NGM Change Management

Touchstone

Revision History

Date	Description
February 2024	Updates for Touchstone 2023 (11.5)
June 2023	Original release

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NGM and change management

® 2023 (11.5), released with Verisk's Next Generation Models (NGM), includes a new framework for financial modeling so that clients can understand the impact to their losses from the new financial engine.

Approaches to change management

Recommendations for assessing change management in Touchstone 2023 (11.5).

The new release of Touchstone (a.k.a. NGM) comes with many benefits, including a new loss accumulation methodology, new sub-peril model framework, and the ability to model new policy terms and conditions. Therefore, when approaching change management, we recommend performing this exercise using a two-tiered approach, as described below:

- **Tier one change management** – Entails keeping exposures constant to isolate the loss drivers coming from the updated financial engine.
- **Tier two change management** – Enables users to incorporate enhanced policy terms and conditions to understand their new view of risk.

Tier one change management

Isolating the impact of Touchstone's financial engine methodology changes.

Before continuing, here are a few things to keep in mind for these exercises to be meaningful:

- Exposure and analysis options are meant to be kept constant between earlier versions of Touchstone and Touchstone NGM loss runs so that users can see the full impact of the methodology changes and isolate various loss drivers.
- These two exercises which will require a combined total of three analyses to be performed.
- Ensure the environment is set up with the recommended space and memory guidelines as outlined in the *Technical Specification Touchstone/Touchstone Re* and/or the *System Recommendations: Touchstone/Touchstone Re*.

Exercise 1: Total methodology changes

Touchstone financial engine methodology changes; impact of total methodology exercise.

To see the full impact of Touchstone's methodology changes, the first step is to perform two runs for the same model with the equivalent analysis settings across each financial module. These settings should match your current view of risk.

- Analysis 1: Touchstone 2022 (10.0)
- Analysis 2: Touchstone 2023 (11.5)

By comparing the exceedance probability (EP) curves between Analysis 1 and Analysis 2, you will be able to see the impacts the new financial engine will have across all EP points.

Exercise 2: Impact of correlation

Touchstone financial engine methodology changes; impact of correlation exercise.

One of the most fundamental changes to the loss accumulation methodology in Touchstone's financial engine is the inclusion of correlation. Currently, correlation is a loss analysis option that can be toggled on by the user to capture a user-defined amount of either inter- or intra-policy correlation. Verisk's new view of risk, however, has correlation turned on automatically and will be incorporated in the loss accumulation process by default. This change in methodology impacts the shapes of the underlying secondary uncertainty distributions and can, therefore, have an impact on gross losses after the probabilistic application of insurance terms.

In Touchstone 2023 (11.5), correlation cannot be toggled off. Therefore, to isolate the impact of correlation, this analysis will use the Touchstone 2022 NGM Technical Preview (10.0), where correlation can be toggled off as shown in the figure below.

- Analysis 3: Touchstone 2022 NGM Technical Preview (10.0) with correlation turned off

Note

Correlation does NOT impact <u>mean</u> ground up losses. Only loss perspectives that contemplate the impact of insurance or reinsurance terms will be impacted.

Tier two change management

Change management and new policy terms and conditions in the Touchstone financial engine.

One of the primary goals of the NGM framework is to give clients more flexibility when it comes to modeling policy terms and conditions. Over time, the complexity of these products has become more intricate, introducing new policy types that have historically been a challenge to model. With this release, Touchstone's modeling capabilities have expanded to explicitly support a new suite of policy terms and conditions. This flexibility will ensure that policies are being modeled with more accuracy than had previously been possible.

To take advantage of these new capabilities, users will need to update their exposure to reflect newly available terms that are present in the policies they are modeling. A full list of the new types of terms available in Touchstone 2023 (11.5) has been provided below. Please note that while these terms are now available, analyses can indeed fail when run with the updated terms in earlier versions of Touchstone, as they are not yet supported.

- Location terms:
  - Min/max deductible
  - Aggregate deductible
  - Aggregate limit
- Policy + layer terms:
  - Aggregate excess layers and sublimits

- ◦ Sub-limit by secondary peril
- ◦ 2nd and 3rd tier sub-limits (nested sub-limits)
- ◦ Coverage deductible
- ◦ Combined deductible
- ◦ Coverage occurrence layer
- Facultative + treaty reinsurance
  - ◦ Separate treaty target types for "location" and "layer"
  - ◦ Risk aggregate limit and retention
  - ◦ Risk limit reinstatements
  - ◦ Aggregate treaty retention
  - ◦ Facultative reinstatements

What follows are two examples for which these new terms can be utilized.

Example 1: Aggregate flood limit

Touchstone financial engine aggregate flood limit exercise.

Touchstone now has the capability of modeling annual aggregate terms that can extend across models/perils. For example, it can handle Aggregate Flood Limits that span both the U.S. Hurricane and U.S. Inland Flood models. Here is an example of that policy language:

"The liability of this Policy shall not exceed $5,000,000 in any one occurrence combined Property Damage and Time Element loss and in the Annual Aggregate for Storm Surge and Flood as described in the Policy."

This policy can now be explicitly modeled in Touchstone, capturing both the aggregate component of the condition and the multiple sources of flood loss spanning different peril models.

Example 2: Earthquake nested sub-limit

Touchstone financial engine earthquake nested sub-limit exercise.

Formerly Touchstone supported 1 tier of sub-limits prior to the application of layer terms. With the updated financial engine, Touchstone can support 2nd and 3rd tier sub-limits, called nested sub-limits. Here is an example of that policy language:

"$30,000,000 Limit for Earth Movement in the Aggregate during any policy year but not to exceed the following limits in the Aggregate during any policy year for property located in:

- *$20,000,000: California*
- *- $10,000,000: Los Angeles County*

With nested sub-limits users can set up a $30M layer limit for earthquake, with a first-tier sub-limit of $20M for all locations in California, as well as a second-tier sub-limit of $10M for all locations in Los Angeles County.

Additional loss change drivers

In addition to correlation and newly supported policy conditions as primary drivers of change, there are other components to the Touchstone financial engine update that can contribute to loss changes.

While correlation is a component of Touchstone's financial engine that users can easily toggle on and off, the following drivers of change are embedded in the update. If you are

interested in digging deeper into these additional change drivers, please reach out to your Verisk representative for more information.

Secondary uncertainty distributions

Secondary uncertainty distributions are loss change drivers in the Touchstone financial engine.

What has been updated?

The building blocks of the loss accumulation process are the secondary uncertainty distributions that sit underneath each and every mean loss shown in Touchstone. The updated distributions are closer to reality as dictated by actual claims data and allow for increased accuracy in the modeling of insurance terms. Many models now have these distributions updated for the production release (see list below). Updates to the secondary uncertainty distributions are the only updates that have the potential to impact ground-up losses (as well as any downstream financial perspective).

Models with secondary uncertainty updates in release 2023 (11.5):

- Verisk Earthquake Model for Alaska (Model 14)
- Verisk Earthquake Model for Canada (Model 12)
- Verisk Earthquake Model for Central America (Model 76)
- Verisk Earthquake Model for Mainland China (Model 55)
- Verisk Earthquake Model for Hawaii (Model 13)
- Verisk Earthquake Model for Mexico (Model 72)
- Verisk Earthquake Model for the Pan-European Region (Model 31)
- Verisk Earthquake Model for Southeast Europe (Model 33)
- Verisk Hurricane Model for the United States (Model 21)
- Verisk Inland Flood Model for Great Britain (Model 92)
- Verisk Inland Flood Model for Southeast Europe (Model 94)
- Verisk Tropical Cyclone Model for Central America (Model 67)
- Verisk Tropical Cyclone Model for Australia (Model 61)
- Verisk Tropical Cyclone Model for Hawaii (Model 23)
- Verisk Tropical Cyclone Model for India (Model 68)
- Verisk Tropical Cyclone Model for Mexico (Model 29)
- Verisk Typhoon Model for Mainland China (Model 65)
- Verisk Typhoon Model for South Korea (Model 66)
- Verisk Winter Storm Model for the United States (Model 28)

Is this impacting my portfolio?

During internal testing, we have found that the impacts of this change are most significant when modeling portfolios that have both location deductibles and location limits, especially when the location limit value is less than or equal to the replacement value of the risk. In addition, portfolios that have offshore locations with a CSL100 (Combined Single Limit 100% participation) or CSLAI (Combined Single Limit Assured Interest) limit can have a more significant impact.

Primary vs excess layers

Layers and loss change drivers in the Touchstone financial engine.

What has been updated?

The two loss drivers mentioned thus far (correlation and secondary uncertainty distributions) will inherently change the shape of the loss distribution once they have been accumulated to the layer level. Due to this change in shape, the proportion of the loss distribution that is covered by insurance is going to have an impact on the directional change of the policy losses. This can be seen when comparing the change behavior of primary vs. excess layers in an insurance tower. Primary layers will cover losses starting from the first dollar entering the layer, while excess layers will cover a portion of the distribution that exceeds a certain attachment point. Given these two types of coverage will cover different portions of the loss distribution, the way in which the distribution has changed shape within each area of coverage will determine whether losses increase or decrease; see figure below.
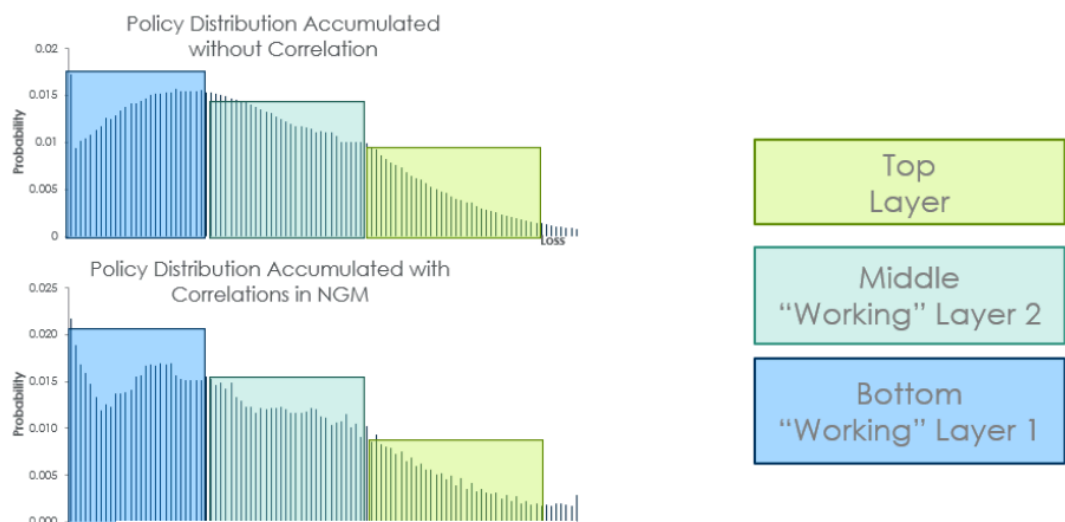

Figure 1. Impact on gross loss depends on position, type of financial terms, and size of coverage

Is this impacting my portfolio?

This will impact portfolios that have layer coverages that do not cover the entire value of the policy. Any policy terms that cover a portion of the total loss can experience changes representative of the changes in shapes to the underlying secondary uncertainty distributions.

Min/max deductible workflow

Overview of min/max deductible workflow and loss change drivers in the Touchstone financial engine.

What has been updated?

Touchstone 2023 (11.5) introduces a more accurate way of handling min, max, and min/max deductible terms in the loss calculation process. This method has been improved to ensure

that all financial terms are considered within the logic tree that determines which deductible scenario is most appropriate during each event loss calculation. For more information and an example scenario.

Is this impacting my portfolio?

The min/max methodology has been revised. This will have an impact on portfolio modeling if:

1. The portfolio contains policies with min/max terms at the layer level and sublimits or location site limits.

2. Previous modeling has been performed using min/max methodology from earlier releases.

Probabilistic application of reinsurance

Probabilistic application of reinsurance and loss change drivers in the Touchstone financial engine.

What has been updated?

Previously in Touchstone only reinsurance treaties with an inuring order of 1 will be applied probabilistically. With the Touchstone 2023 (11.5) release, all tiers of reinsurance (with the exception of Cat XOL treaties) will be applied probabilistically.

Is this impacting my portfolio?

Portfolios/contracts with reinsurance treaties that inure to the benefit of other treaties will experience loss changes for the Net of Pre-Cat perspective.

Order of application: deductibles before limits

Order of application in the Touchstone financial engine.

What has been updated?

While the former Touchstone default behavior was to apply location limits before deductibles for residential policies, Touchstone 2023 (11.5) is reversing this default setting to apply deductibles before limits for all policies.

Is this impacting my portfolio?

If the former default option of limits before deductibles has been used, residential portfolios that contain risks with both location limits and deductibles will be impacted by this change. The scale of loss change can vary depending on the specific deductible and limit values for the risk being modeled.

About Verisk

Verisk Analytics (Verisk) provides risk modeling solutions that make individuals, businesses, and society more resilient to extreme events. In 1987, a Verisk subsidiary founded the catastrophe modeling industry and today models the risk from natural catastrophes, terrorism, pandemics, casualty catastrophes, and cyber incidents. Insurance, reinsurance, financial, corporate, and government clients rely on Verisk's advanced science, software, and consulting services for catastrophe risk management, insurance-linked securities, longevity modeling, site-specific engineering analyses, and agricultural risk management. Verisk (Nasdaq:VRSK) is headquartered in Jersey City, New Jersey with many offices throughout the United States and around the world. For information on our office locations, visit https://www.verisk.com/about/locations/.

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