources) / (Liquidity Uses), for Base and Stress scenarios and monitor results to ensure they align with the firm's (internal) risk appetite. Categories of liquidity sources and uses differ across firms and assumptions vary depending on time horizon. Some insurers determine coverage ratios utilizing balance sheet values, applying different haircuts by asset class, time horizon and type of stress. Other insurers determine liquidity coverage gaps (Liquidity Inflows – Liquidity Outflows) utilizing a cash flow approach.
- Stress scenarios vary by company, reflecting a combination of market-driven, as well as idiosyncratic and insurer-specific scenarios.

- Time horizons tested also varied, typically ranging from 7 days to 1 year.

Regulatory Goals of the Liquidity Stress Test

- The primary goal of this liquidity stress testing, and the specific stress scenarios utilized, is for macroprudential uses – to allow the FSTF regulators to identify amounts of asset sales by insurers that could impact the markets under stressed environments. Thus, the selected stress scenarios are ~~explicitly about~~ consciously focused on industry-wide stresses – ~~something those~~ that can impact many insurers within a similar timeframe. These ~~will most likely~~ may not be the most stressful scenarios for specific legal entity insurers, or even their groups. Regulators have indicated the liquidity stress testing is also meant to assist regulators in their micro prudential supervision, in the context of being helpful for domiciliary and lead state regulators to better understand liquidity stress testing programs at those legal entities and groups. There is no intent ~~of discussion around requiring to require~~ these stress scenarios to be used by individual insurers for some sort of assessment or regulatory intervention mechanism. Similarly, there ~~is no~~ has not been any consideration ~~of given to~~ requiring them ~~for in the management of any entities in~~ receivership ~~entities~~.
- Regulatory concerns regarding liquidity risk for legal entity insurers and/or groups is more about the stress scenarios of most concern to those entities (not those identified for macro prudential purposes). Similarly, when considering liquidity risk at a legal entity and/or group, regulators need to understand the insurer's entire risk management framework. Much of this understanding may come from the ORSA filings. ~~Thus, the LST is not meant to be a legal entity insurer requirement, or used as a ranking tool, etc.~~ However, it is recognized that simply reviewing these LST results may help regulators better understand the role of liquidity stress testing within the entities – which may result in more questions and information requests regarding the entities' own liquidity risk management framework and dynamics of their internal liquidity stress tests. ~~Thus, the 2020 LST is not meant to be a legal entity insurer requirement, nor used as a ranking tool, etc.~~

[Beginning of] 2020 Liquidity Stress Testing Framework – to be included as an appendix in the NAIC Financial Analysis Handbook

Section 1. Scope Criteria for Determining Groups Subject to 2020 LST

In determining the companies subject to the liquidity stress test (LST), consideration was given to activities assumed to be correlated with liquidity risk. Another consideration was the desirability of tying data used in the criteria back to the statutory financial statements. Ultimately six activities were identified. Those activities are Fixed and Indexed Annuities, Funding Agreements, Derivatives, Securities Lending, Repurchase Agreements and Borrowed Money. Minimum thresholds were established for each of these six activities. A life insurance legal entity or life insurance group exceeding the threshold for any of the six activities is subject to the stress test (see Annex 1 for more details). ~~Twenty-three insurance groups met the initial scope criteria.~~

While the scope criteria only utilize statutory annual statement data, the stress test is not similarly limited. Thus, the stress test will consider many more liquidity risk elements than the scope criteria, and internal company data will be the source for many of those elements.

Just as the liquidity stress test structure and methodology may change over time, the scope criteria may also be modified, for example, in response to new data points in the NAIC Annual Statement Blank. The scope criteria will be reviewed annually.

Using the agreed criteria, NAIC staff obtained the amounts for all life insurance legal entities from the 2018 annual statutory financial statements (filed by March 1, 2019). If two or more life insurers ~~are were~~ part of an insurance group with an NAIC group code, then the numbers for each of those legal entity life insurers ~~will be was~~ summed together to represent an insurance group result. Thus, a legal entity life insurer not in an insurance group can meet the threshold on its own, or the sum of legal entity life insurers in a group ~~can could~~ meet the threshold. Twenty-three insurance groups met the initial scope criteria.

In establishing whether an insurer or group met or exceeded the threshold criteria, the Subgroup members supported using the most current single year activity rather than a multi-year average.

This resulted in coverage amounts ranging from 60% to 80% of the industry total for each activity based on 2018 data. It was recognized that using single year activity could result in more instances of an insurance group being in scope one year and out of scope the next, but regulators viewed it more important to have the most recent financial data utilized for determining scope. To address concerns about insurers moving in and out of scope, regulatory judgment will be used to address an insurer's exit from or entry to the scope of insurers subject to the liquidity stress test. The lead state regulator will consult with the Task Force in determining when it is appropriate to remove an insurer from the LST requirement if it no longer meets the scope criteria. Similarly, lead state regulators should have the ability to consult with the Task Force and require the LST from an insurer not meeting the scope criteria (e.g., an insurer close to triggering the scope criteria for more than one year).

Section 2. Liquidity Stress Test

2.1 Summary

The stress testing framework employs a company cash flow projection approach incorporating liquidity sources and uses over various time horizons under a baseline assumption and some number of stress scenarios (for 2020 there are 2 stress scenarios and also an insurer-specific request for information). The available assets are then recorded by asset category. The framework then calls for identification of expected asset sales by category, or other funding as allowed in the stress test, to cure any cash flow deficits (liquidity uses exceed liquidity sources) under the stress scenarios. The stress tests are to be performed at the legal entity level; the aggregated group does not perform the LST.

2.2 Time Horizons

The time horizons chosen by regulators are 30 days, 90 days, and 1 year, ~~because, Overall~~ overall, insurance products are designed to be for the benefit of customers as risk protection over the long term and not designed to provide short term liquidity like other financial products. Historical experience in times of stress demonstrate slow policyholder reaction in short periods of time, as opposed to an event that occurs over months or years. With features designed to protect the

~~long-term nature of the product for the policyholders, this will ultimately reduce the likelihood of policyholder any reaction to short-term volatility in markets. Therefore, evaluating shorter than 30-day time horizons has~~ long-term nature of the product for the policyholders, this will ultimately reduce the likelihood of policyholder any reaction to short-term volatility in markets. Therefore, evaluating shorter than 30-day time horizons has ~~ve~~ ve been deemed not warranted for the overarching macroprudential purpose of gauging liquidity risk in the Life insurance industry.

~~Policyholders do not "run" from an insurer in times of economic stress to the extent as depositors do from a bank, because insurance is purchased to obtain the protection insurance provides, not as a source of liquidity or discretionary funds. In the United States, life insurance and annuities are purchased primarily for long-term financial protections upon death or retirement. Surrendering a life insurance contract to harvest its cash surrender value would leave the policyholder without death benefit protection that would be expensive or impossible to replace at a future date. Surrendering a variable annuity contract would lock in potentially temporary decreases in account value and could result in the loss of living benefit protection that becomes more valuable when market conditions depress account values below trigger points. Further, There are many mitigating contract features such as surrender charges and the insurer's right to delay the processing of withdrawals and surrenders for up to 30 days are common.~~ Policyholders do not "run" from an insurer in times of economic stress to the extent as depositors do from a bank, because insurance is purchased to obtain the protection insurance provides, not as a source of liquidity or discretionary funds. In the United States, life insurance and annuities are purchased primarily for long-term financial protections upon death or retirement. Surrendering a life insurance contract to harvest its cash surrender value would leave the policyholder without death benefit protection that would be expensive or impossible to replace at a future date. Surrendering a variable annuity contract would lock in potentially temporary decreases in account value and could result in the loss of living benefit protection that becomes more valuable when market conditions depress account values below trigger points. Further, There are many mitigating contract features such as surrender charges and the insurer's right to delay the processing of withdrawals and surrenders for up to 30 days are common.

~~There are also non-contractual mitigating factors at play, such as potential negative tax consequences, that further reduce the short-term nature of liquidity risk for life insurers. factors that reduce the short-term nature of liquidity risk for life insurers. Factors that reduce this risk are the product design features and contractual terms that make them less likely to be drawn upon by policyholders in times of stress. These policy features include:~~ There are also non-contractual mitigating factors at play, such as potential negative tax consequences, that further reduce the short-term nature of liquidity risk for life insurers. factors that reduce the short-term nature of liquidity risk for life insurers. Factors that reduce this risk are the product design features and contractual terms that make them less likely to be drawn upon by policyholders in times of stress. These policy features include:

~~Surrender charges on annuities that provide disincentive to surrender.~~

~~Surrenders leave the annuitant without benefits.~~

~~Market conditions driving a scenario could cause the variable annuity account values to drop below income guarantees reducing the incentive to surrender.~~

~~Historical experience in times of stress demonstrate slow policyholder reaction in short periods of time, but rather an event that occurs over months or years.~~

~~Many Life and Annuity contracts give the insurer 30+ days to process withdrawals, where large increases in volumes would result in longer processing times.~~

~~Whole Life insurance policies cashed in leave the insured without life protection and a more expensive cost to replace the protection in the future.~~

~~Life insurance cost of replacement may not be available.~~

~~There may be negative tax consequences for policyholders in both the retail and institutional space for both life and annuity products.~~

Simply put, policyholders are highly disincentivized to give up the likely irreplaceable protection for which they have already paid. The run-like mass surrender of insurance policies would require large numbers of policyholders to act against their self-interest.

~~Additionally, fFrom a holistic risk perspective, liquidity stress is traditionally experienced on the asset side. One short-term consequence of market turmoil could be a requirement to, which may result in posting of collateral in connection with existing derivative contracts. However, even in this scenario, collateral is typically posted in the form of securities, so a demand for not cash is not generated.~~

~~We do acknowledge liquidity risk may does exist in with respect to shorter time horizons and that many insurers do consider shorter time horizons (7-days for example) as part of their internal liquidity stress testing framework, but tthis is viewed as a cash management/Treasury function as part of impacting the daily operations of individual insurers, however, that would not affect the industry as a whole. Many insurers do have shorter term time horizons (7-days for example) as part of their internal liquidity stress testing framework. A 7-day time horizon may be appropriately applied to specifically “identified activities” within an entity, such as posting collateral. Hence, tThese frameworks considerations are typically reviewed as part of individual/microprudential surveillance efforts in the U.S.~~

2.3 Insurer's Internal Liquidity Stress Testing System

Insurers are to use their own internal liquidity stress testing system to perform the regulatory LST, adjusting for regulatory assumptions, metrics, etc., as specified in this document. For example, assessing materiality of stressed cash flows for inclusion in the liquidity uses and sources templates is per the insurer's own internal methodology, but determining which legal entities are to perform the LST and report on those templates is specified in this document. **Insurers should provide a narrative description of their internal liquidity stress testing system and processes, including for example their materiality thresholds for stressed cash flows and methodology for converting foreign currencies to US dollars (see Section 7. Reporting).** The stress scenarios may vary from year-to-year and contain variations referred to as "What-if" scenarios. The following sections provide a further description of each of the key components of the framework.

Section 3. Legal Entities Required to Perform the LST for Insurers Meeting the Scope Criteria

The scope of entities included within an insurance group for the purposes of liquidity stress testing to assess the potential for large scale liquidation of assets (i.e., the legal entities within the group which should perform the LST), should include:

- U.S. Life insurance legal entities, including reinsurers, **regardless of corporate structure, so including captives** (regulators specifically want ~~immaterial all~~ U.S. life insurance/reinsurance legal entities to perform the 2020 LST for informational purposes – future LST iterations may see a materiality consideration added ~~here as well~~);
 - Non-guaranteed/market value separate accounts are not included in the 2020 LST. **However, regulators may want to perform a separate account study in the future. The current thinking is that even though** non-guaranteed/market value separate accounts may experience asset sales during stressed environments, **those sales are at the policyholder's discretion and** do not generate liquidity stress for the insurer/group. As such they are deemed other market activity rather than insurance entity activity. **Thus, for annuities that provide both**

Commented [ST1]: Regulators addressed the previously outstanding question of whether this line item is also subject to materiality consideration.

non-guaranteed and guaranteed benefits, insurers should only include the cash flow impact of the guaranteed benefits.

- ~~Thus, for annuities that provide both non-guaranteed and guaranteed benefits, insurers should only include the cash flow impact of the guaranteed impacts, and not those of the separate account's asset sales, in the LST testing and results.~~
- ~~However, regulators may want to perform a separate account study in the future.~~
- ~~For Non-U.S. life insurance/reinsurance legal entities, they should perform the 2020 LST if they pose material liquidity risks to the U.S. group (see below on non-U.S. legal entities).~~
- Where applicable, holding companies that could be a source or draw of liquidity to the life insurance legal entities; and
- Non-life insurance entities and non-insurance entities with material sources of liquidity, or that carry out material liquidity risk-bearing activities and could, directly or indirectly, pose material liquidity risk to the U.S. group. This materiality consideration should occur within the context of the specific stress scenario (and “what if” modification if applicable). The materiality criteria and initial list of legal entities in scope should be reviewed by the lead state regulator and modified by the insurer as needed based on regulator direction.
 - Non-U.S. legal entities (including non-U.S. holding companies) are subject to this materiality consideration and should be subject to performing the LST if they pose material liquidity risk to the U.S. group.
 - U.S. non-life insurers and reinsurers are not automatically exempted. If the U.S. non-life insurer poses material liquidity risk, per the stress scenario, to the U.S. group, then that legal entity insurer should perform the LST. ~~This includes non-life reinsurers as well.~~
- Legal entity asset managers and mutual funds (both U.S. and non-U.S.) are excluded from performing the 2020 LST.
 - However, those legal entities performing the LST (e.g., holding companies that could be a source or use of liquidity for the life insurers) must reflect any material

stressed cash flows from/to the legal entity asset manager/mutual fund in their 2020 LST results (e.g., the liquidity sources and liquidity uses templates, as they do with any other type of legal entity that has material stressed cash flows from/to the legal entities performing the LST).

- If such material stressed cash flows from/to the legal entity asset manager/mutual fund exist, the regulators want specific disclosures on those in the results (either by adjusting the templates to include a line for these and/or in the narrative/explanatory disclosures submitted along with the templates).
- Examples of when such legal entity asset manager/mutual fund considerations and disclosures would need to be made for a specific stress scenario include:
 - If the holding company or another legal entity(ies) in the group is expected to fund a material liquidity shortfall of a mutual fund/asset manager (i.e., redemptions exceed the ability to sell assets), then the expected cash flows must be reflected (especially where there are established inter-affiliate support agreements);
 - If the holding company or another legal entity(ies) in the group is expected to provide capital to the mutual fund/asset manager or is expecting dividends from them, the material expected cash flows must be reflected; and
 - If the asset manager manages financial instruments under which it retains some risk, such as new European CLOs, or has contractual risk retention agreements for US CLOs, the required risk retention limit (5% for Europe) must be reflected if sourced from the holding company or another legal entity(ies) in the group **and considered material.**
- Legal entity banks (both U.S. and non-U.S.) are **excluded** from performing the 2020 LST.
 - However, those legal entities performing the LST (e.g., holding companies that could be a source or use of liquidity for the life insurers) must reflect any material stressed cash flows from/to the legal entity bank in their 2020 LST results (e.g., the liquidity sources and liquidity uses templates, as they do with any other type

of legal entity that has material stressed cash flows from/to the legal entities performing the LST).

- If such material stressed cash flows from/to the legal entity bank exist, the regulators want specific disclosures on those in the results (either by adjusting the templates to include a line for these and/or in the explanatory disclosures submitted along with the templates).
- Examples of when such legal entity bank considerations and disclosures would need to be made for a specific stress scenario include:
 - If the holding company or another legal entity(ies) in the group is expected to fund a material liquidity shortfall of a bank, then the expected cash flows must be reflected (especially where there are established inter-affiliate support agreements); and
 - If the holding company or another legal entity(ies) in the group is expected to provide capital to the bank or is expecting dividends from them, the material expected cash flows must be reflected.

For 2020, the legal entities identified in the bullets above, per a Company's ORSA and/or other materiality criteria applied to the specific stress scenario, must be considered as material or identified as carrying out material liquidity risk bearing activities and hence subject to internal liquidity stress testing requirements. Although a legal entity in the group may not be required to perform the stress test due to materiality considerations or exemptions, those entities' material cash impacts on entities performing the stress test must be captured in the sources and uses templates of the entities performing the LST. The insurer will need to disclose the materiality criteria (agreed upon by the lead ~~Lead~~ state-State regulator) used in determining the legal entities subject to the 2020 LST in the submission of its results. Based on the results of the 2020 initial LST exercise, the Subgroup will determine if additional materiality criteria should be developed to ensure better comparability amongst insurers.

Section 4. Cash Flow Approach – Liquidity Sources and Uses

The Liquidity Stress Testing Framework is anchored by a cash flow approach, utilizing companies' actual cash flow projections of sources and uses of liquidity over various time horizons based upon experience and expectations. This contrasts with a Balance Sheet Approach, which employs static balance sheet amounts and generic assumptions about asset liquidity. While a Balance Sheet Approach is easier to apply and provides calculation consistency (and thus the perception of increased comparability), its 'one-size fits all' approach could result in a misleading assessment of liquidity risk and fail to capture certain asset activities or product features under different stress scenarios and time horizons. The cash flow approach is deemed more dynamic and ~~may~~ hence to capture liquidity risk impacts more precisely.

The insurer should produce cash flow projections for sources of liquidity and uses of liquidity that cover: operating items, investments and derivatives, capital items, and funding arrangements. (See Liquidity Sources and Uses templates in Section 7). To clarify an issue regarding funding arrangements, the projected cash flows for liquidity sources and uses should include already existing funding arrangements such as FHLB draws outstanding in the current time period. Also, specific to the holding company, these projected cash flows for liquidity sources and uses should include material non-U.S. impacts as well.

The insurer will produce these liquidity sources and uses cash flow projections in a baseline, normal course of business scenario, for each time horizon. The insurer will also produce these cash flows for each time horizon ~~for based upon~~ a specific number of required stress scenarios (for 2020 there are 2 stress scenarios and also an insurer-specific ~~request for information~~ worst-case scenario) ~~for each time horizon~~.

4.1 Baseline Assumptions for Cash flows

Baseline (pre-stress) cash flows are the insurer-specific cash flows from normal expected operations. Insurers should prepare cash flow projections under normal operating conditions and report the net cash flows (projected liquidity sources less uses) for each time horizon. These cash flow projections should be consistent with those used for internal baseline liquidity forecasts, such as those used for financial planning and analysis (FP&A), risk management, etc. A positive

Commented [ST2]: Determine if still needed for 2020 LST.

net cash flow is presumed in the baseline cash flows since companies are usually not expected to be operating in a net cash flow deficiency state.

Section 5. Stress Scenarios and their Assumptions

For year-end 2020 there are two regulatory liquidity stress scenarios: an adverse liquidity stress scenario for insurers, and an interest rate ~~shock-spike~~ scenario. There is also an insurer-specific information request for each group's own most adverse liquidity stress scenario(s). The adverse liquidity stress scenario contains a regulator provided narrative, regulator-prescribed assumptions and company-specific assumptions. The interest rate ~~shock-spike~~ scenario allows all other narrative description components and key metrics (including how much interest rates spike) to be provided by each company. The insurer-specific information request contains a company provided narrative and a description of any relative key company metrics ~~involved~~. The regulator provided narrative will be a qualitative description of the specified stress scenario ~~in place~~ to highlight the particular risks and sensitivities associated with that stress scenario. The regulator prescribed assumptions are specific parameters insurers should incorporate into their process for a particular stress scenario. Company-specific assumptions should be consistent with the information provided in the regulator provided narrative and regulator prescribed assumptions, and represent the detailed assumptions needed for a specific company's liquidity stress testing process. Examples of where companies should provide their assumptions include: debt issuance, lapse sensitivity, new business sensitivity and mortality sensitivity. Regulators expect insurers to utilize policyholder behavior assumptions (e.g., surrenders and policy loan withdrawals, existence of new sales activity) ~~consistent with the severity of the stress as well as the insurer's response (e.g., assuming delays in payment of policyholder benefits), consistent with the severity of the stress, and to provide~~ very thorough explanatory information ~~should accompany the 2020 LST results~~. All key business activities and product ~~types~~ impacts to liquidity should be considered by the companies.

If the insurer's internal model does not utilize a specific economic and/or company-specific assumption included in this document, the internal model does not need to be modified to utilize incorporate it. However, if the insurer's internal model does utilize a specific economic and/or

Commented [ST3]: Determine if still needed for 2020 LST.

Commented [ST4]: Determine if still needed for 2020 LST.

company-specific assumption included in this document, the insurer must utilize the specific value for that assumption provided in this document. (This emphasizes the macro surveillance benefit of the 2020 LST, allowing for a level of consistency of assumptions across the industry. As discussed previously, this is not meant to specify assumptions used by the insurers in their own internal liquidity stress testing work.) If there is no specific value included in the 2020 LST Framework and instead there is an illustrative value or suggested guidance, the company should use a value consistent with the illustrative value or suggested guidance. For example, guidance is given below on using Moody's values for migration, default and recoveries. However, insurers may use S&P data or other appropriate data sources.

5.1 Adverse Liquidity Stress Scenario for Insurers

5.1.1 Narrative

Insurers are required to apply an adverse liquidity stress scenario as one of the two stress scenarios. The following is a summary of market conditions in the adverse scenario extracted from the Federal Reserve Board's 2017 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule. ~~(Reminder: In 2020, the Federal Reserve Board eliminated the adverse scenario, instead including a baseline scenario and a severely adverse scenario; in 2017, they used an adverse scenario and a severely adverse scenario.)~~

~~The adverse scenario is characterized by weakening economic activity across all economies included in the scenario. This economic downturn is accompanied by a global aversion to long-term fixed-income assets that, despite lower short-term rates, brings about a near-term rise in long-term rates and steepening yield curves in the United States and the four countries/country blocks in the scenario. This scenario is characterized by a severe global recession that is accompanied by a global aversion to long term fixed income assets. As a result, long term rates do not fall and yield curves steepen in the U.S. In turn, these developments lead to a broad-based and deep correction in asset prices—including in the corporate bond and real estate markets.~~

Commented [ST5]: Regulators did not agree with the industry request to allow insurers to use their own metrics (e.g., for insurers that perform both liquidity and capital stress testing simultaneously).

- Macroeconomic
 - Real GDP falls slightly more than 2 percent from the pre-recession peak in the fourth quarter of 2016 to the recession trough in the first quarter of 2018
 - ~~Real GDP begins to decline in the first quarter of 2018 and reaches a trough that is 6½ percent below the pre-recession peak.~~
 - ~~Unemployment rate approaches 7.440%.~~
 - ~~Headline CPI falls below 11/41.6 percent %at an annual rate in the second quarter of 2017 and rises to about 13/42.1 percent % at an annual rate by the end of the over the scenario period.~~
- Interest Rates and Credit Spreads
 - ~~Short-term Treasury rates fall and remain near zero throughout the stress.~~
 - ~~10-year Treasury yields drop to %rise to 2.7%.~~
 - ~~Investment Grade (IG) corporate credit spreads widen to 5.5%approximately 3.75%.~~
- Asset Valuations
 - ~~Equity prices decline by roughly 5040%.~~
 - ~~The Volatility Index (VIX) moves above 60%-peaks at 34.4~~
 - ~~Housing prices and commercial real estate prices decline by 2512% and 3515% respectively through 8 quarters.~~
- Description of International Market Conditions
 - ~~Severe r~~Recessions and slowdowns in growth are experienced in the Euro area, United Kingdom, Japan, and developing Asia economies.
 - ~~All foreign economies experience a decline in consumer prices.~~
 - ~~U.S. Dollar appreciates against the Euro, British Pound, and developing Asia currencies.~~
 - ~~U.S. Dollar depreciates modestly against the Japanese Yen, driven by flight-to-safety capital flow.~~

5.1.2 Regulator-Prescribed Assumptions

Insurers should utilize the specific values for the economic indicators from the Federal Reserve Board's annual Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule, Table A.1 Historical data and Table A.5 Supervisory adverse scenario. For the first year-end 2020 of the stress test, insurers should use the version published in February 2017 (refer to the tables in Annex 2i). Specifically, insurers should run the adverse liquidity stress scenario using the values for the Treasury curve, Corporate spreads, GDP, Unemployment, U.S. Inflation (CPI), Housing Price Index (HPI), S&P 500 index (SPX SPOT), Commercial Real Estate Index (CREI) and VIX index to the extent these variables are included in their internal liquidity stress test process or models.

This scenario also requires a consistent baseline scenario to be employed. Insurers should use apply the same change in economic variables experienced between Q4 2018-2016 data from Table A.13 and the stress scenarios in Table A.5 to current economic variable levels. For example, insurers should use 2020 (or most recent year-end) 10 Yr. Treasury rates and apply the same % or b.p. change shown from Q4 2016 to the 2017 Table A.5 amounts in their 2021 stress scenarios. in the 2017 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule. Projected values should be used for the 30-day, 90-day and 1-year horizons. The table is included in Annex 2i of this document.

Guidance on Select Economic Variables (TBD subsequent to small group deliberations)

10 Yr. Treasury

The projected path of 10-year Treasury rates should be translated to quarterly percentage increases, with a 10 b.p.s minimum increase. The 10 b.p. minimum is to address a situation where current rates are zero or negative.

GDP

b.p.

CPI

Bb.p.

Unemployment

Commented [ST6]: Decide after reviewing 2021 scenarios.

Commented [ST7]: Consider if still applicable after reviewing 2021 FRB scenarios.

Formatted: Font color: Red

~~Bb.p.~~

FX

In addition, other market indicators are necessary for insurers to apply to stressed cash flows and to assess the impact on expected asset sales. These are as follows (with details to be found in Annex 2):

- Market Capacity Assumption
- Structured Spreads over Treasuries
- SWAP Spreads
- Swaption Volatility
- Credit Assumptions: Moody's Transition Matrix/Migration Rates
- Credit Assumptions: Moody's Default Table
- Credit Assumptions: Moody's Recovery Rate Table

5.1.3 Market Capacity Assumption

The following is suggested guidance to determine market constraints on asset categories to be sold in times of stress. It represents standards followed by many insurers to estimate assets sales by stress scenario, asset category and time horizon that can be sold without meaningfully impacting the entire market by widening bid-offer spreads. We recognize each company has its own individual methodology for determining potential asset sales under stress, and ~~they should provide~~we request a written narrative be provided as to how they make their determination.

Once an asset class has been identified as available to be sold to satisfy a cash deficiency from cash flow stress testing, the insurer ~~may should~~ calculate its percentage of the total amount issued and outstanding. Next the insurer ~~would should~~ obtain average daily trading volumes (ADTV) and make an assumption for the haircut amount to apply to that volume to reflect stressed conditions (the "haircut ADTV"). Next, the insurer would apply its calculated percentage

of total outstanding owned to the haircut ADTV, and the result would be divided by the number of days in the stress testing time horizon to arrive at a daily amount that can be sold. This daily amount able to be sold would be multiplied by the number of days in the prescribed time horizon: 30 days for the 30-day horizon, 60 days for the 90-day horizon (31-90 days) and 274 days for the 1-year horizon (91-365 days). An illustrative example best explains the above-described process.

Illustrative example (also included in Appendix 2ii):

Step 1: Estimate Unconstrained Sales Per Day

Insurer A has a \$100 billion portfolio of investment-grade corporate bonds, priced at par. Insurer A estimates that it holds approximately 5% of outstanding corporate bonds. In the adverse liquidity stress scenario, Insurer A's unconstrained liquidity stress testing model assumes that it can sell:

Time Horizon	% Able to Be Sold	Sale Price	Total Sale	Sales / Day
First 30 Days	10%	97	\$9.7 B	\$440 M
31-90 Days	20%	94	\$18.8 B	\$430 M
91-365 Days	50%	90	\$45.0 B	\$230 M

Step 2: Add Market Capacity Constraint

Assume the average daily trading volume in the secondary market for investment grade corporate bonds has been \$13.0 Billion over the past year. Insurer A estimates that trading volumes would decline by 40% in the adverse liquidity stress scenario to \$8.0 B per day. Since Insurer A is 5% of the market, Insurer A can only trade \$400 M per day (\$8B x 5%) without paying a significant illiquidity premium and impacting the overall market.

Insurer A then repeats this process for every asset class in its investment portfolio.

Time Horizon	Unconstrained Sales / Day	Market Capacity Assumption	Impact
First 30 Days	\$440 M	\$400 M	(\$40 M)
31-90 Days	\$430 M	\$400 M	(\$30 M)
91-365 Days	\$230 M	\$400 M	\$0

5.1.4 Structured Spreads Over Treasuries

Insurers should use Annex 2iii to assist in determining cash flows, asset values and the quantity of assets to be sold in stressed markets. For baseline values, the industry shall submit year-end spreads to the regulators shortly after year-end. The regulators will review and approve the values for use in the table for liquidity stress testing purposes. Regulators shall use structured spread data from the 2007-2009 period provided by JPMorgan added to baseline values to calculate stressed amounts for the 30-day, 90-day and 1-year horizons to complete the table.

Regulators ask industry members to agree on one set of structured spread values amongst themselves to submit for approval, not each insurer submitting values that each need to be approved. Regulators and/or the NAIC need to do a reasonableness check of current baseline/market levels of spreads insurers use before applying the stressed amounts in the JPMorgan spreadsheet. For example, if current spreads are already greater than the JPMorgan stressed spread amounts, regulators may have to consider alternatives or additional stressed levels. One agreed upon set of values will help provide uniformity, consistency, and comparability of stress testing results across insurers.

When utilizing these spreads, insurers should assume the percentage increase in spreads experienced in 2008-09 from the JPMorgan spreadsheet; and apply that percentage increase to the agreed upon December 31 spreads.

- 2020 LST and beyond - Since the reasonableness check is merely a check of current market rates, it ~~should-is~~ not anticipated that it will be burdensome for insurers to provide an agreed upon set of December 31 baseline values to regulators by January 31 of each year or for ~~the~~ regulators should-to be able to respond by February 28 of every year to allow insurers sufficient time to incorporate into their stress testing framework.
- For the 2020 LST – Industry agreed upon values will be ~~incorporated~~ established as Lead State guidance into the Framework document by April 30, 2021.

Commented [ST8]: Outstanding task for this year

5.1.5 SWAP Spreads

Stressed spread levels may impact assets prices for expected sales calculations necessary for the stress scenarios. Insurers should complete the SWAP Spread table in Annex 2iv to document assumptions used in determining asset values and the quantity of assets to be sold in stressed markets. SWAP spread source data from the Federal Reserve's H.15 FRED data should be incorporated into the SWAP Spread table. The H.15 FRED data is also included in Annex 4iv. ~~Stressed spread levels may impact assets prices for expected sales calculations necessary for the stress scenarios.~~

5.1.6 Swaption Volatility

Insurers should use the table in Annex 2v to assist in determining asset values and the quantity of assets to be sold in stressed markets. Insurers should obtain the information to populate the table using Bloomberg's Swaption Volatility for various time horizons and expiry. For consistency, insurers should use the table found on Bloomberg at NSV [Go].

5.1.7 Moody's Transition Matrix/Migration Rates

Insurers should use the table in Annex 2vi to assist in determining Corporate credit migrations, asset values and the quantity of assets to be sold in stressed markets. The table is imported from Moody's Corporate-Global: Annual default study, Exhibit ~~36-39~~ - Average one-year alphanumeric rating migration rates, ~~1983-2018~~1983-2019. If available, insurers should use the equivalent Moody's tables for U.S. Public Finance for municipal bonds and the appropriate Moody's tables for structured /asset-backed securities. Alternative sources may be used but should be disclosed as well as the rationale for their use.

5.1.8 Moody's Default Table

Insurers should use the table in Annex 2vii to assist in determining asset values and the quantity of assets to be sold in stressed markets. The table is imported from Moody's Corporate-Global: Annual default study, Exhibit ~~43-45~~ - Average cumulative issuer-weighted global default rates by letter rating, 1983-~~2018~~2019. Insurers should use the equivalent Moody's tables for U.S. Public Finance for municipal bonds and the appropriate Moody's tables for structured /asset-backed

[securities. Alternative sources may be used but should disclosed as well as the rationale for their use.](#)

5.1.9 Moody's Recovery Rate Table

Insurers should use the table in Annex 2viii to assist in determining asset values and the quantity of assets to be sold in stressed markets. The table is imported from Moody's Corporate-Global: Annual default study, Exhibit [9-8](#) - Average corporate debt recovery rates measured by ultimate recoveries, 1987-~~2018~~[2019](#). Insurers should use the equivalent Moody's tables for U.S. Public Finance for municipal bonds [and the appropriate Moody's tables for structured /asset-backed securities. Alternative sources may be used but should disclosed as well as the rationale for their use.](#)

~~Additionally, if relevant for a given insurer,~~ the adverse liquidity stress scenario for insurers ~~should~~ [can](#) be run considering sources other than expected asset sales (e.g., FHLB credit line draws, bank lines of credit and holding company contributions). ~~Should that be the case, t~~he insurer must [clearly](#) identify the ~~sources other than expected~~ asset sales ~~for remaining utilized to meet expected~~ liquidity deficiencies.

5.1.10 "What If" Modification

The "What if" modification to the adverse liquidity stress scenario ~~removes the ability allows~~ for insurers to [use established funding commitments but eliminates the ability of the insurer to access additional/extraordinary](#) internal and external funding sources to satisfy any liquidity deficiency under stress, ~~i.e., no actions taken in response to the stress (as opposed to ongoing operational funding agreements included in the insurer's baseline templates) or in response to a liquidity deficiency. Intragroup "keep well" agreements would be considered extraordinary transactions. For example, an existing FHLB advance may be considered but additional advances may not be assumed. Existing lines of credit, funding agreements, and/or guarantees may be considered but new funding sources (e.g., new debt issuance, unscheduled capital contributions, new lines of credit, etc.) may not be considered.~~ Thus, expected asset sales will be the primary source of meeting any liquidity deficiency for the "What if" scenario. [Any](#)

~~established existing funding such as commercial paper will not be assumed to roll, nor will commitments used in the "What if" scenario should be known by and validated with the lead state regulator. However, insurers may assume that FHLB existing advances will facilities ability to roll upon maturity.~~

Commented [ST9]: Open question on internal amounts such as FHLB

Commented [NT10]: We need to ask regulators. NYL asked on the 3/25 call.

5.1.11 Company-Specific Assumptions

Insurers must construct the assumptions needed for their internal models to run the above adverse liquidity stress scenario for insurers. Company specific assumptions should be consistent with the above scenario as narrative and regulator prescribed assumptions. Examples include the inability to roll or issue new debt, potential increases in lapse rates, new business sensitivity, mortality experience and policyholder behavior (e.g., surrenders and policy loans).

5.2 Interest Rate Spike Scenario

5.2.1 Narrative

Insurers should run an interest rate spike stress test that resembles the late 70's/early 80's inflationary period as it most closely mirrors the regulatory desired interest rate spike scenario. Historical data from the late 70's/early 80's show the following economic conditions:

- Inflationary forces caused interest rates to rise quickly.
- Investors rotated out of fixed income and into equities, real estate, and commodities.
- Central bank responded by tightening monetary policy in tandem, eventually causing the yield curve to invert.

Insurers should provide a detailed narrative outlining their scenario and assumptions around general economic conditions bulleted above and specific assumptions for economic variables for each time horizon. The economic variables in the table below and the amount of expected movement in each variable should be fully described in the narrative to the extent are used in a company's internal model. The table outlines the directional movement of the relevant economic indicators. Insurers should specify the amount of movement for each variable they consider to be part of the scenario for a severe interest rate spike. For example, insurers may indicate a parallel shift in Treasury rates up 100bps in the first 30 days, up 200bps in 90 days and 300bps

over 12 months. The table is a guide and not to be interpreted as a strict template and may be supplemented or customized by the insurer. **Narrative/Explanatory disclosures should explain these assumptions.**

5.2.2 Regulator-Prescribed Assumptions

Regulators did not adopt any regulator-prescribed assumption values for this stress scenario. Instead, they provided the below regulator guidance for insurers to use when establishing their own company specific assumptions for this stress scenario.

Economic Variable	Expected Movement	Comments
Treasury rates	Increase rapidly	Critical factors for modeling impacts to asset prices, collateral flows, and product cash flows
Equity prices	Increase rapidly	
Credit spreads	Increase moderately	
Inflation rates	Increase rapidly	These factors help define the macroeconomic conditions of the scenario
Real GDP growth	Flat	These factors help define the macroeconomic conditions of the scenario
Unemployment rate	Flat	
Real estate prices	Increase	
Swap spreads	Increase	Impact derivative collateral requirements
FX rates	Unclear	
Implied volatility	Increase	
Credit assumptions (transition, default, recovery rates)	Unclear	May not be an important assumption to define for the scenario

5.2.3 Company-Specific Assumptions

Insurers must construct the assumptions needed for their internal models to run the above stress scenario. Companies are encouraged to provide more information beyond these guidelines as they feel is appropriate to help regulators understand their assumptions for the scenario. Company specific assumptions should be consistent with the stress scenario's ~~above~~ narrative and regulator prescribed assumptions.

5.3 Insurer Specific Information Request - Worst-Case Scenario

5.3.1 Narrative

This information request requires insurers to provide a detailed narrative of their most severe liquidity stress scenario(s) to obtain greater insight to the drivers of liquidity risk for specific insurers. The most severe scenario should be one that results in the largest liquidity deficiency (liquidity sources less uses) from their existing internal liquidity stress testing process. The scenario should be focused on the insurers internal model scenario with the worst-case outcome for the group. Regulators may use this information to inform future prescribed stress scenarios.

Insurers should provide a comprehensive narrative describing the stress scenario(s) and the economic environment(s). This stress scenario(s) could be a combination of multiple stressors.

Commented [ST11]: Determine if still needed in 2020 LST.

Section 6. Available and Expected Asset Sales

Once the stressed sources and uses of liquidity have been established, and the net cash flows calculated, insurers then project the assets available at the end of the time horizon by asset category (please refer to the asset categories in the Assets Template in Section 7). The valuation of available assets for the baseline scenario utilizes current and projected asset values for a normal operating environment. The valuation of available assets for a stress scenario will be based upon fair value haircuts per the specific stress scenario narrative, its regulatory prescribed assumptions, and/or the company assumptions based on the narrative and regulatory prescribed assumptions (e.g., fair market value haircuts and capacity indicators). Note: Any securities pledged as part of institutional funding agreements (e.g., FHLB) should be excluded and considered encumbered. However, any pre-pledged assets that are not securing credit that has been extended and remains outstanding (i.e., excess) should be considered unencumbered.

Commented [ST12]: Moved from Annex to here.

To the extent that stressed cash inflows are insufficient to meet the ~~anticipated~~ required cash outflows, the insurer must provide for cash flows to meet the deficiency. Unless a stress scenario (or "What-if" modification of a stress scenario) indicates otherwise, the insurer can utilize internal and external funding sources (e.g., FHLB new draws) as well as asset sales to satisfy a

liquidity deficiency. Any expected asset sales must be reported in the appropriate column(s) of the template. Insurers decide which categories of available assets to sell, as well as the quantity to sell. (Please refer to the Assets Template in Section 7.)

~~Asset sales occur~~ will appear in two different places - 1) within the liquidity sources template for expected/planned activity during the time horizon (pre-liquidity deficiency calculation), and 2) in the assets template for any amount of asset sales used to meet a liquidity deficiency (Liquidity Sources less Liquidity Uses). If an insurer has no liquidity deficiency, then there are no asset sales needed in the Assets Template (though available assets still apply). Similarly, if cash on hand was sufficient to meet the liquidity deficiency and the insurer chose to utilize that cash, then no asset sales would be reported in the Assets template.

The expected asset sales amounts calculated based on the insurer's own models should also be subjected to portfolio manager and/or Chief Investment Officer (CIO) feedback. ~~The intent is for these asset sales to most accurately represent what actions the insurer could reasonably take in the given scenario, market conditions, and the company's anticipated investment policy and/or strategy.~~ This feedback may take the form of "topside" adjustments to the expected asset sales. Regulators expect robust disclosures around the chief investment officer's (or equivalent title or designee) assumptions and decisions on expected asset sales. The intent is for these asset sales to most accurately represent what actions the insurer could reasonably take in the given scenario, market conditions, and the company's anticipated investment policy and/or strategy.

Section 7. Reporting

Insurers should submit data in the reporting template for liquidity sources, liquidity uses, and assets (available assets and expected asset sales) **in US dollars**. These templates utilize categories for 30-day, 90-day and 1-year time horizons. The assets template further illustrates available assets and final expected asset sales by asset sub-category to cover any liquidity deficiency (negative amounts of net liquidity sources less liquidity uses over the prescribed time horizons). Use of these consistent sub-categories of assets is critical for allowing the Task Force to aggregate the asset sales results.

Liquidity Sources and Liquidity Uses Templates:

A liquidity sources report and a liquidity uses report should be ~~submitted~~ generated for each legal entity within the group that was subjected to liquidity stress testing, using the NAIC templates. These legal entity amounts should also be aggregated into a group liquidity sources report and a group liquidity uses report for submission (the LST is not performed at the group level; rather it is performed at the legal entity level and those results are aggregated to present a group level report). For the 2020 LST, the insurer may submit the assets template at the group level only, without submission of the legal entity asset templates.

- A sources and uses template is required. For the Baseline, the Adverse Liquidity stress scenario, and the Interest Rate Spike, the “Worst Case” and the “What-if” stress scenarios, Liquidity Sources and ~~at~~ Liquidity Uses templates at both the individual entity level and the aggregated group level are to be submitted.
- For the insurer’s own “Worst Case” scenario, only the group level Liquidity Sources and Liquidity Uses templates are required to be submitted, not the legal entity templates.
- For the “What If” Variation of the Adverse Liquidity stress scenario, a group level Liquidity Sources template and/or a group level Liquidity Uses template is only required if there is a material difference from the Adverse Liquidity stress scenario’s group level Liquidity Sources and Liquidity Uses templates.

Assets Template:

As with the Liquidity Uses and Liquidity Sources templates, the Assets template is to be generated for each legal entity performing the LST. For the 2020 LST, the insurer may submit the assets ~~sales~~ template at the group level only, without submission of the legal entity asset sales templates.

- A group level assets template is required for the Baseline and all stress scenarios, including the insurer’s own “Worst Case” scenario and the “What If” variation of the Adverse Liquidity stress scenario.

Modification of Templates:

Insurers are allowed to add lines to the templates to provide more detailed breakdown of existing categories (e.g., for cash flows to/from legal entity asset manager/mutual funds as well as banks), but deletions of existing lines/categories ~~is~~are highly discouraged.

Submission Deadline:

The reporting templates and many other narrative disclosures referenced in this document are anticipated to be submitted to the Lead State by September 30, in third quarter 2021.

Commented [ST13]: Moved templates from Annex to here.

Commented [ST14]: Date has yet to be resolved.

Liquidity Sources and Uses

Company Type		HoldCo	Company Type Toggle (choose either HoldCo or OpCo) to identify the relevant cash flows.		
Cash Flow	CF Type	CF Category	Cash Flows in Time Horizon		
			1 Month	3 Months	12 Months
Sources	Operating	Premiums and Deposits (Renewal / New Business)			
		Cash Charges / Fees			
		Reinsurance Recoverables			
		Expenses – Intercompany Settlements			
		Tax Payments (Inflows)			
		Other Flows			
	Investment and Derivatives	Principal and Interest			
		Dividends / Distributions			
		Initial and Variation Margin Received			
		Other Collateral Received			
		Asset Sales (Pending Settlement)			
		Other Flows			
	Capital	Capital Contributions			
		Commitments			
		Dividends from subsidiaries			
		Other Flows			
	Funding	Debt Issuance / Refinancing			
		GLCs			
		FHLB			
		Repo / Securities Lending			
		Credit Facilities (Incl. Contingency Funding Facilities)			
		Intercompany Loans			
		Commercial Paper			
		Other Flows			

Cash Flow	CF Type	CF Category	Cash Flows in Time Horizon		
			1 Month	3 Months	12 Months
Uses	Operating	Non-Elective Benefits / Claims			
		Elective Benefits / Claims			
		Commissions			
		Reinsurance Payables			
		Expenses - Other			
		Expenses - Intercompany Settlements			
		Insurance Product Commitments			
		Tax Payments (Outflows)			
		Other Flows			
		Investment and Derivatives	Investment Commitments		
	Initial and Variation Margin Paid				
	Other Collateral Pledged				
	Asset Purchases (Pending Settlement)				
	Other Flows				
	Capital	Shareholder/Policyholder Dividends			
		Capital contributions to subsidiaries			
		Dividends to Parent			
		Other Flows			
	Funding	Debt Maturities / Debt Servicing			
		GLCs Benefits / Maturities			
		FHLB			
		Repo / Securities Lending			
		Credit Facilities (Incl. Contingency Funding Facilities)			
		Intercompany Loans			
		Other Flows			
		Total Uses			

Note: Certain flows could be settled in securities (e.g., margins on derivatives, capital contributions/dividends, etc.). Alternatively, eligible securities could be pledged to FHLB (or REPO with the street) to raise short-term funding.

Assets Template

Asset Category	Asset Sub-Category	Amounts Available in Time Horizon			Expected Asset Sales in Time Horizon			Final Asset Sales given PM review			Comments
		1 Month	3 Months	12 Months	1 Month	3 Months	12 Months	1 Month	3 Months	12 Months	
Cash	Cash & Cash Equivalents										
Government Securities	Treasury & Agency Bonds										
	Other IG Sovereigns & Regional Government										
	Below IG Sovereigns & Regional Government										
	Agency CMO										
	Agency MBS										
	Agency CMBS										
	Agency ABS										
Public Bonds	IG Public Corporate Bonds										
	IG Municipal Bonds										
	Below IG Public Corporate Bonds										
	Below IG Municipal Bonds										
Private Bonds	IG Private Placement Bonds										
	IG 144As										
	Below IG Private Placement Bonds										
	Below IG 144As										
Non-Agency Structured Debt	IG CMO										
	IG MBS										
	IG CMBS										
	IG ABS										
	IG CLO										
	Below IG CMO										
	Below IG MBS										
	Below IG CMBS										
	Below IG ABS										
	Below IG CLO										
Equity	Common Stock										
	Preferred Stock										
	Other Equity and Alternative Investments										
Other	Commercial, Residential, Agricultural, Bank										
	Other										
Total Assets Available for Sale											
Summary											
Total Sources (before Asset Sales)											
Total Uses											
Net Sources & Uses (before Asset Sales)											
Cash											
Total Assets Available for Sale											
% Asset Sales		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Coverage Ratio		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Note 1: Insurers will enter "Illiquid" in a data field for any asset category deemed such within a specific time horizon. (Regulators can then follow up with questions later if there are concerns, etc.)

Note 2: Any securities pledged as part of institutional funding agreements (e.g., FHLB) should be excluded and considered encumbered. However, any pre-pledged assets that are not securing credit that has been extended and remains outstanding (i.e., excess) should be considered unencumbered.

Note 3: Reminder that regulators want robust disclosures regarding the chief investment officer's (or equivalent title or designee) assumptions and decisions on expected asset sales. Might need to supplement the template comments with additional narrative disclosures.

Note 4: Excluding the "What If" variation, insurers are to provide disclosures indicating when affiliated amounts are provided to assist a legal entity in addressing a liquidity deficiency.

Narrative/Explanatory Disclosures noted in the 2020 LST:

Narrative/explanatory disclosures are expected to be in English.

- Insurers should provide a narrative description of their internal liquidity stress testing system and processes, including for example their materiality thresholds for stressed cash flows and methodology for converting foreign currencies to US dollars. Narrative description of the internal liquidity stress testing system and processes, including for example the materiality thresholds for stressed cash flows.
- Specific disclosures on material stressed cash flows to/from legal entity banks/asset managers/mutual funds if needed.
- Company-specific narrative on assumptions and metrics used for the adverse liquidity stress scenario for insurers, for example the inability to roll or issue new debt, potential increases in lapse rates, new business sensitivity, mortality experience and policyholder behavior (e.g., surrenders and policy loans).
- Company-specific narrative on the interest rate shock scenario, assumptions around general economic conditions bulleted in 5.2.1 Narrative, and specific metrics for economic variables for each time horizon. The economic variables in the table in 5.2.2 Regulator-Prescribed Assumptions should be fully described in the narrative, to the extent they are use in the company's internal model.
- Insurers should provide a comprehensive narrative describing its ~~their~~ worst-case liquidity stress scenario(s) and the economic environment(s), including assumptions, key metrics and results.
- Written narrative on the insurer's own individual methodology for determining asset sales under stress.
- Robust disclosures regarding the ~~chief investment officer's (or equivalent title or designee)~~ chief investment officer's (and/or portfolio manager's) assumptions and decisions on expected asset sales, if needed.
- Excluding the "What If" variation, disclosures to identify when affiliated amounts are contributed to assist a legal entity in addressing a liquidity deficiency.

Commented [ST15]: Determine if still needed after data call.

- Disclose when a regulatory prescribed variable is not used for the LST because it is not used in the internal liquidity stress testing process or models.

[End of 2020 Liquidity Stress Testing Framework – to be included as an appendix in the NAIC Financial Analysis Handbook]

Data Aggregation

Given the NAIC's primary focus is on macroprudential impacts of a liquidity stress impacting the life insurance sector, the NAIC will aggregate final expected asset sales data across the insurance groups subject to the liquidity stress test. The aggregation will be done by asset category. The NAIC aims to compare the aggregated results against various benchmarks, potentially including normal and/or stressed trading volumes and asset values for various asset classes, to determine the impact such sales may have on the capital markets in times of stress. Findings from this analysis may also inform expected asset sale assumptions utilized in future runs of the liquidity stress test.

As part of its macroprudential surveillance, the insurance regulators and/or NAIC may reach out to other regulatory agencies to discuss aggregate results that may impact other regulated industries such as banks, securities brokers and asset managers. Insurance regulators may also coordinate with other agencies to identify appropriate and perhaps coordinated action they may take to prevent or minimize the effect large asset sales may have on the financial markets and overall economy.

Regulatory Authority

For the 2020 liquidity stress test, lead state regulators will utilize their examination authority to collect the reporting results from insurers and to keep the data confidential. A long-term solution was developed at the Financial Stability (EX) Task Force in coordination with ~~the needs from addressing similar issues related to~~ the Group Capital Calculation project, resulting in revisions to Model #440. However, it will take several years for states to adopt these revisions.

Confidentiality

For the 2020 liquidity stress test, lead state regulators will utilize their examination authority to collect the reporting results from insurers identified by the scope criteria. Existing protocols for collecting confidential/sensitive data for each state and insurer will be utilized. A long-term solution was developed at the Financial Stability (EX) Task Force in coordination with ~~the needs~~

~~from addressing similar issues related to~~ the Group Capital Calculation project, ~~resulting in~~ revisions to Model #440. However, it will take several years for states to adopt these revisions to ~~Model #440~~.

Timeline

- March 1, 2021 – FSTF call – exposed revised draft 2020 LST Framework
- ~~No later than April 30~~ May 12, 2021 – “finalize” revised draft 2020 LST Framework (LST Study Group will issue Lead State guidance as needed after this date)
- September 130, 2021 (or other date decided) – receive submissions from 23 insurance groups
- January 2022 – Incorporate all appropriate Lead State Guidance into the 2020 LST Framework document as the starting place for the 2021 LST Framework and begin work on changes specific to the 2021 LST.

Annex 1: Original Scope Criteria with Annual Statement References

The Subgroup proposes to include in the scope of the Liquidity Stress Testing Framework any insurer/group that exceeds the following thresholds for any of the noted activities (or account balance as a proxy for that activity). The thresholds have been established taking into consideration both the account balance of the insurer/group to the total balance for the life insurance sector, as well as the aggregate account balance of insurers/groups within scope to the aggregate account balance for the life insurance sector.

Account Balances	Threshold in \$B "greater than"	Reference to 2017 NAIC life/accident and health (A&H) annual financial statement blank
Fixed and Indexed Annuities	25	Analysis of Increase in Annuity Reserves <u>Page:</u> Supplement 62 <u>Line:</u> Reserves December 31, current year (15) <u>Column:</u> Sum of Individual Fixed Annuities, Individual Indexed Annuities, Group Fixed Annuities, and Group Indexed Annuities
Funding Agreements and GICs ⁱ	10	Deposit-Type Contracts <u>Page:</u> Exhibit 7 – Deposit-Type Contracts <u>Line:</u> 9 <u>Column:</u> Guaranteed Investment Contracts (Column 2) + <u>Column:</u> Premium and Other Deposit Funds (Column 6) IF the amount of FHLB Funding Reserves from Note 11.B(4)(b) suggests funding agreements are not reported in Column 2 of Exhibit 7 + Synthetic GICS <u>Page:</u> Exhibit 5 – Interrogatories <u>Line:</u> 7.1
Derivatives–Notional Value (absolute value)	75	Derivatives – Notional Value (absolute value) <u>Pages:</u> Schedule DB, Part A; Schedule DB, Part B, Section 1 <u>Column:</u> Notional Value (sum all)
Securities Lending	2	Securities Lending Collateral Assets <u>Pages:</u> Schedule DL, Part 1; Schedule DL, Part 2 <u>Line:</u> Total (9999999) <u>Column:</u> Fair Value
Repurchase Agreements	1	Repurchase Agreements <u>Page:</u> Notes to Financial Statement Investments Restricted Assets <u>Line:</u> Sum of 05L1C, 05L1D, 05L1E, 05L1F <u>Column:</u> Total (General Account Plus Separate Account)

Borrowed Money (includes commercial papers, letters of credit, etc.)	1	Borrowed Money <u>Page:</u> Liabilities <u>Line:</u> Borrowed Money (22) <u>Column:</u> Current Year
--	---	--

¹In performing the addition of the FHLB funding agreement amount to the GICs amount, NAIC staff discovered that the reporting of FHLB funding agreements is not consistent in Exhibit 7, Deposit-Type Contracts. The source of the FHLB amount is Note 11.B(4)(b):

Line: Funding agreements, current year, amount as of the reporting date, borrowing from FHLB, collateral pledged to FHLB Column: Funding Agreement Reserves Established

For some insurers, we were able to match amounts from the FHLB funding agreement footnote to the exact same amount in Exhibit 7, either Column 2 (GICs) or Column 6 (Premiums and Other Deposit Funds). For those insurers where the FHLB amount matched Exhibit 7, Column 2, we did not add the FHLB funding agreement amount to the GICs amount, because that would be double-counting the FHLB funding agreements. For other insurers, even though the amounts did not match exactly, we were able to assume the FHLB funding agreements were reported in either Column 2 or Column 6 (e.g., the amount in Exhibit 7, Column 2 was zero or much smaller than the FHLB note, while the Column 6 amount was larger). However, for several insurers, we were not able to make an informed assumption (e.g., both Column 2 and Column 6 amounts were larger than the FHLB funding agreement amount). To be conservative in these instances, we added the FHLB funding agreement amount to the GICs amount. Overall, for the \$10 billion threshold, adding FHLB funding agreements to GICs does not result in a different list of insurance groups from the list with GICs of more than \$10 billion.

Annex 2: Regulatory Prescribed Assumptions

Annex 2i. Economic and Market Variables from the 2017 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule

Table A.3 Baseline Scenario

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Level			
													Dow Jones Total Stock Market Index	House Price Index	Commercial Real Estate Price Index	Market Volatility Index
Q1 2017	2.2	4.3	2.2	4.3	4.7	2.4	0.6	1.7	2.5	4.2	4.2	3.8	23,551	184	298	19.0
Q2 2017	2.3	4.3	2.5	4.6	4.6	2.4	0.7	1.9	2.6	4.4	4.3	3.9	23,831	185	301	20.3
Q3 2017	2.4	4.5	2.9	5.0	4.6	2.3	0.9	2.0	2.7	4.5	4.4	4.1	24,123	187	305	19.3
Q4 2017	2.3	4.5	2.7	4.8	4.5	2.3	1.1	2.2	2.9	4.6	4.5	4.3	24,422	188	309	19.4
Q1 2018	2.4	4.6	2.9	4.9	4.5	2.3	1.3	2.3	3.0	4.7	4.6	4.4	24,727	189	313	19.2
Q2 2018	2.4	4.7	2.6	4.7	4.5	2.3	1.5	2.4	3.1	4.8	4.7	4.6	25,042	190	317	19.2
Q3 2018	2.4	4.6	2.6	4.7	4.4	2.3	1.7	2.6	3.2	4.9	4.8	4.8	25,354	191	321	19.3
Q4 2018	2.3	4.5	2.4	4.6	4.4	2.4	1.9	2.7	3.3	5.0	5.0	5.0	25,668	193	325	19.4
Q1 2019	2.0	4.2	2.2	4.3	4.5	2.3	2.2	2.8	3.4	5.1	5.0	5.2	25,968	194	327	19.8
Q2 2019	2.1	4.2	2.3	4.3	4.6	2.3	2.4	2.9	3.4	5.1	5.1	5.5	26,269	195	330	20.0
Q3 2019	2.1	4.1	2.2	4.3	4.6	2.2	2.6	2.9	3.5	5.2	5.1	5.7	26,571	197	332	20.2
Q4 2019	2.0	4.1	2.2	4.2	4.7	2.2	2.8	3.0	3.5	5.2	5.2	5.9	26,874	198	335	20.3
Q1 2020	2.0	4.0	2.1	4.0	4.7	2.1	2.9	3.0	3.5	5.2	5.2	5.9	27,173	200	337	20.2

Table A.5 Adverse Scenario

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Level			
													Dow Jones Total Stock Market Index	House Price Index	Commercial Real Estate Price Index	Market Volatility Index
Q1 2017	-1.5	0.9	0.7	2.4	5.2	1.8	0.1	1.7	2.3	5.6	4.7	3.3	15,960	181	291	37.1
Q2 2017	-2.8	-0.7	-0.6	1.1	5.8	1.8	0.1	1.8	2.4	5.9	4.9	3.3	15,042	179	283	32.7
Q3 2017	-2.0	0.0	-0.5	1.1	6.3	1.8	0.1	1.8	2.5	6.1	5.1	3.3	14,290	176	275	34.4
Q4 2017	-1.5	0.5	-0.5	1.2	6.8	1.8	0.1	1.9	2.5	6.2	5.2	3.2	13,982	173	267	32.0
Q1 2018	-0.5	1.4	0.2	1.9	7.1	1.8	0.1	1.9	2.6	6.0	5.2	3.2	14,367	170	259	28.5
Q2 2018	1.0	3.0	0.6	2.4	7.3	2.0	0.1	1.9	2.7	5.8	5.2	3.2	15,001	166	254	25.8
Q3 2018	1.4	3.3	1.0	2.7	7.4	2.0	0.1	2.0	2.7	5.6	5.1	3.2	15,693	163	250	23.6
Q4 2018	2.6	4.4	1.5	3.4	7.3	2.1	0.1	2.0	2.7	5.4	5.1	3.2	16,603	161	249	21.6
Q1 2019	2.6	4.3	1.6	3.5	7.2	2.1	0.1	2.0	2.7	5.2	5.0	3.2	17,519	161	249	20.1
Q2 2019	3.0	4.6	2.1	3.8	7.1	2.0	0.1	2.0	2.7	5.0	4.9	3.2	18,514	161	251	18.7
Q3 2019	3.0	4.5	2.2	3.8	7.0	2.0	0.1	2.0	2.7	4.8	4.8	3.2	19,243	162	255	18.2
Q4 2019	3.0	4.5	2.1	3.8	6.9	1.9	0.1	2.0	2.7	4.7	4.8	3.2	20,025	163	259	17.6
Q1 2020	3.0	4.5	2.0	3.5	6.8	1.8	0.1	2.0	2.7	4.5	4.7	3.2	20,867	164	262	17.3

Source: 2017 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule

<https://www.federalreserve.gov/publications/2017-june-dodd-frank-act-stress-test-appendix-a-supervisory-scenarios.htm>

Annex 2ii. Market Capacity Assumption

Illustrative Example only

Step 1: Estimate Unconstrained Sales Per Day

Insurer A has a \$100 billion portfolio of investment-grade corporate bonds, priced at par. Insurer A estimates that it holds approximately 5% of outstanding corporate bonds. In the adverse liquidity stress scenario, Insurer A’s unconstrained liquidity stress testing model assumes that it can sell:

Time Horizon	% Able to Be Sold	Sale Price	Total Sale	Sales / Day
First 30 Days	10%	97	\$9.7 B	\$440 M
31-90 Days	20%	94	\$18.8 B	\$430 M
91-365 Days	50%	90	\$45.0 B	\$230 M

Step 2: Add Market Capacity Constraint

Assume the average daily trading volume in the secondary market for investment grade corporate bonds has been \$13.0 Billion over the past year. Insurer A estimates that trading volumes would decline by 40% in the adverse liquidity stress scenario to \$8.0 B per day.

Since Insurer A is 5% of the market, Insurer A can only trade \$400 M per day (\$8B x 5%) without paying a significant illiquidity premium and impacting the overall market.

Insurer A then repeats this process for every asset class in its investment portfolio.

Time Horizon	Unconstrained Sales / Day	Market Capacity Assumption	Impact
First 30 Days	\$440 M	\$400 M	(\$40 M)
31-90 Days	\$430 M	\$400 M	(\$30 M)
91-365 Days	\$230 M	\$400 M	\$0

Annex 2iii. Structured Spreads over Treasuries

Structured Spreads Over Treasuries						
Asset Type	Baseline	1 Mo.	3 Mo.	6 Mo.	9 Mo.	12 Mo.
Agency MBS	X	X	X	X	X	X
Non-Agency MBS	X	X	X	X	X	X
CMBS	X	X	X	X	X	X
CLO/CDO	X	X	X	X	X	X
ABS-Cards	X	X	X	X	X	X
ABS-Auto	X	X	X	X	X	X
Source: JPMorgan						
Asset Type	Tab	Column	Notes			
Agency MBS	U.S.	IC	10yr Spreads			
Non-Agency MBS*	CDO-col	S	10yr AA Spreads. Use dates prior to liquidity event			
CMBS	U.S.	GG	10 yr AA Spreads			
CLO/CDO	CDO-lia	R	AA 7-10 yr LIBOR spreads			
ABS-Cards	U.S.	W	AAA 5yr Spreads			
ABS-Auto	U.S.	AT	Near prime AAA 3yr Spreads			

*-Values for all categories except Non-agency MBS will begin with the Lehman collapse. Values for Non-agency MBS will be determined before the collapse since there is no spread data available subsequent to the Lehman
 Column reference is to the JPMorgan ABS Weekly Asset Spreads Spreadsheet

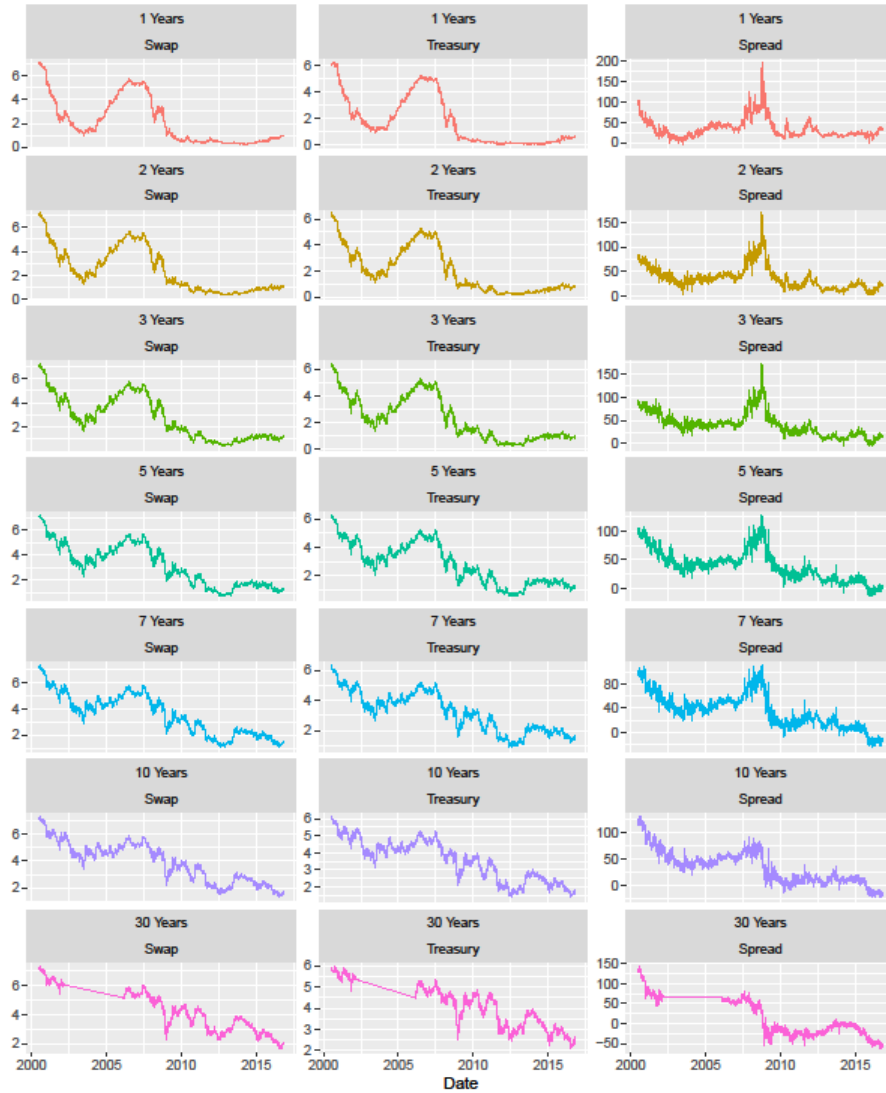
Annex 2iv. SWAP Spread Table

Swap Spreads ^{1,2}						
Maturity	Baseline	1 Mo.	3 Mo.	6 Mo.	9 Mo.	12 Mo.
3 Mo.	X	X	X	X	X	X
5 Yr	X	X	X	X	X	X
10 Yr	X	X	X	X	X	X
20 Yr	X	X	X	X	X	X
30 Yr	X	X	X	X	X	X

1 - (Nominal) Swap Spreads (in BPS)

2 - IR Par Swap Spreads for USD, EUR, JPY, GBP, AUD and CAD

Timeseries of Swap Rates, Treasury Rates, and Swap Spreads



Swap and Treasury rates from H.15 (via FRED).
Spread paid by fixed-rate payer on an interest rate swap over constant maturity Treasury at the given maturities.

Source: Federal Reserve

Annex 2v. Implied Volatility of IR Swaptions

Implied Volatility		
Implied Normal Volatility of IR Swaption by Tenor and Expiry		
Time Horizon 0		
Tenor/Expiry	3Y	7Y
3 Mo.	X	X
3Y	X	X
5Y	X	X
7Y	X	X
10Y	X	X

Annex 2vi. Credit Assumptions: Moody's Transition Matrix/Migration Rates

Exhibit 39 Average one-year alphanumeric rating migration rates, 1983-2019

[Back to Table of Contents](#)

Source: Moody's Investors Service

	Eee	Ee5	Ee6	Ee7	E5	E6	E7	Fee5	Fee6	Fee7	Fe5	Fe6	Fe7	F5	F6	F7	Gee5	Gee6	Gee7	Ge3G	[V	HIJ
Eee	87.07%	5.32%	2.27%	0.57%	0.30%	0.15%	0.02%	0.06%	0.00%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.18%	0.00%
Ee5	1.64%	76.74%	7.99%	5.87%	1.43%	0.90%	0.18%	0.12%	0.08%	0.01%	0.04%	0.00%	0.01%	0.04%	0.03%	0.01%	0.02%	0.00%	0.00%	0.00%	4.87%	0.00%
Ee6	1.04%	4.30%	73.50%	10.14%	3.47%	1.65%	0.40%	0.09%	0.16%	0.07%	0.03%	0.02%	0.00%	0.03%	0.01%	0.02%	0.00%	0.00%	0.00%	0.00%	5.06%	0.00%
Ee7	0.16%	1.05%	4.17%	75.34%	8.74%	3.53%	0.83%	0.24%	0.24%	0.12%	0.03%	0.03%	0.01%	0.01%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	5.44%	0.04%
E5	0.05%	0.09%	1.10%	5.18%	76.10%	7.53%	2.73%	0.62%	0.44%	0.19%	0.17%	0.12%	0.04%	0.06%	0.01%	0.01%	0.01%	0.01%	0.01%	0.00%	5.46%	0.06%
E6	0.06%	0.03%	0.20%	1.03%	5.86%	76.40%	7.26%	2.55%	1.00%	0.37%	0.17%	0.13%	0.16%	0.05%	0.03%	0.01%	0.02%	0.02%	0.01%	0.00%	4.61%	0.04%
E7	0.04%	0.04%	0.09%	0.30%	1.49%	6.37%	75.35%	6.84%	2.64%	0.87%	0.35%	0.15%	0.12%	0.10%	0.03%	0.02%	0.03%	0.01%	0.00%	0.01%	5.08%	0.06%
Fee5	0.01%	0.02%	0.07%	0.11%	0.20%	1.56%	6.74%	75.57%	6.80%	2.25%	0.61%	0.31%	0.21%	0.25%	0.06%	0.03%	0.05%	0.03%	0.01%	0.02%	4.95%	0.12%
Fee6	0.03%	0.04%	0.02%	0.06%	0.16%	0.58%	1.90%	6.68%	75.57%	6.42%	1.32%	0.62%	0.43%	0.32%	0.19%	0.09%	0.10%	0.01%	0.02%	0.01%	5.29%	0.16%
Fee7	0.02%	0.01%	0.02%	0.04%	0.07%	0.17%	0.45%	1.83%	9.03%	72.93%	4.78%	2.02%	0.97%	0.69%	0.26%	0.25%	0.14%	0.07%	0.06%	0.04%	5.94%	0.22%
Fe5	0.02%	0.00%	0.02%	0.02%	0.16%	0.13%	0.21%	0.68%	2.38%	10.29%	65.57%	5.22%	4.00%	1.64%	0.59%	0.50%	0.13%	0.22%	0.04%	0.12%	7.68%	0.40%
Fe6	0.00%	0.00%	0.02%	0.02%	0.07%	0.11%	0.15%	0.35%	0.70%	3.73%	8.16%	64.35%	6.36%	3.73%	1.36%	0.91%	0.30%	0.19%	0.09%	0.13%	8.59%	0.68%
Fe7	0.00%	0.01%	0.02%	0.01%	0.06%	0.16%	0.17%	0.09%	0.44%	0.77%	2.87%	6.84%	64.32%	6.96%	3.17%	1.93%	0.67%	0.39%	0.09%	0.12%	9.64%	1.27%
F5	0.01%	0.01%	0.02%	0.01%	0.05%	0.03%	0.07%	0.09%	0.18%	0.35%	0.66%	2.89%	6.74%	63.66%	6.16%	4.40%	1.33%	0.70%	0.21%	0.25%	10.36%	1.82%
F6	0.00%	0.01%	0.00%	0.01%	0.02%	0.02%	0.09%	0.11%	0.13%	0.24%	0.22%	0.67%	2.12%	7.57%	62.11%	7.90%	3.59%	1.73%	0.41%	0.47%	9.75%	2.81%
F7	0.01%	0.00%	0.02%	0.00%	0.03%	0.03%	0.06%	0.03%	0.04%	0.10%	0.14%	0.23%	0.79%	2.39%	6.19%	60.60%	7.30%	3.26%	1.07%	0.80%	12.54%	4.37%
Gee5	0.00%	0.01%	0.00%	0.00%	0.00%	0.01%	0.00%	0.02%	0.01%	0.03%	0.06%	0.11%	0.25%	0.49%	1.29%	7.58%	59.48%	8.89%	2.57%	1.24%	13.97%	4.00%
Gee6	0.00%	0.00%	0.02%	0.00%	0.02%	0.01%	0.00%	0.00%	0.04%	0.08%	0.04%	0.14%	0.37%	0.81%	2.15%	7.32%	56.35%	5.88%	2.87%	15.69%	8.17%	
Gee7	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	0.03%	0.03%	0.16%	0.15%	1.04%	3.06%	8.74%	45.48%	8.62%	14.48%	18.15%	
Ge3G	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.03%	0.00%	0.00%	0.00%	0.23%	0.13%	0.17%	0.09%	0.37%	1.70%	1.95%	3.29%	4.60%	38.13%	21.17%	28.13%

Source: Moody's

Annex 2vii. Credit Assumptions: Moody's Default Table

Exhibit 45 Average cumulative issuer-weighted global default rates by letter rating, 1983-2019 [Back to Table of Contents](#)

Source: Moody's Investors Service

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Aaa	0.00%	0.01%	0.01%	0.04%	0.06%	0.09%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%
Aa	0.02%	0.06%	0.11%	0.20%	0.31%	0.40%	0.50%	0.58%	0.66%	0.75%	0.85%	0.97%	1.10%	1.19%	1.27%	1.36%	1.47%	1.62%	1.83%	2.02%
A	0.06%	0.17%	0.36%	0.55%	0.79%	1.05%	1.32%	1.61%	1.88%	2.15%	2.42%	2.68%	2.95%	3.25%	3.59%	3.94%	4.30%	4.69%	5.01%	5.32%
Baa	0.17%	0.42%	0.72%	1.08%	1.45%	1.82%	2.17%	2.53%	2.90%	3.30%	3.73%	4.18%	4.68%	5.20%	5.70%	6.23%	6.73%	7.18%	7.56%	7.84%
Ba	0.85%	2.41%	4.24%	6.19%	7.92%	9.54%	11.01%	12.40%	13.75%	15.11%	16.32%	17.55%	18.67%	19.72%	20.84%	21.91%	22.86%	23.74%	24.67%	25.29%
B	3.21%	7.69%	12.33%	16.54%	20.37%	23.76%	26.76%	29.34%	31.66%	33.63%	35.34%	36.90%	38.45%	40.11%	41.56%	42.97%	44.35%	45.73%	46.92%	48.18%
Caa-C	9.52%	16.99%	23.36%	28.74%	33.31%	36.92%	40.08%	42.98%	45.59%	47.68%	49.34%	50.34%	50.98%	51.32%	51.78%	52.45%	52.92%	53.36%	53.89%	54.26%
IG	0.09%	0.24%	0.43%	0.65%	0.90%	1.15%	1.40%	1.64%	1.89%	2.14%	2.40%	2.67%	2.95%	3.24%	3.54%	3.85%	4.16%	4.47%	4.75%	5.00%
SG	4.08%	8.27%	12.27%	15.82%	18.90%	21.54%	23.83%	25.83%	27.66%	29.27%	30.67%	31.95%	33.16%	34.35%	35.49%	36.60%	37.60%	38.56%	39.49%	40.27%
All	1.63%	3.25%	4.75%	6.03%	7.12%	8.02%	8.80%	9.47%	10.07%	10.62%	11.11%	11.58%	12.03%	12.48%	12.92%	13.36%	13.77%	14.17%	14.54%	14.86%

Source: Moody's

Annex 2viii. Credit Assumptions: Moody's Recovery Rate Table

Exhibit 8 Average corporate debt recovery rates measured by ultimate recoveries, 1987-2019

Source: Moody's Investors Service

Priority position	Emergence Year			Default Year		
	2019	2018	1987-2019	2019	2018	1987-2019
Loans	70.2%	78.4%	80.0%	67.6%	77.1%	80.0%
Senior Secured Bonds	51.5%	48.3%	61.9%	50.0%	49.9%	61.9%
Senior Unsecured Bonds	16.0%	30.1%	47.0%	18.7%	19.4%	47.0%
Subordinated Bonds	24.7%	6.9%	28.0%	24.7%	13.9%	28.0%

Source: Moody's



**National Association *of*
Insurance Commissioners**

**NAIC 2020 LIQUIDITY STRESS TEST FRAMEWORK
For Life Insurers Meeting the Scope Criteria**

May 2021

DRAFT

Table of Contents

INTRODUCTION

Macprudential Implications of a Liquidity Stress

Beginning mid-year 2017, the NAIC embarked on a project to develop a liquidity stress testing framework. While the NAIC has existing tools and processes for assessing liquidity risk at a legal entity level (i.e., ‘inward’ impacts to the insurer), there was recognition that the NAIC toolbox could be further enhanced with the addition of more granular data in the annual statement and a tool that would enable an assessment of macroprudential impacts on the broader financial markets (i.e., ‘outward’ impacts) of a liquidity stress impacting a large number of insurers simultaneously.

Post-financial crisis, there were several attempts to assess potential market impacts emanating from a liquidity stress in the insurance sector. Many of these analyses relied heavily on anecdotal assumptions and observations from behaviors of other financial sectors. To provide more evidence-based analyses, the NAIC decided to develop a Liquidity Stress Test (LST) Framework for large life insurers that would aim to capture the outward impacts on the broader financial markets of aggregate asset sales under a liquidity stress.

The stress test will be run annually and the findings, on an aggregate basis, reported annually as part of the NAIC’s continuous macroprudential monitoring efforts. The NAIC’s pursuit of the liquidity stress test should not suggest any pre-judgement of the outcomes. The NAIC believes there is value to the exercise whether it points to vulnerabilities of certain asset classes or markets or, alternatively, suggests that even a severe liquidity stress impacting the insurance sector is unlikely to have material impacts on financial markets. The NAIC liquidity stress testing framework is intended to supplement, not replace, a firm-specific liquidity risk management framework. The NAIC has not yet discussed steps that might be taken to address any identified vulnerabilities but acknowledges that any recommendations may require collaboration with other financial regulators.

The NAIC’s revised proposed liquidity stress testing framework is contained in the pages that follow. The NAIC recognizes that, at least in the early years, the stress testing process and

analyses will be iterative. We expect refinements as the framework is developed, especially after the first year's implementation.

BACKGROUND

NAIC Macroprudential Initiative

The NAIC's Macroprudential Initiative (MPI) commenced in 2017. It recognized the post-financial crisis reforms that became part of our Solvency Modernization Initiative (SMI) that continue to serve us well today. However, in the ensuing years since those reforms, insurers have had to contend with sustained low interest rates, changing demographics and rapid advancements in communication and technology. They have responded by offering new products, adjusting investment strategies, making structural changes, and expanding into new global markets. There are new market players, new distribution channels, and a complex web of interconnections between financial market players.

What has not changed since the financial crisis is the scrutiny on the insurance sector in terms of understanding how insurers react to financial stress, and how that reaction can impact, via various transmission channels, policyholders, other insurers, financial market participants, and the broader public.

The proposed work on macroprudential measures is reflective of the state insurance regulators' commitment to ensure that the companies they regulate remain financially strong for the protection of policyholders, while serving as a stabilizing force to contribute to financial stability, including in stressed financial markets. To that end, the NAIC's three-year strategic plan (2018-2020), "State Ahead", reflects the objective of "Evaluating Gaps and regulatory opportunities arising from macroprudential surveillance, and develop appropriate regulatory responses."

The NAIC's work on macroprudential surveillance is overseen by the Financial Stability Task Force of the NAIC Executive Committee. In April 2017, the Task Force was asked to consider new and improved tools to better monitor and respond to both the impact of external financial and economic risks on supervised firms, as well as the risks emanating from or amplified by these

firms that might be transmitted externally. The Task Force, in turn, focused its efforts on potential enhancements to identify and monitor liquidity risk, among other areas. More specifically, the Task Force was requested to further develop the U.S. regulatory framework on liquidity risk with a focus on life insurers due to the long-term cash-buildup involved in many life insurance contracts and the potential for large scale liquidation of assets.

Liquidity Assessment Subgroup

To carry out its work on assessing liquidity considerations, the Task Force established the Liquidity Assessment Subgroup (“Subgroup”) mid-year 2017.

Mandate

The charges and workplan of the Subgroup reflect the following assignments:

- Review existing public and regulator-only data related to liquidity risk, identify any gaps based on regulatory needs and determine the scope of application, and propose recommendations to enhance disclosures.
- Develop a liquidity stress testing framework proposal for consideration by the Financial Condition (E) Committee, including the proposed universe of companies to which the framework will apply (e.g., large life insurers).
- Once the stress testing framework is completed, consider potential further enhancements or additional disclosures.

In addition, a small informal study group comprised of regulators, industry participants and NAIC staff was formed to consider the specific data needs and technical aspects of the project. The study group is NOT an official NAIC working group. All recommendations from the study group must be vetted and considered by the Liquidity Assessment Subgroup and/or the Financial Stability (EX) Task Force according to NAIC procedures.

Data Gaps

Prior to undertaking work on the Liquidity Stress Test, the Subgroup constructed an inventory list of existing life insurer disclosures as of 2018 that contribute to an understanding of liquidity risk. When assessing the current state, the Subgroup recognized the availability of significant detailed investment-related disclosures but contrasted it to the relatively sparse liability-related disclosures. To remedy this imbalance, a blanks proposal was constructed to significantly increase the disclosures for life insurance products.

Specifically, the Analysis of Operations by Line of Business schedule was expanded from a single exhibit to five exhibits, one each for Individual Life, Group Life, Individual Annuity, Group Annuity, and Accident and Health. The Analysis of Increase in Reserves schedule was similarly expanded. Within each of the five new exhibits, columns were added for more detailed product reporting. For example, columns were added to the Individual and Group Life exhibits to capture universal life insurance and universal life insurance with secondary guarantees, and columns were added to the Individual and Group Annuity exhibits to capture variable annuities and variable annuities with guaranteed benefits. In addition, two new lines were added to the now five exhibits of the Analysis of Increase in Reserves schedule: one capturing the cash surrender value of the products outstanding and another capturing the amount of policy loans available (less amounts already loaned). A new addition was also proposed to the Life Notes to Financial Statement. The new Note 33 considered the type of liquidity concerns disclosed in Note 32 for annuities and deposit-type contracts and added disclosures for life insurance products not covered in Note 32.

These proposals were exposed and commented upon several times at the Liquidity Assessment Subgroup, the Financial Stability (EX) Task Force, and at the Blanks (E) Working Group. Ultimately, they were adopted by NAIC Plenary for inclusion in the 2019 Life Annual Statement Blank. As an interim step, The Financial Stability Task Force performed a data call requesting a few key lines of information from the newly adopted 2019 format of the Analysis of Operations by Line of Business schedule and the Analysis of Increase in Reserves schedule, as well as the new Note 33, but populated with 2018 year-end data. This data call was completed in July 2019.

Discussions with Insurers

During the latter part of 2017 and first quarter of 2018, the Subgroup conducted calls with several large life insurers who agreed to share their internal liquidity risk assessment processes. The dialogue provided extremely helpful input and informed the establishment of the initial direction of the Liquidity Stress Testing Framework. Feedback from these discussions include:

- Scope criteria should be risk-focused, not solely based on size.
- Stress test framework should align with internal management reporting and leverage the ORSA.
- Stress test should be principle-based and complement a company's internal stress testing methodology.
- Regulatory guidance should be provided to help define liquidity sources and uses, products/activities with liquidity risk, time horizons, level of aggregation, reporting frequency, and establishing stress scenarios.
- Public disclosure of results should be carefully considered to avoid exacerbating a liquidity crisis.

Regarding the specifics of liquidity assessments/stress test approaches, significant diversity in practice exist. Key observations in this regard included:

- Liquidity tests are performed at the material entity level and at the holding company level. Definitions of material entities differ.
- Most firms determine some sort of coverage ratio (Liquidity Sources) / (Liquidity Uses), for Base and Stress scenarios and monitor results to ensure they align with the firm's (internal) risk appetite. Categories of liquidity sources and uses differ across firms and assumptions vary depending on time horizon. Some insurers determine coverage ratios utilizing balance sheet values, applying different haircuts by asset class, time horizon and type of stress. Other insurers determine liquidity coverage gaps (Liquidity Inflows – Liquidity Outflows) utilizing a cash flow approach.
- Stress scenarios vary by company, reflecting a combination of market-driven, as well as idiosyncratic and insurer-specific scenarios.

- Time horizons tested also vary, typically ranging from 7 days to 1 year.

Regulatory Goals of the Liquidity Stress Test

- The primary goal of this liquidity stress testing, and the specific stress scenarios utilized, is for macroprudential uses – to allow the FSTF regulators to identify amounts of asset sales by insurers that could impact the markets under stressed environments. Thus, the selected stress scenarios are consciously focused on industry-wide stresses – those that can impact many insurers within a similar timeframe. These may not be the most stressful scenarios for specific legal entity insurers, or even their groups. Regulators have indicated the liquidity stress testing is also meant to assist regulators in their micro prudential supervision, in the context of being helpful for domiciliary and lead state regulators to better understand liquidity stress testing programs at those legal entities and groups. There is no intent to require these stress scenarios to be used by individual insurers for some sort of assessment or regulatory intervention mechanism. Similarly, there has not been any consideration given to requiring them in the management of any entities in receivership.
- Regulatory concerns regarding liquidity risk for legal entity insurers and/or groups is more about the stress scenarios of most concern to those entities (not those identified for macro prudential purposes). Similarly, when considering liquidity risk at a legal entity and/or group, regulators need to understand the insurer’s entire risk management framework. Much of this understanding may come from the ORSA filings. Thus, the LST is not meant to be a legal entity insurer requirement, or used as a ranking tool, etc. However, it is recognized that simply reviewing these LST results may help regulators better understand the role of liquidity stress testing within the entities – which may result in more questions and information requests regarding the entities’ own liquidity risk management framework and dynamics of their internal liquidity stress tests.

[Beginning of] 2020 Liquidity Stress Testing Framework – to be included as an appendix in the NAIC Financial Analysis Handbook

Section 1. Scope Criteria for Determining Groups Subject to 2020 LST

In determining the companies subject to the liquidity stress test (LST), consideration was given to activities assumed to be correlated with liquidity risk. Another consideration was the desirability of tying data used in the criteria back to the statutory financial statements. Ultimately six activities were identified. Those activities are Fixed and Indexed Annuities, Funding Agreements, Derivatives, Securities Lending, Repurchase Agreements and Borrowed Money. Minimum thresholds were established for each of these six activities. A life insurance legal entity or life insurance group exceeding the threshold for any of the six activities is subject to the stress test (see Annex 1 for more details).

While the scope criteria only utilize statutory annual statement data, the stress test is not similarly limited. Thus, the stress test will consider many more liquidity risk elements than the scope criteria, and internal company data will be the source for many of those elements.

Just as the liquidity stress test structure and methodology may change over time, the scope criteria may also be modified, for example, in response to new data points in the NAIC Annual Statement Blank. The scope criteria will be reviewed annually.

Using the agreed criteria, NAIC staff obtained the amounts for all life insurance legal entities from the 2018 annual statutory financial statements (filed by March 1, 2019). If two or more life insurers were part of an insurance group with an NAIC group code, then the numbers for each of those legal entity life insurers was summed together to represent an insurance group result. Thus, a legal entity life insurer not in an insurance group can meet the threshold on its own, or the sum of legal entity life insurers in a group could meet the threshold. Twenty-three insurance groups met the initial scope criteria.

In establishing whether an insurer or group met or exceeded the threshold criteria, the Subgroup members supported using the most current single year activity rather than a multi-year average.

This resulted in coverage amounts ranging from 60% to 80% of the industry total for each activity based on 2018 data. It was recognized that using single year activity could result in more instances of an insurance group being in scope one year and out of scope the next, but regulators viewed it more important to have the most recent financial data utilized for determining scope. To address concerns about insurers moving in and out of scope, regulatory judgment will be used to address an insurer's exit from or entry to the scope of insurers subject to the liquidity stress test. The lead state regulator will consult with the Task Force in determining when it is appropriate to remove an insurer from the LST requirement if it no longer meets the scope criteria. Similarly, lead state regulators should have the ability to consult with the Task Force and require the LST from an insurer not meeting the scope criteria (e.g., an insurer close to triggering the scope criteria for more than one year).

Section 2. Liquidity Stress Test

2.1 Summary

The stress testing framework employs a company cash flow projection approach incorporating liquidity sources and uses over various time horizons under a baseline assumption and some number of stress scenarios (for 2020 there are 2 stress scenarios and also an insurer-specific request for information). The available assets are then recorded by asset category. The framework then calls for identification of expected asset sales by category, or other funding as allowed in the stress test, to cure any cash flow deficits (liquidity uses exceed liquidity sources) under the stress scenarios. The stress tests are to be performed at the legal entity level; the aggregated group does not perform the LST.

2.2 Time Horizons

The time horizons chosen by regulators are 30 days, 90 days, and 1 year, because, overall, insurance products are designed to be for the benefit of customers as risk protection over the long term and not designed to provide short term liquidity like other financial products. Historical experience in times of stress demonstrate slow policyholder reaction in short periods of time, as opposed to an event that occurs over months or years. Features designed to protect the long-

term nature of the product for the policyholders ultimately reduce the likelihood of policyholder reaction to short-term volatility in markets. Therefore, evaluating shorter than 30-day time horizons has been deemed not warranted for the overarching macroprudential purpose of gauging liquidity risk in the Life insurance industry.

Policyholders do not “run” from an insurer in times of economic stress to the extent depositors do from a bank, because insurance is purchased to obtain the protection insurance provides, not as a source of liquidity or discretionary funds. In the United States, life insurance and annuities are purchased primarily for long-term financial protections upon death or retirement. Surrendering a life insurance contract to harvest its cash surrender value would leave the policyholder without death benefit protection that would be expensive or impossible to replace at a future date. Surrendering a variable annuity contract would lock in potentially temporary decreases in account value and could result in the loss of living benefit protection that becomes more valuable when market conditions depress account values below trigger points. Further, mitigating contract features such as surrender charges and the insurer’s right to delay the processing of withdrawals and surrenders for up to 30 days are common.

There are also non-contractual mitigating factors at play, such as potential negative tax consequences, that further reduce the short-term nature of liquidity risk for life insurers.

Simply put, policyholders are highly disincentivized to give up the likely irreplaceable protection for which they have already paid. The run-like mass surrender of insurance policies would require large numbers of policyholders to act against their self-interest.

From a holistic risk perspective, liquidity stress is traditionally experienced on the asset side. One short-term consequence of market turmoil could be a requirement to post collateral in connection with existing derivative contracts. However, even in this scenario, collateral is typically posted in the form of securities, so a demand for cash is not generated.

We do acknowledge liquidity risk does exist with respect to shorter time horizons and that many insurers do consider shorter time horizons (7-days for example) as part of their internal liquidity stress testing framework. This is viewed as a cash management/Treasury function impacting the

daily operations of individual insurers, however, that would not affect the industry as a whole. Hence, these considerations are typically reviewed as part of individual/microprudential surveillance efforts in the U.S.

2.3 Insurer's Internal Liquidity Stress Testing System

Insurers are to use their own internal liquidity stress testing system to perform the regulatory LST, adjusting for regulatory assumptions, metrics, etc., as specified in this document. For example, assessing materiality of stressed cash flows for inclusion in the liquidity uses and sources templates is per the insurer's own internal methodology, but determining which legal entities are to perform the LST and report on those templates is specified in this document. Insurers should provide a narrative description of their internal liquidity stress testing system and processes, including for example their materiality thresholds for stressed cash flows and methodology for converting foreign currencies to US dollars (see Section 7. Reporting). The stress scenarios may vary from year-to-year and contain variations referred to as "What-if" scenarios. The following sections provide a further description of each of the key components of the framework.

Section 3. Legal Entities Required to Perform the LST for Insurers Meeting the Scope Criteria

The scope of entities included within an insurance group for the purposes of liquidity stress testing to assess the potential for large scale liquidation of assets (i.e., the legal entities within the group which should perform the LST), should include:

- U.S. Life insurance legal entities, including reinsurers, regardless of corporate structure, so including captive (regulators specifically want all U.S. life insurance/reinsurance legal entities to perform the 2020 LST for informational purposes – future LST iterations may see a materiality consideration added);
 - Non-guaranteed/market value separate accounts are not included in the 2020 LST. However, regulators may want to perform a separate account study in the future. The current thinking is that even though non-guaranteed/market value separate accounts may experience asset sales during stressed

environments, **those sales are at the policyholder's discretion and** do not generate liquidity stress for the insurer/group. As such they are deemed other market activity rather than insurance entity activity. Thus, for annuities that provide both non-guaranteed and guaranteed benefits, insurers should only include the cash **flow impact** of the **guaranteed benefits**.

-
- Non-U.S. life insurance/reinsurance legal entities should perform the 2020 LST if they pose material liquidity risks to the U.S. group (see below on non-U.S. legal entities).
- Where applicable, holding companies that could be a source or draw of liquidity to the life insurance legal entities; and
- Non-life insurance entities and non-insurance entities with material sources of liquidity, or that carry out material liquidity risk-bearing activities and could, directly or indirectly, pose material liquidity risk to the U.S. group. This materiality consideration should occur within the context of the specific stress scenario (and “what if” modification if applicable). The materiality criteria and initial list of legal entities in scope should be reviewed by the lead state regulator and modified by the insurer as needed based on regulator direction.
 - Non-U.S. legal entities (including non-U.S. holding companies) are subject to this materiality consideration and should be subject to performing the LST if they pose material liquidity risk to the U.S. group.
 - U.S. non-life insurers and reinsurers are not automatically exempted. If the U.S. non-life insurer poses material liquidity risk, per the stress scenario, to the U.S. group, then that legal entity insurer should perform the LST.
- **Legal entity asset managers and mutual funds (both U.S. and non-U.S.) are excluded from performing the 2020 LST.**
 - **However, those legal entities performing the LST (e.g., holding companies that could be a source or use of liquidity for the life insurers) must reflect any material stressed cash flows from/to the legal entity asset manager/mutual fund in their 2020 LST results (e.g., the liquidity sources and liquidity uses templates, as they**

do with any other type of legal entity that has material stressed cash flows from/to the legal entities performing the LST).

- If such material stressed cash flows from/to the legal entity asset manager/mutual fund exist, the regulators want specific disclosures on those in the results (either by adjusting the templates to include a line for these and/or in the narrative/explanatory disclosures submitted along with the templates).
- Examples of when such legal entity asset manager/mutual fund considerations and disclosures would need to be made for a specific stress scenario include:
 - If the holding company or another legal entity(ies) in the group is expected to fund a material liquidity shortfall of a mutual fund/asset manager (i.e., redemptions exceed the ability to sell assets), then the expected cash flows must be reflected (especially where there are established inter-affiliate support agreements);
 - If the holding company or another legal entity(ies) in the group is expected to provide capital to the mutual fund/asset manager or is expecting dividends from them, the material expected cash flows must be reflected; and
 - If the asset manager manages financial instruments under which it retains some risk, such as new European CLOs, or has contractual risk retention agreements for US CLOs, the required risk retention limit (5% for Europe) must be reflected if sourced from the holding company or another legal entity(ies) in the group **and considered material**.
- Legal entity banks (both U.S. and non-U.S.) are **excluded** from performing the 2020 LST.
 - However, those legal entities performing the LST (e.g., holding companies that could be a source or use of liquidity for the life insurers) must reflect any material stressed cash flows from/to the legal entity bank in their 2020 LST results (e.g., the liquidity sources and liquidity uses templates, as they do with any other type of legal entity that has material stressed cash flows from/to the legal entities performing the LST).

- If such material stressed cash flows from/to the legal entity bank exist, the regulators want specific disclosures on those in the results (either by adjusting the templates to include a line for these and/or in the explanatory disclosures submitted along with the templates).
- Examples of when such legal entity bank considerations and disclosures would need to be made for a specific stress scenario include:
 - If the holding company or another legal entity(ies) in the group is expected to fund a material liquidity shortfall of a bank, then the expected cash flows must be reflected (especially where there are established inter-affiliate support agreements); and
 - If the holding company or another legal entity(ies) in the group is expected to provide capital to the bank or is expecting dividends from them, the material expected cash flows must be reflected.

For 2020, the legal entities identified in the bullets above, per a Company's ORSA and/or other materiality criteria applied to the specific stress scenario, must be considered as material or identified as carrying out material liquidity risk bearing activities and hence subject to internal liquidity stress testing requirements. Although a legal entity in the group may not be required to perform the stress test due to materiality considerations or exemptions, those entities' **material** cash impacts on entities performing the stress test must be captured in the sources and uses templates of the entities performing the LST. The insurer will need to disclose the materiality criteria (**agreed upon by the Lead State regulator**) used in determining the legal entities subject to the 2020 LST in the submission of its results. Based on the results of the 2020 initial LST exercise, the Subgroup will determine if additional materiality criteria should be developed to ensure better comparability amongst insurers.

Section 4. Cash Flow Approach – Liquidity Sources and Uses

The Liquidity Stress Testing Framework is anchored by a cash flow approach, utilizing companies' actual cash flow projections of sources and uses of liquidity over various time horizons based

upon experience and expectations. This contrasts with a Balance Sheet Approach, which employs static balance sheet amounts and generic assumptions about asset liquidity. While a Balance Sheet Approach is easier to apply and provides calculation consistency (and thus the perception of increased comparability), its 'one-size fits all' approach could result in a misleading assessment of liquidity risk and fail to capture certain asset activities or product features under different stress scenarios and time horizons. The cash flow approach is deemed more dynamic and hence to capture liquidity risk impacts more precisely.

The insurer should produce cash flow projections for sources of liquidity and uses of liquidity that cover: operating items, investments and derivatives, capital items, and funding arrangements. (See Liquidity Sources and Uses templates in Section 7). To clarify an issue regarding funding arrangements, the projected cash flows for liquidity sources and uses should include already existing funding arrangements such as FHLB draws outstanding in the current time period. Also, specific to the holding company, these projected cash flows for liquidity sources and uses should include material non-U.S. impacts as well.

The insurer will produce these liquidity sources and uses cash flow projections in a baseline, normal course of business scenario, for each time horizon. The insurer will also produce these cash flows for each time horizon for a specific number of required stress scenarios (for 2020 there are 2 stress scenarios and also an insurer-specific worst-case scenario).


4.1 Baseline Assumptions for Cash flows

Baseline (pre-stress) cash flows are the insurer-specific cash flows from normal expected operations. Insurers should prepare cash flow projections under normal operating conditions and report the net cash flows (projected liquidity sources less uses) for each time horizon. These cash flow projections should be consistent with those used for internal baseline liquidity forecasts, such as those used for financial planning and analysis (FP&A), risk management, etc. A positive net cash flow is presumed in the baseline cash flows since companies are usually not expected to be operating in a net cash flow deficiency state.

Section 5. Stress Scenarios and their Assumptions

For year-end 2020 there are two regulatory liquidity stress scenarios: an adverse liquidity stress scenario for insurers, and an interest rate spike scenario. There is also an insurer-specific information request for each group's own most adverse liquidity stress scenario(s). The adverse liquidity stress scenario contains a regulator provided narrative, regulator-prescribed assumptions and company-specific assumptions. The interest rate spike scenario allows all other narrative description components and key metrics (including how much interest rates spike) to be provided by each company. The insurer-specific information request contains a company provided narrative and a description of key company metrics. The regulator provided narrative will be a qualitative description of the specified stress scenario to highlight the particular risks and sensitivities associated with that stress scenario. The regulator prescribed assumptions are specific parameters insurers should incorporate into their process for a particular stress scenario. Company-specific assumptions should be consistent with the information provided in the regulator provided narrative and regulator prescribed assumptions, and represent the detailed assumptions needed for a specific company's liquidity stress testing process. Examples of where companies should provide their assumptions include: debt issuance, lapse sensitivity, new business sensitivity and mortality sensitivity. Regulators expect insurers to utilize policyholder behavior assumptions (e.g., surrenders and policy loan withdrawals, **existence of new sales activity**) as well as the insurer's response (e.g., assuming delays in payment of policyholder benefits), consistent with the severity of the stress ,and to provide very thorough explanatory information. All key business activities and product- type impacts to liquidity should be considered by the companies.

If the insurer's internal model does not utilize a specific economic and/or company-specific assumption included in this document, the internal model does not need to be modified to incorporate it. However, if the insurer's internal model does utilize a specific economic and/or company-specific assumption included in this document, the insurer must utilize the specific value for that assumption provided in this document. (This emphasizes the macro surveillance benefit of the 2020 LST, allowing for a level of consistency of assumptions across the industry. As

discussed previously, this is not meant to specify assumptions used by the insurers in their own internal liquidity stress testing work.) If there is no specific value included in the 2020 LST Framework and instead there is an illustrative value or suggested guidance, the company should use a value consistent with the illustrative value or suggested guidance. For example, guidance is given below on using Moody's values for migration, default and recoveries. However, insurers may use S&P data or other appropriate data sources. 

5.1 Adverse Liquidity Stress Scenario for Insurers

5.1.1 Narrative

Insurers are required to apply an adverse liquidity stress scenario as one of the two stress scenarios. The following is a summary of market conditions in the adverse scenario extracted from the Federal Reserve Board's 2017 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule.

- The adverse scenario is characterized by weakening economic activity across all economies included in the scenario. This economic downturn is accompanied by a global aversion to long-term fixed-income assets that, despite lower short-term rates, brings about a near-term rise in long-term rates and steepening yield curves in the United States and the four countries/country blocks in the scenario. Macroeconomic
 - Real GDP falls slightly more than 2 percent from the pre-recession peak in the fourth quarter of 2016 to the recession trough in the first quarter of 2018
 - .
 - *Unemployment rate approaches 7.4%.*
 - *Headline CPI falls 1.6 %and rises to 2.1 % over the scenario period.*
- Interest Rates and Credit Spreads
 - *Short-term Treasury rates fall and remain near zero throughout the stress.*
 - *10-year Treasury yields rise to 2.7%.*
 - *Investment Grade (IG) corporate credit spreads widen to approximately 3.75%.*
- Asset Valuations
 - *Equity prices decline by roughly 40%.*

- *The Volatility Index (VIX) peaks at 34.4*
- *Housing prices and commercial real estate prices decline by 12% and 15% respectively through 8 quarters.*
- Description of International Market Conditions
 - *Recessions and slowdowns in growth are experienced in the Euro area, United Kingdom, Japan, and developing Asia economies.*
 - *All foreign economies experience a decline in consumer prices.*
 - *U.S. Dollar appreciates against the Euro, British Pound, and developing Asia currencies.*
 - *U.S. Dollar depreciates modestly against the Japanese Yen, driven by flight-to-safety capital flow.*

5.1.2 Regulator-Prescribed Assumptions

Insurers should utilize the specific values for the economic indicators from the Federal Reserve Board's annual Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule, Table A.1 Historical data and Table A.5 Supervisory adverse scenario. Insurers should use the version published in February 2017 (refer to the tables in Annex 2i). Specifically, insurers should run the adverse liquidity stress scenario using the values for the Treasury curve, Corporate spreads, GDP, Unemployment, U.S. Inflation (CPI), Housing Price Index (HPI), S&P 500 index (SPX SPOT), Commercial Real Estate Index (CREI) and VIX index to the extent these variables are included in their internal liquidity stress test process or models.

This scenario also requires a consistent baseline scenario to be employed. Insurers should apply the same change in economic variables experienced between Q4 2016 Table A.1 and the stress scenarios in Table A.5 to current economic variable levels. For example, insurers should use 2020 (or most recent year-end) 10 Yr. Treasury rates and apply the same % or b.p. change shown from Q4 2016 to the 2017 Table A.5 amounts in their 2021 stress scenarios. Projected values should be used for the 30-day, 90-day and 1-year horizons. The table is included in Annex 2i of this document.



Guidance on Select Economic Variables (TBD subsequent to small group deliberations)

10 Yr. Treasury

The projected path of 10-year Treasury rates should be translated to quarterly percentage increases, with a 10 b.p. minimum increase. The 10 b.p. minimum is to address a situation where current rates are zero or negative.

GDP

b.p.

CPI

b.p.

Unemployment

b.p.

FX

In addition, other market indicators are necessary for insurers to apply to stressed cash flows and to assess the impact on expected asset sales. These are as follows (with details to be found in Annex 2):

- Market Capacity Assumption
- Structured Spreads over Treasuries
- SWAP Spreads
- Swaption Volatility
- Credit Assumptions: Moody's Transition Matrix/Migration Rates
- Credit Assumptions: Moody's Default Table
- Credit Assumptions: Moody's Recovery Rate Table

5.1.3 Market Capacity Assumption

The following is suggested guidance to determine market constraints on asset categories to be sold in times of stress. It represents standards followed by many insurers to estimate assets sales

by stress scenario, asset category and time horizon that can be sold without meaningfully impacting the entire market by widening bid-offer spreads. We recognize each company has its own individual methodology for determining potential asset sales under stress, and we request a written narrative be provided as to how they make their determination.

Once an asset class has been identified as available to be sold to satisfy a cash deficiency from cash flow stress testing, the insurer should calculate its percentage of the total amount issued and outstanding. Next the insurer should obtain average daily trading volumes (ADTV) and make an assumption for the haircut amount to apply to that volume to reflect stressed conditions (the “haircut ADTV”). Next, the insurer would apply its calculated percentage of total outstanding owned to the haircut ADTV, and the result would be divided by the number of days in the stress testing time horizon to arrive at a daily amount that can be sold. This daily amount able to be sold would be multiplied by the number of days in the prescribed time horizon: 30 days for the 30-day horizon, 60 days for the 90-day horizon (31-90 days) and 274 days for the 1-year horizon (91-365 days). An illustrative example best explains the above-described process.

Illustrative example (also included in Appendix 2ii):

Step 1: Estimate Unconstrained Sales Per Day

Insurer A has a \$100 billion portfolio of investment-grade corporate bonds, priced at par. Insurer A estimates that it holds approximately 5% of outstanding corporate bonds. In the adverse liquidity stress scenario, Insurer A’s unconstrained liquidity stress testing model assumes that it can sell:

Time Horizon	% Able to Be Sold	Sale Price	Total Sale	Sales / Day
First 30 Days	10%	97	\$9.7 B	\$440 M
31-90 Days	20%	94	\$18.8 B	\$430 M
91-365 Days	50%	90	\$45.0 B	\$230 M

Step 2: Add Market Capacity Constraint

Assume the average daily trading volume in the secondary market for investment grade corporate bonds has been \$13.0 Billion over the past year. Insurer A estimates that trading volumes would decline by 40% in the adverse liquidity stress scenario to \$8.0 B per day. Since Insurer A is 5% of the market, Insurer A can only trade \$400 M per day (\$8B x 5%) without paying a significant illiquidity premium and impacting the overall market.

Insurer A then repeats this process for every asset class in its investment portfolio.

Time Horizon	Unconstrained Sales / Day	Market Capacity Assumption	Impact
First 30 Days	\$440 M	\$400 M	(\$40 M)
31-90 Days	\$430 M	\$400 M	(\$30 M)
91-365 Days	\$230 M	\$400 M	\$0

5.1.4 Structured Spreads Over Treasuries

Insurers should use Annex 2iii to assist in determining cash flows, asset values and the quantity of assets to be sold in stressed markets. For baseline values, the industry shall submit year-end spreads to the regulators shortly after year-end. The regulators will review and approve the values for use in the table for liquidity stress testing purposes. Regulators shall use structured spread data from the 2007-2009 period provided by JPMorgan added to baseline values to calculate stressed amounts for the 30-day, 90-day and 1-year horizons to complete the table.

Regulators ask industry members to agree on one set of structured spread values amongst themselves to submit for approval, not each insurer submitting values that each need to be approved. Regulators and/or the NAIC need to do a reasonableness check of current baseline/market levels of spreads insurers use before applying the stressed amounts in the JPMorgan spreadsheet. For example, if current spreads are already greater than the JPMorgan stressed spread amounts, regulators may have to consider alternatives or additional stressed levels. One agreed upon set of values will help provide uniformity, consistency, and comparability of stress testing results across insurers.

When utilizing these spreads, insurers should assume the percentage increase in spreads experienced in 2008-09 from the JPMorgan spreadsheet; and apply that percentage increase to the agreed upon December 31 spreads.

- 2020 LST and beyond - Since the reasonableness check is merely a check of current market rates, it is not anticipated that it will be burdensome for insurers to provide an agreed upon set of December 31 baseline values to regulators by January 31 of each year or for the regulators to be able to respond by February 28 of every year to allow insurers sufficient time to incorporate into their stress testing framework.
- For the 2020 LST – Industry agreed upon values will be established as Lead State guidance.

5.1.5 SWAP Spreads

Stressed spread levels may impact assets prices for expected sales calculations necessary for the stress scenarios. Insurers should complete the SWAP Spread table in Annex 2iv to document assumptions used in determining asset values and the quantity of assets to be sold in stressed markets. SWAP spread source data from the Federal Reserve’s H.15 FRED data should be incorporated into the SWAP Spread table. The H.15 FRED data is also included in Annex 4iv.

5.1.6 Swaption Volatility

Insurers should use the table in Annex 2v to assist in determining asset values and the quantity of assets to be sold in stressed markets. Insurers should obtain the information to populate the table using Bloomberg’s Swaption Volatility for various time horizons and expiry. For consistency, insurers should use the table found on Bloomberg at NSV [Go].

5.1.7 Moody’s Transition Matrix/Migration Rates

Insurers should use the table in Annex 2vi to assist in determining Corporate credit migrations, asset values and the quantity of assets to be sold in stressed markets. The table is imported from Moody’s Corporate-Global: Annual default study, Exhibit 39 - Average one-year alphanumeric rating migration rates, 1983-2019. If available, insurers should use the equivalent Moody’s tables for U.S. Public Finance for municipal bonds and the appropriate Moody’s tables for structured

/asset-backed securities. Alternative sources may be used but should be disclosed as well as the rationale for their use.

5.1.8 Moody's Default Table

Insurers should use the table in Annex 2vii to assist in determining asset values and the quantity of assets to be sold in stressed markets. The table is imported from Moody's Corporate-Global: Annual default study, Exhibit 45 - Average cumulative issuer-weighted global default rates by letter rating, 1983-2019. Insurers should use the equivalent Moody's tables for U.S. Public Finance for municipal bonds and the appropriate Moody's tables for structured /asset-backed securities. Alternative sources may be used but should be disclosed as well as the rationale for their use.

5.1.9 Moody's Recovery Rate Table

Insurers should use the table in Annex 2viii to assist in determining asset values and the quantity of assets to be sold in stressed markets. The table is imported from Moody's Corporate-Global: Annual default study, Exhibit 8 - Average corporate debt recovery rates measured by ultimate recoveries, 1987-2019. Insurers should use the equivalent Moody's tables for U.S. Public Finance for municipal bonds and the appropriate Moody's tables for structured /asset-backed securities. Alternative sources may be used but should be disclosed as well as the rationale for their use.

If relevant for a given insurer, the adverse liquidity stress scenario for insurers can be run considering sources other than expected asset sales (e.g., FHLB credit line draws, bank lines of credit and holding company contributions). Should that be the case, the insurer must clearly identify the sources other than asset sales utilized to meet expected liquidity deficiencies.

5.1.10 "What If" Modification

The "What if" modification to the adverse liquidity stress scenario removes the ability for insurers to use extraordinary internal and external funding sources to satisfy any liquidity deficiency under stress, i.e., no actions taken in response to the stress (as opposed to ongoing operational funding agreements included in the insurer's baseline templates) or in response to a liquidity deficiency. Intragroup "keep well" agreements would be considered extraordinary transactions. Thus,

expected asset sales will be the primary source of meeting any liquidity deficiency for the “What if” scenario. Any existing funding such as commercial paper will not be assumed to roll, nor will FHLB facilities ability to roll upon maturity.

5.1.11 Company-Specific Assumptions

Insurers must construct the assumptions needed for their internal models to run the above adverse liquidity stress scenario for insurers. Company specific assumptions should be consistent with the above scenario as narrative and regulator prescribed assumptions. Examples include the inability to roll or issue new debt, potential increases in lapse rates, new business sensitivity, mortality experience and policyholder behavior (e.g., surrenders and policy loans).

5.2 Interest Rate Spike Scenario

5.2.1 Narrative

Insurers should run an interest rate spike stress test that resembles the late 70’s/early 80’s inflationary period as it most closely mirrors the regulatory desired interest rate spike scenario. Historical data from the late 70’s/early 80’s show the following economic conditions:

- Inflationary forces caused interest rates to rise quickly.
- Investors rotated out of fixed income and into equities, real estate, and commodities.
- Central bank responded by tightening monetary policy in tandem, eventually causing the yield curve to invert.

Insurers should provide a detailed narrative outlining their scenario and assumptions around general economic conditions bulleted above and specific assumptions for economic variables for each time horizon. The economic variables in the table below and the amount of expected movement in each variable should be fully described in the narrative to the extent are used in a company’s internal model. The table outlines the directional movement of the relevant economic indicators. Insurers should specify the amount of movement for each variable they consider to be part of the scenario for a severe interest rate spike. For example, insurers may indicate a parallel shift in Treasury rates up 100bps in the first 30 days, up 200bps in 90 days and 300bps over 12 months. The table is a guide and not to be interpreted as a strict template and may be

supplemented or customized by the insurer. **Narrative/Explanatory disclosures should explain these assumptions.**

5.2.2 Regulator-Prescribed Assumptions

Regulators did not adopt any regulator-prescribed assumption values for this stress scenario. Instead, they provided the below regulator guidance for insurers to use when establishing their own company specific assumptions for this stress scenario.

Economic Variable	Expected Movement	Comments
Treasury rates	Increase rapidly	Critical factors for modeling impacts to asset prices, collateral flows, and product cash flows
Equity prices	Increase rapidly	
Credit spreads	Increase moderately	
Inflation rates	Increase rapidly	These factors help define the macroeconomic conditions of the scenario
Real GDP growth	Flat	These factors help define the macroeconomic conditions of the scenario
Unemployment rate	Flat	
Real estate prices	Increase	
Swap spreads	Increase	Impact derivative collateral requirements
FX rates	Unclear	
Implied volatility	Increase	
Credit assumptions (transition, default, recovery rates)	Unclear	May not be an important assumption to define for the scenario

5.2.3 Company-Specific Assumptions

Insurers must construct the assumptions needed for their internal models to run the above stress scenario. Companies are encouraged to provide more information beyond these guidelines as they feel is appropriate to help regulators understand their assumptions for the scenario. Company specific assumptions should be consistent with the stress scenario’s narrative and regulator prescribed assumptions.

5.3 Insurer Specific Information Request - Worst-Case Scenario



5.3.1 Narrative



This information request requires insurers to provide a detailed narrative of their most severe liquidity stress scenario(s) to obtain greater insight to the drivers of liquidity risk for specific insurers. The most severe scenario should be one that results in the largest liquidity deficiency (liquidity sources less uses) from their existing internal liquidity stress testing process. The scenario should be focused on the insurers internal model scenario with the worst-case outcome for the group. Regulators may use this information to inform future prescribed stress scenarios.

Insurers should provide a comprehensive narrative describing the stress scenario(s) and the economic environment(s). This stress scenario(s) could be a combination of multiple stressors.

Section 6. Available and Expected Asset Sales

Once the stressed sources and uses of liquidity have been established, and the net cash flows calculated, insurers then project the assets available at the end of the time horizon by asset category (please refer to the asset categories in the Assets Template in Section 7). The valuation of available assets for the baseline scenario utilizes current and projected asset values for a normal operating environment. The valuation of available assets for a stress scenario will be based upon fair value haircuts per the specific stress scenario narrative, its regulatory prescribed assumptions, and/or the company assumptions based on the narrative and regulatory prescribed assumptions (e.g., fair market value haircuts and capacity indicators). Note: Any securities pledged as part of institutional funding agreements (e.g., FHLB) should be excluded and considered encumbered. However, any pre-pledged assets that are not securing credit that has been extended and remains outstanding (i.e., excess) should be considered unencumbered.

To the extent that stressed cash inflows are insufficient to meet the anticipated cash outflows, the insurer must provide for cash flows to meet the deficiency. Unless a stress scenario (or “What-if” modification of a stress scenario) indicates otherwise, the insurer can utilize internal and external funding sources (e.g., FHLB new draws) as well as asset sales to satisfy a liquidity

deficiency. Any expected asset sales must be reported in the appropriate column(s) of the template. Insurers decide which categories of available assets to sell, as well as the quantity to sell. (Please refer to the Assets Template in Section 7.)

Asset sales will appear in two different places - 1) within the liquidity sources template for expected/planned activity during the time horizon (pre-liquidity deficiency calculation), and 2) in the assets template for any amount of asset sales used to meet a liquidity deficiency (Liquidity Sources less Liquidity Uses). If an insurer has no liquidity deficiency, then there are no asset sales needed in the Assets Template (though available assets still apply). Similarly, if cash on hand was sufficient to meet the liquidity deficiency and the insurer chose to utilize that cash, then no asset sales would be reported in the Assets template.

The expected asset sales amounts calculated based on the insurer's own models should also be subjected to portfolio manager and/or Chief Investment Officer (CIO) feedback. This feedback may take the form of "topside" adjustments to the expected asset sales. Regulators expect robust disclosures around the chief investment officer's (or equivalent title or designee) assumptions and decisions on expected asset sales. The intent is for these asset sales to most accurately represent what actions the insurer could reasonably take in the given scenario, market conditions, and the company's anticipated investment policy and/or strategy.

Section 7. Reporting

Insurers should submit data in the reporting template for liquidity sources, liquidity uses, and assets (available assets and expected asset sales) in US dollars. These templates utilize categories for 30-day, 90-day and 1-year time horizons. The assets template further illustrates available assets and final expected asset sales by asset sub-category to cover any liquidity deficiency (negative amounts of net liquidity sources less liquidity uses over the prescribed time horizons). Use of these consistent sub-categories of assets is critical for allowing the Task Force to aggregate the asset sales results.

Liquidity Sources and Liquidity Uses Templates:

All liquidity sources report and a liquidity uses report should be generated for each legal entity within the group that was subjected to liquidity stress testing, using the NAIC templates. These legal entity amounts should also be aggregated into a group liquidity sources report and a group liquidity uses report for submission (the LST is not performed at the group level; rather it is performed at the legal entity level and those results are aggregated to present a group level report).

- For the Baseline, the Adverse Liquidity stress scenario, and the Interest Rate Spike stress scenario, Liquidity Sources and Liquidity Uses templates at both the individual entity level and the aggregated group level are to be submitted.
- For the insurer's own "Worst Case" scenario, only the group level Liquidity Sources and Liquidity Uses templates are required to be submitted, not the legal entity templates.
- For the "What If" Variation of the Adverse Liquidity stress scenario, a group level Liquidity Sources template and/or a group level Liquidity Uses template is only required if there is a material difference from the Adverse Liquidity stress scenario's group level Liquidity Sources and Liquidity Uses templates.

Assets Template:

As with the Liquidity Uses and Liquidity Sources templates, the Assets template is to be generated for each legal entity performing the LST. For the 2020 LST, the insurer may submit the assets template at the group level only, without submission of the legal entity asset sales templates.

- A group level assets template is required for the Baseline and all stress scenarios, including the insurer's own "Worst Case" scenario and the "What If" variation of the Adverse Liquidity stress scenario.

Modification of Templates:

Insurers are allowed to add lines to the templates to provide more detailed breakdown of existing categories (e.g., for cash flows to/from legal entity asset manager/mutual funds as well as banks), but deletions of existing lines/categories are highly discouraged.

Submission Deadline:

The reporting templates and many other narrative disclosures referenced in this document are to be submitted to the Lead State by September 30, 2021.

Liquidity Sources and Uses

Company Type		HoldCo	Company Type Toggle (choose either HoldCo or OpCo) to identify the relevant cash flows.		
Cash Flow	CF Type	CF Category	Cash Flows in Time Horizon		
			1 Month	3 Months	12 Months
Sources	Operating	Premiums and Deposits (Renewal / New Business)			
		Cash Charges / Fees			
		Reinsurance Recoverables			
		Expenses – Intercompany Settlements			
		Tax Payments (Inflows)			
		Other Flows			
	Investment and Derivatives	Principal and Interest			
		Dividends / Distributions			
		Initial and Variation Margin Received			
		Other Collateral Received			
		Asset Sales (Pending Settlement)			
		Other Flows			
	Capital	Capital Contributions			
		Commitments			
		Dividends from subsidiaries			
		Other Flows			
	Funding	Debt Issuance / Refinancing			
		GICs			
		FHLB			
		Repo / Securities Lending			
		Credit Facilities (Incl. Contingency Funding Facilities)			
		Intercompany Loans			
		Commercial Paper			
		Other Flows			

Cash Flow	CF Type	CF Category	Cash Flows in Time Horizon			
			1 Month	3 Months	12 Months	
Uses	Operating	Non-Elective Benefits / Claims				
		Elective Benefits / Claims				
		Commissions				
		Reinsurance Payables				
		Expenses - Other				
		Expenses - Intercompany Settlements				
		Insurance Product Commitments				
		Tax Payments (Outflows)				
		Other Flows				
		Investment and Derivatives	Investment Commitments			
	Initial and Variation Margin Paid					
	Other Collateral Pledged					
	Asset Purchases (Pending Settlement)					
	Other Flows					
	Capital	Shareholder/Policyholder Dividends				
		Capital contributions to subsidiaries				
		Dividends to Parent				
		Other Flows				
	Funding	Debt Maturities / Debt Servicing				
		GICs Benefits / Maturities				
		FHLB				
		Repo / Securities Lending				
		Credit Facilities (Incl. Contingency Funding Facilities)				
		Intercompany Loans				
		Other Flows				
	Total Uses					

Note: Certain flows could be settled in securities (e.g., margins on derivatives, capital contributions/dividends, etc.). Alternatively, eligible securities could be pledged to FHLB (or REPO with the street) to raise short-term funding.

Assets Template

Asset Category	Asset Sub-Category	Amounts Available in Time Horizon			Expected Asset Sales in Time Horizon			Final Asset Sales given PM review			Comments
		1 Month	3 Months	12 Months	1 Month	3 Months	12 Months	1 Month	3 Months	12 Months	
Cash	Cash & Cash Equivalents										
Government Securities	Treasury & Agency Bonds										
	Other IG Sovereigns & Regional Government										
	Below IG Sovereigns & Regional Government										
	Agency CMO										
	Agency MBS										
	Agency CMBS										
Public Bonds	Agency ABS										
	IG Public Corporate Bonds										
	IG Municipal Bonds										
	Below IG Public Corporate Bonds										
Private Bonds	Below IG Municipal Bonds										
	IG Private Placement Bonds										
	IG 144As										
	Below IG Private Placement Bonds										
Non-Agency Structured Debt	Below IG 144As										
	IG CMO										
	IG MBS										
	IG CMBS										
	IG ABS										
	IG CLO										
	Below IG CMO										
	Below IG MBS										
Equity	Below IG CMBS										
	Below IG ABS										
	Below IG CLO										
Other	Common Stock										
	Preferred Stock										
Other	Other Equity and Alternative Investments										
	Commercial, Residential, Agricultural, Bank										
	Other										
Total Assets Available for Sale											
Summary											
Total Sources (before Asset Sales)											
Total Uses											
Net Sources & Uses (before Asset Sales)											
Cash											
Total Assets Available for Sale											
% Asset Sales		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Coverage Ratio		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Note 1: Insurers will enter "Illiquid" in a data field for any asset category deemed such within a specific time horizon. (Regulators can then follow up with questions later if there are concerns, etc.)

Note 2: Any securities pledged as part of institutional funding agreements (e.g., FHLB) should be excluded and considered encumbered. However, any pre-pledged assets that are not securing credit that has been extended and remains outstanding (i.e., excess) should be considered unencumbered.

Note 3: Reminder that regulators want robust disclosures regarding the chief investment officer's (or equivalent title or designee) assumptions and decisions on expected asset sales. Might need to supplement the template comments with additional narrative disclosures.

Note 4: Excluding the "What If" variation, insurers are to provide disclosures indicating when affiliated amounts are provided to assist a legal entity in addressing a liquidity deficiency.

Narrative/Explanatory Disclosures noted in the 2020 LST:

Narrative/explanatory disclosures are expected to be in English.

- Insurers should provide a narrative description of their internal liquidity stress testing system and processes, including for example their materiality thresholds for stressed cash flows and methodology for converting foreign currencies to US dollars.
- Specific disclosures on material stressed cash flows to/from legal entity banks/asset managers/mutual funds if needed.
- Company-specific narrative on assumptions and metrics used for the adverse liquidity stress scenario for insurers, for example the inability to roll or issue new debt, potential increases in lapse rates, new business sensitivity, mortality experience and policyholder behavior (e.g., surrenders and policy loans).
- Company-specific narrative on the interest rate shock scenario, assumptions around general economic conditions bulleted in 5.2.1 Narrative, and specific metrics for economic variables for each time horizon. The economic variables in the table in 5.2.2 Regulator-Prescribed Assumptions should be fully described in the narrative, to the extent they are used in the company's internal model.
- Insurers should provide a comprehensive narrative describing their worst-case liquidity stress scenario(s) and the economic environment(s), including assumptions, key metrics and results.
- Written narrative on the insurer's own individual methodology for determining asset sales under stress.
- Robust disclosures regarding the chief investment officer's (or equivalent title or designee) assumptions and decisions on expected asset sales, if needed.
- Excluding the "What If" variation, disclosures to identify when affiliated amounts are contributed to assist a legal entity in addressing a liquidity deficiency.
- Disclose when a regulatory prescribed variable is not used for the LST because it is not used in the internal liquidity stress testing process or models.

[End of 2020 Liquidity Stress Testing Framework – to be included as an appendix in the NAIC Financial Analysis Handbook]

Data Aggregation

Given the NAIC's primary focus is on macroprudential impacts of a liquidity stress impacting the life insurance sector, the NAIC will aggregate final expected asset sales data across the insurance groups subject to the liquidity stress test. The aggregation will be done by asset category. The NAIC aims to compare the aggregated results against various benchmarks, potentially including normal and/or stressed trading volumes and asset values for various asset classes, to determine the impact such sales may have on the capital markets in times of stress. Findings from this analysis may also inform expected asset sale assumptions utilized in future runs of the liquidity stress test.

As part of its macroprudential surveillance, the insurance regulators and/or NAIC may reach out to other regulatory agencies to discuss aggregate results that may impact other regulated industries such as banks, securities brokers and asset managers. Insurance regulators may also coordinate with other agencies to identify appropriate and perhaps coordinated action they may take to prevent or minimize the effect large asset sales may have on the financial markets and overall economy.

Regulatory Authority

For the 2020 liquidity stress test, lead state regulators will utilize their examination authority to collect the reporting results from insurers and to keep the data confidential. A long-term solution was developed at the Financial Stability (EX) Task Force in coordination with addressing similar issues related to the Group Capital Calculation project, resulting in revisions to Model #440. However, it will take several years for states to adopt these revisions.

Confidentiality

For the 2020 liquidity stress test, lead state regulators will utilize their examination authority to collect the reporting results from insurers identified by the scope criteria. Existing protocols for collecting confidential/sensitive data for each state and insurer will be utilized. A long-term solution was developed at the Financial Stability (EX) Task Force in coordination with addressing

similar issues related to the Group Capital Calculation project, resulting in revisions to Model #440. However, it will take several years for states to adopt these revisions.

Timeline

- March 1, 2021 – FSTF call – exposed revised draft 2020 LST Framework
- May 12, 2021 – “finalize” revised draft 2020 LST Framework (LST Study Group will issue Lead State guidance as needed after this date)
- September 30, 2021 – receive submissions from 23 insurance groups
- January 2022 – Incorporate all appropriate Lead State Guidance into the 2020 LST Framework document as the starting place for the 2021 LST Framework and begin work on changes specific to the 2021 LST.

Annex 1: Original Scope Criteria with Annual Statement References

The Subgroup proposes to include in the scope of the Liquidity Stress Testing Framework any insurer/group that exceeds the following thresholds for any of the noted activities (or account balance as a proxy for that activity). The thresholds have been established taking into consideration both the account balance of the insurer/group to the total balance for the life insurance sector, as well as the aggregate account balance of insurers/groups within scope to the aggregate account balance for the life insurance sector.

Account Balances	Threshold in \$B “greater than”	Reference to 2017 NAIC life/accident and health (A&H) annual financial statement blank
Fixed and Indexed Annuities	25	Analysis of Increase in Annuity Reserves <u>Page:</u> Supplement 62 <u>Line:</u> Reserves December 31, current year (15) <u>Column:</u> Sum of Individual Fixed Annuities, Individual Indexed Annuities, Group Fixed Annuities, and Group Indexed Annuities
Funding Agreements and GICsⁱ	10	Deposit-Type Contracts <u>Page:</u> Exhibit 7 – Deposit-Type Contracts <u>Line:</u> 9 <u>Column:</u> Guaranteed Investment Contracts (Column 2) + <u>Column:</u> Premium and Other Deposit Funds (Column 6) IF the amount of FHLB Funding Reserves from Note 11.B(4)(b) suggests funding agreements are not reported in Column 2 of Exhibit 7 + Synthetic GICS <u>Page:</u> Exhibit 5 – Interrogatories <u>Line:</u> 7.1
Derivatives–Notional Value (absolute value)	75	Derivatives – Notional Value (absolute value) <u>Pages:</u> Schedule DB, Part A; Schedule DB, Part B, Section 1 <u>Column:</u> Notional Value (sum all)
Securities Lending	2	Securities Lending Collateral Assets <u>Pages:</u> Schedule DL, Part 1; Schedule DL, Part 2 <u>Line:</u> Total (9999999) <u>Column:</u> Fair Value
Repurchase Agreements	1	Repurchase Agreements <u>Page:</u> Notes to Financial Statement Investments Restricted Assets <u>Line:</u> Sum of 05L1C, 05L1D, 05L1E, 05L1F <u>Column:</u> Total (General Account Plus Separate Account)

Borrowed Money (includes commercial papers, letters of credit, etc.)	1	Borrowed Money <u>Page:</u> Liabilities <u>Line:</u> Borrowed Money (22) <u>Column:</u> Current Year
---	---	--

ⁱ In performing the addition of the FHLB funding agreement amount to the GICs amount, NAIC staff discovered that the reporting of FHLB funding agreements is not consistent in Exhibit 7, Deposit-Type Contracts. The source of the FHLB amount is Note 11.B(4)(b):

Line: Funding agreements, current year, amount as of the reporting date, borrowing from FHLB, collateral pledged to FHLB Column: Funding Agreement Reserves Established

For some insurers, we were able to match amounts from the FHLB funding agreement footnote to the exact same amount in Exhibit 7, either Column 2 (GICs) or Column 6 (Premiums and Other Deposit Funds). For those insurers where the FHLB amount matched Exhibit 7, Column 2, we did not add the FHLB funding agreement amount to the GICs amount, because that would be double-counting the FHLB funding agreements. For other insurers, even though the amounts did not match exactly, we were able to assume the FHLB funding agreements were reported in either Column 2 or Column 6 (e.g., the amount in Exhibit 7, Column 2 was zero or much smaller than the FHLB note, while the Column 6 amount was larger). However, for several insurers, we were not able to make an informed assumption (e.g., both Column 2 and Column 6 amounts were larger than the FHLB funding agreement amount). To be conservative in these instances, we added the FHLB funding agreement amount to the GICs amount. Overall, for the \$10 billion threshold, adding FHLB funding agreements to GICs does not result in a different list of insurance groups from the list with GICs of more than \$10 billion.

Annex 2: Regulatory Prescribed Assumptions

Annex 2i. Economic and Market Variables from the 2017 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule

Table A.3 Baseline Scenario

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Level			
													Dow Jones Total Stock Market Index	House Price Index	Commercial Real Estate Price Index	Market Volatility Index
Q1 2017	2.2	4.3	2.2	4.3	4.7	2.4	0.6	1.7	2.5	4.2	4.2	3.8	23,551	184	298	19.0
Q2 2017	2.3	4.3	2.5	4.6	4.6	2.4	0.7	1.9	2.6	4.4	4.3	3.9	23,831	185	301	20.3
Q3 2017	2.4	4.5	2.9	5.0	4.6	2.3	0.9	2.0	2.7	4.5	4.4	4.1	24,123	187	305	19.3
Q4 2017	2.3	4.5	2.7	4.8	4.5	2.3	1.1	2.2	2.9	4.6	4.5	4.3	24,422	188	309	19.4
Q1 2018	2.4	4.6	2.9	4.9	4.5	2.3	1.3	2.3	3.0	4.7	4.6	4.4	24,727	189	313	19.2
Q2 2018	2.4	4.7	2.6	4.7	4.5	2.3	1.5	2.4	3.1	4.8	4.7	4.6	25,042	190	317	19.2
Q3 2018	2.4	4.6	2.6	4.7	4.4	2.3	1.7	2.6	3.2	4.9	4.8	4.8	25,354	191	321	19.3
Q4 2018	2.3	4.5	2.4	4.6	4.4	2.4	1.9	2.7	3.3	5.0	5.0	5.0	25,668	193	325	19.4
Q1 2019	2.0	4.2	2.2	4.3	4.5	2.3	2.2	2.8	3.4	5.1	5.0	5.2	25,968	194	327	19.8
Q2 2019	2.1	4.2	2.3	4.3	4.6	2.3	2.4	2.9	3.4	5.1	5.1	5.5	26,269	195	330	20.0
Q3 2019	2.1	4.1	2.2	4.3	4.6	2.2	2.6	2.9	3.5	5.2	5.1	5.7	26,571	197	332	20.2
Q4 2019	2.0	4.1	2.2	4.2	4.7	2.2	2.8	3.0	3.5	5.2	5.2	5.9	26,874	198	335	20.3
Q1 2020	2.0	4.0	2.1	4.0	4.7	2.1	2.9	3.0	3.5	5.2	5.2	5.9	27,173	200	337	20.2

Table A.5 Adverse Scenario

Date	Real GDP growth	Nominal GDP growth	Real disposable income growth	Nominal disposable income growth	Unemployment rate	CPI inflation rate	3-month Treasury rate	5-year Treasury yield	10-year Treasury yield	BBB corporate yield	Mortgage rate	Prime rate	Level			
													Dow Jones Total Stock Market Index	House Price Index	Commercial Real Estate Price Index	Market Volatility Index
Q1 2017	-1.5	0.9	0.7	2.4	5.2	1.8	0.1	1.7	2.3	5.6	4.7	3.3	15,960	181	291	37.1
Q2 2017	-2.8	-0.7	-0.6	1.1	5.8	1.8	0.1	1.8	2.4	5.9	4.9	3.3	15,042	179	283	32.7
Q3 2017	-2.0	0.0	-0.5	1.1	6.3	1.8	0.1	1.8	2.5	6.1	5.1	3.3	14,290	176	275	34.4
Q4 2017	-1.5	0.5	-0.5	1.2	6.8	1.8	0.1	1.9	2.5	6.2	5.2	3.2	13,982	173	267	32.0
Q1 2018	-0.5	1.4	0.2	1.9	7.1	1.8	0.1	1.9	2.6	6.0	5.2	3.2	14,367	170	259	28.5
Q2 2018	1.0	3.0	0.6	2.4	7.3	2.0	0.1	1.9	2.7	5.8	5.2	3.2	15,001	166	254	25.8
Q3 2018	1.4	3.3	1.0	2.7	7.4	2.0	0.1	2.0	2.7	5.6	5.1	3.2	15,693	163	250	23.6
Q4 2018	2.6	4.4	1.5	3.4	7.3	2.1	0.1	2.0	2.7	5.4	5.1	3.2	16,603	161	249	21.6
Q1 2019	2.6	4.3	1.6	3.5	7.2	2.1	0.1	2.0	2.7	5.2	5.0	3.2	17,519	161	249	20.1
Q2 2019	3.0	4.6	2.1	3.8	7.1	2.0	0.1	2.0	2.7	5.0	4.9	3.2	18,514	161	251	18.7
Q3 2019	3.0	4.5	2.2	3.8	7.0	2.0	0.1	2.0	2.7	4.8	4.8	3.2	19,243	162	255	18.2
Q4 2019	3.0	4.5	2.1	3.8	6.9	1.9	0.1	2.0	2.7	4.7	4.8	3.2	20,025	163	259	17.6
Q1 2020	3.0	4.5	2.0	3.5	6.8	1.8	0.1	2.0	2.7	4.5	4.7	3.2	20,867	164	262	17.3

Source: 2017 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule

<https://www.federalreserve.gov/publications/2017-june-dodd-frank-act-stress-test-appendix-a-supervisory-scenarios.htm>

Annex 2ii. Market Capacity Assumption

Illustrative Example only

Step 1: Estimate Unconstrained Sales Per Day

Insurer A has a \$100 billion portfolio of investment-grade corporate bonds, priced at par. Insurer A estimates that it holds approximately 5% of outstanding corporate bonds. In the adverse liquidity stress scenario, Insurer A's unconstrained liquidity stress testing model assumes that it can sell:

Time Horizon	% Able to Be Sold	Sale Price	Total Sale	Sales / Day
First 30 Days	10%	97	\$9.7 B	\$440 M
31-90 Days	20%	94	\$18.8 B	\$430 M
91-365 Days	50%	90	\$45.0 B	\$230 M

Step 2: Add Market Capacity Constraint

Assume the average daily trading volume in the secondary market for investment grade corporate bonds has been \$13.0 Billion over the past year. Insurer A estimates that trading volumes would decline by 40% in the adverse liquidity stress scenario to \$8.0 B per day.

Since Insurer A is 5% of the market, Insurer A can only trade \$400 M per day (\$8B x 5%) without paying a significant illiquidity premium and impacting the overall market.

Insurer A then repeats this process for every asset class in its investment portfolio.

Time Horizon	Unconstrained Sales / Day	Market Capacity Assumption	Impact
First 30 Days	\$440 M	\$400 M	(\$40 M)
31-90 Days	\$430 M	\$400 M	(\$30 M)
91-365 Days	\$230 M	\$400 M	\$0

Annex 2iii. Structured Spreads over Treasuries

Structured Spreads Over Treasuries						
Asset Type	Baseline	1 Mo.	3 Mo.	6 Mo.	9 Mo.	12 Mo.
Agency MBS	X	X	X	X	X	X
Non-Agency MBS	X	X	X	X	X	X
CMBS	X	X	X	X	X	X
CLO/CDO	X	X	X	X	X	X
ABS-Cards	X	X	X	X	X	X
ABS-Auto	X	X	X	X	X	X
Source: JPMorgan						
Asset Type	Tab	Column	Notes			
Agency MBS	U.S.	IC	10yr Spreads			
Non-Agency MBS*	CDO-col	S	10yr AA Spreads. Use dates prior to liquidity event			
CMBS	U.S.	GG	10 yr AA Spreads			
CLO/CDO	CDO-lia	R	AA 7-10 yr LIBOR spreads			
ABS-Cards	U.S.	W	AAA 5yr Spreads			
ABS-Auto	U.S.	AT	Near prime AAA 3yr Spreads			
*-Values for all categories except Non-agency MBS will begin with the Lehman collapse. Values for Non-agency MBS will be determined before the collapse since there is no spread data available subsequent to the Lehman Column reference is to the JPMorgan ABS Weekly Asset Spreads Spreadsheet						

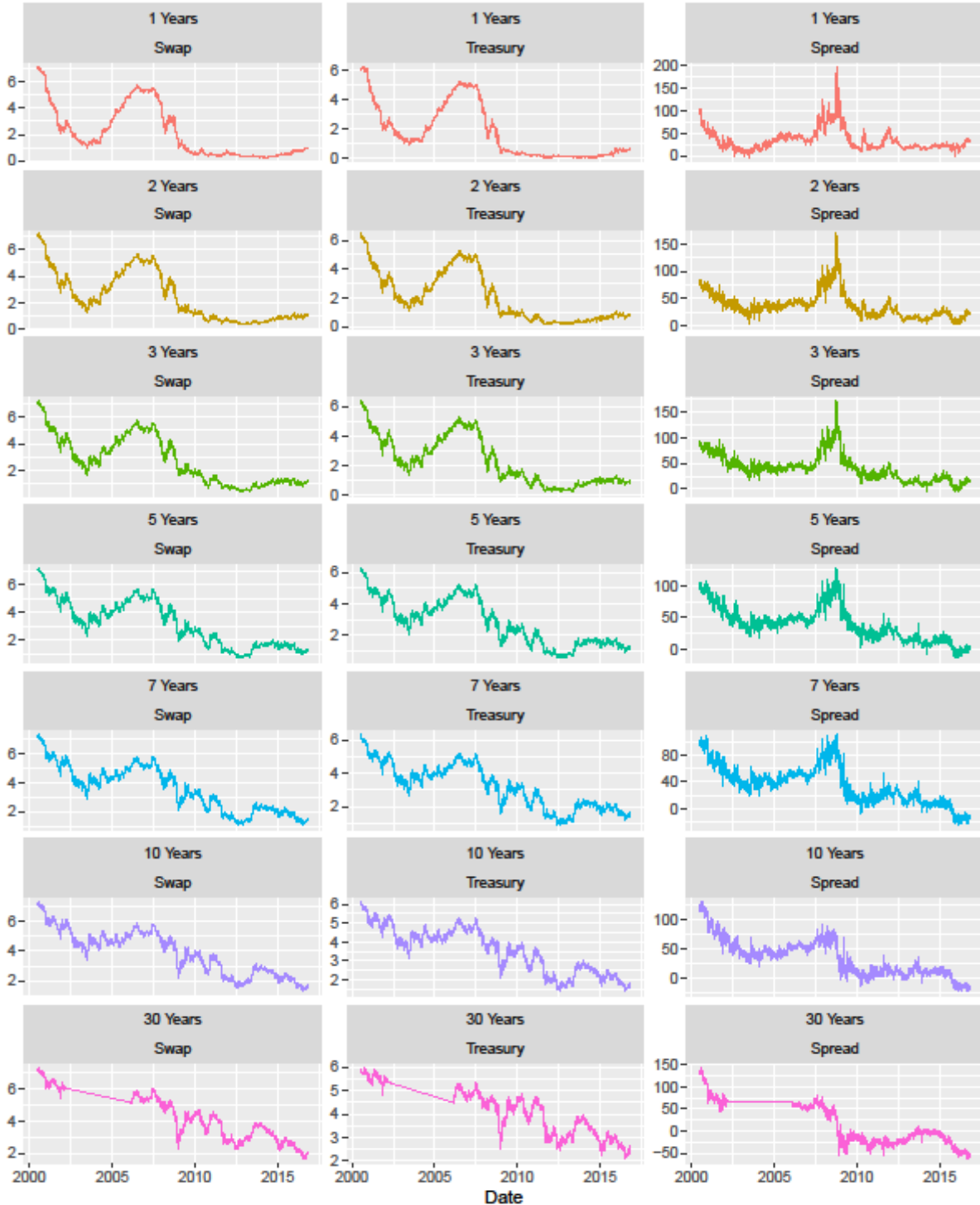
Annex 2iv. SWAP Spread Table

Swap Spreads ^{1,2}						
Maturity	Baseline	1 Mo.	3 Mo.	6 Mo.	9 Mo.	12 Mo.
3 Mo.	X	X	X	X	X	X
5 Yr	X	X	X	X	X	X
10 Yr	X	X	X	X	X	X
20 Yr	X	X	X	X	X	X
30 Yr	X	X	X	X	X	X

1 - (Nominal) Swap Spreads (in BPS)

2 - IR Par Swap Spreads for USD, EUR, JPY, GBP, AUD and CAD

Timeseries of Swap Rates, Treasury Rates, and Swap Spreads



Swap and Treasury rates from H.15 (via FRED).
Spread paid by fixed-rate payer on an interest rate swap over constant maturity Treasury at the given maturities.

Source: Federal Reserve

Annex 2v. Implied Volatility of IR Swaptions

Implied Volatility		
Implied Normal Volatility of IR Swaption by Tenor and Expiry		
Time Horizon 0		
Tenor/Expiry	3Y	7Y
3 Mo.	X	X
3Y	X	X
5Y	X	X
7Y	X	X
10Y	X	X

Annex 2vi. Credit Assumptions: Moody's Transition Matrix/Migration Rates

Exhibit 39 Average one-year alphanumeric rating migration rates, 1983-2019
 Source: Moody's Investors Service

[Back to Table of Contents](#)

	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca-C	WR	DEF
Aaa	87.07%	5.32%	2.27%	0.57%	0.30%	0.15%	0.02%	0.06%	0.00%	0.02%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.18%	0.00%
Aa1	1.64%	76.74%	7.99%	5.87%	1.43%	0.90%	0.18%	0.12%	0.08%	0.01%	0.04%	0.00%	0.01%	0.04%	0.03%	0.01%	0.02%	0.02%	0.00%	0.00%	4.87%	0.00%
Aa2	1.04%	4.30%	73.50%	10.14%	3.47%	1.65%	0.40%	0.09%	0.16%	0.07%	0.03%	0.02%	0.00%	0.03%	0.01%	0.02%	0.00%	0.02%	0.00%	0.00%	5.06%	0.00%
Aa3	0.16%	1.05%	4.17%	75.34%	8.74%	3.53%	0.83%	0.24%	0.24%	0.12%	0.03%	0.03%	0.01%	0.01%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	5.44%	0.04%
A1	0.05%	0.09%	1.10%	5.18%	76.10%	7.53%	2.73%	0.62%	0.44%	0.19%	0.17%	0.12%	0.04%	0.06%	0.01%	0.01%	0.01%	0.01%	0.01%	0.00%	5.46%	0.06%
A2	0.06%	0.03%	0.20%	1.03%	5.86%	76.40%	7.26%	2.55%	1.00%	0.37%	0.17%	0.13%	0.16%	0.05%	0.03%	0.01%	0.02%	0.02%	0.01%	0.00%	4.61%	0.04%
A3	0.04%	0.04%	0.09%	0.30%	1.49%	6.37%	75.35%	6.84%	2.64%	0.87%	0.35%	0.15%	0.12%	0.10%	0.03%	0.02%	0.03%	0.01%	0.00%	0.01%	5.08%	0.06%
Baa1	0.01%	0.02%	0.07%	0.11%	0.20%	1.56%	6.74%	75.57%	6.80%	2.25%	0.61%	0.31%	0.21%	0.25%	0.06%	0.03%	0.05%	0.03%	0.01%	0.02%	4.95%	0.12%
Baa2	0.03%	0.04%	0.02%	0.06%	0.16%	0.58%	1.90%	6.68%	75.57%	6.42%	1.32%	0.62%	0.43%	0.32%	0.19%	0.09%	0.10%	0.01%	0.02%	0.01%	5.29%	0.16%
Baa3	0.02%	0.01%	0.02%	0.04%	0.07%	0.17%	0.45%	1.83%	9.03%	72.93%	4.78%	2.02%	0.97%	0.69%	0.26%	0.25%	0.14%	0.07%	0.06%	0.04%	5.94%	0.22%
Ba1	0.02%	0.00%	0.02%	0.02%	0.16%	0.13%	0.21%	0.68%	2.38%	10.29%	65.57%	5.22%	4.00%	1.64%	0.59%	0.50%	0.13%	0.22%	0.04%	0.12%	7.68%	0.40%
Ba2	0.00%	0.00%	0.02%	0.02%	0.07%	0.11%	0.15%	0.35%	0.70%	3.73%	8.16%	64.35%	6.36%	3.73%	1.36%	0.91%	0.30%	0.19%	0.09%	0.13%	8.59%	0.68%
Ba3	0.00%	0.01%	0.02%	0.01%	0.06%	0.16%	0.17%	0.09%	0.44%	0.77%	2.87%	6.84%	64.32%	6.96%	3.17%	1.93%	0.67%	0.39%	0.09%	0.12%	9.64%	1.27%
B1	0.01%	0.01%	0.02%	0.01%	0.05%	0.03%	0.07%	0.09%	0.18%	0.35%	0.66%	2.89%	6.74%	63.66%	6.16%	4.40%	1.33%	0.70%	0.21%	0.25%	10.36%	1.82%
B2	0.00%	0.01%	0.00%	0.01%	0.02%	0.02%	0.09%	0.11%	0.13%	0.24%	0.22%	0.67%	2.12%	7.57%	62.11%	7.90%	3.59%	1.73%	0.41%	0.47%	9.75%	2.81%
B3	0.01%	0.00%	0.02%	0.00%	0.03%	0.03%	0.06%	0.03%	0.04%	0.10%	0.14%	0.23%	0.79%	2.39%	6.19%	60.60%	7.30%	3.26%	1.07%	0.80%	12.54%	4.37%
Caa1	0.00%	0.01%	0.00%	0.00%	0.00%	0.01%	0.00%	0.02%	0.01%	0.03%	0.06%	0.11%	0.25%	0.49%	1.29%	7.58%	59.48%	8.89%	2.57%	1.24%	13.97%	4.00%
Caa2	0.00%	0.00%	0.02%	0.00%	0.02%	0.01%	0.00%	0.00%	0.04%	0.08%	0.04%	0.04%	0.14%	0.37%	0.81%	2.15%	7.32%	56.35%	5.88%	2.87%	15.69%	8.17%
Caa3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.06%	0.03%	0.03%	0.16%	0.15%	1.04%	3.06%	8.74%	45.48%	8.62%	14.48%	18.15%	
Ca-C	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.03%	0.00%	0.00%	0.00%	0.23%	0.13%	0.17%	0.09%	0.37%	1.70%	1.95%	3.29%	4.60%	38.13%	21.17%	28.13%

Source: Moody's

Annex 2vii. Credit Assumptions: Moody's Default Table

Exhibit 45 Average cumulative issuer-weighted global default rates by letter rating, 1983-2015 [Back to Table of Contents](#)

Source: Moody's Investors Service

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Aaa	0.00%	0.01%	0.01%	0.04%	0.06%	0.09%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%
Aa	0.02%	0.06%	0.11%	0.20%	0.31%	0.40%	0.50%	0.58%	0.66%	0.75%	0.85%	0.97%	1.10%	1.19%	1.27%	1.36%	1.47%	1.62%	1.83%	2.02%
A	0.06%	0.17%	0.36%	0.55%	0.79%	1.05%	1.32%	1.61%	1.88%	2.15%	2.42%	2.68%	2.95%	3.25%	3.59%	3.94%	4.30%	4.69%	5.01%	5.32%
Baa	0.17%	0.42%	0.72%	1.08%	1.45%	1.82%	2.17%	2.53%	2.90%	3.30%	3.73%	4.18%	4.68%	5.20%	5.70%	6.23%	6.73%	7.18%	7.56%	7.84%
Ba	0.85%	2.41%	4.24%	6.19%	7.92%	9.54%	11.01%	12.40%	13.75%	15.11%	16.32%	17.55%	18.67%	19.72%	20.84%	21.91%	22.86%	23.74%	24.67%	25.29%
B	3.21%	7.69%	12.33%	16.54%	20.37%	23.76%	26.76%	29.34%	31.66%	33.63%	35.34%	36.90%	38.45%	40.11%	41.56%	42.97%	44.35%	45.73%	46.92%	48.18%
Caa-C	9.52%	16.99%	23.36%	28.74%	33.31%	36.92%	40.08%	42.98%	45.59%	47.68%	49.34%	50.34%	50.98%	51.32%	51.78%	52.45%	52.92%	53.36%	53.89%	54.26%
IG	0.09%	0.24%	0.43%	0.65%	0.90%	1.15%	1.40%	1.64%	1.89%	2.14%	2.40%	2.67%	2.95%	3.24%	3.54%	3.85%	4.16%	4.47%	4.75%	5.00%
SG	4.08%	8.27%	12.27%	15.82%	18.90%	21.54%	23.83%	25.83%	27.66%	29.27%	30.67%	31.95%	33.16%	34.35%	35.49%	36.60%	37.60%	38.56%	39.49%	40.27%
All	1.63%	3.25%	4.75%	6.03%	7.12%	8.02%	8.80%	9.47%	10.07%	10.62%	11.11%	11.58%	12.03%	12.48%	12.92%	13.36%	13.77%	14.17%	14.54%	14.86%

Source: Moody's

Annex 2viii. Credit Assumptions: Moody's Recovery Rate Table

Exhibit 8 Average corporate debt recovery rates measured by ultimate recoveries, 1987-2019

Source: Moody's Investors Service

Priority position	Emergence Year			Default Year		
	2019	2018	1987-2019	2019	2018	1987-2019
Loans	70.2%	78.4%	80.0%	67.6%	77.1%	80.0%
Senior Secured Bonds	51.5%	48.3%	61.9%	50.0%	49.9%	61.9%
Senior Unsecured Bonds	16.0%	30.1%	47.0%	18.7%	19.4%	47.0%
Subordinated Bonds	24.7%	6.9%	28.0%	24.7%	13.9%	28.0%

Source: Moody's